TCO Brief

MODERNIZE IT INFRASTRUCTURE, DO MORE WITH LESS

2nd Gen Intel® Xeon® Scalable Processor Platform

Be Ready for the Future on Your Terms

Modernisation is the first step to transforming IT from a cost centre to a profit-driving engine for modern, data-driven businesses. Intel has a growing and differentiated portfolio of data-centric technologies designed for modern infrastructure that will accelerate a range of business-critical workloads and speed up the rate that value comes from data. This includes 2nd Gen Intel® Xeon® Scalable processors combined with Intel® Optane™ DC Solid State Drives (SSDs).

Performance to Propel Insights

The new 2nd Gen Intel Xeon Scalable processors deliver outstanding improvements in performance, whether investing in a new infrastructure or refreshing to the latest generation.

2014 doesn't feel that long ago, but with up to 4.3X performance improvement, 2nd Gen Intel Xeon Scalable processors bring transformational upgrades to dated infrastructure across a wide range of applications.

OLTP Database

HammerDB

2nd Gen
Intel® Xeon® Platinum 8280 Processor and Intel® SSD DC P4610 Series

UP TO 3.7X[1] HIGHER PERFORMANCE VS 5-YEAR-OLD SYSTEM

Intel® Xeon® E5-2697 v2 Processor

Big Data

BigBench (3 TB)

2nd Gen
Intel® Xeon® Gold 6248 Processor

UP TO 2.3X[2] FASTER TIME TO INSIGHTS VS 5-YEAR-OLD SYSTEM

Intel® Xeon® E5-2697 v2 Processor

HiBench

2nd Gen
Intel® Xeon® Gold 6248 Processor

UP TO 4.3X[3] HIGHER PERFORMANCE VS 5-YEAR-OLD SYSTEM

Intel® Xeon® E5-2697 v2 Processor

Benefits of the Latest Software and Hardware Innovation

Modernising IT infrastructure with Windows* Server 2019 and Microsoft* SQL Server 2017 on 2nd Gen Intel Xeon Scalable processors accelerates innovation and delivers business value to decrease "technical debt", support expanding workloads and DevOps, improve data security, and deliver an easier path to hybrid cloud.

Decrease "Technical Debt"

Modernise legacy applications and infrastructure, lower TCO, improve efficiencies, and reduce unplanned downtime.

Support Expanding Workloads and DevOps

Get faster insights from data intensive workloads, speed time to market of new apps and services, and deliver self-service and developer-friendly tools.

Improve Data Security

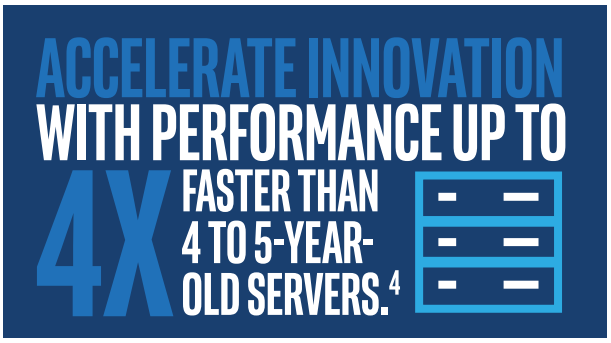
Trusted multilayer security and compliance is GDPR ready, delivers faster data recovery, and incorporates SDN for improved network security out to the edge.

Easier Path to Hybrid Cloud with Human-Computer Interaction (HCI)

Highly scalable performance with centralised management and orchestration enable agility with control for faster deployment of services.

Real TCO Benefits, and Fast

Don't let legacy infrastructure hold your business back. Realise up to 60% savings with fewer servers delivering similar levels of performance. Be ready to compete—today and in the future— with efficient, secure data centre solutions optimised with the 2nd Gen Intel Xeon Scalable processor platform. Can your customers afford to wait?



Performance results are based on testing by Intel as of February 2019 and may not reflect all publicly available security updates. See configuration disclosures for details. No product or component can be absolutely secure.

Software and workloads used in performance tests may have been optimised 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 a product when combined with other products. For more complete information visit www.intel.co.uk/benchmarks.

