Hewlett Packard Enterprise

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HPE SERVER PERFORMANCE BENCHMARKS

Newsletter

October 2021

HPE servers once again rule with world performance records on Intel® leader board!

Total of **36** HPE #1 results with 2nd and 3rd Generation Intel® Xeon® Scalable Processors on leader board

Competitive benchmarking is a valuable tool for companies who want to be ahead of the game in today's market.

HPE is a front-runner in Competitive Benchmarking with **101 records** and **49 first records** in server performance, scalability, and efficiency

Higher performance means faster response times, and high scalability increases capacity by adding more resources.

HPE provides both performance and scalability to ensure a successful outcome for customers' businesses. HPE servers show leadership with 36 world records on the latest Intel leader board representing important workloads. Adding 38 sustaining world records, including those with AMD processors, HPE servers can claim 74 total records and 41 firsts.

Compelling performance for SAP ERP, SAP HANA, server-side Java, decision support, shared memory parallel processing, compute-intensive workloads, and energy efficiency while running 3rd Generation Intel Xeon Scalable processors

HPE Superdome Flex 280 - 4 processors		
SPECjbb® 2015 **Server-side Java**	4-processor world records: • #1 MultiJVM critical jOPS • #1 Composite max-jOPS	• #1 Composite critical-jOPS • #1 Distributed max-jOPS • #1 Distributed critical-jOPS Claims as of February 25, 2021
SPECpower_ssj® 2008 **Energy efficiency**	4-processor world records: • #1 energy-efficient 5U server • #1 energy-efficient 5U server on Linux®	• #1 energy-efficient 5U server on Windows®
SPEC® OMP 2012 **Shared memory parallel processing**	8-processor world record:	• #1 SPEC OMPG2012 result Claim as of June 18, 2021
TPC Benchmark* H (TPC-H) @ 30,000GB non-clustered **Decision support**	4-processor world records: • #1 overall performance and price/performance @ 30,000GB, non-clustered	• #1 price/performance @ 30,000GB, non-clustered Claims as of March 26, 2021
HPE Superdome Flex 280 - 8 processors		
SPECjbb® 2015 **Server-side Java**	8-processor world records: • #1 MultiJVM max-jOPS • #1 MultiJVM critical-jOPS	Leadership Intel Xeon performance: • #1 Distributed max-jOPS • #1 Distributed critical-jOPS Claims as of February 25, 2021
SPECpower_ssj 2008 **Energy efficiency**	8-processor world record: • #1 and *first* energy-efficient 10U server (first not listed on Intel leader board)	• #1 energy-efficient 10U server on Linux • #1 energy-efficient 10U server on Windows
SPEC CPU® 2017 **Compute-intensive, general purpose**	8-processor world records: • #1 SPECspeed*2017_int_base result • #1 SPECspeed2017_fp_base result • #1 SPECrate 2017_fp_base result	Leadership Intel Xeon performance on HPE platform: • #1 8P Intel Xeon SPECrate*2017_int-base Claims as of February 25, 2021

Intel leader board records and competitive claims for listed benchmark results are as of November 10, 2020, unless otherwise noted. See next pages for more wins and performance details.
For more information on the Intel leader board claims, see Intel leader board

Continued

Two-tier SAP® Sales and Distribution (SD) standard application benchmark **Enterprise resource planning**	8-processor world records:	• #1 8-processor result on Windows Claim as of January 25, 2021
SAP Business Warehouse (SAP BW) edition for SAP HANA® standard application benchmark **Data analytics**	8-processor overall world records (Total Runtime of Data Load/Transformation, Query Executions Per Hour, Total Runtime of Complex Query Phase)	• #1 8-processor world record on 11.7 billion initial records • #1 8-processor world record on 20.8 billion initial records

