

# Cisco UCS C220 M4 Rack Server

## Deliver Exceptional Performance for Space-Constrained Environments

The Cisco UCS<sup>®</sup> C220 M4 Rack Server is the most versatile, general-purpose enterprise infrastructure and application server in the industry. It is a high-density two-socket enterprise-class rack server that delivers industry-leading performance and efficiency for a wide range of enterprise workloads, including virtualization, collaboration, and bare-metal applications. The Cisco UCS C-Series Rack Servers can be deployed as standalone servers or as part of the Cisco Unified Computing System<sup>™</sup> (Cisco UCS) to take advantage of Cisco's standards-based unified computing innovations that help reduce customers' total cost of ownership (TCO) and increase their business agility.

**Figure 1.** Cisco UCS C220 M4 Rack Server



## Overview

The enterprise-class Cisco UCS C220 M4 server extends the capabilities of the Cisco UCS portfolio in a 1RU form factor. It incorporates the Intel<sup>®</sup> Xeon<sup>®</sup> processor E5-2600 v3 product family, next-generation DDR4 memory, and 12-Gbps SAS throughput, delivering significant performance and efficiency gains. The Cisco UCS C220 M4 rack server delivers outstanding levels of expandability and performance in a compact 1RU package:

- Up to 24 DDR4 DIMMs for improved performance and lower power consumption
- Up to 8 Small Form-Factor (SFF) drives or up to 4 Large Form-Factor (LFF) drives
- Support for 12-Gbps SAS Module RAID controller in a dedicated slot, leaving the remaining two PCIe Gen 3.0 slots available for other expansion cards
- A modular LAN-on-motherboard (mLOM) slot that can be used to install a Cisco UCS virtual interface card (VIC) or third-party network interface card (NIC) without consuming a PCIe slot
- Two embedded 1Gigabit Ethernet LAN-on-motherboard (LOM) ports



Cisco UCS with  
Intel<sup>®</sup> Xeon<sup>®</sup> Processors

## Product Features and Benefits

Feature	Benefit
<b>2133-MHz DDR4 memory</b>	24 slots for registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs) that deliver significant improvement in application performance: The Cisco UCS C220 M4 server supports up to 3 DIMMs per channel at 1866-MHz speeds with LRDIMMs.
<b>1 or 2 Intel® Xeon® processor E5-2600 v3 product family CPUs</b>	<p>The Intel® Xeon® processor E5-2600 v3 product family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness:</p> <ul style="list-style-type: none"> <li>• Over twice the performance and more cores (up to 18 cores per socket) than the previous generation Intel Xeon processor.</li> <li>• Low power, high speed DDR4 memory technology.</li> <li>• Increased performance with Intel AVX2.</li> <li>• Increased in virtual machine density.</li> <li>• 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 and flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O.</li> <li>• Cisco UCS C-Series servers keep pace with Intel® Xeon® processor innovation by offering the latest processors that increase processor frequency and improve security features. With the increased performance provided by the Intel Xeon processor E5-2600 v3 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> </ul>
<b>Support for up to 2 PCIe 3.0 slots</b>	<ul style="list-style-type: none"> <li>• Flexibility, increased performance, and compatibility with industry standards.</li> <li>• Substantially increased bandwidth compared to the previous generation, with more flexibility and backward compatibility with PCIe 2.0.</li> <li>• Greater I/O performance and flexibility.</li> </ul>
<b>Support for an mLOM slot</b>	<ul style="list-style-type: none"> <li>• New to the Cisco UCS C220 M4, the mLOM slot can be used to install a Cisco VIC or third-party NIC without consuming a PCIe slot, providing greater I/O expandability.</li> </ul>
<b>40-Gbps unified network fabric</b>	<ul style="list-style-type: none"> <li>• Low-latency, lossless, 40-Gbps Ethernet and industry-standard FCoE and native Fibre Channel fabric.</li> <li>• Wire-once deployment model: Changing I/O configurations no longer requires 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 Virtual Machine Fabric Extender (VM-FEX) and Adapter-FEX technologies, I/O virtualization, and Intel Xeon processor E5-2600 v3 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 to rack or rack to blades.</li> </ul>
<b>Unified management (when integrated into Cisco UCS)</b>	<ul style="list-style-type: none"> <li>• Can be deployed as a standalone server or in a UCS-managed environment.</li> <li>• When combined with Cisco UCS, the entire solution can be 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 C220 M4 server.</li> <li>• Capability to move service profiles from rack server to another rack server, blade to rack server, or rack to blade server in minutes instead of hours or days.</li> </ul>
<b>Hot-swappable SAS, SATA, or SSD drives</b>	<ul style="list-style-type: none"> <li>• Up to 8 front-accessible, hot-swappable SFF HDDs or SSDs or up to 4 LFF drives, providing redundancy options and ease of serviceability.</li> <li>• Balanced performance and capacity to best meet application needs: <ul style="list-style-type: none"> <li>◦ SATA SSDs</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> </li> </ul>

