Cisco UCS C250 M2 Extended-Memory 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 part of 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 C250 M2 Extended-Memory Rack-Mount Server is a two-socket, two-rack-unit (2RU) rack-mount server featuring patented Cisco Extended Memory Technology (Figure 1). It is designed to increase performance and capacity for demanding virtualization and large-data-set workloads. It also can reduce the cost of smaller memory footprints. This server is built for virtualized workloads in enterprise data centers, service provider environments, and virtual desktop hosting. The system also helps increase performance for large-data-set workloads, including database management systems and modeling and simulation applications. Applications that are memory bound today will benefit from the 384 GB of addressable memory that the Cisco UCS C250 M2 server offers.

Building on the success of the Cisco UCS C250 M1 Extended-Memory Rack-Mount Server, the Cisco UCS C250 M2 server extends the capabilities of the Cisco Unified Computing System with the next generation of Intel processor technology: Intel® Xeon® 5600 series processors. These powerful processors deliver more cores, threads, and cache, all within a similar power envelope, with even faster payback, greater productivity, and better energy efficiency than preceding models. When put into production, Cisco Unified Computing System and Intel Xeon 5600 series processors together offer further reductions in TCO, increased business agility, and another big leap forward in data center virtualization.

Figure 1. Cisco UCS C250 M2 Server

Applications

With 48 DIMM slots available, the Cisco UCS C250 M2 server design is unique among two-socket servers based on Intel Xeon 5600 series processors. From a memory-capacity perspective, it can alleviate memory bottlenecks in situations in which costly four-socket servers might otherwise be necessary, helping improve the price-to-performance ratio for running large-memory-footprint applications. From a memory-cost perspective, the server can be populated with low-cost 4-GB DIMMs for a total of up to 192 GB of main memory; this memory configuration delivers a memory footprint that other two-socket, Intel Xeon 5600 series processor–based systems require 16-GB DIMMS to achieve. The server also can be populated with 8-GB DIMMs for a total of up to 384 GB of memory.

These benefits of Cisco Extended Memory Technology can be harnessed by customers when very large memory footprints are required, or when large, low-cost memory footprints are desirable, as in the following examples:

- Large virtualized environments can host more or larger virtual machines with the server's larger memory footprint, and with higher performance in cases in which existing implementations are memory bound.
- Database applications will thrive in virtualized and nonvirtualized environments, as the server uses the combination of a large memory footprint and the fastest Intel processors
- Traditional high-performance computing (HPC) applications can benefit from the server's performance and memory footprint, including memory-intensive engineering design automation (EDA) and geophysical modeling applications. EDA applications and oil and seismic applications can now expand beyond the 144-GB memory capacity of other two-socket servers, and the applications can be accelerated with a larger (384 GB) or a more economical (192 GB) memory footprint. Other memory-bound HPC applications are likely to see performance acceleration on a Cisco UCS C250 M2 server.
- Enterprise resource planning (ERP) applications can run with improved performance with large data sets in main memory when hosted on the Cisco UCS C250 M2 server.

Features and Benefits

The Cisco UCS C250 M2 server extends Cisco unified computing innovations—including Cisco Extended Memory Technology—to an industry-standard, rack-mount form factor. It is the first rack-mount server available anywhere with a built-in future migration path to unified computing. 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 C250 M2 server.

Table 1. Features and Benefits

Feature	Benefit
Cisco Extended Memory Technology	• Up to 384 GB of main memory using 8-GB DIMMs or 192 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 • 48 DIMM slots, offering a more cost-effective memory footprint because smaller-density DIMMs can be substituted for more expensive, higher-density DIMMs
10-Gbps unified network fabric	• Low-latency, lossless, 10-Gbps Ethernet and industry-standard Fibre Channel over Ethernet (FCoE) fabric • 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 5600 series processor features, extending the network directly to virtual machines • Consistent and scalable operational 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 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