Intel leader board results with 2nd Generation Intel Xeon Scalable Processors

HPE servers	
SAP BW edition for SAP HANA standard application benchmark **Data analytics** **HPE Superdome Flex for SAP HANA**	16- and 32-processor overall world records (Total Runtime of Data Load/Transformation, Query Executions Per Hour, Total Runtime of Complex Query Phase): • #1 16-processor result with 20.8 billion initial records • #1 16-processor result with 41.6 billion initial records • #1 32-processor result with 41.6 billion initial records
SAP SD standard application benchmark, two-tier **Enterprise resource planning** **HPE Superdome Flex**	16-processor world record: • #1 bare-metal result on Windows Claim as of July 25, 2020
TPC-H @ 10,000GB non-clustered **Decision support** **HPE ProLiant DL380 Gen10 Plus**	2-processor world record: • #1 price/performance @ 10,000GB, non-clustered Claim as of March 15, 2021
TPC-H @ 3,000GB non-clustered **HPE ProLiant DL380 Gen10**	Leadership Intel Xeon performance on HPE platform: • #1 2P Intel Xeon processor performance @ 3,000GB, non-clustered Claim as of April 2, 2019. On Intel leader board, but no longer #1.
SPECjbb2015 **Server-side Java** **HPE Synergy 480 Gen10**	Leadership Intel Xeon performance on HPE platform: • #1 2P Intel Xeon processor result on Linux SPECjbb2015-Distributed max-jOPS • #1 2P Intel Xeon processor result on Linux SPECjbb2015-MultiJVM max-jOPS
HPE ProLiant DL360 Gen10	Leadership Intel Xeon performance on HPE platform: • #1 1P Intel result on Windows SPECjbb2015-MultiJVM max-jOPS • #1 1P Intel result on Windows SPECjbb2015-MultiJVM critical-jOPS
VMware® VMmark® 3.1 **Infrastructure/Virtualization** **HPE Synergy 480 Gen10**	• #1 and *first* 6-node VMmark 3.1.x result • #1 and *first* 6-node composable infrastructure VMmark 3.1.x result
HPE ProLiant DL380 Gen10 Plus	2-processor world records, uniform hosts: • #1 3 node result • #1 3-node 2P result • #1 3-node 240 cores Performance Only • #1 4-node 320 cores, Performance Only
SPECpower_ssj 2008 **Energy efficiency** **HPE Synergy 660 Gen10**	4-processor world records: • #1 energy-efficient Blade server on Windows • #1 energy-efficient Blade server on Linux Claims as of April 2, 2019

How these benchmarks bring HPE customer value

With our world record results on these benchmarks, customers can be assured that HPE servers are the answer to specific application needs.

Benchmark name	What it does	Customer value
SAP BW edition for SAP HANA standard application benchmark[1]	SAP's next-generation data warehouse solution that targets the modelling of an agile and flexible layered architecture of a modern data warehouse.	**Shows the performance of delivery of simple, open, flexible, and highly scalable solutions for in-memory computing.**
SAP SD standard application benchmark, two-tier[2]	Shows a server's capability in enterprise resource planning environments using either two or three tiers. It models a sell-from-stock scenario creating a customer order with five line items and corresponding delivery with subsequent goods movement and invoicing.	**Indicates the number of users, response times, and the amount of fully business processed line items per hour (SAPS) to help customers determine sizing requirements.**
SPECpower_ssj 2008[3]	Measures the energy-efficiency of single-node and multi-node servers which translates to cost savings and reduced environmental impact	**Displays quality of power management and overall system energy efficiency.**
SPECjbb2015	Shows a server's pure throughput as well as critical throughput under service-level agreements (SLAs) specifying response times from 10ms to 500s.	**For customers who run worldwide companies, it shows handling point-of-sale requests, online purchases, and data-mining operations.**
SPEC CPU 2017	This benchmark consists of 43 different benchmarks organized into four suites that model rich, compute-intensive environments in mathematics and sciences with a small focus on business applications.	**Customers can see the server's capability and speed in running applications related to real-world problems of R&D environments or highly specialized scientific and technical fields.**
SPEC OMP 2012	Measures the performance of the processor, memory architecture, parallel and support libraries and compiles using applications based on the OpenMP 3.1 standard for shared memory. There is also an optional power measurement metric.	**For compute-intensive applications, the benchmark includes 14 scientific and engineering codes. Customers can measure parallel processing performance on a given system.**
SPECvirt_sc® 2013	Shows a server's capability to consolidate multiple servers running different applications onto a single system with multiple virtual machines.	**Shows capability of enterprise-class virtual machines using four workloads on real-world traffic: a web server, a Java application server, an IMPAP server, and a batch server.**
TPC-H[4]	A suite of business-oriented ad-hoc queries and concurrent data modifications. It shows a server's capability in performing database queries in a wholesale supplier scenario modeling complex decision support applicators. TPC benchmark specifications and policies require the submittal of complete documentation on these tests, which are then reviewed by the TPC Council. In addition, all TPC benchmarks must be approved by a 3rd party, TPC-certified auditor. If a vendor's TPC benchmark test is determined to be executed improperly or unfairly, a vendor will have to withdraw the result. These rules protect users from misleading or false performance claims and preserves the credibility of TPC benchmark results.	**Is configured to represent the workloads of different-sized businesses. Shows query execution speed and cost of the system at different database sizes**
VMmark[5]	A free tool used by hardware vendors and others to measure the performance, scalability, and power consumption of virtualization platforms.	**Allows accurate and reliable benchmarking of virtual data center performance and consumption to determine the performance effects within a virtual environment. Customers can determine the performance effects of changes in hardware, software, or configuration within the virtualized environment.**

