Cisco UCS C460 M1 High-Performance Rack-Mount Server

Product Overview

Cisco® UCS C-Series Rack-Mount Servers extend unified computing innovations to an industry-standard form factor to help reduce total cost of ownership (TCO) and increase business agility. Designed to operate both in standalone environments and as an entry point to Cisco Unified Computing System™, the series employs Cisco technology to help customers handle the most challenging workloads. The series incorporates a standards-based unified network fabric, Cisco VN-Link virtualization support, and Cisco Extended Memory Technology. It supports an incremental deployment model and protects customer investments with a future migration path to unified computing.

The Cisco UCS C460 M1 High-Performance Rack-Mount Server (Figure 1) is designed with the performance and reliability to power compute-intensive, enterprise-critical standalone applications and virtualized workloads. The system is a four-rack-unit (4RU) rack-mount server supporting up to four Intel Xeon 7500 series processors, up to 1 TB of DDR3 memory in 64 slots, and 12 small form-factor (SFF) hot-pluggable SAS and SATA disk drives. Abundant I/O capability is provided by 10 PCI Express (PCIe) slots supporting the Cisco UCS C-Series network adapters, with an eleventh PCIe slot reserved for a hard disk drive array controller card. Additional I/O is provided by two Gigabit Ethernet LAN-on-motherboard (LOM) ports, two 10 Gigabit Ethernet ports, and two dedicated out-of-band (OOB) management ports. The following list summarizes the specifications:

- Two or four Intel Xeon 7500 series multicore processors, for up to 32 processing cores
- 64 DIMM slots for industry-standard double-data rate 3 (DDR3) memory
- Up to 12 front-accessible, hot-swappable, 2.5-inch SAS or SATA drives
- Ten PCIe slots: eight Generation 2 and two Generation 1, and four half length and six three-quarter length
- Remote management through an integrated service processor that also implements policy established in Cisco UCS Manager
- Local keyboard, video, and mouse (KVM) access through front console ports on each server
- OOB access by remote KVM, Secure Shell (SSH) Protocol, and virtual media (vMedia) as well as Intelligent Platform Management Interface (IPMI)

Figure 1. Cisco UCS C460 M1 Server

Applications

With the addition of the Cisco UCS C460 M1 server, the Cisco Unified Computing System portfolio offers customers more options to tailor system capabilities to application demands, eliminating waste and delivering balanced scaling. Whether they are core and thread, processor-frequency, memory-speed, or capacity intensive, both standalone applications and virtual machine stacks can be handled with accuracy on the Cisco Unified Computing System.

Supporting up to 1 TB of DDR3 memory in 64 DIMM slots, the Cisco UCS C460 M1 server, when combined with the Intel Xeon 7500 series processors, enables customers to handle the most demanding applications. Applications that are memory bound today will benefit from the increased performance and memory, allowing a wider range of performance-intensive and enterprise-critical applications as well as increased virtual machine deployments and greater server consolidation.

From a memory-cost perspective, the server can be populated with low-cost 4-GB DIMMs, for a total of up to 256 GB of main memory, delivering exceptional value to Cisco customers.

Customers gain the benefits of the Cisco UCS C460 M1 server's high-capacity memory when very large memory footprints are required, or when large, low-cost memory footprints are desirable, as in the following examples:

- Large virtualized environments
- Database applications
- Traditional high-performance computing (HPC) applications
- Enterprise resource planning (ERP) applications

Features and Benefits

The Cisco UCS C460 M1 server expands the scope of virtualization to a wider range of demanding data center workloads and adds scale-up capability to meet the needs of compute-intensive standalone applications. In addition, the Cisco UCS C460 M1 offers a built-in future migration path to the Cisco Unified Computing System. It increases customer choice by providing unique benefits in a rack-mount server, bringing differentiation and value to what has traditionally been a market with products not optimized to meet the needs of virtualized data centers. Table 1 summarizes the features and benefits of the Cisco UCS C460 M1 server.