Feature	Benefit
<b>Cisco® 12-Gbps SAS Modular RAID controller</b>	<ul style="list-style-type: none"> <li>• Cisco 12Gbps Modular RAID PCIe Gen 3.0 controller provides enterprise-class data protection for up to 8 SAS, SATA disk drives or SSDs.</li> <li>• RAID card is plugged into a dedicated PCIe slot, leaving the two remaining PCIe slots available for other I/O expansion cards.</li> <li>• Available with configurable DDR3 Cache memory: 512MB, 1GB, 2GB, or 4GB Flash-backed write cache (FBWC) options.</li> <li>• RAID 0, 1, 5, 6, 10, 50, and 60 supported.</li> <li>• JBOD/SAS/SATA Pass-through mode (default).</li> <li>• PCIe Gen 3.0 x8 support.</li> </ul>
<b>Software RAID option</b>	<ul style="list-style-type: none"> <li>• The software RAID option supports RAID 0, 1, 5, and 10 for up to 4 SATA HDDs or SSDs.</li> </ul>
<b>Cisco Integrated Management Controller (IMC)</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>• Provides UCS visibility and control to management ecosystem partners using a comprehensive XML API.</li> </ul>
<b>Advanced reliability, availability, and serviceability (RAS) features</b>	<ul style="list-style-type: none"> <li>• Hot-swappable, front-accessible drives.</li> <li>• Redundant Cisco FlexFlash SD cards.</li> <li>• Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime.</li> <li>• Convenient latching lid for easy access to internal server.</li> <li>• Tool-free CPU insertion allows for processor upgrades and replacements with reduced risk of damage.</li> <li>• Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items.</li> </ul>
<b>Security features</b>	<ul style="list-style-type: none"> <li>• Trusted Platform Module (TPM) is a chip (microcontroller) that can securely store artifacts used to authenticate the platform (server). These artifacts can include passwords, certificates, or encryption keys. TPM 1.2 SPI-based module is supported.</li> <li>• Locking bezel option can be mounted to the front of the chassis to protect against unauthorized access to the drives.</li> </ul>
<b>Cisco Flexible Flash (FlexFlash) Secure Digital (SD) cards</b>	<ul style="list-style-type: none"> <li>• The server supports two redundant internal Cisco FlexFlash SD cards, which can be used to install a boot OS or embedded hypervisor.</li> <li>• Cisco FlexFlash SD cards also support Utility mode with out-of-band update of utility partitions.</li> </ul>

## Powering Next-Generation Applications

The Cisco UCS C220 M4 Rack Server with the Intel® Xeon® processor E5-2600 v3 product family is excellent for a wide range of enterprise workloads, including:

- IT and web infrastructure
- High-performance virtual desktops
- Medium -sized or distributed databases
- Middleware
- Collaboration
- Public cloud

Cisco UCS C220 M4 can be deployed as standalone servers or in an UCS-managed environment. When combined with Cisco UCS, the Cisco UCS C220 M4 brings the power and automation of unified computing to enterprise applications, including SingleConnect technology that drastically reduces switching and cabling requirements; Cisco UCS Manager with service profiles to enable rapid deployment; and end-to-end server visibility, management, and control in both virtualized and bare-metal environments. The Cisco UCS C220 M4 is the most versatile general-purpose enterprise infrastructure and application server in the industry.

## Product Specifications and Ordering Information

Table 1 lists specifications for the Cisco UCS C220 M4 server.

