

Cisco UCS C240 M4 Rack Server

Storage and I/O-Optimized Cisco UCS C-Series Rack Servers

Delivering Outstanding Performance and Expandability

The Cisco UCS[®] C240 M4 Rack Server is our 2-socket, 2-rack-unit (2RU) rack server (Figure 1.) It offers outstanding performance and expandability for a wide range of storage and I/O-intensive infrastructure workloads, from big data to collaboration. The enterprise-class Cisco UCS C240 M4 server extends the capabilities of the Cisco Unified Computing System[™] (Cisco UCS) portfolio in a 2RU form factor with the addition of the Intel[®] Xeon[®] processor E5-2600 v4 and v3 product family, which delivers a superb combination of performance, flexibility, and efficiency.

Figure 1. Cisco UCS C240 M4 Rack Server



Product Overview

The enterprise-class Cisco UCS C240 M4 server extends the capabilities of the Cisco UCS portfolio in a 2RU form factor. Based on the Intel Xeon processor E5-2600 v4 and v3 series, it delivers an outstanding combination of performance, flexibility, and efficiency. In addition, the Cisco UCS C240 M4 offers outstanding levels of internal memory and storage expandability with exceptional performance. It delivers:

- Up to 24 DDR4 DIMMs at speeds up to 2400 MHz for improved performance and lower power consumption
- Up to 6 PCI Express (PCIe) 3.0 slots (4 full-height, full-length)
- Up to 24 small form factor (SFF) drives or 12 large form factor (LFF) drives, plus two (optional) internal SATA boot drives
- Support for 12-Gbps SAS drives
- A modular LAN-on-motherboard (mLOM) slot for installing a next-generation Cisco virtual interface card (VIC) or third-party network interface card (NIC) without consuming a PCIe slot
- 2 x 1 Gigabit Ethernet embedded LOM ports



Cisco UCS with
Intel[®] Xeon[®] Processors

- Supports up to two double-wide NVIDIA graphics processing units (GPUs), providing a graphics-rich experience to more virtual users
- Excellent reliability, availability, and serviceability (RAS) features with tool-free CPU insertion, easy-to-use latching lid, hot-swappable and hot-pluggable components, and redundant Cisco® Flexible Flash (FlexFlash) SD cards.

Product Features and Benefits

Table 1 lists the main features and benefits of the Cisco UCS C240 M4 Server.

Table 1. Features and Benefits

Feature	Benefit
DDR4 Memory	24 slots for registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs) that deliver significant improvement in application performance. The Cisco UCS C240 M4 server supports up to 3 DIMMs per channel at 2400-MHz speeds
1 or 2 Intel Xeon processor E5-2600 v4 and v3 product family CPUs	<p>The Intel Xeon processor E5-2600 v4 and 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"> • Over twice the performance and more cores (up to 22 cores per socket) than the previous generation Intel Xeon processor • Low power, high speed DDR4 memory technology • Increased performance with Intel AVX2 • Increased in virtual machine density • 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 • 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 v4 and 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
Support for up to 6 PCIe 3.0 slots, 4 of which are full-height, full-length	<ul style="list-style-type: none"> • Flexibility, increased performance, and compatibility with industry standards • Substantially increased bandwidth compared to the previous generation, with more flexibility and backward compatibility with PCIe 2.0 • Greater I/O performance and flexibility
Support for a modular LAN-on-motherboard (mLOM) slot	<ul style="list-style-type: none"> • New to the Cisco UCS C240 M4 server, 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
40-Gbps unified network fabric	<ul style="list-style-type: none"> • Low-latency, lossless, 40-Gbps Ethernet and industry-standard FCoE and native Fibre Channel fabric • Wire-once deployment model: changing I/O configurations no longer requires you to install adapters and cables, racks and switches • Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain
Virtualization optimization	<ul style="list-style-type: none"> • Cisco Data Center Virtual Machine Fabric Extender (VM-FEX) and Adapter FEX technologies, I/O virtualization, and Intel Xeon processor E5-2600 v4 and v3 product family features, extending the network directly to virtual machines • Consistent and scalable operational model • Increased security and efficiency with reduced complexity • Capability to move virtual machine security features and policies from rack to rack or rack to blade
Unified management (when integrated into Cisco UCS)	<ul style="list-style-type: none"> • Can be deployed as a standalone server or in a UCS-managed environment • When combined with Cisco UCS, the entire solution can be managed as a single entity with Cisco UCS Manager, improving operational efficiency and flexibility • Service profiles and templates 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 by associating a service profile with a new added or repurposed Cisco UCS C240 M4 server • 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