[1] sap.com/products/bw4hana-data-warehousing.html
[2] sap.com/about/benchmark/appbm/erp.html
[3] spec.org/benchmarks.html
[4] tpc.org/information/benchmarks5.asp
[5] vmware.com

HPE servers continue to hold numerous leadership results

HPE competitive benchmarking results give an important edge to successful sales techniques. HPE servers sustain world record status in performance and price/performance. The HPE portfolio of ProLiant Gen10 servers, Apollo servers, HPE Superdome Flex servers, and HPE Synergy Gen10 Compute Modules carry on, achieving worldwide records across the performance landscape.

The following lists additional current world records and industry-first successes with the latest and prior generation Intel Xeon and AMD EPYC™ processors.

Intel performance score cards

HPE ProLiant DL360 Gen10

SPECpower_ssj 2008

- *First 1U Linux server*
- *First 1U server to break the 12,000 overall ssj_ops/watt barrier*

HPE ProLiant DL380 Gen10

VMmark

- #1 2-node 2P VMmark 2.5.2
- *First published benchmark on VMmark 3.0 and 2.5.x with Intel Xeon Scalable Processors*

HPE ProLiant DL560 Gen10

SPECpower_ssj 2008

First 4P server with second-generation Intel Xeon processors to beat the 13,000 overall ssj_ops/watt barrier

HPE Synergy 480 Gen10

SPECpower_ssj 2008

- #1 12-node
- #1 12-node on Microsoft Windows
- #1 12-node on Linux
- *First 12-node system to beat the 11,000 overall ssj_ops/watt barrier*

VMmark

First and #1 overall Composable Infrastructure result on VMmark 3.0

- **for the 6-node result**
  - #1, *first, and only 6-node/*2P result
  - #1 6-node composable infrastructure result
- **for the 8-node result:**
  - #1 8-node composable infrastructure and *first* composable infrastructure results
- **for the 16-node result:**
  - #1 and *first* 16-node result
  - #1 and *first* 16-node/2P result
  - #1 and *first* 16-node composable infrastructure result
- **for the 24-node result**
  - #1 and *first* 24-node result
  - #1 and *first* 24-node/2P result
  - #1 and *first* 24-node composable infrastructure result

HPE server performance benchmarks newsletter

October 2021

HPE Synergy 660 Gen10

SPECpower_ssj 2008

- #1 4P Windows multi-node
- #1 4P 2-node, 3-node, 4-node, 5-node, 6-node
- #1 4P Windows: 2-node, 3-node, 4-node, 5-node, 6-node
- #1 4P Linux: 2-node, 3-node, 4-node, 5-node, 6-node
- *First 4P Linux Composable Infrastructure*
- *First multi-node to beat 12,000 overall ssj_ops/watt*
- *First 4P multi-node with over 11,000 ssj_ops_watt*

AMD performance score cards

HPE ProLiant DL325 Gen10

SPEC CPU 2017

First 1P results on all 4 SPEC CPU 2017 energy metrics:

- *SPECrate 2017_int_energy_base > 800*
- *SPECrate 2017_int_energy_peak > 875*
- *SPECrate 2017_fp_energy_base > 700*
- *SPECrate 2017_fp_energy_peak > 775*

SPECpower_ssj 2008

- *First server efficiency score on Microsoft Windows 2019*
- *First 1P and 1U AMD-based server to break 8,000 overall ssj_ops/watts*

VMmark 3.1

First 1P 4-node result

TPC-H @ 1000GB

Clustered 8-node result

- #1 overall performance
- #1 overall price/performance
- #1 1P performance
- #1 1P price-performance
- *First 1P performance result*

HPE ProLiant DL325 Gen10 Plus

SPECvirt_sc 2013

#1 1P virtualization performance

HPE ProLiant DL345 Gen10 Plus

TPC-H @ 3000GB

Non-clustered

- #1 performance
- #1 price/performance

HPE ProLiant DL385 Gen10

SPEC CPU 2017

- *First 2P results in all 8 SPEC CPU 2017 energy metrics*

for SPECrate2017:

