

# Cisco UCS C22 M3 Rack Servers

## Product Overview

The Cisco Unified Computing System™ (Cisco UCS™) combines Cisco UCS C-Series Rack Servers and B-Series Blade Servers with networking and storage access in a single converged system that simplifies management and delivers greater cost efficiency and agility with increased visibility and control. The latest expansion of the Cisco UCS portfolio includes the new 1RU, Cisco UCS C22 M3 Rack Server and the 2RU, Cisco UCS C24 M3 Rack Server. These two new servers increase computing density and balanced price per performance, through more cores and cache balanced with ample memory capacity and disk drives. Together these server improvements and complementary Cisco UCS advancements deliver the best combination of features and cost efficiency required to support IT's diverse server needs.

The Cisco UCS C22 M3 Rack Server (Figure 1) combines outstanding economics and a density-optimized feature set. The C22 M3 Rack Server targets entry level enterprise to SMB with applications such as scale out, virtualization, IT and web infrastructure, VPN servers, file/print servers and appliances. Building on the success of the Cisco UCS C-Series servers, the C22 M3 server and the Cisco UCS Virtual Interface Card 1225 (VIC) further extend the capabilities of the Cisco UCS portfolio in a 1RU form factor with the addition of the Intel® Xeon® processor E5-2400 product family, which delivers an optimal combination of performance and efficiency gains. In addition, the Cisco UCS C22 M3 2-socket server offers 12 DIMM slots, up to 4 LFF (Large Form Factor) or 8 SFF (Small Form Factor) disk drives, 2 PCI Express (PCIe) Generation 3.0 slots, and two 1 Gigabit Ethernet LAN-on-motherboard (LOM) ports, providing both an excellent price-to-performance ratio and a compact form factor.

The Cisco UCS C22 M3 server interfaces with Cisco UCS using another unique Cisco® innovation: the Cisco UCS Virtual Interface Card 1225 (VIC 1225). The Cisco UCS VIC 1225 is a virtualization-optimized Fibre Channel over Ethernet (FCoE) PCIe 2.0 x8 10-Gbps adapter designed for use with Cisco UCS C-Series servers. The VIC is a dual-port 10 Gigabit Ethernet PCIe adapter that can support up to 256 PCIe standards-compliant virtual interfaces, which can be dynamically configured so that both their interface type (network interface card [NIC] or host bus adapter [HBA]) and identity (MAC address and worldwide name [WWN]) are established using just-in-time provisioning. In addition, the Cisco UCS VIC 1225 can support network interface virtualization and Cisco Data Center Virtual Machine Fabric Extender (VM-FEX) technology.

