Cisco UCS B440 M2 Server: Record-Setting Enterprise Application Performance

Powered by Intel Xeon Processors and EMC VNX Storage

Performance Brief
September 2011

Highlights

World-Record-Setting Results

- Cisco delivers SPECjEnterprise®2010 benchmark results that demonstrate the superior performance of the Cisco Unified Computing System™ (Cisco UCS™) with Intel® Xeon® processors and EMC® VNX™ storage powering Oracle database and enterprise applications.

Proven Track Record

- Cisco has consistently set world records on SPECjAppServer®2004, SPECjbb®2005, and SPECjEnterprise®2010 benchmarks, proving the breadth of enterprise middleware performance that Cisco UCS can deliver.

Superb Performance for RISC Migration

- The benchmark results demonstrate how well Cisco's solution based on open-standard, x86-architecture processors can outperform proprietary RISC processor-based systems.

Product Breadth and Depth

- The results are based on an end-to-end solution using Cisco UCS with both blade and rack-mount servers united with Cisco® networking technology. This solution demonstrates the breadth and depth of Cisco's high-performance data center products.

Multi-tier enterprise applications power the engines of commerce, and world-record-setting SPECjEnterprise2010 benchmark results demonstrate how fast business runs with the Cisco Unified Computing System, Intel Xeon processors, Oracle software, and EMC VNX storage.

The SPECjEnterprise®2010 benchmark simulates a multi-tier application architecture to evaluate how well a solution powers enterprise applications and web services. Working together with EMC and Oracle, Cisco has set a new record among x86-architecture servers, delivering 26,118.67 SPECjEnterprise2010 EjOPS. The solution is based on the Cisco Unified Computing System™ (Cisco UCS™) configured with two Cisco UCS B440 M2 High-Performance Blade Servers and a Cisco UCS C460 M2 High-Performance Rack-Mount Server, both powered with the Intel® Xeon® processor E7 family, connected to an EMC® VNX5700™ storage system. Far from an isolated outcome, this result reflects the time-tested reputation for performance that Cisco has established for enterprise applications and the Java application servers that power them.

Outperforming RISC by 57 Percent

What is particularly remarkable about this result is that the Cisco® solution, based on industry-standard, x86-architecture servers, outperforms the fastest RISC processor-based solution from IBM by 57 percent, and with only 25 percent more processor cores (Table 1). With the density of the blade form factor helping customers do more in less space, the Cisco UCS B440 M2 packs 40 processor cores into a single blade server to deliver the performance and scalability needed for mainstream enterprise applications. Now customers can run their enterprise applications with confidence while leaving behind the vendor lock-in associated with costly RISC processor-based servers.

Table 1. Comparison of x86 and RISC Performance

Application Server	Processors	Number of Cores	SPECjEnterprise2010 EjOPS	Publication Date
Cisco UCS B440 M2	8 Intel Xeon E7-4870 (x86)	80 at 2.40 GHz	26,118.67	September 30,2011
IBM Power 780	8 IBM Power7 (RISC)	64 at 3.86 GHz	16,646.34	February 23, 2011

End-to-End Solution for the Entire Oracle Stack

The benchmark results demonstrate that Cisco delivers an end-to-end solution with the server and networking product breadth and depth necessary to outperform the rest of the x86 server industry. These results in combination with Cisco's history of setting records on the Oracle E-Business Suite and SPECjAppServer®2004 and SPECjbb®2005 benchmarks also demonstrate that Cisco provides industry-leading performance for the entire Oracle software stack.

Benchmark Environment

Application Servers

Cisco ran Oracle WebLogic Server 11g, a component of Oracle Fusion Middleware, on two Cisco UCS B440 M2 blade servers running Oracle Linux (Figure 1). Each blade server was equipped with four Intel Xeon procssors E7-4870 and 128 GB of memory. The blade servers were integrated into Cisco UCS with a pair of Cisco UCS 6120XP 20-Port Fabric Interconnects.