Feature	Benefit
High-capacity, flexible, hot-swappable internal storage	<ul style="list-style-type: none"> • Up 24 small form-factor (SFF) or 12 large form-factor (LFF) drives plus 2 optional SFF boot drives and optional NVMe PCIe SSDs for local storage, providing redundancy options and ease of serviceability • Balanced performance and capacity to meet application needs: <ul style="list-style-type: none"> ◦ NVMe PCIe SSDs ◦ SATA SSDs ◦ 15K rpm SAS drives for highest performance ◦ 10K rpm SAS drives for high performance and value ◦ 7.2K rpm SATA drives for high capacity and value
Cisco 12-Gbps SAS Modular RAID controller	<ul style="list-style-type: none"> • Cisco 12Gbps Modular RAID PCIe Gen 3.0 controller provides enterprise-class data protection for up to 24 SAS, SATA, or SSDs. • RAID card is plugged into a dedicated PCIe slot, leaving all remaining PCIe slots available for other I/O expansion cards. • Available with configurable DDR3 Cache memory: 1-, 2-, or 4-GB flash-backed write cache (FBWC) options • RAID 0, 1, 5, 6, 10, 50 and 60 supported.
Software RAID option	<ul style="list-style-type: none"> • The software RAID option supports RAID 0, 1, 5, and 10 for up to 8 SATA HDDs or SSDs.
Cisco Integrated Management Controller (IMC)	<ul style="list-style-type: none"> • Web user-interface for server management; remote keyboard, video, and mouse (KVM); virtual media; and administration • Virtual media support for remote CD and 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 • Provides UCS visibility and control to management ecosystem partners using a comprehensive XML API
Advanced reliability, availability, and serviceability (RAS) features	<ul style="list-style-type: none"> • Hot-swappable, front-accessible drives • Redundant Cisco FlexFlash SD cards • Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime • Convenient latching lid for easy access to internal server • Tool-free CPU insertion allows for processor upgrades and replacements with reduced risk of damage • Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items
Security Features	<ul style="list-style-type: none"> • 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 and TPM 2.0 modules are supported. • Locking bezel option can be mounted to the front of the chassis to prevent unauthorized access to the drives.
Cisco Flexible Flash (FlexFlash) Secure Digital (SD) cards	<ul style="list-style-type: none"> • The server supports two redundant internal Cisco FlexFlash SD cards, which can be used to install a boot OS or embedded hypervisor • Cisco FlexFlash SD cards also support Utility mode with out-of-band update of utility partitions

High Performance for Data-Intensive Applications

The Cisco UCS C240 M4 Rack Server with the Intel Xeon processor E5-2600 v4 and v3 product family is well suited for a wide range of storage and I/O-intensive applications such as:

- Big data
- Collaboration
- Small and medium-sized business (SMB) databases
- Virtualization and consolidation
- Storage servers
- High-performance appliances

The Cisco UCS C240 M4 can be deployed as standalone servers or as part of the Cisco Unified Computing System, which unifies computing, networking, management, virtualization, and storage access into a single integrated architecture that enables end-to-end server visibility, management, and control in both bare-metal and virtualized environments. Within a Cisco UCS deployment, the Cisco UCS C240 M4 takes advantage of Cisco's standards-based unified computing innovations, which significantly reduce customers' total cost-of-ownership (TCO) and increase business agility.

Product Specifications and Ordering Information

Table 2 lists the specifications for the Cisco UCS C240 M4 server.

