

Cisco Delivers the Best Four-Processor SAP SD Performance Result on Microsoft Windows



With the Intel Xeon Processor E7-8890 v4 Family

Performance Brief
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Highlights

Deploy a High-Performance Solution

- Cisco delivers the best four-processor SAP Sales and Distribution (SD) benchmark result running Microsoft Windows in a two-tier configuration (a SAP Application Performance Standard [SAPS] score of 224,330) running Microsoft Windows 2012 R2 Datacenter Edition, representing a performance improvement of 38 percent over [the latest results published by Dell](#) using a Dell PowerEdge R930 server with Intel® Xeon® processor E7-8890 v3 CPUs.

Standardize on a Leading Solution

- Deploy the Cisco Unified Computing System™ (Cisco UCS®) with Windows Server 2012 R2 for additional flexibility and efficiency. Cisco UCS servers provide an excellent foundation for any standards-based infrastructure solution.

Scale to Meet Demand

- Results show that the Cisco UCS C460 M4 Rack Server configured with the Intel Xeon processor E7-8890 v4 family can support up to 41,025 concurrent SAP SD benchmark users in a Microsoft Windows Server 2012 R2 and IBM DB2 environment.

Optimize Application Throughput with IBM DB2 on Cisco UCS

- IBM DB2 provides accelerated performance, simplicity, and quality of service (QoS) to SAP applications. Support for multiple operating systems, in-memory capabilities, and data compression allows you to work on terabytes (TB) of information and deliver fast and efficient processing.

Simplify Data Center Infrastructure

- Cisco UCS reduces the number of physical components needed to support demanding SAP landscape applications, enabling you to make effective use of your limited space, power, and cooling resources.

Cisco servers and IBM DB2 accelerate SAP performance from one processor generation to the next.



Cisco's comprehensive set of solutions for SAP and SAP HANA workloads—solutions that include servers with two to eight processors—deliver excellent performance on the SAP Sales and Distribution (SD) benchmark. The VersaStack™ Solution from Cisco and IBM, based on the Cisco UCS® C460 M4 Rack Server powered by the Intel® Xeon® processor E7-8890 v4 product family, supports 41,025 SAP SD benchmark users and delivers a SAP Application Performance Standard (SAPS) score of 224,330: the best four-processor, two-tier result running Microsoft Windows. These results show a 39.5 percent performance improvement over the previous generation of Intel Xeon processor E7 product family CPUs (Figure 1).

SAP Sales and Distribution Benchmark

The SAP SD benchmark is designed to stress the computing infrastructure and determine whether a consistent response can be delivered as more users consume system resources. Focused on testing components that influence the sizing of deployments, the benchmark exercises the processes that handle a sell-from-stock transaction, including business processes such as order creation and delivery, the movement of goods, and invoice creation. As a result, real-world infrastructure experiences conditions similar to the conditions found in two-tier SAP applications.

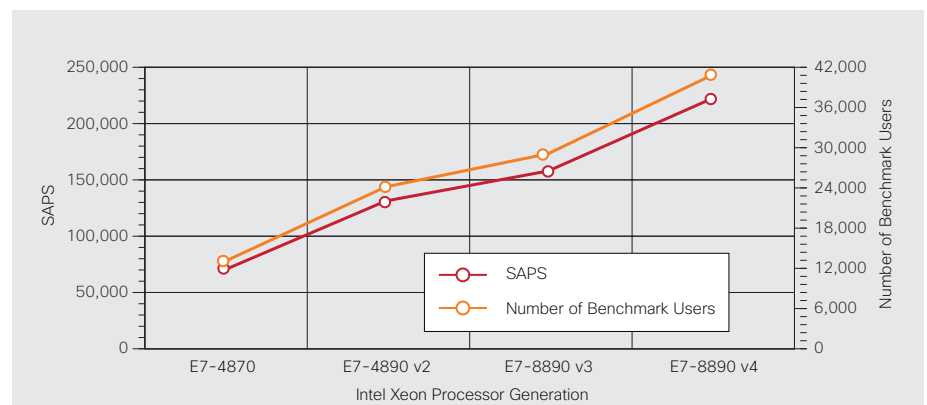


Figure 1 Generation After Generation, Cisco Solutions Consistently Deliver Outstanding Four-Processor, Two-Tier SAP SD Benchmark Performance

Benchmark Configuration

Cisco tested a VersaStack system with a Cisco UCS C460 M4 Rack Server and an IBM FlashSystem V9000 flash storage array. The server was equipped with four 2.20-GHz, 24-core Intel Xeon processor E7-8890 v4 CPUs and 1024 GB of main memory. The server ran both the SAP software and the 64-bit IBM DB2 10.5 Advanced Enterprise Server Edition in a bare-metal configuration. SAP Enhancement Package 5 for SAP Enterprise Resource Planning (ERP) 6.0 was used in this measurement.

VersaStack Solution

With the VersaStack solution, you get powerful, flexible servers and optimized storage systems that perform at scale. Based on Cisco UCS Integrated Infrastructure, the solution combines Cisco Unified Computing System™ (Cisco UCS) blade and rack servers, IBM FlashSystem V9000 or Storwize storage, and Cisco Nexus® 9000 Series Switches into a single system. This prevalidated solution delivers high performance and

low-latency response times to critical applications and can be easily deployed and managed in your data center. Solution readiness for Cisco® Application Centric Infrastructure (Cisco ACI™) lets your IT staff build, deploy, secure, and maintain applications through a more agile framework.