**Figure 1.** Cisco UCS C22 M3 Server



---

## Applications

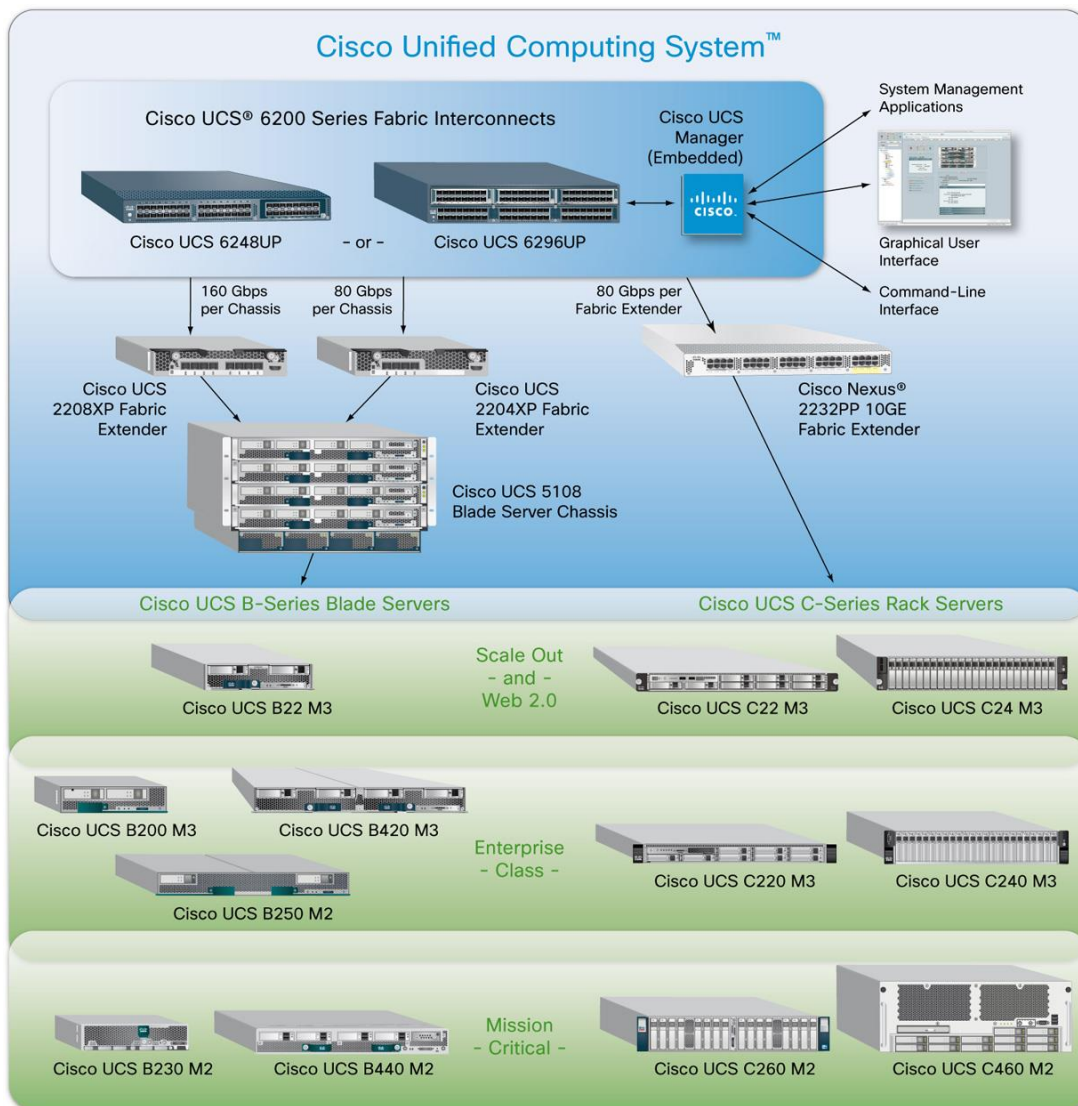
The Cisco UCS C22 M3 server is a high-density, scale-out 2-socket server optimized to deliver balanced price and performance for a range of enterprise to SMB workloads, including:

- Scale-out applications
- Web 2.0 workloads
- Density-constrained applications
- IT infrastructure
- Web infrastructure
- SMB applications
- File and print server
- VPN Server
- Small virtualization

## Cisco UCS Servers Change the Economics of the Data Center

Cisco continues to lead in data center innovation with infrastructure as a service (IaaS), bare metal, virtualized servers, and cloud computing with the introduction of new building blocks such as the C22 M3 Server for Cisco UCS that extend the system's exceptional simplicity, agility, and efficiency (Figure 2). The Cisco C22 M3 rack server also continues Cisco's commitment to delivering uniquely differentiated value, fabric integration, and ease of management that is exceptional in the marketplace.

**Figure 2.** Cisco UCS Components



For example, Cisco innovations, such as the form-factor-agnostic Cisco UCS Manager software, allow administrators to create a software model of a desired server (using Cisco service profiles and templates) and then instantiate that server and its I/O connectivity by associating a model with physical resources. This stateless approach contrasts with the traditional method of configuring each system resource manually, one at a time, through individual element managers. Unlike vendors of traditional systems, Cisco uses a unified management model with service profiles that can be moved easily between any Cisco UCS servers, whether blade server or rack server, in a Cisco UCS Manager domain.