- *SPECrate2017_int_energy_base > 1075*
- *SPECrate2017_int_energy_peak > 1175*
- *SPECrate2017_fp_energy_base > 850*
- *SPECrate2017_fp_energy_peak > 925*

for SPECspeed2017:

- *SPECspeed2017_int_energy_base > 40.0*
- *SPECspeed2017_int_energy_peak > 43.0*
- *SPECspeed2017_fp_energy_base > 325*
- *SPECspeed2017_fp_energy_peak > 325*

HPE ProLiant DL385 Gen10 Plus

SPECpower_ssj 2008

- *First 2P result that beat the 18,000 server-efficiency barrier*
- *First server-efficiency score on Microsoft Windows 2019*

for SPECspeed2017:

- *SPECspeed2017_int_energy_base > 40.0*
- *SPECspeed2017_int_energy_peak > 43.0*
- *SPECspeed2017_fp_energy_base > 325*
- *SPECspeed2017_fp_energy_peak > 325*

HPE server performance benchmarks newsletter

October 2021

HPE ProLiant DL385 Gen10 Plus v2

TPC-H @ 10,000GB

Non-clustered:

- #1 overall performance
- #1 2P performance

Mission-critical performance score cards

HPE Superdome Flex

SPEC CPU 2006*

- #1 32P SPECint_rate_base2006
- #1 32P SPECfp_rate_base2006
- #1 16P SPECint_rate_base2006
- #1 16P SPECfp_rate_base2006
- *First and only published SPEC CPU 2006 results with 32 and 16 Intel Xeon Scalable processors*

**The SPEC CPU 2006 benchmark was officially retired on January 9, 2018.*

SPEC OMP 2012

- 1 #1 8P record - peak
- 2 #1 16P records – baseline and peak
- 2 #1 32P records - baseline and peak

HPE Apollo 2000 Gen10 Plus

(with the HPE ProLiant XL225n Gen10 Plus):

SPECpower_ssj 2008

- #1 4-node system
- #1 4-node system Windows
- #1 4-node system Linux
- #1 3-node system
- #1 3-node system Windows
- #1 3-node system Linux
- #1 2-node system
- #1 2-node system Windows
- #1 2-node system Linux
- *First multi-node, 4-node, and 3-node platform to beat the 17,000 overall ssj_ops/watt barrier*
- *First 2-node result to break the 16,000 overall ssj_ops/watt barrier*

Fair use and compliance information and system configurations

All benchmark data is publicly available on the websites listed below. All performance briefs listed are publicly available on hpe.com or on the server Documents webpages under the Guides section and are customer viewable. See benchmark details below.

HPE server configurations and fair use statements

SAP BW edition for SAP HANA standard application benchmark Version 3

HPE Superdome Flex for SAP HANA

#1 16P on 20.8 billion (20.8B) initial records result published as of November 10, 2020. 16 x Intel Xeon Platinum 8280L processors (448 cores/896 threads) with 12 TB total memory running SUSE Linux Enterprise Server 12, SAP HANA 2.0, SAP NetWeaver 7.50. Certification # 2019050. Scores: Runtime of Data Load/Trans 19,816 secs); Query executions per Hour 7,158 secs; Total Runtime of Complex Query 161 secs.

#1 16P on 41.6 billion (41.6B) initial records result published as of November 10, 2020. 16 x Intel Xeon Platinum 8280L processors (448 cores/896 threads) with 12 TB DRAM memory and 12 TB Persistent Memory running SUSE Linux Enterprise Server 12; SAP HANA 2.0; SAP NetWeaver 7.50.: Certification #2020008. Scores: Runtime of Last Data Set (31,870 secs); Query Executions per Hour (3,412 secs); Runtime of Complex Query (262 secs).

#1 32P @ 41.6 billion (41.6B) initial records result published as of November 10, 2020. 32 x Intel Xeon Platinum 8280L processors (896 cores/1792 threads) with 24 TB total memory running SUSE Linux Enterprise Server 12; SAP HANA 2.0, SAP NetWeaver 7.50; Certification #2020019. Scores: Runtime of Last Data Set (24,663 secs); Query Executions per Hour (6,383 secs); Runtime of Complex Query (235 secs).

