Cisco UCS C240 M3 High-Density Rack Server (Small Form Factor Disk Drive Model)

CISCO SYSTEMS
170 WEST TASMAN DR.
SAN JOSE, CA, 95134
WWW.CISCO.COM

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OVERVIEW

The UCS C240 M3 rack server is designed for both performance and expandability over a wide range of storage-intensive infrastructure workloads from big data to collaboration.

Building on the success of the Cisco UCS C210 M2 rack server, the enterprise-class UCS C240 M3 server further extends the capabilities of Cisco's Unified Computing System portfolio in a 2U form factor with the addition of the Intel® E5-2600 series processor family CPUs that deliver the best combination of performance, flexibility and efficiency gains. In addition, the UCS C240 M3 server provides 24 DIMM slots, up to 24 drives and 4 x 1 GbE LOM to provide outstanding levels of internal memory and storage expandability along with exceptional performance.

Figure 1 Cisco UCS C240 M3 High-Density SFF Rack Server

Front View

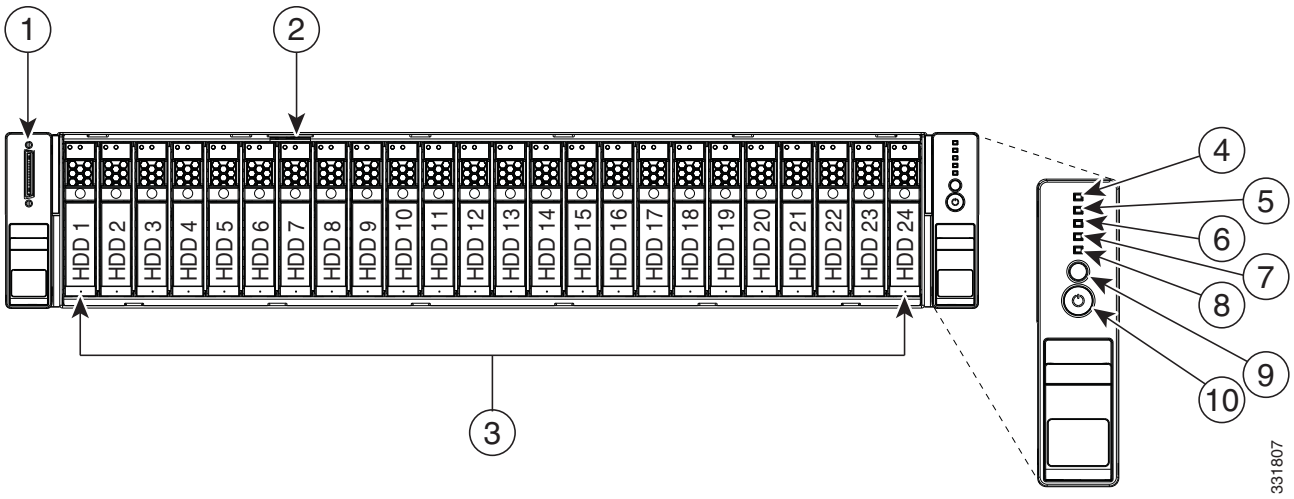
Rear View

DETAILED VIEWS

Chassis Front View

Figure 2 shows the Cisco UCS C240 M3 High-Density SFF Rack Server.

Figure 2 Chassis Front View



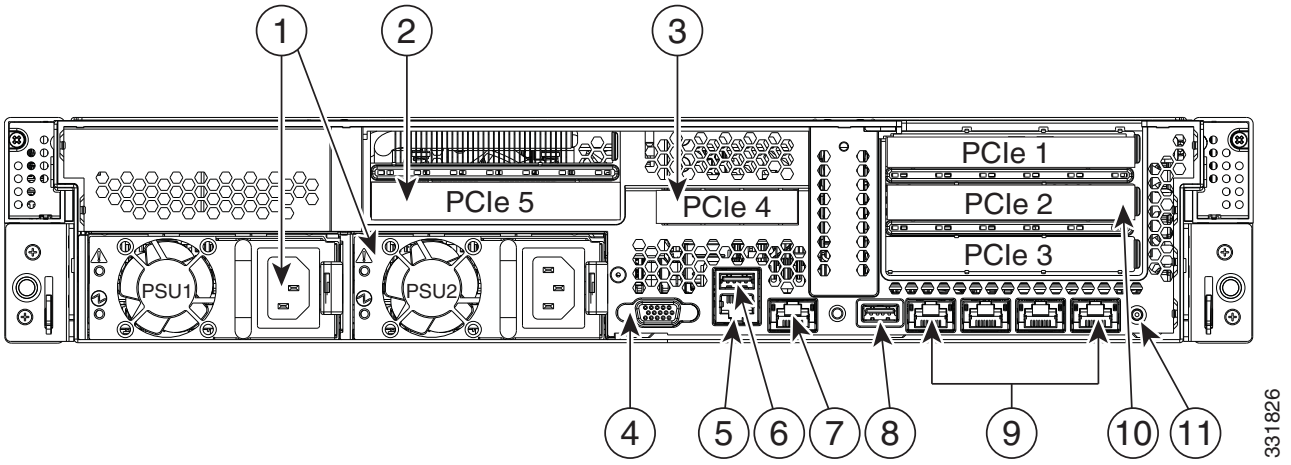
1	KVM connector (used with KVM cable that provides two USB, one VGA, and one serial connector)	**6**	Temperature status LED
2	Asset tag (serial number)	**7**	Fan status LED
3	Drives (up to 24 2.5-inch hot-swappable drives)	**8**	System status LED
4	Network link activity LED	**9**	Identification button/LED
5	Power supply status LED	**10**	Power button/power status LED

For more information about the KVM cable connection, see *KVM CABLE, page 61*.

