Cisco UCS Servers Claim Nine New World Records on Industry-Standard Benchmarks

With the Intel Xeon Processor E5-2600 v4 Family

Performance Brief
March 2016

Highlights

Nine New World Records
- Cisco has captured nine new world records on industry benchmarks that demonstrate superior performance for Java and highly parallelized applications as well as the capability to deliver CPU power to accelerate enterprise application performance.

Dramatic Performance Improvements
- Cisco's world-record-setting benchmark results demonstrate dramatic performance improvements over the prior-generation Intel® Xeon® processor E5 family.

Broad Range of Server Products
- Cisco offers blade and rack servers that can power a range of workload requirements, all in the industry's first unified system based on industry-standard x86-architecture servers.

Power for Mission-Critical Workloads
- The Cisco UCS® B200 M4 Blade Server and C220 M4 and C240 M4 Rack Servers are now equipped with Intel Xeon processor E5 v4 family CPUs.

Pushing innovation further, Cisco Unified Computing System™ (Cisco UCS®) claims nine world records on industry benchmarks with servers powered by the Intel® Xeon® processor E5-2600 v4 family.

After seven years in the market, Cisco UCS is still the only self-aware, self-integrating system with the capability to support both blade and rack servers in a single unified system. Designed to unleash the power of Intel Xeon processors and large memory configurations, Cisco® solutions help you get the most from your IT infrastructure and business applications. On the same day that the Intel Xeon processor E5-2600 v4 family was announced, Cisco celebrated nine new performance records on rack and blade servers (Table 1). With performance improved by up to 127 percent since the last processor generation, you can count on innovation and versatile performance from Cisco UCS servers.

Application Performance with Better Infrastructure

Although all vendors have access to Intel Xeon processors, Cisco unleashes their potential to deliver high performance to applications through the power of unification and performance optimization. Cisco UCS integrates industry-standard x86-architecture blade and rack servers with networking and storage access into a unified system. Automated server and network configuration let you quickly and easily deploy new applications, repurpose existing servers, and scale applications with configurations that are compliant with your IT standards. Integrated through Cisco® SingleConnect technology, the system provides an exceptionally easy, intelligent, and efficient way to connect and manage data center resources. This exclusive Cisco innovation dramatically simplifies the way data centers connect rack and blade servers; physical servers and virtual machines; and LAN, SAN, and management networks.
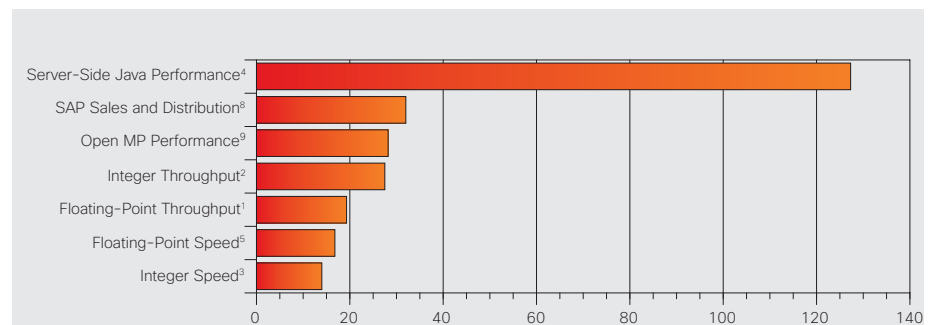

Figure 1 Performance Compared to Previous Generation Cisco UCS Servers (Percent)

Generations of Improvement

Cisco's results demonstrate the degree to which Cisco UCS servers with large memory configurations deliver the power of the new Intel Xeon processor E5 v4 family. Compared to Cisco's previous-generation servers powered by the Intel Xeon processor E5 v3 family, Cisco's new servers demonstrate dramatic improvements in raw CPU power as well as business and parallelized application performance (Figure 1). As technologies further improve, you can be confident that Cisco UCS servers will deliver the performance these processors provide to applications.

Performance That Matters

IT managers understand that any vendor can set a performance record now and then—but consistently achieving world-record performance with each new generation of processors is truly exceptional. Cisco's industry leadership and ability to set and reset world records on critical benchmarks are

Table 1 Cisco Sets Nine World Performance Records with the Intel Xeon Processor E5 v4 Family