**Table 1.** Product Specifications

Item	Specification
<b>Chassis</b>	One 1RU server
<b>Processors</b>	1 or 2 Intel® Xeon® processor E5-2600 v3 product family CPUs. For a complete list of processor options, refer to the server's technical specifications documents: <ul style="list-style-type: none"> <li>• <a href="#">SFF</a></li> <li>• <a href="#">LFF</a></li> </ul>
<b>Interconnect</b>	2 Intel Quick Path Interconnect (QPI) channels: 6.4, 8.0, and 9.6 GTps.
<b>Chipset</b>	Intel C610 series
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 24 DDR4 DIMM slots</li> <li>• Support for DDR4 registered RDIMMs and LRDIMMs</li> <li>• Advanced error-correcting code (ECC)</li> <li>• Independent Channel Mode</li> <li>• Mirrored Channel Mode</li> <li>• Lockstep Channel Mode</li> </ul>
<b>PCIe slots</b>	<ul style="list-style-type: none"> <li>• 2 PCIe Generation 3.0 slots: <ul style="list-style-type: none"> <li>◦ Riser 1: One full-height, 3/4-length slot with x24 connector and x16 lane.</li> <li>◦ Riser 2: One half-height, half-length slot with x24 connector and x16 lane.</li> </ul> </li> </ul>
<b>RAID controller</b>	<ul style="list-style-type: none"> <li>• Cisco 12Gbps Modular RAID (PCIe Gen 3.0) controller provides enterprise-class data protection for up to 8 SAS/SATA disk drives or SSDs.</li> <li>• Embedded software RAID (Entry RAID solution) supports RAID 0, 1, 5, and 10 for up to 4 SATA drives.</li> <li>• Cisco 9300-8E 12Gbps SAS host bus adapter (HBA) provides external SAS connectivity and supports JBOD/enclosures.</li> </ul>
<b>Hard drives</b>	Up to 8 front-accessible, hot-swappable, 2.5-inch HDD or SSD or up to four 3.5-inch drives.
<b>Hard-disk options</b>	<ul style="list-style-type: none"> <li>• 2.5-inch SFF drive options: For a complete list of drive options, refer to the <a href="#">SFF SpecSheet</a>.</li> <li>• 3.5-inch LFF drive options: For a complete list of drive options, refer to the <a href="#">LFF SpecSheet</a>.</li> </ul>
<b>Embedded NIC</b>	Dual 1-Gbps Intel i350 Ethernet ports.
<b>Modular LOM (mLOM)</b>	The mLOM slot can flexibly accommodate 1-Gb, 10-Gb, or 40-Gbps adapters.
<b>Power supplies</b>	Hot-pluggable, redundant 770W power supplies.
<b>Cisco FlexFlash</b>	<ul style="list-style-type: none"> <li>• The server supports up to 2 internal 32-GB or 2 internal 64-GB Cisco FlexFlash drives (SD cards) on which you can install an OS or a hypervisor. The second SD card can be used to mirror the first.</li> <li>• Cisco FlexFlash SD cards also support Utility mode with out-of-band update of utility partitions.</li> </ul>
<b>Internal USB</b>	The server supports 1 internal USB flash drive.

Item	Specification
<b>Cisco IMC</b>	<ul style="list-style-type: none"> <li>• Integrated 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.</li> <li>• CLI and WebGUI management tool for automated, lights-out management.</li> <li>• KVM</li> </ul>
<b>Front-panel connector</b>	One KVM console connector (supplies 2 USB, 1 VGA, and 1 serial connector).
<b>Front-panel locator LED</b>	Indicator to help direct administrators to specific servers in large data center environments.
<b>Additional rear connectors</b>	Additional interfaces including a VGA video port, 2 USB 3.0 ports, an RJ45 serial port, 1 Gigabit Ethernet management port, and dual 1 Gigabit Ethernet ports.
<b>Rail-kit options</b>	<ul style="list-style-type: none"> <li>• Cisco Ball Bearing rail kit with optional reversible cable management arm or</li> <li>• Cisco Friction rail kit with optional reversible cable management arm</li> </ul>
<b>Operating systems</b>	<ul style="list-style-type: none"> <li>• Microsoft Windows Server 2012 R2</li> <li>• Microsoft Windows Server 2012</li> <li>• Microsoft Windows Server 2008 R2</li> <li>• Red Hat Enterprise Linux</li> <li>• Novell SUSE Linux Enterprise Server</li> <li>• Oracle Linux (Unbreakable Enterprise Kernel (UEK))</li> <li>• Oracle Solaris</li> <li>• Ubuntu Server</li> <li>• CentOS</li> </ul> <p><b>Virtualization</b></p> <ul style="list-style-type: none"> <li>• VMware vSphere ESXi</li> <li>• Oracle Virtual Machine Server (UEK)</li> <li>• Citrix XenServer</li> </ul> <p>For specification versions and interoperability details, see the <a href="#">Cisco Hardware and Software Interoperability Matrix</a>.</p>

## Ordering Information

For a complete list of part numbers, refer to the corresponding specifications sheet:

- [SFF SpecSheet](#)
- [LFF SpecSheet](#)

## Cisco Unified Computing Services

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 can help you create an agile infrastructure, accelerate time-to-value, reduce costs and risks, and maintain availability during deployment and migration. After deployment, our services can help you improve performance, availability, and resiliency as your business needs evolve and help you further mitigate risk. For more information, visit <http://www.cisco.com/go/unifiedcomputingservices>.

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## For More Information

For more information about Cisco UCS, refer to <http://www.cisco.com/go/unifiedcomputing>.



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