Chassis Rear View

Figure 3 shows the external features of the rear panel.

Figure 3 Chassis Rear View



1	Power supplies (up to two)	**7**	One RJ-45 10/100/1000 Ethernet dedicated management port
2	Standard-profile PCIe slot on riser 2: PCIe 5—full-height, 3/4-length, x16 lane width, x24 connector, GPU ready	**8**	USB 2.0 port
3	Low-profile PCIe slot on riser: PCIe 4—half-height, 3/4-length, x8 lane width, x16 connector, no NCSI[2] support	**9**	Quad 1-Gb Ethernet ports (LAN1, LAN2, LAN3, and LAN4)
4	VGA video connector	**10**	Standard-profile PCIe slots on riser 1(three): PCIe 1—full-height, half-length, x8 lane width, x8 connector PCIe 2—full-height, half-length, x16 lane width, x24 connector (supports Cisco Virtual Interface Card (VIC)) PCIe 3—full-height, half-length, x8 lane width, x16 connector
5	Serial connector (RJ-45)	**11**	Rear Identification button/LED
6	USB 2.0 port		-

BASE SERVER STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER, page 9*.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	Two rack unit (2RU) chassis
CPU	One or two Intel® E5-2600 series processor family CPUs
Chipset	Intel® C600 series chipset
Memory	24 slots for registered ECC DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs)
NIC	Embedded dual-port Intel i350 PCIe-based Gigabit Ethernet controller, supporting the following: ■ Pre-Execution Boot (PXE boot) ■ iSCSI boot
Expansion slots	Five PCIe slots (on two riser cards) ■ Riser 1 (PCIe slots 1, 2, and 3): • One x16 PCIe Gen3 Slot, x24 extended connector, full-height, half-length • Two x8 PCIe Gen3 Slots Full Height, x16 connector, half-length ■ Riser 2 (PCIe slots 4 and 5): • One x16 PCIe Gen3 Slot, Full Height, (225W GPU Ready), x24 connector, three-quarter length • One x8 PCIe Gen3 Slot, half-height, x16 connector, half-length
Internal storage devices	Drives are installed into front-panel drive bays that provide hot-pluggable access. ■ Small Form Factor (SFF) drives. The server can hold up to: • 24 2.5 inch (63.5 mm) SAS or SATA hard drives (HDDs) or solid state drives (SSDs) (24-drive backplane with SAS expander configuration) • 16 2.5 inch (63.5 mm) SAS or SATA HDDs or SSDs (16-drive backplane with no SAS expander configuration) ■ The server also contains one internal USB 2.0 port on the motherboard that you can use with a USB thumb drive for additional storage
Cisco Flexible Flash drives	The server supports one internal Cisco Flexible Flash drive (SD card). ■ The SD card is pre-loaded with four virtual drives. The four virtual drives contain, respectively, the Cisco Server Configuration Utility, the Cisco Host Upgrade Utility, the Cisco C-Series server drivers set, and a blank virtual drive on which you can install an OS or a hypervisor. ■ 4 GB is available for general use

Capability/Feature	Description
Storage controller	■ Embedded RAID (3 Gbs) • Embedded SATA-only RAID controller, supporting up to four SATA-only drives (RAID 0, 1, 10) • ROM5 RAID upgrade, supporting up to eight SAS/SATA HDDs or SSDs (RAID 0, 1, 10). SAS and SATA drives can be mixed. • ROM55 RAID upgrade, supporting up to eight SAS/SATA HDDs or SSDs (RAID 0, 1, 10, 5). SAS and SATA drives can be mixed. Note that embedded RAID options can be supported only with the version of the C240 M3 SFF server that has been configured with a 16-drive backplane with no SAS expander. ■ Mezzanine Cards (6 Gbs) - two versions • Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 or 16 SAS/SATA drives (depending on the backplane used) supporting RAID 0, 1, 10, 5, and 50. SAS and SATA drives can be mixed. This card has a product ID (PID) of UCSC-RAID-11-C240. • Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 or 16 SAS/SATA drives (depending on the backplane used) supporting RAID 0, 1, and 10. SAS and SATA drives can be mixed. This card has a product ID (PID) of UCSC-RAID-MZ-240. Note that mezzanine cards are used as follows: • A mezzanine card in a 16-drive backplane system with no SAS expander can support up to 8 drives. • A mezzanine card in a 24-drive backplane system with SAS expander can support up to 16 drives. ■ Plug-in PCIe Cards (6 Gbs) • LSI MegaRAID SAS 9266-8i 8-port plug-in PCIe RAID RAID controller card (occupies a half-height PCIe slot) supporting RAID levels 0, 1, 10, 5, 6, 50, 60 and up to 24 internal SAS or SATA drives (with 24-drive backplane with SAS expander). SAS and SATA drives can be mixed. • LSI MegaRAID SAS 9266CV-8i RAID 8-port PCIe plug-in RAID controller card, supporting RAID 0, 1, 10, 5, 6, 50, and 60 and up to up to 24 internal SAS or SATA drives (with 24-drive backplane with SAS expander). SAS and SATA drives can be mixed.
Video	The Emulex Pilot 3 Integrated Baseboard Management Controller provides video: ■ Matrox G200e video controller ■ Integrated 2D graphics core with hardware acceleration ■ Supports all display resolutions up to 1920 x 1200 x 16 bpp resolution at 60 Hz ■ 24-bit color depth for all resolutions less than 1600x1200 ■ Up to 256 MB video memory