HPE Superdome Flex 280

#1 8P on 11.7 billion (11.7B) initial records result published as of November 10, 2020. 8 x Intel Xeon Platinum 8380H processors (224 cores/448 threads) with 12 TB total memory running SUSE Linux Enterprise Server 15 SP 2; SAP HANA 2.0, SAP NetWeaver® 7.50; Certification #2020044. Scores: Runtime of Last Data Set (15,161 secs); Query Executions per Hour (4,569 secs); Runtime of Complex Query (131 secs).

#1 8P on 20.8 billion (20.8B) initial records published as of November 10, 2020. 8 x Intel Xeon Platinum 8380H processors (224 cores/448 threads) with 6 TB total memory running SUSE Linux Enterprise Server 15 SP 2; SAP HANA 2.0, SAP NetWeaver 7.50; Certification #2020045. Scores: Runtime of Last Data set (15,596 secs); Query Executions per Hour (6,841 secs); Runtime of Complex Query (107 secs).

SAP SD standard application benchmark, two-tier

HPE Superdome Flex 280

#1 8P on Windows Server 2016; Certification #2021006 as of January 25, 2021. 8x Intel Xeon Platinum 8380H processors (224 cores/448 threads) on HPE Superdome Flex 280 with 3 TB total memory running Windows Server 2016; Microsoft SQL Server 2012, SAP enhancement package 5 for SAP ERP 6.0; Scores: 122,300 benchmark users, and 670,830 SAPS.

HPE Superdome Flex

#1 16P on Windows Server 2019 Enterprise Edition; Certification #2020029 as of November 10, 2020; 16x Intel Xeon Platinum 8280L processors (448 cores/896 threads) on HPE Superdome Flex with 6 TB total memory running Windows Server 2019; Microsoft SQL Server 2019; SAP enhancement package 5 for SAP ERP 6.0; Score: 152,508 benchmark users, and 870,050 SAPS.

SPEC CPU 2017

HPE Superdome Flex 280

#1 8-processor SPECspeed2017_int_base results published at spec.org/cpu2017/results/cpu2017.html as of November 10, 2020.
Source: spec.org/cpu2017/results/res2020q4/cpu2017-20201012-24160.html

#1 8-processor SPECspeed2017_fp_base results published at spec.org/cpu2017/results/cpu2017.html as of November 10, 2020.
Source: spec.org/cpu2017/results/res2020q4/cpu2017-20201012-24153.html

HPE ProLiant DL325

First 1-processor and SPEC CPU 2017 energy metrics for all 4 SPECrate2017 base and peak results and SPECspeed2017 base and peak results as of November 10, 2020.
Source: spec.org/cpu2017/results/res2019q3/cpu2017-20190903-17793.html

HPE ProLiant DL385 Gen10

First 2-processor results in all 8 SPEC CPU 2017 energy metrics for SPECrate2017 base and peak and SPECspeed2017 base and peak as of November 10, 2020. Source: spec.org/cpu2017/results/res2019q3/cpu2017-20190903-17794.html, spec.org/cpu2017/results/res2019q3/cpu2017-20190903-17795.html, spec.org/cpu2017/results/res2019q3/cpu2017-20190903-17792.html, spec.org/cpu2017/results/res2019q3/cpu2017-20190903-17796.html

SPEC CPU 2006

HPE Superdome Flex

#1 32-processor SPECint_rate_base2006; 32P SPECfp_rate_base2006; 16P SPECint_rate_base2006; 16P SPECfp_rate_base2006 results plus the first and only SPEC CPU 2006 results with 32 and 16 Intel Xeon Scalable processors. SPECspeed2017_int_base results as of November 10, 2020.

SPECjbb2015

HPE ProLiant DL360 Gen10

#1 Intel Xeon 1-processor SPECjbb2015-MultiJVM max-jOPS results as of April 2, 2019. Source: spec.org/jbb2015/results/res2019q2/jbb2015-20190313-00359.html, SPECjbb2015-MultiJVM scores: 84,835 max-jOPS and 23,895 critical-jOPS. On Intel leader board but no longer #1.

#1 Intel Xeon SPECjbb2015-MultiJVM critical-jOPS results as of April 2, 2019. Source: http://spec.org/jbb2015/results/res2019q2/jbb2015-20190313-00358.html, SPECjbb2015-MultiJVM scores: 81,734 max-jOPS and 49,374 critical-jOPS. On Intel leader board but no longer #1.