Server	Processor	Benchmark	Score and Disclosure Link	Percentage Improvement
Cisco UCS C220 M4 Rack Server	Intel Xeon processor E5-2699 v4 at 2.2 GHz	SPEC®CFP2006	SPECfp®_rate_base2006=1100 Best 2-socket x86-architecture result	19.3%[1]
		SPEC®CINT2006	SPECint®_rate_base=1760 Best 2-socket x86-architecture result	27.5%[2]
		SPEC®CINT2006	SPECint_base2006=73.1 Best 2-socket x86-architecture result	14.0%[3]
		SPECjbb®2015-MultiJVM	max-jOPS=94,667 critical-jOPS=71,951 Best 2-socket x86-architecture result for critical jOPS	127.3%[4]
Cisco UCS C220 M4 Rack Server	Intel Xeon processor E5-2667 v4 at 3.2 GHz	SPEC®CFP2006	SPECfp®_base2006=125 Best 2-socket x86-architecture result	16.8%[5]
Cisco UCS Integrated Infrastructure for Big Data and Analytics with Cisco UCS C240 M4 Rack Servers	Intel Xeon processor E5-2680 v4 at 2.4 GHz	TPC Express Benchmark HS (TPCx-HS)	10.12 HSph@1TB US$38,168.98 per HSph@1TB Best performance and price/performance at the 1-TB scale factor	29.6%[6] Price/performance 11.1%[6] Performance (Compared to most recent prior results)
			12.02 HSph@10TB US$32,135.61 per HSph@10TB Best performance and price/performance at the 10-TB scale factor	13.3%[7] Price/performance 3.9%[7] Performance (Compared to most recent prior results)
Cisco UCS C240 M4 Rack Server	Intel Xeon processor E5-2699 v4 at 2.2 GHz	SAP Sales and Distribution (SD) Benchmark	SAPS score=115,812 , users=21,210 Best 2-processor, 44-core, 2-tier result	32%[8]
Cisco UCS B200 M4 Blade Server	Intel Xeon processor E5-2699 v4 at 2.2 GHz	SPEC®OMPG2012	SPECompG_peak2012=13.5 SPECompG_base2012=12.4 Best 2-socket x86-architecture result	28.2%[9]

testimony to the fact that Cisco is not just selling servers—it is reinventing computing so that you can respond to user demands and business priorities.

The Power of Intel Xeon Processors

Cisco's continued performance leadership comes in part due to the power of the Intel Xeon processors that power its servers. Intel Xeon processor E5-2600 v4 family CPUs provide the best balance of performance, power efficiency, and features to meet the diverse needs of your data center applications and workloads. Built on 14-nanometer (nm) processor technology, these innovative processors offer up to 22 cores, large high-speed memory configurations, and accelerated I/O throughput, delivering significant performance improvements compared to previous-generation processors. The processors also offer increased memory bandwidth monitoring and cache allocation capabilities, optimum data center orchestration and virtualization features, and hardware-assisted security advancements, which work in conjunction with Cisco UCS servers to further enhance the value of IT infrastructure in your enterprise

For More Information

For more information about Cisco UCS, visit http://www.cisco.com/go/ucs.

Disclosures

1. The floating-point throughput performance improvement of 19.3 percent compared the SPECfp_rate_base2006 score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C220 M4 Rack Server, a result that was available on September 8, 2014.

2. The integer throughput performance improvement of 27.5 percent compared the SPECint_rate_base score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C220 M4 Rack Server, a result that was available on March 5, 2015.

3. The integer processing performance improvement of 14 percent compared the SPECint_base2006 score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C220 M4 Rack Server, a result that was available on March 5, 2015.

4. The Java application performance improvement of 127.3 percent compared the SPECjbb2015-MultiJVM critical-jOPS score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C220 M4 Rack Server, a result that was available on September 30, 2015.

5. The floating-point performance improvement of 16.8 percent compared the SPECfp_base2006 score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C240 M4 Rack Server, a result that was available in December, 2014.

6. The big data system performance improvement of 11.1 percent and the price/performance improvement of 29.6 percent at a scale factor of 1 TB compared the TPCx-HS results of Cisco Integrated Infrastructure for Big Data and Analytics using Cisco UCS C240 M4 Rack Servers with Huawei FusionInsight for Big Data, a result that was available on September 15, 2015.

7. The big data system performance improvement of 3.9 percent and price/performance improvement of 13.3 percent at a scale factor of 10 TB compared the TCPx-HS results of the Cisco UCS Integrated Infrastructure for Big

Data and Analytics using the Cisco UCS C240 M4 Rack Server with the previous generation of Cisco's solution, a result that was available March 22, 2016.

8. The SAP SD benchmark certificate 2016006 describes the result shown in Table 1, the 32 percent performance improvement was in comparison to a Cisco UCS B200 M4 Blade Server equipped with last-generation Intel Xeon processors. These results are available on the following web page: http://www.sap.com/benchmark.

9. The parallel-processing performance improvement of 28.2 percent compared the SPECompG_peak2012 score of the Cisco UCS C220 M4 Rack Server with the previous-generation Cisco UCS C220 M4 Rack Server, a result that was available on September 8, 2014.

The Transaction Processing Performance Council (TPC) is a nonprofit corporation founded to define transaction processing and database benchmarks and to disseminate objective and verifiable performance data to the industry. TPC membership includes major hardware and software companies. The performance results described in this document are derived from detailed benchmark results available as of March 31,2016, at http://www.tpc.org/tpcx-hs/results/tpcxhs_perf_results.asp.

SPEC, SPECfp, SPECint, SPECjbb, and SPEComp are registered trademarks of Standard Performance Evaluation Corporation. The benchmark results used to establish world-record status are based on those available at http://www.spec.org as of September 8, 2014.