Capability/Feature	Description
Interfaces	Rear panel ■ One RJ-45 10/100/1000 Ethernet management port, using Cisco Integrated Management Controller (CIMC) firmware ■ Four 1-Gb LOM ports ■ One RJ45 serial port connector ■ Two USB 2.0 port connectors ■ One DB15 VGA connector ■ Various PCIe card ports (dependent on which cards are installed) • Converged Network Adapter (CNA) ports • Network Interface Card (NIC) ports • Host Bus Adapter (HBA) ports Front panel ■ One KVM console connector (supplies two USB 2.0, one VGA, and one serial connector)
Front Panel	■ A front panel controller provides status indications and control buttons
Power subsystem	One power supply is required (either 650 W or 1200 W). An additional power supply may be ordered to provide 1+1 redundancy. The power supplies must match in a redundant power supply configuration.
Fans	Chassis: ■ Six hot-swappable fans for front-to-rear cooling Power supply: ■ Each power supply is equipped with a fan.
Integrated management processor	Cisco Integrated Management Controller (CIMC) firmware. Depending on your CIMC settings, the CIMC can be accessed through the 1-Gb Ethernet dedicated management port, the 1-Gb Ethernet LOM ports, or a Cisco P81E or Cisco 1225 virtual interface card (VIC).

CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS C240 M3 High-Density SFF Rack Server:

STEP 1 VERIFY SERVER SKU

Select one server product ID (PID) from *Table 2*.

Table 2 PID of the C240 M3 High-Density SFF Rack Base Server

Product ID (PID)	Description
UCSC-C240-M3S2	UCS C240 M3 SFF, no CPU, memory, HDD, power supply, or PCIe, with rail kit, 16-drive backplane, and no SAS expander
UCSC-C240-M3S	UCS C240 M3 SFF, no CPU, memory, HDD, power supply, or PCIe, with rail kit, 24-drive backplane, and SAS expander

The Cisco C240 M3 server:

- Includes one tool-less rail kit, adjustable from 26 inches (660 mm) to 36 inches (914 mm)
- Includes either a 24- or 16-drive backplane.

NOTE: Embedded RAID can only be used with systems implementing a 16-drive backplane that contains no SAS expander.

Mezzanine cards can be used as follows:

- A mezzanine card in a 16-drive backplane system with no SAS expander can support up to 8 drives.
- A mezzanine card in a 24-drive backplane system with SAS expander can support up to 16 drives.

- Does not include power supply, CPU, memory, hard disk drives (HDDs), solid-state drives (SSDs), SD card, or plug-in PCIe cards.

NOTE: Use the steps on the following pages to configure the server with the components that you want to include.

STEP 2 SELECT CPU(s)

The standard CPU features are:

- Intel E5-2600 series processor family CPU
- Intel® C600 series chipset
- Cache size of 10, 15, or 20 MB

Select CPUs

The available CPUs are listed in *Table 3*.

Table 3 Available Intel CPUs: E5-2600 Series Processor Family CPUs

Product ID (PID)	Intel Number	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	QPI	Highest DDR3 DIMM Clock Support (MHz)[1]
UCS-CPU-E5-2690	E5-2690	2.90	135	20	8	8 GT/s	1600
UCS-CPU-E5-2680	E5-2680	2.70	130	20	8	8 GT/s	1600
UCS-CPU-E5-2670	E5-2670	2.60	115	20	8	8 GT/s	1600
UCS-CPU-E5-2667	E5-2667	2.90	130	15	6	8 GT/s	1600
UCS-CPU-E5-2665	E5-2665	2.40	115	20	8	8 GT/s	1600
UCS-CPU-E5-2660	E5-2660	2.20	95	20	8	8 GT/s	1600
UCS-CPU-E5-2650	E5-2650	2.00	95	20	8	8 GT/s	1600
UCS-CPU-E5-2650L	E5-2650L	1.80	70	20	8	8 GT/s	1600
UCS-CPU-E5-2643	E5-2643	3.30	130	10	4	8 GT/s	1600
UCS-CPU-E5-2640	E5-2640	2.50	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2630	E5-2630	2.30	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2630L	E5-2630L	2.00	60	15	6	7.2 GT/s	1333
UCS-CPU-E5-2620	E5-2620	2.00	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2609	E5-2609	2.40	80	10	4	6.4 GT/s	1066

Notes . . .

1. If higher or lower speed DIMMs are selected than what is shown in the table for a given CPU, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.

Approved Configurations

(1) 1-CPU configurations:

- Select any one CPU listed in *Table 3*.

(2) 2-CPU Configurations:

- Select two identical CPUs from any one of the rows of *Table 3 on page 11*.