HPE Superdome Flex 280

#1 4-processor SPECjbb2015-MultiJVM critical-jOPS results as of February 21, 2021. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00568.html, Scores: 343,283 max-jOPS and 299,065 critical-jOPS.

#1 4-processor SPECjbb2015-Composite max-jOPS results as of February 21, 2021. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00570.html, SPECjbb2015-Composite scores: 292,945 max-jOPS and 138,893 critical-jOPS. On Intel leaderboard but no longer #1.

#1 4-processor SPECjbb2015-Composite critical-jOPS results as of February 21, 2021. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00571.html, SPECjbb2015-Composite scores: 282,357 max-jOPS and 246,148 critical-jOPS. On Intel leaderboard but no longer #1.

#1 4-processor SPECjbb2015-Distributed max-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00569.html, SPECjbb2015-Distributed scores: 392,868 max-jOPS and 197,861 critical-jOPS.

#1 4-processor SPECjbb2015-Distributed critical-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201021-00578.html, SPECjbb2015-Distributed scores: 347,369 max-jOPS and 307,891 critical-jOPS.

#1 8-processor SPECjbb2015-MultiJVM max-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00572.html, SPECjbb2015-MultiJVM scores: 745,690 max-jOPS and 401,277 critical-jOPS. On Intel leaderboard but #1 claim replaced by Superdome Flex 280 result at https://spec.org/jbb2015/results/res2021q1/jbb2015-20210210-00598.html, as of February 25, 2021.

#1 8-processor SPECjbb2015-MultiJVM critical-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00573.html, SPECjbb2015-MultiJVM scores: 622,749 max-jOPS and 529,205 critical-jOPS. On Intel leaderboard but #1 claim replaced by Superdome Flex 280 result at https://spec.org/jbb2015/results/res2021q1/jbb2015-20210210-00598.html, as of February 25, 2021.

#1 8-processor SPECjbb-2015-Distributed max-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00574.html, SPECjbb2015-Distributed scores: 757,336 max-jOPS and 413536 critical-jOPS.

#1 8-processor SPECjbb2015-Distributed critical-jOPS results as of November 10, 2020. Source: spec.org/jbb2015/results/res2020q4/jbb2015-20201020-00575.html, SPECjbb2015-Distributed scores: 637,526 max_jOPS and 557,903 critical-jOPS. On Intel leaderboard but no longer #1.

HPE Synergy 480 Gen10

#1 Intel Xeon 2-processor SPECjbb2015-Distributed max-jOPS tie results as of April 2, 2019. Source: spec.org/jbb2015/results/res2019q2/jbb2015-20190313-00354.html, SPECjbb2015-Distributed scores: 194,068 max-jOPS and 69,521 critical-jOPS.

#1 Intel Xeon 1-processor SPECjbb2015-MultiJVM results as of April 2, 2019. Source: spec.org/jbb2015/results/res2019q2/jbb2015-20190313-00372.html, SPECjbb2015-MultiJVM scores: 93,484 max-jOPS and 25,413 critical-jOPS.

#1 Intel Xeon 2-processor SPECjbb015-MultiJVM results published as of April 2, 2019. Source: spec.org/jbb2015/results/res2019q2/jbb2015-20190313-00374.html, SPECjbb2015-MultiJVM scores: 194,068 max-jOPS and 53,616 critical-jOPS.

SPEC OMP 2012

HPE Superdome Flex 280

#1 8P SPEComG_base2012 results as of April 21, 2021. Configuration: Intel Xeon Platinum 8380HL, 8 chips/224 cores/224 threads, Source: spec.org/omp2012/results/res2021q2/

SPECpower_ssj 2008

HPE ProLiant DL325 Gen10

First server efficiency score on Microsoft Windows 2019 and first 1P and 1U AMD-based server to break 8,000 overall ssj_ops/watt.

HPE Superdome Flex 280

#1 and first 4-processor (5U) SPECpower_ssj 2008 results as of November 10, 2020. Source: spec.org/power_ssj 2008/results/res2020q4/power_ssj 2008-20201020-01050.html. SPECpower_ssj 2008 results score: 7,550 overall ssj_ops/watt.

#1 4-processor (5U) Linux SPECpower_ssj 2008 results as of November 10, 2020. Source: spec.org/power_ssj 2008/results/res2020q4/power_ssj 2008-20201020-01052.html. HPE score: 7446 overall ssj_ops/watt.

#1 4-processor (5U) Windows SPECpower_ssj 2008 results as of November 10, 2020. Source: spec.org/power_ssj 2008/results/res2020q4/power_ssj 2008-20201020-01050.html. OEM / Partner score: 7,550 overall ssj_ops/watt.