Table 1.   Features and Benefits

Feature	Benefit
High Capacity Memory	• Up to 1 TB of main memory using 8-GB DIMMs or 256 GB of main memory with 4-GB DIMMs • Substantially increased memory footprint, increasing performance and capacity for demanding virtualization and large-data-set workloads • Reduced number of servers and decreased licensing costs with higher virtual-to-physical consolidation ratios • 64 DIMM slots, offering a more cost-effective memory footprint because higher-density DIMMs can be replaced by less expensive, lower-density DIMMs
10-Gbps unified network fabric	• Low-latency, lossless, 10-Gbps Ethernet and industry-standard Fibre Channel over Ethernet (FCoE) fabric options available • Wire-once deployment model in which changing I/O configurations no longer means installing adapters and recabling racks and switches • Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain
Virtualization optimization	• Cisco VN-Link technology, I/O virtualization, and Intel Xeon 7500 series processor features, extending the network directly to virtual machines • Consistent and scalable operational model • Increased security and efficiency with reduced complexity

Feature	Benefit
Unified management* (when integrated into the Cisco Unified Computing System)	• Entire solution managed as a single entity with Cisco UCS Manager, improving operational efficiency and flexibility • Service profiles and templates that implement role- and policy-based management, enabling more effective use of skilled server, network, and storage administrators • Automated provisioning and increased business agility, allowing data center managers to provision applications in minutes rather than days
Redundant, hot-swappable power supplies	Increased availability
Support for up to 10 PCIe 2.0 slots	• Flexibility, increased performance, and compatibility with industry standards • An additional 11th slot available to configure RAID support through optional LSI MegaRAID controller • PCIe 2.0 slots, which double bandwidth over the previous generation and offer more flexibility while maintaining compatibility with PCIe 1.1
Intel Xeon 7500 series multicore processors	• Intelligent performance that automatically adapts to the diverse needs of a virtualized environment as well as the most compute-demanding standalone applications • Intel Turbo Boost Technology and Intel Intelligent Power Technology adapt processor performance to application demands and intelligently scale energy use based on utilization, reducing costs while still delivering the performance required • Advanced reliability features, including machine check architecture recovery, to automatically monitor, report, and recover from hardware errors to maintain data integrity and keep mission-critical services online
Hot-swappable SAS and SATA drives	• Up to 12 front-accessible, hot-swappable, SFF 6G SAS or SATA drives • Support for 10,000–RPM drives that deliver both value and capacity • Support for 15,000-RPM drives for utmost performance • Capability to match storage characteristics to application requirements through the choice of high-capacity (500 GB) economical SATA drives or high-performance enterprise-class SAS drives (73, 146, and 300 GB)
RAID 0, 1, 5, 6, 10, 50, and 60 support	A choice of two RAID controller options to provide data performance and protection for up to 12 SAS or SATA drives
Cisco UCS Integrated Management Controller	• Web user interface for server management, administration, and virtual media • Virtual media support for remote KVM and CD/ DVD drives as if local • IPMI 2.0 support for OOB management through third-party enterprise management systems • Command-line interface (CLI) for server management
Integrated Dual Gigabit Ethernet	• Outstanding network I/O performance and increased network efficiency and flexibility • Increased network availability when configured in failover configurations
Optical drive	Direct front-panel access to CD and DVD media

Product Specifications

Table 2 lists the specifications for the Cisco UCS C460 M1 server.

Table 2.   Product Specifications

Item	Specification
Processors	• 2 or 4 Intel Xeon 7500 series multicore processors • Choice of processors: Intel Xeon X7560, X7550, E7540, L7555, or E7520 processor
Memory	• Up to 64 DIMM slots • Support for DDR3 registered DIMMs • Advanced ECC • Mirroring option

PCIe slots	• 10 PCIe 2.0 slots available (total of 11 slots available; one is a dedicated SAS riser slot (Generation 2 x8):
	  ◦ Slot 1: PCIe Gen2 x8, 3/4 length
	  ◦ Slot 2: PCIe Gen2 x8, 3/4 length, hot plug
	  ◦ Slot 3: PCIe Gen2 x8 1/2 length
	  ◦ Slot 4: PCIe Gen2 x4, 1/2 length
	  ◦ Slot 5: PCIe Gen2 x16, 3/4 length
	  ◦ Slot 6: PCIe Gen2 x8, 3/4 length, hot plug
	  ◦ Slot 7: PCIe Gen2 x8, 3/4 length, hot plug
	  ◦ Slot 8: PCIe Gen2 x8, 3/4 length
	  ◦ Slot 9: PCIe Gen1 x4, 1/2 length