Caveats

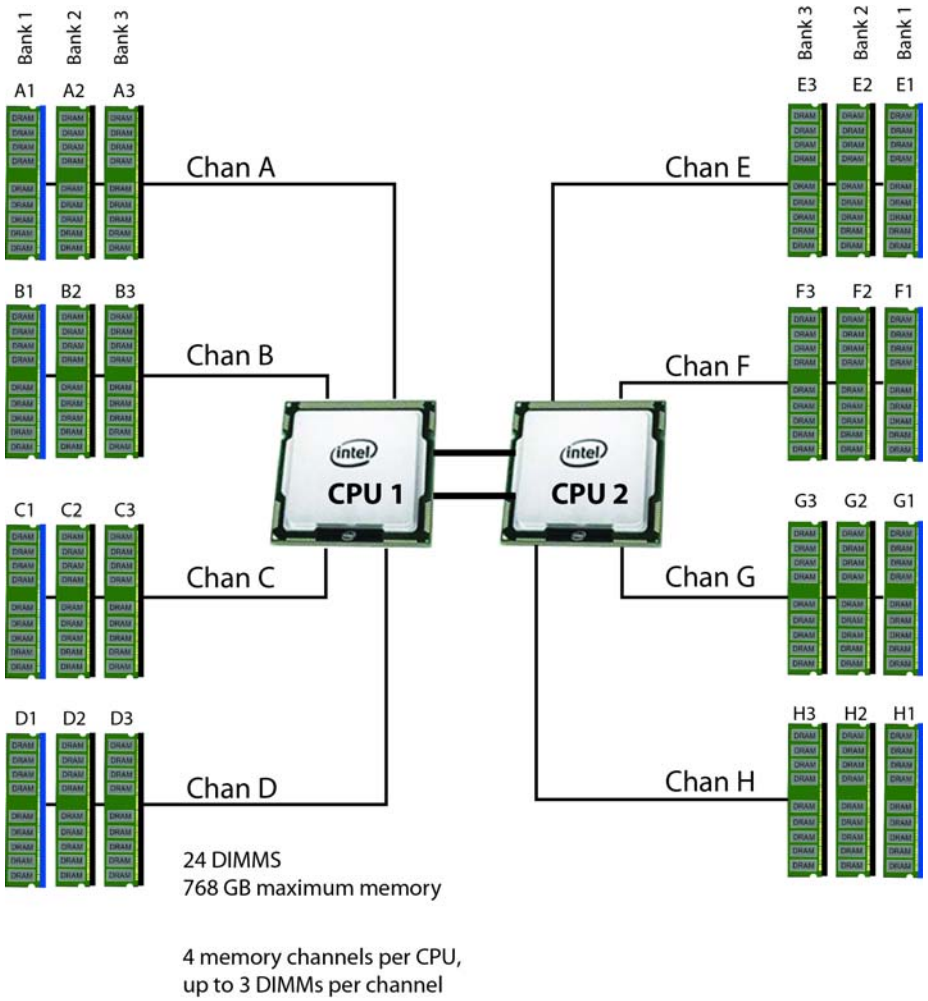
- You can select either one processor or two identical processors.
- For optimal performance, select DIMMs with the highest clock speed for a given processor (see *Table 3 on page 11*). If you select DIMMs whose speeds are lower or higher than that shown in the tables, suboptimal performance will result.

STEP 3 SELECT MEMORY

The standard memory features are:

- DIMMs
  - Clock speed: 1333 or 1600 MHz
  - Ranks per DIMM: 1, 2, or 4
  - Operational voltage: dual voltage capable (1.5 V or 1.35 V)
  - Registered ECC DDR3 DIMMS (RDIMMS) or load-reduced DIMMS (LRDIMMs)
- Memory is organized with four memory channels per CPU, with up to three DIMMs per channel, as shown in *Figure 4*.

Figure 4 C240 M3 SFF Memory Organization



Select DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The available memory DIMMs and mirroring option are listed in *Table 4*.

NOTE: When memory mirroring is enabled, the memory subsystem simultaneously writes identical data to two channels. If a memory read from one of the channels returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the data from the other channel. A transient or soft error in one channel does not affect the mirrored data, and operation continues unless there is a simultaneous error in exactly the same location on a DIMM and its mirrored DIMM. Memory mirroring reduces the amount of memory available to the operating system by 50% because only one of the two populated channels provides data.

Table 4 Available DDR3 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks/ DIMM
DIMM Options			
UCS-ML-1X324RY-A	32GB DDR3-1600-MHz LR DIMM/PC3-12800/quad rank/x4/1.35v	1.35 V	4
UCS-MR-1X162RY-A	16GB DDR3-1600-MHz RDIMM/PC3-12800/dual rank/x4/1.35v	1.35 V	2
UCS-MR-1X162RX-A	16GB DDR3-1333-MHz RDIMM/PC3-10600/dual rank/x4/1.35v	1.35 V	2
UCS-MR-1X082RY-A	8GB DDR3-1600-MHz RDIMM/PC3-12800/dual rank/x4/1.35v	1.35 V	2
UCS-MR-1X082RX-A	8GB DDR3-1333-MHz RDIMM/PC3-10600/dual rank/x4/1.35v	1.35 V	2
UCS-MR-1X041RY-A	4GB DDR3-1600-MHz RDIMM/PC3-12800/single rank/x4/1.35v	1.35 V	1
UCS-MR-1X041RX-A	4GB DDR3-1333-MHz RDIMM/PC3-10600/single rank/x4/1.35v	1.35 V	1
Memory Mirroring Option			
N01-MMIRROR	Memory mirroring option		

Approved Configurations

(1) 1-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs. Refer to *Memory Population Rules, page 52*, for more detailed information.