Other Cisco UCS building blocks include enhanced server I/O options and expanded Cisco UCS fabric interconnects that extend scalability, investment protection, and management simplicity for both rack and blade systems. Here are a few examples of Cisco UCS investment protection:

- Fabric extenders can be upgraded using the same fabric interconnects and the same Cisco UCS VIC 1225.
- Fabric interconnect hardware can be upgraded independently of fabric extenders and rack servers.

In addition, Cisco continues to innovate in nearly all hardware and software components of Cisco UCS, helping ensure that more powerful rack servers have adequate I/O bandwidth, management scalability, and investment protection both now and in the future.

The Cisco UCS C22 M3 is also part of a larger family of rack servers: the Cisco UCS C-Series Rack Servers. Designed to operate both in standalone environments and as part of Cisco UCS, all Cisco UCS C-Series servers complement and extend Cisco innovation, investment protection, and simplicity. Cisco UCS C-Series servers provide innovations such as:

- Standards-based unified network fabric
- Cisco Data Center VM-FEX virtualization support
- Cisco UCS Manager software
- Cisco fabric extender and fabric interconnect architectures
- Cisco Extended Memory Technology

With Cisco UCS C-Series innovations, Cisco UCS architectural advantages, software advances, continuous innovation, and unique rack and blade server designs, Cisco UCS is the first truly unified data center platform. In addition, Cisco UCS can transform IT departments through policy-based automation and deep integration with familiar systems management and orchestration tools.

### Unique Benefits in a Familiar Package

Available from Cisco and its data center partners, the Cisco UCS C22 M3 Rack Server advances the market with the features listed in Table 1.

**Table 1.** Features and Benefits

Feature	Benefit
<b>10-Gbps unified network fabric</b>	<ul style="list-style-type: none"> <li>• Low-latency, lossless, 10-Gbps Ethernet and industry-standard FCoE and native Fibre Channel fabric</li> <li>• Wire-once deployment model in which changing I/O configurations no longer means installing adapters and recabling racks and switches</li> <li>• Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain</li> </ul>
<b>Virtualization optimization</b>	<ul style="list-style-type: none"> <li>• Cisco Data Center VM-FEX and Adapter FEX technologies, I/O virtualization, and Intel Xeon processor E5-2400 product family features, extending the network directly to virtual machines</li> <li>• Consistent and scalable operational model</li> <li>• Increased security and efficiency with reduced complexity</li> <li>• Capability to move virtual machine security features and policies from rack server to rack server or rack server to blade server</li> </ul>
<b>Unified management (when integrated into Cisco UCS)</b>	<ul style="list-style-type: none"> <li>• Entire solution managed as a single entity with Cisco UCS Manager, improving operational efficiency and flexibility</li> <li>• Service profiles and templates that implement role- and policy-based management, enabling more effective use of skilled server, network, and storage administrators</li> <li>• Automated provisioning and increased business agility, allowing data center managers to provision applications in minutes rather than days by associating a service profile with a new, added, or repurposed Cisco UCS C22 M3 server</li> <li>• Capability to move service profiles from rack server to rack server, blade server to rack server, or rack server to blade server in minutes instead of hours or days</li> </ul>

