HPE Compute Scale-up Server 3200 with 8, 16, and 32 sockets wins 31 world records on compute-intensive workload

Leadership SPEC CPU® 2017 results with 4th Gen Intel® Xeon® Platinum Scalable Processors

Key takeaways

HPE Compute Scale-up Server 3200 achievements on the SPEC CPU 2017 benchmark:

- 31 world records across 32S, 16S, and 8S, including 10 overall world records
- First server to surpass 10,000 on SPEC CPU 2017 Floating Point Rates (Base and Peak)
- First server to surpass 8,000 on SPEC CPU 2017 Integer Rates (Base and Peak)
- Unparalleled performance scaling at 2X: 8S to 16S and 16S to 32S.

With 32 sockets

Eight world records (four overall)

- SPECrate2017_fp_peak
- SPECrate2017_fp_base
  - 73.76% higher score than next highest competitor
- SPECrate2017_int_peak
- SPECrate2017_int_base
  - 14.08% higher score than next highest competitor

Executive summary

The HPE Compute Scale-up Server 3200 achieved exceptional results on the SPEC CPU® 2017 benchmark taking 31 world records, 10 of which are overall world records against any competitor systems with varying socket counts. In addition, the HPE Compute Scale-up Server 3200 shows 100% performance scaling from 16S to 32S and 8S to 16S on two benchmark metrics with uncompromising performance. The SPECspeed metrics show how fast a system can complete an individual task. Multiple concurrent task processing is shown by the SPECrate metrics. These proof points demonstrate that the performance of the HPE system scales as your business grows.

32 sockets, 8 world records: The 32S HPE Compute Scale-up Server 3200 defeated ScaleMP with a Supermicro platform on several SPEC CPU 2017 metrics.

16 sockets, 20 world records: The server's 16S SPECint results with Intel® Xeon® 8490H 60-core processors defeated Bull SAS, Huawei, Fujitsu, and ScaleMP. Its 16S SPECfp results with the same processors defeated ScaleMP with a Supermicro platform, Fujitsu, and Huawei. The server configured with the 32-core Intel Xeon Platinum 8454H processor, ideal for High Performance Compute (HPC), delivers an impressive additional four overall and four 16S world records.

8 sockets, 3 records: The HPE Compute Scale-up Server 3200 topped Lenovo, Fujitsu, Supermicro, and Inspur 8S servers using the same Intel Xeon Platinum 8490H processors on several metrics.

Competitive performance comparison

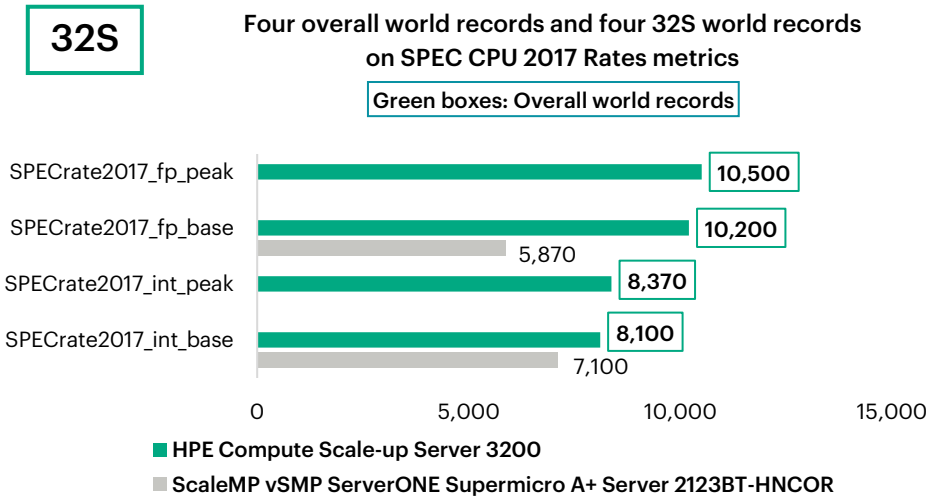


Figure 1. HPE with 32 Intel Xeon Platinum 8454H 32-core processors versus closest 32S competitor with AMD EPYC 7702 processors

With 16 sockets

20 world records (ten overall)

16S records with 60-core processors

Configuration with 60-core Intel Xeon Platinum 8490H tops the 16S category on:

- SPECrate2017_fp_peak
- SPECrate2017_fp_base
- SPECrate2017_int_peak
- SPECrate2017_int_base
- SPECrate2017_int_base
- SPECspeed2017_fp_peak
- SPECspeed2017_fp_base

16S records with 32-core processors

HPE achieved the world's highest scores with the Intel Xeon Platinum 8454H processor on:

- SPECrate2017_fp_peak
- SPECrate2017_fp_base
- SPECrate2017_int_peak
- SPECrate2017_int_base

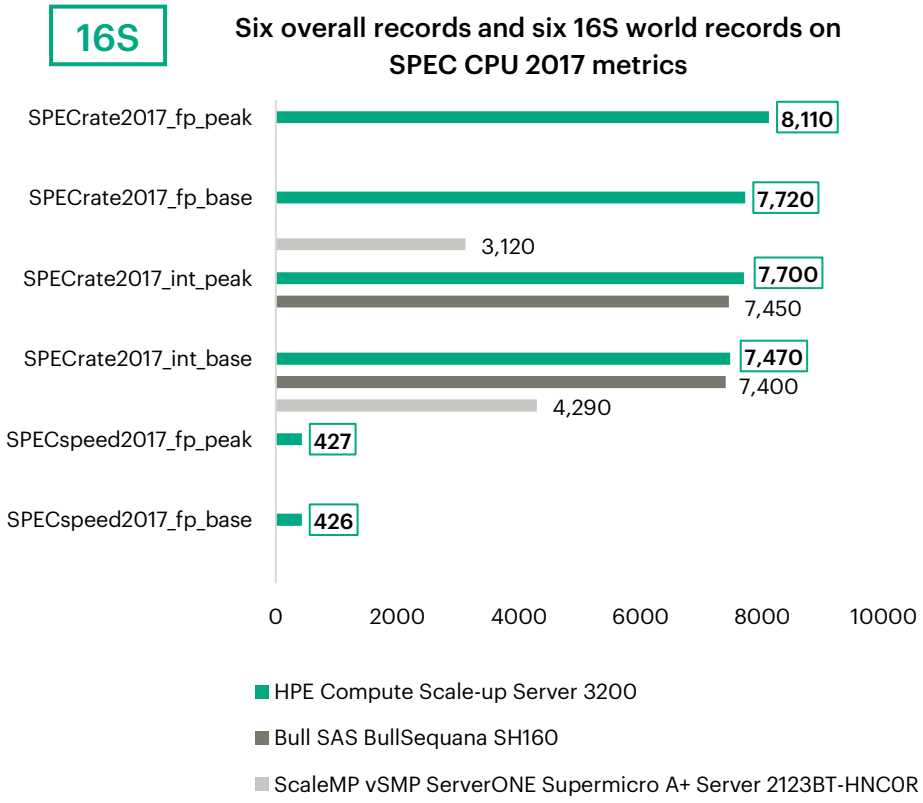


Figure 2. HPE with Intel Xeon Platinum 8490H 60-core processors compared to closest 16S competitors, with Intel Xeon Platinum 8490H 60-core processors and AMD EPYC 7702 processors

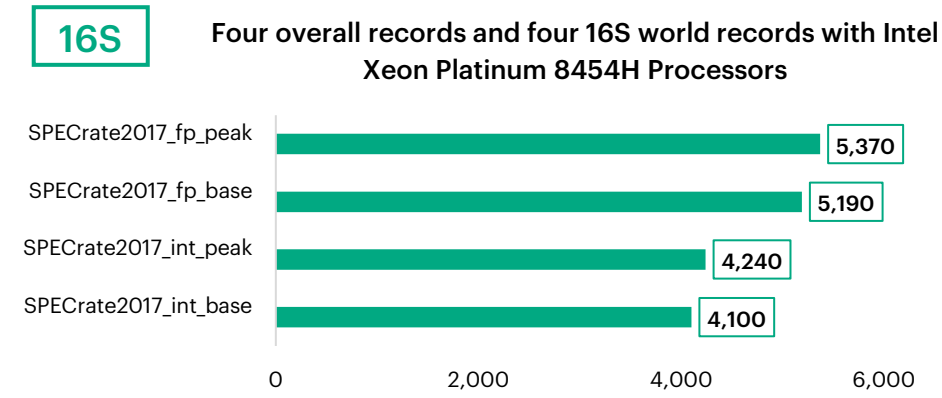


Figure 3. HPE Compute Scale-up Server 3200 SPEC CPU 2017 Rate results with 16 processors