(2) 1-CPU configuration with memory mirroring:

- Select 2, 4, 6, 8, 10, or 12 identical DIMMs. The DIMMs will be placed by the factory as shown in the following table.

Total Number of DIMMs	CPU 1 DIMM Placement in Channels (for identical DIMMs)		
	Blue Slot (Slot 1)	Black Slot (Slot 2)	Black Slots (Slot 3)
2	(A1, B1)	—	—
4	(A1,B1); (C1,D1)	—	—
6	(A1,B1); (C1,D1)	(A2,B2)	—
8	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	—
10[1]	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	(A3,B3)
12[1]	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	(A3,B3); (C3,D3)

Notes . . .

1. This configuration cannot be implemented with quad-rank DIMMs (the 32 GB DIMM). You can have only 1 or 2 DIMMs per channel when using quad-rank DIMMs.

- Select the memory mirroring option (N01-MMIRROR) as shown in *Table 4 on page 14*.

(3) 2-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs per CPU. Refer to *Memory Population Rules, page 52*, for more detailed information.

(4) 2-CPU configuration with memory mirroring:

- Select 2, 4, 6, 8, 10, or 12 identical DIMMs per CPU. The DIMMs will be placed by the factory as shown in the following table.

Number of DIMMs per CPU	CPU 1 DIMM Placement in Channels (for identical DIMMs)			CPU 2 DIMM Placement in Channels (for identical DIMMs)		
	Blue Slots	Black Slots	Black Slots	Blue Slots	Black Slots	Black Slots
2	(A1, B1)			(E1, F1)		
4	(A1,B1); (C1,D1)	—	—	(E1,F1); (G1,H1)	—	—
6	(A1,B1); (C1,D1)	(A2,B2)	—	(E1,F1); (G1,H1)	(E2,F2)	—
8	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	—	(E1,F1); (G1,H1)	(E2,F2); (G2,H2)	—
10[1]	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	(A3,B3)	(E1,F1); (G1,H1)	(E2,F2); (G2,H2)	(E3,F3)
12[1]	(A1,B1); (C1,D1)	(A2,B2); (C2,D2)	(A3,B3); (C3,D3)	(E1,F1); (G1,H1)	(E2,F2); (G2,H2)	(E3,F3); (G3,H3)

Notes . . .

1. This configuration cannot be implemented with quad-rank DIMMs (the 32 GB DIMM). You can have only 1 or 2 DIMMs per channel when using quad-rank DIMMs.

- Select the memory mirroring option (N01-MMIRROR) as shown in *Table 4 on page 14*.

NOTE: System performance is optimized when the DIMM type and quantity are equal for both CPUs.

Caveats

- The server supports 1, 2, or 3 DIMMs per channel for single- or dual-rank RDIMMs.
- The server supports 1, 2, or 3 DIMMs per channel for quad-rank LRDIMMs.
- The server supports registered DIMMs (RDIMMs) or load-reduced DIMMS (LRDIMMs), however, do not mix RDIMMs and LRDIMMs in a server.
- When using mirroring, DIMMs must be installed in identical pairs across paired DDR3 buses. That is, mirrored pairs in channels A and B must be identical and pairs in channels C and D must be identical. However, the DIMMs used in channels A and B and in C and D can be different.
- UDIMMs and non-ECC DIMMs are not supported.
- Memory mirroring reduces the amount of available memory by 50% (quantity of DIMMs must be even for mirroring).
- When single- and dual-rank DIMMs are populated for 2DPC, always populate the dual-rank DIMM in the blue DIMM slot first (blue slot) and the single-rank DIMM last in the black DIMM slots (only the 4GB DIMMs are single-rank).
- By default, all DIMMs run at 1.35 V, which yields 1333-MHz memory speeds. To run the memory DIMMS at 1600 MHz, you need to go into the BIOS or set the policy with UCSM (service profile) to run in Performance Mode. This forces the DIMMs to operate at 1.5 V and yields 1600-MHz speeds, provided:
  - The DIMMs are 1600-MHz devices and the DIMM type is RDIMM
  - The CPUs chosen support 1600-MHz operation
  - There are less than 3 DIMMs per channel
- With 3 DIMMs populated per channel, memory always runs at 1.5 V regardless if the BIOS setting is low-power mode (1.35 V) or performance mode (1.5 V).

NOTE: Memory speed is limited to 1066 MHz for 3 DPC configurations.

NOTE: 32 GB LRDIMMs run at a maximum speed of 1333 MHz for 1DPC and 2DPC even though their specified maximum speed is 1600 MHz.

For more information regarding memory, see *CPUs and DIMMs, page 50*.

STEP 4 SELECT RAID CONFIGURATION

The RAID controller choices are:

- Embedded RAID (on motherboard)

NOTE: If you do not select a mezzanine card, a plug-in PCIe RAID card, or one of the embedded RAID upgrade options, you will have an embedded SATA-only RAID controller that supports up to four SATA-only drives (RAID 0, 1, 10)

- Mezzanine RAID controller cards
- Plug-in PCIe RAID controller cards

Cisco can provide factory-configured RAID systems depending on the RAID controller chosen and the number of drives ordered. Factory-configured RAID options are listed with each RAID card description.