Item	Specification
	◦ Slot 10: PCIe Gen1 x4, 1/2 length
Hard drives	Up to 12 front-accessible, hot-swappable, 2.5-inch SAS or SATA drives
Hard disk options	• 73-GB SAS; 6G, 15,000 RPM • 146-GB SAS; 6G, 10,000 RPM • 300-GB SAS; 6G, 10,000 RPM • 500-GB SATA; 7200 RPM • 600-GB SAS; 6G, 10,000 RPM
Optical drive	24x CD±R/RW DVD±R/RW optical drive
Integrated graphics	Matrox G200 core embedded into the ServerEngines Pilot-2 baseboard management controller
Cisco UCS Integrated Management Controller	• Integrated ServerEngines Pilot-2 BMC • IPMI 2.0 compliant for management and control • Two 10/100BASE-T OOB management interfaces • CLI and WebGUI management tool for automated, lights-out management • KVM
Front-panel connector	Ease of access to front-panel VGA video port and 3 USB ports
Front-panel status LEDs	5 LED status indicators: for the CPU, memory, power supply, and LAN status and the system ID
Additional rear connectors	Additional interfaces include a VGA video port, a serial port connector, and 2 USB 2.0 ports
Physical dimensions (H x W x D)	4RU: 6.84 x 16.7 x 27.7 in. (173.74 x 424.18 x 703.58 mm)
Temperature: Operating	50 to 95°F (10 to 35°C)
Temperature: Nonoperating	–40 to 158°F (–40 to 70°C)
Humidity: Operating	5 to 93% noncondensing
Humidity Nonoperating	95%, noncondensing at temperatures of 77 to 86°F (25 t o 30°C)
Altitude: Operating	–100 to 5000 ft (–30 to 1500 m)
Altitude: Nonoperating	40,000 ft (12,000m)

Regulatory Standards

Table 3 lists regulatory standards compliance information.

Table 3.   Regulatory Standards Compliance: Safety and EMC

Specification	Description
Safety	• UL60 950, CSA60 950, AS/NZS 3562, GB4943-1995, EN60 950 and 73/23/EEC, IEC 60 950, EMKO-TSE (74-SEC) 207/94, and GOST-R 50377-92
EMC: Emissions	• Certified to FCC Class A; tested to CISPR 22 Class A, EN 55022 Class A and 89/336/EEC, VCCI Class A, AS/NZS 3548 Class A, ICES-003 Class A, GB9254-1998, MIC Notice 1997-42 Class A, and GOST-R 29216-91 Class A, BSMI CNS13438
EMC: Immunity	• Verified to comply with EN55024, CISPR 24, GB9254-1998, MIC Notice 1997-41, and GOST-R 50628-95

Ordering Information

Help customers understand all the components they need to purchase to install and use the product. This section provides a direct link to the Cisco Ordering Tool and lists part numbers for customer convenience (Table 4).

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center.

Table 4.   Ordering Information

Product Name	Part Number
UCS C460 M1 Rack Server with DVD-RW and 1 PSU. CPUs, memory, HDD, PCIe cards, Rail Kit and Redundant PSU must be ordered below.	R460-4640810

For a complete list of Product ID numbers (PIDS) please refer to the corresponding SpecSheet.

Cisco Unified Computing Services: Cisco UCS C-Series Rack-Mount Servers

Using a unified view of data center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a Cisco UCS C-Series Rack-Mount Server solution. Cisco Unified Computing Services helps you quickly deploy the servers, optimize ongoing operations to better meet your business needs, and migrate to Cisco's unified computing architecture. For more information, visit http://www.cisco.com/go/unifiedcomputingservices.

For More Information

Please visit http://www.cisco.com/go/unifiedcomputing.

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