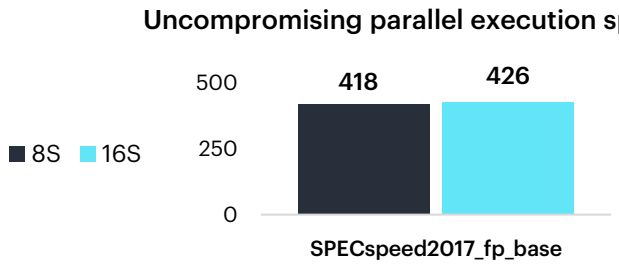


Figure 4. With 60-core processors, the HPE Compute Scale-up Server 3200 shows uncompromising parallel execution speed from 8S to 16S representing 100% performance scaling (see Figure 7)

With 8 sockets

3 world records with significant wins over competitors:

- SPECrate2017_fp_peak world record is 12% over the next highest competitor
- SPECrate2017_fp_base world record tops Inspur by 3% and bests Lenovo, Fujitsu and Supermicro by more than 8%
- SPECspeed2017_fp_base world record tops the next highest competitor by 17%

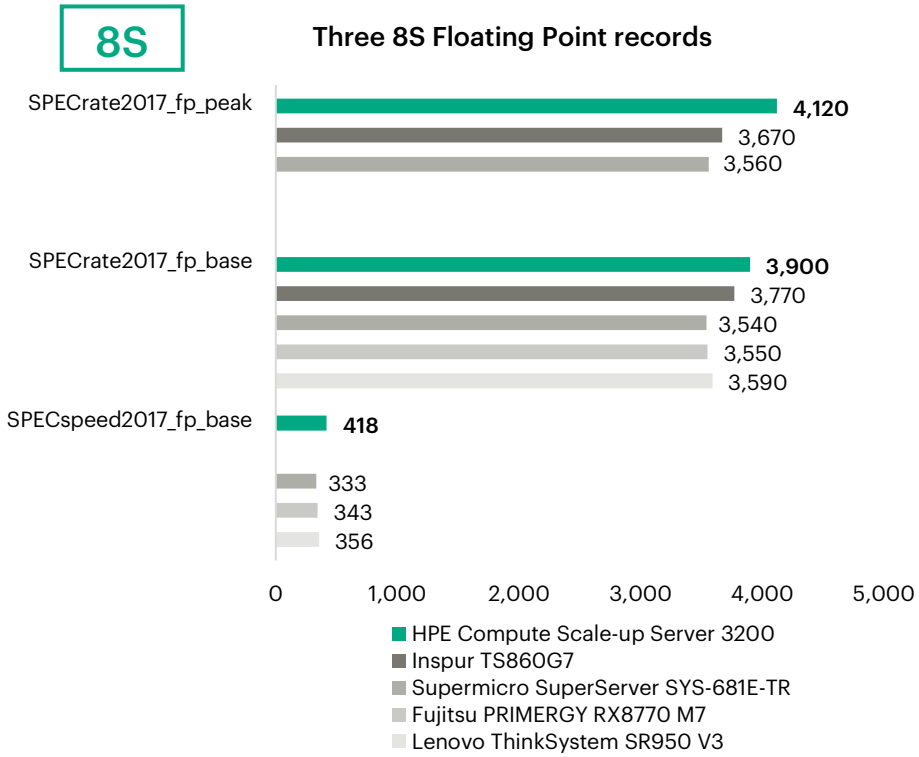
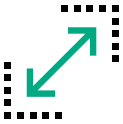


Figure 5. Top 8S scores with the same Intel Xeon Platinum 8490H 60-core processors

Scaling excellence

The HPE Compute Scale-up Server 3200 shows 100% performance scaling from 16S to 32S and 8S to 16S on two benchmark metrics. The SPECspeed metrics show how fast a system can complete an individual task. Multiple concurrent task processing is shown by the SPECrate metrics. These proof points mean that as your business grows, the HPE system scales along with it, without compromising workload performance.