Feature	Benefit
Redundant, hot-swappable power supplies	Increased availability
Redundant, hot-swappable, front-accessible fans	Increased serviceability, leading to less down time
Support for up to 5 PCI Express (PCIe) 2.0 slots	• Flexibility, increased performance, and compatibility with industry standards • I/O performance and flexibility with 2 full-height, half-length x16 slots or 3 low-profile, half-length x8 slots • One of the 5 slots 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
Six-core Intel Xeon 5600 series processors	• Intelligent performance that automatically adjusts processor performance to meet application demands, increasing performance when needed and achieving substantial energy savings when not • Automated energy efficiency that reduces energy costs by automatically putting the processor and memory in the lowest available power state while still delivering the performance required • Flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O • With more cores, threads, and cache in a similar power envelope, the Cisco Unified Computing System and Intel Xeon 5600 series processors together offer further reductions in TCO, increased business agility, and another big leap forward in data center virtualization • Cisco C-series servers keep pace with Intel Xeon processor innovation by offering the latest series 5600 processors with an increase in processor frequency and improved security features. With the increased clock speed, the Intel Xeon 5600 series based UCS C-Series rack mount servers will offer improved price/performance making UCS servers one of the best values in the industry.
Hot-swappable SAS and SATA drives	• Up to 8 front-accessible, hot-swappable, small form-factor (SFF) 6G SAS or SATA 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 tailor storage characteristics to application requirements through the choice of high capacity (500 GB and 1 TB) and 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 8 SAS or SATA drives
Cisco UCS Integrated Management Controller	• Web user interface for server management, administration, and virtual media • Virtual media support for remote keyboard, video, and mouse (KVM) and CD/DVD drives as if local • Intelligent Platform Management Interface (IPMI) 2.0 support for out-of-band management through third-party enterprise management systems • Command-line interface (CLI) for server management
Integrated 4 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 C250 M2 server.

Table 2. Product Specifications

Item	Specification
Processors	• 1 or 2 Intel Xeon Series 5500 or 5600 processors • Choice of processors: Intel Xeon X5690, X5680, X5675, X5670, X5650, E5649, E5640, or E5620
Memory	• Up to 48 DIMM slots • Support for DDR3-1333MHz registered DIMMs • Support for DDR3-1333MHz low-voltage DIMMs • Advanced ECC • Mirroring option
PCIe slots	• 5 PCIe 2.0 slots available ◦ 3 low-profile, half-length x8 slots ◦ 2 full-height, half-length x16 slots ◦ x16 connectors on all slots
Hard drives	Up to 8 front-accessible, hot-swappable, 2.5-inch SAS or SATA drives

Item	Specification
Hard disk options	• 73-GB SAS; 6G, 15,000 RPM • 146-GB SAS; 6G, 10,000 RPM • 146-GB SAS; 6G, 15,000 RPM • 300-GB SAS; 6G, 10,000 RPM • 500-GB SATA; 7200 RPM • 600-GB SAS; 10,000 RPM • 1-TB SATA; 7,200 RPM
Optical drive	24x CD±R/RW DVD±R/RW optical drive
Integrated graphics	Matrox G200 core embedded into the ServerEngines Pilot-2 BMC
Cisco UCS Integrated Management Controller	• Integrated ServerEngines Pilot-2 BMC • IPMI 2.0 compliant for management and control • Two 10/100BASE-T out-of-band management interfaces • CLI and WebGUI management tool for automated, lights-out management • KVM
Baseboard management controller (BMC)	Integrated ServerEngines Pilot-2 BMC
Front-panel connector	Ease of access to front-panel video, 2 USB ports, and serial console
Front-panel locator LED	Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	Additional interfaces include a DB-15 video port, 2 USB 2.0 ports, and a DB-9 serial port
Physical dimensions (H x W x D)	2RU: 3.39 x 17.5 x 28 in. (8.61 x 44.45 x 71.12 cm)
Temperature: Operating	50 to 95℉ (10 to 35℃)
Temperature: Nonoperating	–40 to 149℉ (–40 to 65℃)
Humidity: Operating	5 to 93% noncondensing
Humidity Nonoperating	5 to 93% noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000m)
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	• UL 60950-1 No. 21CFR1040 • CAN/CSA-C22.2 No. 60950-1 • NOM-NYCE • NOM-10-SCFI-10993 • IRAM IEC60950-1 • CB IEC60950-1 • EN 60950-1 • IEC 60950-1 • GOST IEC60950-1 • SASO • SABS/CB IEC6095-1 • CCC*/CB GB4943-1995 • CNS14336 • CB IEC60950-1 • AS/NZS 60950-1 • GB4943

Specification	Description
EMC: Emissions	• 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR2 2 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • EN60601 • KN22 Class A • CNS13438 Class A
EMC: Immunity	• EN50082-1 • EN61000-6-1 • EN55024 • CISPR24 • EN300386 • KN 61000-4 Series

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

Cisco Unified Computing Services: Cisco 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 help 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.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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