Feature	Benefit
<b>Intel Xeon processor E5-2400 product family</b>	<ul style="list-style-type: none"> <li>Automated energy efficiency reduces energy costs by automatically putting the processor and memory in the lowest available power state while still delivering the performance required and flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O</li> <li>Up to twice the performance is provided for floating-point operations. Intel Advanced Vector Extensions (Intel AVX) provides new instructions that can significantly improve performance for applications that rely on floating-point or vector computations</li> <li>Cisco UCS C-Series servers keep pace with Intel Xeon processor innovation by offering the latest processors with an increase in processor frequency and improved security features. With the increased performance provided by the Intel Xeon processor E5-2400 product family, Cisco UCS C-Series rack servers offer an improved price-to-performance ratio, making Cisco UCS servers among the best values in the industry</li> <li>Advanced reliability features include Machine Check Architecture Recovery to automatically monitor, report, and recover from hardware errors to maintain data integrity and keep mission-critical services online</li> <li>Establish trusted pools of virtual resources with Intel® Trusted Execution Technology (Intel® TXT), gaining hardened protection for virtual and cloud environments. Intel TXT helps ensure that physical servers and hypervisors boot only into cryptographically verified "known good states." It safeguards your business more effectively by protecting your platform from the insertion of malware during or prior to launch</li> </ul>
<b>Hot-swappable SAS or SATA drives</b>	<ul style="list-style-type: none"> <li>Up to 4 LFF (Large Form Factor) or 8 SFF (Small Form Factor) front-accessible, hot-swappable, internal SAS and SATA drives, providing redundancy options and ease of serviceability</li> <li>Balanced performance and capacity to best meet application needs</li> <li>15,000-RPM SAS drives for highest performance</li> <li>10,000 RPM SAS drives for high performance and value</li> <li>7200-RPM SATA drives for high capacity and value</li> </ul>
<b>RAID 0, 1, 5, 6, 10, 50, and 60 support</b>	A choice of high performing PCIe based RAID card controllers provides data protection for up to 4 (LFF) or 8 (SFF) SAS or SATA or on-board RAID (doesn't take a PCIe slot)
<b>Cisco UCS C-Series Integrated Management Controller (CIMC)</b>	<ul style="list-style-type: none"> <li>Web user interface for server management; remote keyboard, video, and mouse (KVM); virtual media; and administration</li> <li>Virtual media support for remote CD and DVD drives as if local</li> <li>Intelligent Platform Management Interface (IPMI) 2.0 support for out-of-band management through third-party enterprise management systems</li> <li>Command-line interface (CLI) for server management</li> <li>Depending on your CIMC settings, access to the Cisco UCS C-Series CIMC through the 1-Gbps Ethernet dedicated management port, the 1-Gbps Ethernet LOM ports, or a Cisco VIC 1225</li> </ul>
<b>Fast-memory support</b>	12 DIMM slots supporting DDR3 1,333 and 1,600-MHz memory for optimal performance
<b>Power supply</b>	<ul style="list-style-type: none"> <li>Cisco common form-factor platinum power supply (450 or 650W)</li> </ul>
<b>Support for up to 2 PCIe generation 3.0 slots</b>	<ul style="list-style-type: none"> <li>Flexibility, increased performance, and compatibility with industry standards</li> <li>PCIe generation 3.0 slots, which are estimated to substantially increase the bandwidth compared to the previous generation and offer more flexibility while maintaining compatibility with PCIe 2.0</li> <li>I/O performance and flexibility with one x16, half-height and half-length slot and one x16, full-height and half-length slot</li> </ul>
<b>Integrated dual-port Gigabit Ethernet</b>	<ul style="list-style-type: none"> <li>Outstanding network I/O performance and increased network efficiency and flexibility</li> <li>Increased network availability when configured in failover settings</li> </ul>

## Product Specifications

Table 2 lists the specifications for the Cisco UCS C22 M3 server.

**Table 2.** Product Specifications

Item	Specification
<b>Processors</b>	<ul style="list-style-type: none"> <li>1 or 2 Intel Xeon processor E5-2400 product family CPUs</li> <li>For a complete list of processor options, please refer to the corresponding <a href="#">SpecSheet</a></li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>12 DIMM slots</li> <li>Support for DDR3 registered DIMMs</li> <li>Support for DDR3 low-voltage DIMMs</li> <li>Advanced error-correcting code (ECC)</li> <li>Mirroring option</li> </ul>