Unparalleled scaling



unlocks unbounded growth

Interpreting the results

Benefits of scale-up

- Rate metric scores increase with system size, meaning that more work gets done
- Speed metric scores maintained at all scales as your business grows, proving uncompromised performance

2x performance scaling for the HPE platform

- Scaling 8S to 16S SPECrate2017_int_base
- Scaling 16S to 32S SPECrate2017_int_base
- Scaling 16S to 32S SPECrate2017_fp_base

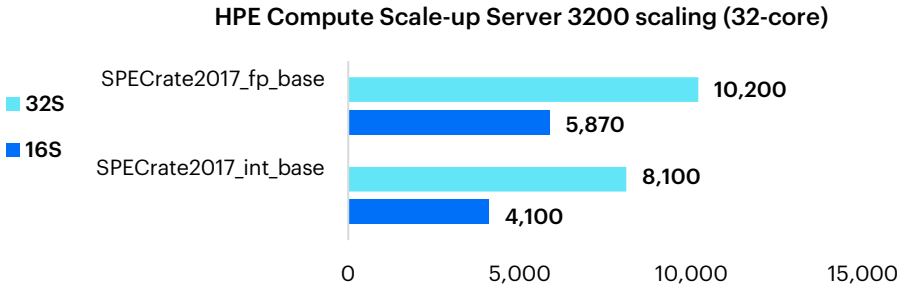


Figure 6. HPE 16S to 32S scaling trend with Intel Xeon Platinum 8454H 32-core processors

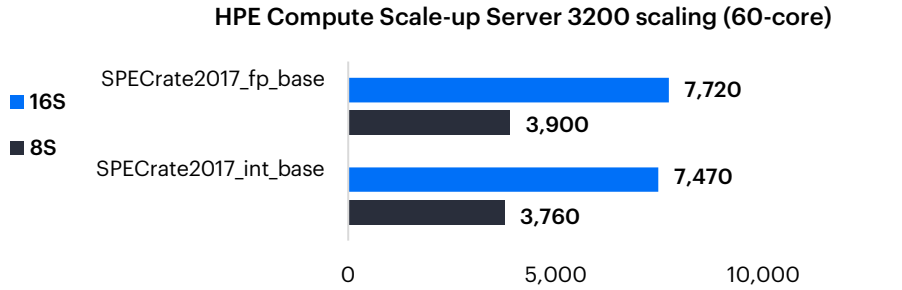


Figure 7. HPE 8S to 16S scaling trend with Intel Xeon Platinum 8490H 60-core processors

About the SPEC CPU 2017 benchmark

The SPEC CPU 2017 benchmark package contains SPEC's

next-generation, industry-standardized, CPU intensive suites for measuring and comparing compute-intensive performance, stressing a system's processor, memory subsystem, and compiler.

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Customer value with Hewlett Packard Enterprise

HPE Compute Scale-up Server 3200

The HPE Compute Scale-up Server 3200 is a highly reliable, scalable, and secure server that starts at 4 and scales up to 32 powerful 4th Generation Intel Xeon Scalable. Its modular architecture scales cost-efficiently to meet your data growth needs.

To support growth of in-memory databases and data-intensive workloads, HPE Compute Scale-up Server 3200 offers large, shared memory capacity ranging from 128 GB to 64 TB. It utilizes ultra-fast DDR5 DIMMs with speeds up to 4800 MT/s and 16 DIMM slots per processor, delivering twice the memory bandwidth compared to prior generations.

Its flexible I/O subsystem, based on PCIe 5.0, delivers 4x I/O bandwidth compared to prior models Extreme RAS including advanced memory resiliency, "firmware first", analysis engine, and auto self-healing ensures the highest reliability for mission critical apps.

Superior security, including HPE silicon root of trust and two TPM modules, protects your workloads and data against firmware attacks and malware. Complementary clustering software HPE Serviceguard for Linux® provides rapid and automatic high application availability and disaster recovery capabilities. Optional deployment with HPE GreenLake provides flexible as-a-service consumption while maintaining on-premises control.

Bottom line

The HPE Compute Scale-up Server 3200 delivers excellent performance at scale for an SAP online analytical processing workload and can meet the demands of SAP customers looking for mission-critical solutions.

Learn more at

HPE Compute Scale-up Server 3200 documents

HPE Server performance briefs

HPE iLO 6 Security Technology Brief

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