1. OLTP Warehouse claim of up to 3.7X: 1-node, 2 x Intel® Xeon® 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_65, 2 x Intel SSD DC P3700 PCI-E SSD for DATA, 2 x Intel SSD DC P3700 PCI-E SSD for REDO, HammerDB 3.1, HT on, Turbo on, result: transactions per minute=2242024, test by Intel on 01/02/2019. vs 1-node, 2 x Intel® Xeon® 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_65, 2 x Intel® SSD DC P4610 for DATA, 2 x Intel SSD DC P4610 for REDO, HammerDB 3.1, HT on, Turbo on, result: transactions per minute=8459206, test by Intel on 01/02/2019.
2. BigBench* claim of 2.3X: 1+4-node, 2 x Intel® Xeon® processor E5-2697 v2 on S2600JF with 128 GB (8 slots/16 GB/1866) total memory, ucode 0x42d on CentOS-7.6.1810, 4.20.0-1.el7.x86_64, 1 x 180 GB SATA3 SSD, 3x Seagate ST4000NM0033 (4 TB), 1 x Intel I350, TPCx-BB v1.2 (not for publication)/3 TB/2 Streams, Mllib, Oracle Hot-Spot 1.8.0_191, python-2.7.5, Apache Hadoop-2.9.2, Apache Spark-2.0.2, Hive 2.2 + CustomCommit, HT on, Turbo on, result: queries per min=265, test by Intel on 24/01/2019. 1+4-node, 2 x Intel® Xeon® Gold 6148 processor on S2600WF with 768 GB (384 GB used), (12 slots*/64 GB/2400 (384 GB used)) total memory, ucode 0x400000A on CentOS-7.6.1810, 4.20.0-1.el7.x86_64, Intel SSD DC S3710, 6 x Seagate ST2000NX0253 (2 TB), 1 x Intel X722, TPCx-BB v1.2 (not for publication)/3 TB/2 Streams, Mllib, Oracle Hot-Spot 1.8.0_191, python-2.7.5, Apache Hadoop-2.9.2, Apache Spark-2.0.2, Hive 2.2 + CustomCommit, HT on, Turbo on, result: queries per min=622, test by Intel on 12/01/2019.
3. HiBench claim of 4.3X: 1+4-node, 2 x Intel® Xeon® processor E5-2697 v2 on S2600JF with 128 GB (8 slots/16 GB/1866) total memory, ucode 0x42d on CentOS-7.6.1810, 4.20.0-1.el7.x86_64, 1 x 180 GB SATA3 SSD, 3 x Seagate ST4000NM0033 (4 TB), 1 x Intel I350, HiBench v7.1/bigdata, Mllib, OpenJDK-1.8.0_191, python-2.7.5, Apache Hadoop-2.9.1, Apache Spark-2.2.2, HT on, Turbo on, result: SparkKmeans=119.5M, HadoopKmeans=49.6M, SparkSort=121.4M, HadoopSort=103M, SparkTerasort=107.4M, HadoopTerasort=109M, test by Intel on 23/01/2019. 1+4-node, 2 x Intel® Xeon® Gold 6248 processor on S2600WF with 768 GB (384 GB used) (12 slots*/64 GB/2400 (384 GB used)) total memory, ucode 0x400000A on CentOS-7.6.1810, 4.20.0-1.el7.x86_64, Intel SSD DC S3710, 6 x Seagate ST2000NX0253 (2 TB), 1 x Intel X722, HiBench v7.1/bigdata, Mllib, OpenJDK-1.8.0_191, python-2.7.5, Apache Hadoop-2.9.1, Apache Spark-2.2.2, HT on, Turbo on, result: SparkKmeans=1235.8M, HadoopKmeans=92.8M, SparkSort=518.4M, HadoopSort=363.5M, SparkTerasort=589.3M, HadoopTerasort=457.3M, test by Intel on 23/01/2019
4. Per node 4x higher integer throughput performance: estimate based on SPECrate*2017_int_base on Intel internal platforms as of June 2018: 1 x node, 2 x Intel® Xeon® Processor E5-2690, 128 GB total memory, 16 slots/8 GB/1600 MT/s DDR3 RDIMM, Benchmark: SPEC CPU2017 V1.2, Compiler: Intel® Compiler IC17 update 2, Optimised libraries/versions: IC18.0_20170901, Other Software: MicroQuill SMART HEAP. uCode: 713, OS: Red Hat Enterprise Linux* 7.4, Kernel: 3.10.0-693.11.6.el7.x86_64 x86_64, Score 65.5 vs. 1 x Node, 2 x Intel® Xeon® Platinum 8180 Processor, 384 GB total memory, 12 slots/32 GB/2666 MT/s DDR4, Benchmark software: SPEC CPU® 2017, Compiler: Intel® Compiler IC18 OEM, Optimised libraries: AVX512, ucode:0x043, Red Hat Enterprise Linux* 7.4, 3.10.0-693.11.6.el7.x86_64, Score: 281. Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specifed circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.
5. The benchmark results may need to be revised as additional testing is conducted. The results depend on the specific platform configurations and workloads utilised in the testing, and may not be applicable to any particular user's components, computer system, or workloads. The results are not necessarily representative of other benchmarks, and other benchmark results may show greater or lesser impact from mitigations. Performance tests, such as SYSmark and MobileMark, are measured using specifc 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 a product when combined with other products. For more complete information visit www.intel.co.uk/benchmarks. Configuration details: Up to 60% TCO savings with Intel® Xeon® Scalable processor compared to 5-year old system. Example based on estimates as of June 2018 of equivalent rack performance over 4-year operation on integer throughput workload (estimate based on SPECrate*2017_int_base on Intel internal platforms) running VMware vSphere Enterprise Plus on Red Hat Enterprise Linux Server and comparing 20 installed 2-socket servers with Intel® Xeon® processor E5-2690 (formerly "Sandy Bridge-EP") at a total cost of $737,460 [Per server cost $36,800: acquisition=$12,500, infrastructure and utility = $4500, OS and software = $10,200, maintenance = $9700] vs 5 new Intel® Xeon® Platinum 8180 (Skylake) at a total cost of $294,540 [Per server cost $58,900: acquisition = $12,500, infrastructure and utility = $10,100, OS and software = $10,100, maintenance = $9700]. Assumptions based on https://xeonprocessoradvisor.intel.com, assumptions as of 6 June 2018.

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