Item	Specification
<b>PCIe slots</b>	<ul style="list-style-type: none"> <li>• 2 PCIe generation 3.0 slots</li> <li>• I/O performance and flexibility with one x16 half-height and half-length slot, and one x16 full-height and half-length slot</li> </ul>
<b>RAID</b>	For a complete list of RAID options, please refer to the corresponding <a href="#">SFF SpecSheet</a> or <a href="#">LFF SpecSheet</a>
<b>Hard drives</b>	Up to 4 (LFF) or 8 (SFF) front-accessible, hot-swappable, SAS, SATA drives
<b>Hard disk options</b>	2.5-inch (SFF) and 3.5-inch (LFF) drive options: <ul style="list-style-type: none"> <li>• For a complete list of drive options, please refer to the corresponding <a href="#">SFF SpecSheet</a> or <a href="#">LFF SpecSheet</a></li> </ul>
<b>Cisco UCS Integrated Management Controller</b>	<ul style="list-style-type: none"> <li>• Integrated Emulex Pilot-3 Baseboard Management Controller (BMC)</li> <li>• IPMI 2.0 compliant for management and control</li> <li>• One 10/100/1000 Ethernet out-of-band management interface, or 1 Gigabit Ethernet LOM or Cisco 1225 VIC access</li> <li>• CLI and WebGUI management tool for automated, lights-out management</li> <li>• KVM, vMedia</li> </ul>
<b>Front-panel connector</b>	Two USB 2.0 ports
<b>Front-panel locator LED</b>	<ul style="list-style-type: none"> <li>• Indicator to help direct administrators to specific servers in large data center environments</li> <li>• Power button/power status</li> <li>• Identification</li> <li>• System status</li> <li>• Fan status</li> <li>• Temperature status</li> <li>• Power supply status</li> <li>• Network link activity</li> </ul>
<b>Additional rear connectors</b>	Additional interfaces including a VGA video port (DB - 15), 4 USB 2.0 ports, 1 Gigabit Ethernet dedicated management port, dual 1 Gigabit Ethernet ports, a serial port (DB-9)
<b>Physical dimensions (H x W x D)</b>	1RU: 1.7 x 16.9 x 26 in. (43.2 x 430 x 660.4 mm)
<b>Temperature: Operating</b>	41 to 104°F (5 to 40°C) (derate the maximum temperature by 1°C per every 305m of altitude above sea level)
<b>Temperature: Nonoperating</b>	-40 to 149°F (-40 to 65°C)
<b>Humidity: Operating</b>	10 to 90% noncondensing
<b>Humidity: Nonoperating</b>	5 to 93% noncondensing
<b>Altitude: Operating</b>	0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m
<b>Altitude: Nonoperating</b>	0 to 40,000 ft (12,000m)

## Regulatory Standards

Table 3 lists regulatory standards compliance information.

**Table 3.** Regulatory Standards Compliance: Safety and EMC

Specification	Description
<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL 60950-1 No. 21CFR1040 Second Edition</li> <li>• CAN/CSA-C22.2 No. 60950-1 Second Edition</li> <li>• IEC 60950-1 Second Edition</li> <li>• EN 60950-1 Second Edition</li> <li>• IEC 60950-1 Second Edition</li> <li>• AS/NZS 60950-1</li> <li>• GB4943 2001</li> </ul>

Specification	Description
<b>EMC: Emissions</b>	<ul style="list-style-type: none"> <li>• 47CFR Part 15 (CFR 47) Class A</li> <li>• AS/NZS CISPR22 Class A</li> <li>• CISPR2 2 Class A</li> <li>• EN55022 Class A</li> <li>• ICES003 Class A</li> <li>• VCCI Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• KN22 Class A</li> <li>• CNS13438 Class A</li> </ul>
<b>EMC: Immunity</b>	<ul style="list-style-type: none"> <li>• EN55024</li> <li>• CISPR24</li> <li>• EN300386</li> <li>• KN24</li> </ul>

## Ordering Information

For a complete list of part numbers, please refer to the corresponding [SFF SpecSheet](#) or [LFF SpecSheet](#).

## Cisco Unified Computing Services

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>.



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

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)