Cisco UCS C460 M1 High-Performance Rack-Mount Server: World-Record Virtualization Performance

Performance Brief

World-Record-Setting Four-Socket Server

The Cisco® UCS C460 M1 High-Performance Rack-Mount Server extends Cisco's industry leadership with the highest virtualization performance of any server as measured by the VMware VMmark benchmark. Powered by four Intel Xeon 7500 series processors, the Cisco UCS C460 M1 server delivers a **VMmark benchmark score of 73.82.** This result **beats IBM** and **more than doubles HP's best four-socket score**. Cisco's industry-leading innovation gives customers the performance they need to virtualize even the most mission-critical applications and support their most performance-intensive standalone applications in a standardized, simplified infrastructure.

Industry-Leading Platform Built for Virtualization

Virtualization has accelerated the need for a comprehensive solution that integrates application, platform, network, and infrastructure virtualization. Cisco and VMware, the respective industry leaders in data center infrastructure and virtualization, have teamed up to deliver an optimized virtualization solution. The Cisco Unified Computing System™, in combination with VMware vSphere software, en-ables customers to achieve a best-in-class virtual data center that delivers high performance to mission-critical applications.

While other vendors may have products that incorporate the latest high-performance CPUs, only Cisco combines them into a platform that was built with exceptional support for virtualized environments and delivers scalable performance to the enterprise. In short, the Cisco Unified Computing System is a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed specifically to reduce total cost of ownership (TCO) and increase business agility. Cisco delivers more performance from the entire system, and the latest VMware VMmark benchmark results are proof.

VMware VMmark Benchmark

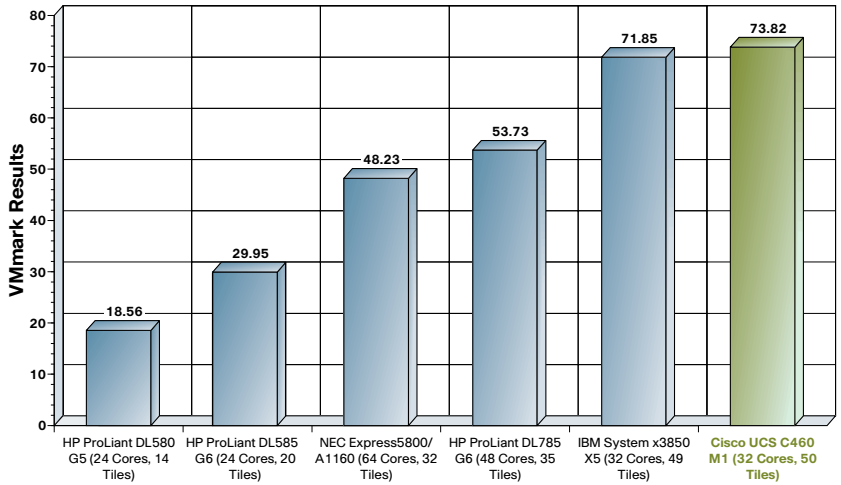
Conventional application benchmarks measure the performance of a single application running on a single operating system instance. Recognizing that virtualized environments run multiple applications and OS instances simultaneously, VMware developed the VMmark benchmark to give vendors a tool for comparing performance in virtualized environments.

VMware VMmark incorporates six benchmarks, including email, web, database, and file server workloads, into a tile. A tile represents a diverse, virtualized workload, and vendors increase the number of tiles running on a system under test until a peak level of performance is observed. This procedure produces a VMware VMmark score and the number of tiles for the benchmark run.

Industry-Leading Performance

Cisco tested the Cisco UCS C460 M1 server with four eight-core Intel Xeon 7560 processors and 512 GB of memory. The system was connected to two EMC CLARiiON CX4-480 storage systems whose performance was optimized with a combination of solid-state drives and 15,000-RPM disk drives. This four-socket, 32-core system delivered a VMware VMmark score that surpassed all server results posted at http://www.vmmark.com as of May 24, 2010 (Figure 1). The result was achieved while running 50 tiles, or a total of 300 virtual machines, on a single four-socket server.

