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 continues Cisco's industry leadership with the **highest virtualization performance and capacity 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 76.10 at 51 tiles**. This result demonstrates Cisco's industry leadership with performance superior to that of servers from **Dell, Fujitsu, HP, and IBM**. 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, enables customers to achieve a best-in-class virtual data center that delivers high performance to mission-critical applications.

Although 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. 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

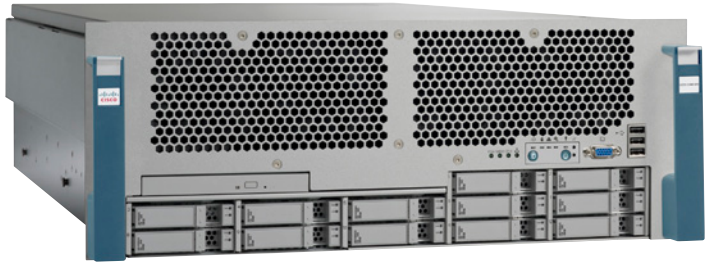
Conventional application benchmarks measure the performance of a single application running on a single operating system instance. Recognizing that virtualized environments run multiple applications and OS instances simultaneously, VMware developed the VMmark benchmark to give vendors a tool for comparing 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 X7560 processors and 512 GB of memory (Figure 1). The system was connected to an EMC CLARiiON CX4-240 and 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 August 25, 2010 The result was achieved while running 51 tiles, or a total of 306 virtual machines, on a single four-socket server.

Figure 1. Cisco UCS C460 M1 High-Performance Server.



Cisco's world-record-setting result is remarkable for two reasons: raw performance and increased virtualization capacity. The benchmark score demonstrates Cisco's leadership compared to other vendors, including Dell (score of 73.34 at 50 tiles), Fujitsu (score of 75.77 at 50 tiles), HP (score of 75.01 at 50 tiles), and IBM (score of 71.85 at 49 tiles). In addition, while the other vendors achieved their top scores running 49 or 50 benchmark tiles (294 or 300 virtual machines), Cisco achieved higher performance while running 51 tiles, or 306 virtual machines, demonstrating the Cisco UCS C460 M1 server's capacity to run a greater number of virtual machines. Cisco's leadership on two dimensions gives customers confidence in the server's ability to handle the most intensive virtualization workloads and to deliver better performance while processing them.

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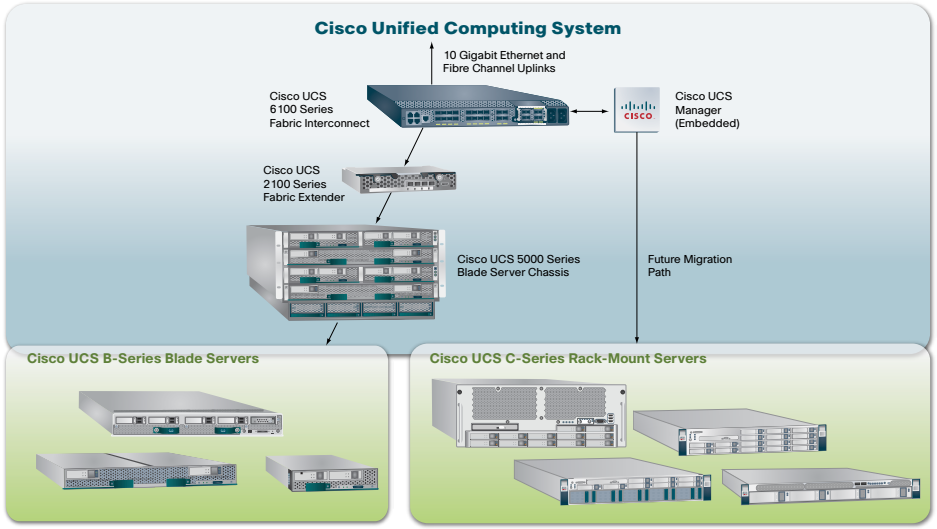
Investment Protection with a Future Migration Path to Cisco Unified Computing System

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 (Figure 2). 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) into the system.

Figure 2. Cisco C-Series Rack-Mount Servers Come with a Future Migration Path to Cisco Unified Computing System.



In the context of the Cisco Unified Computing System, Cisco's record-setting blade server result with the Cisco UCS B440 M1 High-Performance Blade Server demonstrates 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, and Cisco UCS M81KR Virtual Interface Cards (VICs), which allow virtual machines to connect directly to Ethernet virtual network interface cards (vNICs), making them capable of achieving up to 30 percent greater network performance while offloading the host CPU from the overhead of switch emulation. Cisco VICs provide a hardware implementation of Cisco VN-Link technology, which 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 76.10 with 51 tiles was made available at http://www.cisco.com/en/US/prod/ps10265/at_work_promo.html#~industry_benchmarks on August 26, 2010. All other results were obtained from http://www.vmmark.com as of August 25, 2010: Dell PowerEdge R910 server result of 74.34 with 50 tiles reported July 27, 2010; Fujitsu RX600 S5 server result of 75.77 with 50 tiles reported June 29, 2010; HP ProLiant DL580 G7 server result of 75.01 with 50 tiles reported August 24, 2010; and IBM System x3850 X5 server result of 71.85 with 49 tiles reported April 20, 2010.

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