Cisco UCS C460 M2 High-Performance Rack Server

Product Overview

Cisco® UCS C-Series Rack 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 an entry point to the 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 M2 High-Performance Rack Server (Figure 1) is designed with the performance and reliability to power computation-intensive, enterprise-critical standalone applications and virtualized workloads. The system is a four-rack-unit (4RU) rack server supporting the Intel® Xeon® processor E7-4800 and E7-8800 product family, up to 2 terabyte (TB) of double-data-rate 3 (DDR3) memory in 64 slots, and 12 Small Form Factor (SFF) hot-pluggable SAS, SATA or SSD 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 multicore Intel® Xeon® processor E7-4800s and E7-8800s, for up to 40 processing cores
- 64 dual inline memory module (DIMM) slots for industry-standard DDR3 memory
- Up to 12 front-accessible, hot-swappable, 2.5-inch SAS, SATA drives or SSDs
- 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 M2 Server

Applications

With the addition of the Cisco UCS C460 M2 server, the Cisco Unified Computing System portfolio offers customers more options to tailor system capabilities to application demands, eliminating waste and delivering balanced scalability. Whether they are core and thread, processor, memory, 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 M2 server, when combined with the Intel® Xeon® processor E7-4800 and E7-8800 product family enables reliable, powerful, 64-bit multicore servers offering industry-leading performance, expanded memory and I/O capacity, and advanced reliability well suited for the most demanding enterprise and mission-critical workloads, large-scale virtualization, and large-node high-performance computing (HPC) applications. The Cisco UCS C460 M2 server gives customers the capability 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- or 8-GB DIMMs, for a total of up to 256 or 512 GB of main memory, delivering exceptional value to Cisco customers. Large memory footprints are possible using 4 or 8 GB DIMMs, no rip and replace like servers with fewer DIMM slots.

Customers gain the benefits of the Cisco UCS C460 M2 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
- Java-based workloads
- Traditional HPC applications
- Enterprise resource planning (ERP) applications

Features and Benefits

The Cisco UCS C460 M2 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 computation-intensive standalone applications. In addition, the Cisco UCS C460 M2 offers an entry point to the Cisco Unified Computing System. It increases customer choice by providing unique benefits in a rack 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 M2 server.

Table 1.   Features and Benefits

Feature	Benefit
High-capacity memory	• Up to 2 TB of main memory using 16-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 standalone 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

Feature	Benefit
Virtualization optimization	• Cisco VN-Link technology, P81E Virtual Interface Card, I/O virtualization, and Intel® Xeon® processor E7-4800 and E7-8800 product family, extending the network directly to virtual machines • Consistent and scalable operating model • Increased security and efficiency with reduced complexity
Unified management* (when integrated into the Cisco Unified Computing System)	• Entire solution managed as a single entity with Cisco UCS Manager, improving operation 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, eleventh 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
Multicore Intel® Xeon® processor E7-4800 and E7-8800 product family	• New levels of processor scalability, memory, and I/O capacity to address IT's greatest and most critical ERP, customer relationship management (CRM), database, analytics, and virtualization challenges, with exceptional hardware and software support • Top-of-the-line processors to deliver leading performance for mission-critical business solutions with outstanding economics that create new possibilities • Advanced reliability features and new security features including Machine Check Architecture Recovery to automatically manage hardware errors and protect against malicious software attacks, maintaining data integrity and increasing the availability of mission-critical services • Intelligent performance that automatically adapts to the diverse needs of a virtualized environment as well as the most computation-demanding standalone applications • Intel Turbo Boost Technology and Intel Intelligent Power Technology, which adapt processor performance to application demands and intelligently scale energy use based on utilization, reducing costs while still delivering the performance required
Hot-swappable SAS, SATA or SSD drives	• Up to 12 front-accessible, hot-swappable, SFF, SAS, SATA or SSD drives • Support for 7,200 and 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 (146, 300, 600 GB) and 100-GB SSD
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, SATA or SSD drives
Cisco UCS Integrated Management Controller (IMC)	• 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 M2 server.

Table 2.   Product Specifications

Item	Specification
Processors	• 2 or 4 multicore Intel® Xeon® processor E7-4800 and E7-8800 product family • Choice of processors: Intel® Xeon® processor E7-4800 and E7-8800 product family
Memory	• Up to 64 DIMM slots • Support for DDR3 registered DIMMs • Advanced error-correcting code (ECC) • Mirroring option • Double device data correction (DDDC)

Item	Specification

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, hot plug
	  ◦ 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 Gen1x4, 3/4 length
	  ◦ Slot 9: PCIe Gen1 x4, 1/2 length
	  ◦ Slot 10: PCIe Gen2 x4, 1/2 length

Hard drives	Up to 12 front-accessible, hot-swappable, 2.5-inch SAS, SATA or SSD drives
Hard disk options	• 146-GB SAS; 15,000 RPM • 300-GB SAS; and 10,000 RPM • 600-GB SAS; and 10,000 RPM • 500-GB SATA; 7200 RPM • 1-TB SATA; 7200 RPM • 100-GB SSD;
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 (BMC)
Cisco UCS IMC	• 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: VGA video port, 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 to 30°C)
Altitude: Operating	-100 to 5000 ft (-30 to 1500m)
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 • GOST-R 50377-92

Specification	Description
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

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 M2 Rack Server with DVD-RW and 1 PSU. CPUs, memory, HDD, PCIe cards, Rail Kit and Redundant PSU must be ordered below.	UCSC-BASE-M2-C460

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

Cisco Unified Computing Services: Cisco UCS C-Series Rack 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 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

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