Figure 1. The Cisco UCS C460 M1 Server Delivers the Highest VMware VMmark Benchmark Performance of Any Server Regardless of the Number of Cores



The vendor with the VMware VMmark score closest to that of the Cisco UCS C460 M1 server is the IBM x3850 X5 server, using an Intel Xeon 7500 series processor running 49 tiles. HP's eight-socket AMD-processor-based ProLiant DL785 running 48 cores managed 35 tiles and a VMmark score of 53.73—nearly 30 percent less than the Cisco UCS C460 M1. Eight-socket servers are significantly more costly than Cisco's four-socket server, and per-socket licensing fees double when moving to eight sockets.

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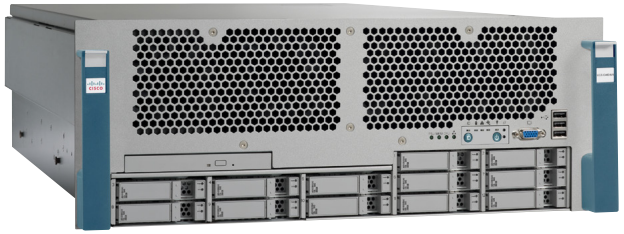
Cisco more than doubled the performance of HP's highest-performing four-socket server, the HP ProLiant DL585 G6 with four sockets and 24 cores and a VMware VMmark score of only 29.95. Cisco nearly quadrupled HP's most comparable Intel-processor-based server, the HP ProLiant DL580 G5 with four sockets and 24 cores and a VMmark score of only 18.56. Finally, the NEC Express5800/A1160, with 64 cores across 16 sockets (with four times the number of sockets to license), produced a VMmark score that was 35 percent lower than that of the Cisco UCS C460 M1. These scores are a testament to Cisco's deep understanding of how to best support virtual environments.

Investment Protection with a Future Migration Path to Cisco Unified Computing System

What no other vendor can provide in a rack-mount server is investment protection through a future migration path to the Cisco Unified Computing System. Designed with a form-factor-neutral architecture, the system currently supports blade server form factors with a future migration path for integrating Cisco rack-mount servers (such as the Cisco UCS C460 M1, Figure 2) into the system.

Figure 2. The Cisco UCS C460 M1 High-Performance Server



Cisco's prior record-setting VMmark benchmark result with the Cisco UCS B250 M1 Extended Memory Blade Server demonstrated how the architectural attributes of the Cisco Unified Computing System contribute to performance, including a low-latency 10-Gbps unified network fabric that carries both IP and storage traffic at the rack level, Cisco Extended Memory Technology that provides the largest memory footprint available in any two-socket server, and Cisco UCS M81KR Virtual Interface Cards (VICs) that allow virtual machines to connect directly to Ethernet network interface cards (NICs), making them capable of achieving up to 30 percent greater network performance while offloading the host CPU from emulating a switch. Cisco VICs provide a hardware implementation of Cisco VN-Link technology that gives visibility, security, and quality-of-service (QoS) management to network links connecting directly to virtual machines.

Conclusion

Cisco's experience and leadership in virtualization technology combined with the performance leap provided by Intel Xeon 7500 series processors have propelled the Cisco C460 M1 server to the top of the industry in terms of VMware VMmark performance. The migration path to the Cisco Unified Computing System provides a compelling reason for adopting the server today.

For More Information

For more information about the Cisco UCS 460 M1 server, visit http://www.cisco.com/en/US/products/ps10922/index.html.

For more information about the Cisco Unified Computing System, visit http://www.cisco.com/go/ucs.

Benchmark Disclosures

VMware® VMmark™ is a product of VMware, Inc. VMmark utilizes SPECjbb2005® and SPECweb2005®, which are available from the Standard Performance Evaluation Corporation (SPEC). SPEC and the benchmark names SPECjbb and SPECweb are registered trademarks of the Standard Performance Evaluation Corporation.

The Cisco UCS C460 M1 server score of 73.82 with 50 tiles was made available at http://www.vmmark.com on June 3, 2010. All other results were obtained from www.vmmark.com as of May 24, 2010: HP ProLiant DL580 G5 server result of 18.56 with 14 tiles reported October 6, 2008; HP ProLiant DL585 G6 server result of 29.95 with 20 tiles reported July 14, 2009; NEC Express5800/A1160 server result of 48.23 with 32 tiles reported November 17, 2009; HP ProLiant DL785 G5 server result of 53.73 with 35 tiles reported August 25, 2009; and IBM System x3850 X5 server result of 71.85 with 49 tiles reported April 20, 2010.

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