Database Server

The database server was a single Cisco UCS C460 M2 rack-mount server running Oracle Database 11g Release 2. The server was equipped with four Intel Xeon procssors E7-4870 and 1 terabyte (TB) of memory. This server was connected to the application servers hosted in Cisco UCS through a Cisco Nexus® 5000 Series Switch and a Cisco Nexus 2248T Fabric Extender.
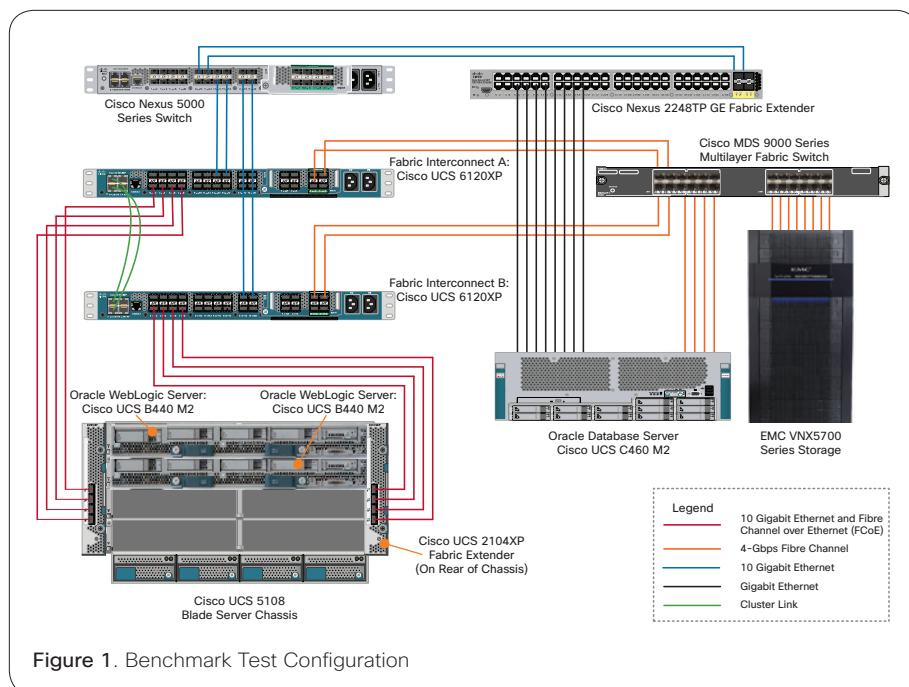

Figure 1. Benchmark Test Configuration

Intel Xeon Processor E7 Family

The Intel Xeon processor E7 family is designed to solve the mission-critical IT challenge of managing and keeping business-critical data secure. Powerful, reliable servers such as the Cisco UCS B440 M2 and C460 M2 are equipped with the top-of-the-line Intel Xeon processor E7 family to deliver performance that is well suited for the most data-demanding workloads, with improved scalability and increased memory and I/O capacity. These features help businesses quickly adapt to short-term changes in business demands while addressing requirements for long-term business growth. Advanced reliability and security features work to maintain data integrity, accelerate encrypted transactions, and increase the availability of mission-critical applications. The powerful and reliable Intel Xeon processor E7 product family delivers flexibility for business-critical solutions.

EMC VNX Storage

The test environment used the EMC VNX5700 storage system, a platform designed for high performance and consolidation. EMC VNX Series storage systems are designed to deliver high performance for enterprise applications and offer a unified storage solution than can use the same system for both block and file storage (this benchmark used Fibre Channel–based block

storage). These storage systems are designed for five-nines availability with N+1 redundancy and offer value-added features such as fully automated storage tiering and extended system caching, all managed through the simple and intuitive EMC Unisphere® management interface.

Conclusion

Cisco's end-to-end application server solution delivers world-class performance among x86-architecture servers while surpassing IBM's RISC processor-based solution by 57 percent. These results demonstrate not just superior performance, but

they also illustrate how customers can power their enterprise applications with a high-performance system built on industry standards: the Cisco Unified Computing System

For More Information

- Cisco Unified Computing System: http://www.cisco.com/go/ucs.

- Cisco UCS and Oracle Software: http://www.cisco.com/go/oracle

- Cisco UCS and EMC storage: http://www.cisco.com/go/emc

- EMC VNX storage systems: http://www.emc.com/storage/vnx/vnx-family.htm

Disclosure

SPEC, SPECjAppServer, SPECjbb, and SPECjEnterprise are registered trademarks of Standard Performance Evaluation Corporation. The performance results described in this document are derived from detailed benchmark results available at http://www.spec.org as of September 30, 2011.

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