NOTE: The number of RAID groups (logical drives/virtual drives) supported per controller is as follows:

- Embedded RAID = 8 drives
- Cisco UCSC RAID SAS 2008M-8i Mezzanine Card = 16 drives
- LSI MegaRAID SAS 9266-8i/9266CV-8i RAID controller cards = 64 drives

Select RAID Options

Select as follows:

- One embedded RAID upgrade option (see *Table 5*), or
- One mezzanine RAID controller (see *Table 6*), or
- One PCIe RAID controller card (see *Table 7 on page 19*)

Table 5 Available Embedded RAID Options

Product ID (PID)	PID Description
RAID Controllers	
UCSC-RAID-ROM5	Onboard RAID, supporting up to 8 SAS or SATA drives. SAS and SATA drives can be mixed. This option supports RAID 0, 1, and 10, and operates at 3 Gb/s. Operating systems supported are Windows and Linux only (no VMware support).
UCSC-RAID-ROM55	Onboard RAID, supporting up to 8 SAS or SATA drives. SAS and SATA drives can be mixed. This option supports RAID 0, 1, 10, and 5, and operates at 3 Gb/s. Operating systems supported are Windows and Linux only (no VMware support).

Table 6 Available Mezzanine Card RAID Options

Product ID (PID)	PID Description
RAID Controllers	
UCSC-RAID-11-C240	Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 10, 5, and 50 supported), operating at 6 Gbs. ■ Supports up to 8 or 16 internal SAS or SATA drives (depending on the backplane size). SAS and SATA drives can be mixed. ■ Factory-configured RAID options available: RAID 0, 1, 10, and 5 (see the RAID PIDs section in this table) ■ No data cache backup
UCSC-RAID-MZ-240	Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 10 supported), operating at 6 Gbs. ■ Supports up to 8 or 16 internal SAS or SATA drives (depending on the backplane size). SAS and SATA drives can be mixed. ■ Factory-configured RAID options available: RAID 0, 1, and 10 (see the RAID PIDs section in this table) ■ No data cache backup

Table 7 Available Plug-In PCIe Card RAID Options

Product ID (PID)	PID Description
RAID Controllers	
UCS-RAID-9266NB	LSI MegaRAID SAS 9266-8i RAID controller card with no data cache backup (RAID 0, 1, 10, 5, 6, 50, and 60 supported), operating at 6 Gbs. ■ Installed by default in the half-height PCIe slot (slot 2) ■ Supports up to 24 internal SAS and/or SATA drives. SAS and SATA drives can be mixed**.** ■ Includes 1 GB of write cache ■ Factory-configured RAID options available: RAID 0, 1, 10, 5, and 6 (see the RAID PIDs section in this table)
UCS-RAID-9266CV	LSI MegaRAID SAS 9266CV-8i RAID controller card with data cache backup (RAID 0, 1, 10, 5, 6, 50, 60), operating at 6 Gbs. ■ Supports up to 24 internal SAS or SATA drives. SAS and SATA drives can be mixed. ■ Includes a 1 GB Transportable Memory Module (TMM) and SuperCap power module for data cache backup ■ Factory-configured RAID options available: RAID 0, 1, 10, 5, and 6 (see the RAID PIDs section in this table)
Super Capacitor Option	
UCS-RAID-CV-SC=	LSI CacheVault Power Module for SAS 9266CV-8i

Table 7 Available Plug-In PCIe Card RAID Options *(continued)*

Product ID (PID)	PID Description
RAID Configuration Options	
R2XX-RAID0	Factory preconfigured RAID striping option Enable RAID 0 Setting. Requires a minimum of one hard drive.
R2XX-RAID1	Factory preconfigured RAID mirroring option Enable RAID 1 Setting. Requires exactly two drives with the same size, speed, capacity.
R2XX-RAID5	Factory preconfigured RAID option Enable RAID 5 Setting. Requires a minimum of three drives of the same size, speed, capacity.
R2XX-RAID6	Factory preconfigured RAID option Enable RAID 6 Setting. Requires a minimum of four drives of the same size, speed, capacity.
R2XX-RAID10	Factory preconfigured RAID option Enable RAID 10 Setting. Requires a even number of drives (minimum of four drives) of the same size, speed, capacity.

NOTE: Although RAID levels 50 and 60 are not orderable from the factory, they are supported for selected controllers as shown in *Table 5*

NOTE: No RAID option can be chosen if you have no drives

Approved Configurations

(1) 1-CPU Configurations

Mezzanine cards are not supported for 1-CPU configurations, Therefore, only the following RAID controllers are supported for single-CPU configurations:

- Embedded RAID (on motherboard)
- LSI MegaRAID SAS 9266-8i
- LSI MegaRAID SAS 9266CV-8i

(2) 2-CPU Configurations

Select an embedded RAID option from *Table 5*, one mezzanine RAID controller from *Table 6 on page 19*, or one PCIe RAID controller from *Table 7 on page 19*. You may also select an appropriate optional RAID configuration listed in *Table 7 on page 19*.