Table 2. Product Specifications

Item	Specification
Chassis	2RU server
Processors	1 or 2 Intel Xeon processor E5-2600 v4 and v3 product family CPUs For a complete list of processor options, refer to the corresponding technical specifications documents: <ul style="list-style-type: none"> • SFF • LFF
Interconnect	2 Intel Quick Path Interconnect (QPI) channels: 6.4, 8.0, and 9.6 GTps
Chipset	Intel C610 series
Memory	<ul style="list-style-type: none"> • 24 DDR4 DIMM slots • Support for DDR4 registered RDIMMs and LRDIMMs • Advanced error-correcting code (ECC) • Independent channel mode • Mirrored channel mode • Lockstep channel mode
PCIe slots	Up to 6 PCIe Generation 3.0 slots: <ul style="list-style-type: none"> • Riser 1 (PCIe slots 1, 2, and 3) <ul style="list-style-type: none"> ◦ Option 1: Two slots available <ul style="list-style-type: none"> ◦ Slot 1 = full height, 3/4 length, x8, NCSI capable. ◦ Slot 2 = full height, full length, x16, NCSI, GPU capable. ◦ Option 2: Three slots available <ul style="list-style-type: none"> ◦ Slot 1 = full height, 3/4 length, x8. ◦ Slot 2 = full height, full length, x8, NCSI capable. ◦ Slot 3 = full height, full length, x8. ◦ Option 3: Two slots available <ul style="list-style-type: none"> ◦ Slot 1 = full height, 3/4 length, x8, NCSI capable. ◦ Slot 2 = full height, full length, x16, NCSI, GPU capable. • Riser 2 (PCIe slots 4, 5, and 6) <ul style="list-style-type: none"> ◦ Three slots available <ul style="list-style-type: none"> ◦ Slot 4 = full height, 3/4 length, x8, NCSI capable ◦ Slot 5 = full height, full length, x16, NCSI, GPU capable ◦ Slot 6 = full height, full length, x8. <p>Note: NCSI is supported on only one slot per riser at a time</p>
RAID controller	<ul style="list-style-type: none"> • Cisco 12Gbps Modular RAID (PCIe Gen 3.0) Controller or Cisco 12Gbps SAS Modular Pass-through Controller provides enterprise-class data protection for up to 24 SAS/SATA disk drives or SSDs • Embedded software RAID (entry RAID solution) supports RAID 0, 1, 5, and 10 for up to 8 SATA drives • Cisco 9300-8E 12Gbps SAS host bus adapter (HBA) provides external SAS connectivity and supports JBOD/enclosures

Item	Specification
Hard drives	<p>Up to 24 front-accessible, hot-swappable, 2.5-inch HDDs/SSDs or up to 12 3.5-inch SAS or SATA HDDs</p> <ul style="list-style-type: none"> • 2.5-inch SFF drive options: <ul style="list-style-type: none"> ◦ 24 SAS or SATA hard drives (HDDs) or solid state drives (SSDs) with the 24-drive backplane (with expander) server configuration, plus two optional internal SATA SSDs for booting an OS. ◦ 16 SAS or SATA HDDs or SSDs with the 16-drive backplane (with expander) server configuration. ◦ 8 SAS or SATA HDDs or SSDs with the 8-drive backplane server (no expander) configuration. <p>For more information about the SFF drive options, please refer to the corresponding SFF SpecSheet.</p> <ul style="list-style-type: none"> • 3.5-in. LFF drives options: the server can hold up to 12 3.5-inch SAS or SATA HDDs. The server uses a 12-drive backplane with a SAS expander, plus two optional internal SATA SSDs for booting an OS. <p>For more information about the LFF drive options, please refer to the corresponding LFF SpecSheet.</p>
Embedded NIC	<ul style="list-style-type: none"> • Dual 1-Gbps Intel i350 Ethernet ports
mLOM	<ul style="list-style-type: none"> • mLOM slot can flexibly accommodate 1-Gb, 10-Gb, or 40-Gbps adapters
Power supplies	<ul style="list-style-type: none"> • Hot-plug, redundant 650W, 930W DC, 1200W or 1400W power supplies
Cisco FlexFlash	<ul style="list-style-type: none"> • The server supports up to two 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 • Cisco FlexFlash SD cards also support Utility mode with out-of-band update of utility partitions
Internal USB	<ul style="list-style-type: none"> • The server supports one internal USB flash drive
Cisco Integrated Management Controller	<ul style="list-style-type: none"> • Integrated Baseboard Management Controller (BMC) • IPMI 2.0 compliant for management and control • One 10/100/1000 Ethernet out-of-band management interface • CLI and WebGUI management tool for automated, lights-out management • KVM
Front-panel connector	<ul style="list-style-type: none"> • One KVM console connector (supplies 2 USB, 1 VGA, and 1 serial connector)
Front-panel locator LED	<ul style="list-style-type: none"> • Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	<ul style="list-style-type: none"> • Additional interfaces including a VGA video port, 2 USB 3.0 ports, an RJ45 serial port, 1 Gb Ethernet management port, and dual 1 Gb Ethernet ports
Rail kit options	<ul style="list-style-type: none"> • Cisco ball bearing rail kit with optional reversible cable management arm
Hardware and Software Interoperability	<p>For specification versions and interoperability details, see the Cisco Hardware and Software Interoperability Matrix.</p>

Ordering Information

For a complete list of part numbers, refer to the corresponding Technical Specification documents [SFF SpecSheet](#) and [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 mitigate risk further. For more information, visit <http://www.cisco.com/go/unifiedcomputingservices>.

For More Information

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



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