#1 and first 8-processor (10U) Windows SPECpower_ssj 2008 results as of November 10, 2020. Source: spec.org/power_ssj 2008/results/res2020q4/power_ssj 2008-20201020-01051.html. HPE score: 7,628 overall ssj_ops/watt.

#1 8-processor (10U) Linux SPECpower_ssj 2008 results as of November 10, 2020. Source: spec.org/power_ssj 2008/results/res2020q4/power_ssj 2008-20201020-01053.html. Score: 7,369 overall ssj_ops/watt.

HPE Synergy 660 Gen10

#1 4P Windows multi-node; 4P 2-node, 3-node, 4-node, 5-node, 6-node; 4P Windows: 2-node, 3-node, 4-node, 5-node, 6-node; 4P Linux: 2-node, 3-node, 4-node, 5-node, 6-node. First 4P Linux Composable Infrastructure; First multi-node to beat 12,000 overall ssj_ops/watt; First 4P multi-node with over 11,000 ssj_ops_watt. SPECpower_ssj 2008 results as of April 2, 2019. Source: spec.org/power_ssj2008/results/res2019q2/power_ssj2008-20190311-00889.html.

HPE Synergy 480 Gen10

#1 2P multi-node, #1 12-node, #1 12-node Windows, #1 2P Linux Composable Infrastructure, First 2P Linux Composable Infrastructure. SPECpower_ssj 2008 results as of April 2, 2019. Source: spec.org/power_ssj2008/results/res2019q2/power_ssj2008-20190311-00889.html.

HPE Apollo 2000 Gen10 Plus with XL225n Gen10 Plus server

#1 2P 2-node, #1 2P 2-node Windows, #1 2P 2-node Linux, #1 2P 3-node, #1 2P 3-node Windows, #1 2P 3-node Linux; #1 2P 4-node, #1 2P 4-node Windows; #1 2P 4-node Linux. SPECpower_ssj 2008 results as of March 15, 2021. Source: spec.org/power_ssj2008/results/res2021q1/power_ssj2008-20210222-01069.html. SPECpower_ssj 2008 results score: 16,320 overall ssj_ops/watt.

SPECvirt_sc2013

HPE ProLiant DL325 Gen10 Plus

#1 1P SPECvirt_sc2013 results as of November 15, 2019. Source: spec.org/virt_sc2013/results/res2019q4/virt_sc2013-20191028-00123-perf.html. Score: 3008 @ 168 VMs.

HPE server performance benchmarks newsletter

October 2021

TPC-H

HPE ProLiant DL325 Gen10

Non-clustered result: #1 and first 1P performance result and #1 overall price/performance: on the TPC-H @ 1,000GB scale factor as of August 5, 2019. Configuration: 1 AMD EPYC 7502P 2.5 GHz processor, 1 socket/32 cores/64 threads; Red Hat Enterprise Linux 8; Microsoft SQL Server 2017 Enterprise Edition. Scores: 743,750.60 QphH @ 1,000GB and $0.34 USB/QphH @ 1,000GB with system availability of August 26, 2019; see tpc.org/3342.

Clustered result with 4 nodes: #1 and first 1P performance result and #1 overall price/performance for clustered systems (tied with 8-node result) on the TPC-H @ 1,000GB scale factor as of July 31, 2019. Configuration: 4 HPE ProLiant DL325 Gen10 servers each used 1 AMD EPYC 7702 2.0 GHz processor; total 4 sockets/256 cores/512 threads; CentOS 7.6, Exasol 6.2. Scores: 3,635,443 QphH @ 1,000GB and $0.06 USB/QphH with system availability of August 26, 2019; see tpc.org/3340.

Clustered result with 8 nodes: #1 overall performance for clustered systems, #1 1P performance for an 8-node system, and #1 overall price/performance for clustered systems (tied with 4-node result) on the TPC-H @ 1,000GB scale factor as of July 31, 2019. Configuration: 8 HPE ProLiant DL325 Gen10 servers each used 8 AMD EPYC 7702 2.0 GHz processor; 8 sockets/512 cores/1024 threads; CentOS 7.6 and Exasol 6.2. Scores: 6,145,628 QphH @ 1,000GB and $0.06 USD/QphH @ 1,000GB with a system availability of August 26, 2109; see tpc.org/3341

HPE ProLiant DL380 Gen10

Non-clustered result: #1 2P performance TPC-H benchmark @ 3,000GB as of April 2, 2019. Configuration: 1-Node, 2 Intel Xeon 8280 processors (2 processors, 56 cores, 112 threads) with 1,536 GB total memory on SUSE Linux Enterprise Server 15 using Microsoft SQL Server 2017 Enterprise Edition. Source: tpc.org/3336. Scores: 1,244,450.6 QphH @ 3000GB, $0.38/QphH @ 3000GB available April 2, 2019. On Intel leader board but no longer #1.