Caveats

- The mezzanine controller is not available for 1-CPU configurations.
- If you choose embedded RAID or a mezzanine card RAID controller, all five of the PCIe card slots are still available for adding optional PCIe cards.
- The optional PCIe RAID controllers are all half-height PCIe cards. If you choose one of these cards, four PCIe card slots will be available for adding an optional PCIe card.
- Note that when just one CPU is populated, only a single Cisco UCS P81E or Cisco 1225 Virtual Interface Card (VIC) card is supported and it must be installed in the full-height PCIe slot (slot 2) on riser 1. So take this into account when populating RAID controller cards. When two CPUs are populated, two VIC cards are supported (either the Cisco UCS P81E or Cisco VIC 1225 or both). One can be installed in slot 2 of riser 1 and one in slot 5 of riser 2. The primary slot for a VIC card is slot 2. If you have only one of these cards, install it in slot 2.
- You can choose only one RAID controller (embedded RAID, mezzanine RAID, or a plug-in PCIe RAID controller).
- You can choose an optional RAID configuration (RAID 0, 1, 5, 6, or 10), which is preconfigured at the factory. The RAID level you choose must be an available RAID choice for the controller selected. RAID levels 50 and 60 are supported, although they are not available as configuration options.
- RAID support is dependent on the backplane:
  - A system with 16-drive backplane with no SAS expander:
    - Supports up to 8 drives with ROM5 and ROM55 embedded RAID upgrades
    - Supports up to 8 drives with mezzanine cards
    - Supports up to 8 drives for each SAS 9266-8i and SAS 9266CV-8i controller
    - Supports up to 4 SATA-only drives if no ROM upgrade, mezzanine card, or plug-in PCIe card chosen
  - A system with 24-drive backplane with SAS expander:

- Does not support ROM5 and ROM55 embedded RAID upgrades
- Supports up to 16 drives with mezzanine cards
- Supports up to 24 drives with SAS 9266-8i and SAS 9266CV-8i controllers
- Supports up to 4 SATA-only drives if no ROM upgrade, mezzanine card, or plug-in PCIe card chosen

STEP 5 SELECT HARD DISK DRIVES (HDDs) or SOLID STATE DRIVES (SSDs)

The standard disk drive features are:

- 2.5-inch small form factor
- Hot-pluggable
- Sled-mounted

Select Drives

The available drives are listed in *Table 8*.

Table 8 Available Hot-Pluggable Sled-Mounted HDDs and SSDs

Product ID (PID)	PID Description	Drive Type	Capacity
HDDs			
A03-D1TBSATA	1 TB SATA 7.2K RPM SFF HDD	SATA	1 TB
UCS-HDD900GI2F106	900 GB 6Gb SAS 10K RPM SFF HDD	SAS	900 GB
A03-D600GA2	600 GB 6Gb SAS 10K RPM SFF HDD	SAS	600 GB
A03-D500GC3	500 GB SATA 7.2K RPM SFF HDD	SATA	500 GB
UCS-HDD300GI2F105	300 GB 6Gb SAS 15K RPM SFF HDD	SAS	300 GB
A03-D300GA2	300 GB 6Gb SAS 10K RPM SFF HDD	SAS	300 GB
A03-D146GC2	146 GB 6Gb SAS 15K RPM SFF HDD	SAS	146 GB
SSDs			
UCS-SD300G0KA2-E	300GB Std Height 15mm SATA SSD	SATA	300 GB
UCS-SD200G0KA2-E	200GB Std Height 15mm SATA SSD	SATA	200 GB
UCS-SD100G0KA2-E	100GB Std Height 15mm SATA SSD	SATA	100 GB

NOTE: No RAID option can be chosen if you have no drives

NOTE: No virtual drive groupings are allowed if you mix HDDs and SSDs.

Approved Configurations

(1) Onboard RAID, Mezzanine Cards, and all Plug-In RAID Controllers

- If you have not selected an onboard RAID upgrade option (ROM5 or ROM55), a mezzanine card, or a plug-in RAID controller for internal drives (LSI MegaRAID SAS 9266-8i or LSI MegaRAID SAS 9266CV-8i), you may select up to 4 SATA-only drives from *Table 8*.
- For systems with a 16-drive backplane with no SAS expander:
  - Select up to 8 drives for ROM5 or ROM55 embedded RAID upgrade or a mezzanine card.
  - Select up to 16 drives for SAS 9266-8i or SAS 9266CV-8i controllers.
- For systems with a 24-drive backplane with SAS expander:
  - If you selected a ROM5 or ROM55 embedded RAID upgrade, no drives are supported.
  - Select up to 16 drives for mezzanine cards.
  - Select up to 24 drives for SAS 9266-8i or SAS 9266CV-8i controllers

Caveats

- You can mix SATA and SAS drives.

STEP 6 SELECT PCIe OPTION CARD(s)

The standard PCIe card offerings are:

- Converged Network Adapters (CNAs)
- Network Interface Cards (NICs)
- Host Bus Adapters (HBAs)

Select PCIe Option Cards

The available PCIe option cards are listed in *Table 9*.