Cisco SingleConnect technology brings to each server a high-bandwidth (up to 40-Gbps), low-latency, unified fabric that carries IP, storage, and management traffic over a single set of cables. The system represents a radical simplification compared to traditional architectures, resulting in lower capital expenditures and operating costs.

Cisco UCS C460 M4 Rack Server

The Cisco UCS C460 M4 delivers the balanced I/O, memory, and computing capacity needed for large-scale analytical and business intelligence applications. The system is a 4-rack-unit (4RU) rack server that supports up to four Intel Xeon processor E7-8890 v4 product family CPUs, up to 6 terabytes (TB) of double-datarate-4

(DDR4) memory, and up to 12 small form-factor (SFF) hot-pluggable SAS, SATA, or SSD drives. With 10 full-height Generation 3 PCI Express (Gen3 PCIe) slots, the server supports massive I/O capacity.

Powered by the Versatile Intel Xeon Processor E7 v4 Family

Cisco UCS C460 M4 Rack Servers harness the power of up to four of the latest Intel Xeon processor E7-8890 v4 family CPUs to deliver exceptional performance and scalability for large-data-set workloads, large databases, and big data workloads. With massive processing resources, large memory capacity, and sophisticated reliability features, the processor family also provides world-class support for enterprise applications. Whether your business needs to address technical computing challenges, deliver cloud capabilities and intelligent storage, or power design automation and data analytics, Cisco and Intel technology are the smart choices for a software-defined environment in which performance and efficiency matter most.

Table 1 SAP SD Benchmark Results (Certification [2016024](#))

Number of SAP SD benchmark users	41,025	<p>Central server: Cisco UCS C460 M4 (4 processors, 96 cores, and 192 threads), Intel Xeon processor E7-8890 v4 at 2.20 GHz with 64-KB Level-1 cache and 256-KB Level-2 cache per core and 60-MB Level-3 cache per processor, and 1024 GB of main memory</p> <p>Operating system: Microsoft Windows Server 2012 R2 Datacenter Edition</p> <p>RDBMS: IBM DB2 10.5 Advanced Enterprise Server Edition</p> <p>SAP Business Suite Software: SAP Enhancement Package 5 for SAP ERP 6.0</p>
Average dialog response time	1214 ms	
Fully processed order line items per hour	4,486,670	
Dialog steps per hour	13,460,000	
SAPS score	224,330	
Average database request time	8.61 ms (dialog) 18.03 ms (update)	
CPU utilization (central server)	99%	

IBM DB2 for Linux, Unix, and Windows

Available for Linux, Unix, and Windows environments, IBM DB2 offers excellent transaction and batch throughput for SAP workloads and excels on Cisco UCS servers. IBM DB2 10.5 includes many platform optimizations, such as IBM BLU Acceleration, to accelerate SAP Business Warehouse (BW) performance and throughput and process data to deliver more insight. Data partitioning, near-line storage support for SAP BW, very efficient compression techniques, and other database optimizations provide almost unlimited scalability so that you can get the most out of your growing data stores while reducing costs.

Benchmark Results

The Cisco UCS C460 M4 running Microsoft Windows Server 2012 R2 delivered the best four-processor, two-tier SAP SD benchmark result with SAP Enhancement Package 5 for SAP ERP 6.0 and IBM DB2 10.5. The solution supported 41,025 SAP SD benchmark users while maintaining a consistent application response time of less than one second (Table 1). In addition, the server delivered a SAPS score of 224,330, representing a performance improvement of 39.5 percent over Cisco's last published result for the Cisco UCS C460 M4 server equipped with four Intel Xeon

processor E7-8890 v3 CPUs (with a SAPS score of 160,480), and a performance improvement of 38 percent over the Dell PowerEdge R930 server (with a SAPS score of 162,620).

Published results for the SAP SD 2-tier benchmark can be found on the SAP website at <http://global.sap.com/solutions/benchmark/sd2tier.epx>.

Conclusion

Just as important as this record-setting result is the diligence with which Cisco performs benchmark testing and certifies its SAP environments. This diligence is revealed in the consistent performance improvements that Cisco demonstrates with each new server generation. By deploying SAP on VersaStack solutions based on Cisco UCS, you can have confidence that the thousands of users that rely on your SAP landscape applications and computing, network, and storage resources will get the responses they need. With the capability to support more users and accelerate response times—up to 41,025 in the benchmark configuration—your business can operate effectively using little hardware.

In addition, you can scale your environment up if you need greater performance and capacity (adding computing and network resources

individually as needed), or you can scale it out if you need multiple consistent deployments (adding integrated systems). You can add flash-memory capacity to support multiple applications, and you can scale out the virtualized storage system to increase the number of I/O operations per second (IOPS) and bandwidth to support SAP applications.

For More Information

For more information about Cisco UCS performance, visit <http://www.cisco.com/go/ucsatwork>.

For more information on VersaStack solutions, visit <http://www.cisco.com/go/versastack>.

SAP Benchmark Disclosures

The statements of comparison are based on highest-performing systems using four Intel Xeon processor E7-8890 v3 and v4 CPUs and running SAP Enhancement Package 5 for SAP ERP 6.0 on Microsoft Windows Server 2012 R2 Datacenter Edition in a two-tier configuration.

Results referenced are available from the SAP website at <http://global.sap.com/solutions/benchmark/sd2tier.epx> and are current as of June 6, 2016.



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