HPE ProLiant DL380 Gen10 Plus

Non-clustered result: #1 2P performance world record on the TPC-H 10,000GB scale factor as of May 29, 2021. Configuration: 2 HPE ProLiant DL380 Gen10 Plus servers used 2 Intel® Xeon® Gold 6346 .0 GHz processors; 2 sockets/30 cores/64 threads; Windows Server 2022 and Microsoft SQL Server 2019 Enterprise Edition. Scores: 956,701 QphH @ 10,000GB and $438.11 USD/QphH @ 10,000GB with system availability of May 21, 2018; see http://tpc.org/3379.

HPE ProLiant DL385 Gen10 Plus

Non-clustered result: #1 2P AMD performance on the TPC-H @ 3,000GB scale factor as of May 29, 2020. Configuration: 2 HPE ProLiant DL325 Gen10 Plus server used 1 AMD EPYC ROME 7F52 3.5 GHz processor; 1 socket/32 cores/64 threads; Red Hat Enterprise Linux 8; Microsoft SQL Server 2019 Enterprise Edition. Scores: 976,350.7 QphH @ 3,000GB and $0.30 USD/QphH @ 3000GB with a system availability of June 22, 2020; see tpc.org/3348. Intel leader board but no longer #1.

HPE ProLiant DL385 Gen10 Plus v2

Non-clustered result: HPE ProLiant DL385 Gen10 Plus v2: #1 overall and #1 2P AMD performance on the TPC-H @ 10,000GB scale factor as of April 19, 2021. Configuration: 2 HPE ProLiant DL385 Gen10 Plus v2 server used 2 AMD EPYC 7763 64-core 2.45 GHz processor; 2 socket/128 cores/256 threads; Red Hat Enterprise Linux 8; Microsoft SQL Server 2019 Enterprise Edition. Scores: 1,883,497 QphH @ 10,000GB and $555.40 USD/QphH @ 10,000GB with a system availability of April 19, 2021; see tpc.org/3362.

HPE Superdome Flex 280

Non-clustered result: 30,000GB scale factor: #1 4P TPC-H benchmark @ 30,000GB as of March 26, 2021. Configuration: 1-Node, 4 Intel Xeon processors (4 processors, 112 cores, 224 threads) with 6144 GB total memory on Red Hat Enterprise Linux 8 using Microsoft SQL Server 2019 Enterprise Edition. Source: tpc.org/3364. Scores 1,446,701 QphH @ 30000GB, $744.13 USD QphH @ 30000GB available March 26, 2021.

VMmark

Note: All VMmark 2.X and 3.X results ae available at vmware.com/products/vmmark.html.

HPE Synergy 480 Gen10

#1 6-node VMmark 3.1.x result and #1 6-node composable infrastructure VMmark 3.1.x result as of June 18, 2019. VMmark V3.1.1 Performance Only score of 16.91 @ 18 tiles. Source: vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2019-07-02-HPE-Synergy-480Gen10.pdf

HPE ProLiant DL380 Gen10 Plus

Best-published 4-node 2-processor, 320 total core VMmark 3.x uniform host results as of June 21, 2021. Source: vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-06-08-HPE-ProLiant-DL380Gen10Plus.pdf. VMmark V3.1.1 Performance Only score of 24.26 @ 26 tiles. On Intel leader board but no longer #1.

Best-published 3-node 2-processor, 240 total core VMmark 3.x uniform host results as of June 18, 2021.
Source: vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-06-15-HPE-ProLiant-DL380Gen10Plus.pdf, VMmark V3.1.1 Performance Only score of 18.31 @ 20 tiles.

HPE ProLiant DL380 Gen10

Best-published 2-node, 2 processor VMware 2.52 result as of October 21, 2021. Source: https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2017-09-26-HPE-ProLiant-DL380Gen10-6143.pdf, Performance Only score of 25.86 @ 22 Tiles.

a50005256enw, October 2021