Table 9 Available PCIe Option Cards

Product ID (PID)	PID Description	Card Height
Converged Network Adapters (CNAs)		
N2XX-ACPCI01	Cisco UCS P81E Virtual Interface Card (VIC)/ 2-port 10Gbps	Full
UCSC-PCIE-BSFP	Broadcom 57712 Dual Port 10Gb SFP+ w/TOE iSCSI	Half
UCSC-PCIE-CSC-02	Cisco VIC 1225 Dual Port 10Gb SFP+ CNA	Half
Network Interface Cards (NICs)		
N2XX-ABPCI01-M3	Broadcom 5709 Dual Port 1Gb w/TOE iSCSI for M3 Servers	Half
N2XX-ABPCI03-M3	Broadcom 5709 Quad Port 1Gb w/TOE iSCSI for M3 Servers	Half
N2XX-AIPCI01	Intel X520 Dual Port 10Gb SFP+ Adapter	Half
UCSC-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	Half
UCSC-PCIE-BTG	Broadcom 57712 Dual Port 10GBASE-T w/TOE iSCSI	Half
Host Bus Adapters (HBAs)		
N2XX-AEPCI03	Emulex LPe 11002 Dual Port 4Gb Fibre Channel HBA	Half
N2XX-AEPCI05	Emulex LPe 12002 Dual Port 8Gb Fibre Channel HBA	Half
N2XX-AQPCI03	Qlogic QLE2462 Dual Port 4Gb Fibre Channel HBA	Half
N2XX-AQPCI05	Qlogic QLE2562 Dual Port 8Gb Fibre Channel HBA	Half

Approved Configurations

(1) No RAID controller plug-in card

- If you did not choose a plug-in RAID controller (for example, you are using embedded RAID or a mezzanine RAID controller), you can select up to five PCIe option cards listed in *Table 9*.

(2) One RAID controller plug-in card

- If you selected a plug-in PCIe RAID controller, you can select only four of the optional PCIe cards listed in *Table 9*.

Caveats

- For 1-CPU systems:
  - Only the three PCIe slots on PCIe riser 1 are available. The three slots are PCIe slots 1, 2, and 3 (see *Figure 3 on page 5*). These are the three slots on the right when looking at the rear of the server.
  - Neither the PCIe riser 2 (with the two PCIe slots numbered PCIe 4 and PCIe 5, at the left when viewing the server from the rear) nor the mezzanine card are supported on 1-CPU systems.
  - Only a single VIC card (either the full-height Cisco UCS P81E or the half-height Cisco VIC 1225 PCIe card) may be installed on a 1-CPU system, and it must be installed in slot 2 of riser 1. See *Table 1 on page 6* for the slot descriptions.
- For 2-CPU systems:
  - Five PCIe slots are available, three on PCIe riser 1 (PCIe slots 1, 2, and 3) and two on PCIe riser 2 (PCIe slots 4 and 5).
  - All of the slots are full-height except one.
  - All of the server PCIe adapter cards are half-height cards, with the exception of the P81E Virtual Interface Card (VIC) (N2XX-ACPCI01), which is a full-height card. Therefore, two VIC cards may be installed in 2-CPU systems, using slots 2 or 5. Note, however, that if the server is using UCSM, only slot 2 is supported for the VIC card. See *Table 1 on page 6* for the slot descriptions.
- All PCIe cards will fit in either slot, except the full-height P81E VIC card, which must be installed in a full-height slot (slots 2 or 5, except only slot 2 when the server uses UCSM).
- Other considerations for the Cisco VIC 1225:
  - Supports 10G SFP+ optical and copper twinax connections
  - To use the Cisco Card NIC mode, this card must be installed in PCIe slot 2. Slot 2 can operate while the server is in standby power mode.
  - Requires that the server has CIMC firmware version 1.4(6) or later installed. There is a heartbeat LED on the top of the card that indicates when firmware is active.

  - To use this card for UCS integration (Cisco UCS Manager mode) with Cisco UCS Manager 2.1(0) or later, the minimum card-firmware and uboot image level is 2.1(0.306).

- To help ensure that your operating system is compatible with the card you have selected, check the Hardware Compatibility List at this URL:

  http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html

STEP 7 ORDER OPTIONAL NETWORK CARD ACCESSORIES

Copper twinax cables and SFP optical modules may be ordered to support the two-port network cards that are available with the server.

Choose Optional Twinax Cables

Table 10 lists the copper twinax cables available for the PCIe cards. You can choose cable lengths of 1, 3, 5, 7, or 10 meters. The two longer cables (7 and 10 meters) are active, which means that they contain active components within the SFP+ housing to improve signal quality.

Table 10 Available Twinax Cables

Product ID (PID)	PID Description
SFP-H10GB-CU1M	10GBASE-CU SFP+ Cable (1 M)
SFP-H10GB-CU3M	10GBASE-CU SFP+ Cable (3 M)
SFP-H10GB-CU5M	10GBASE-CU SFP+ Cable (5 M)
SFP-H10GB-ACU7M	10GBASE-CU SFP+ Cable (7 M)
SFP-H10GB-ACU10M	10GBASE-CU SFP+ Cable (10 M)

Approved Configurations

(1) Choose Up to Two Twinax Cables for Each Network Card Ordered

- You may choose one or two twinax cables for each network card ordered. The cables can be different lengths; however, you would normally order two cables of equal lengths to connect to the primary and redundant network switching equipment.

Caveats

The twinax cables listed in *Table 10* can be ordered only for the following PCIe cards:

- N2XX-ACPCI01 (Cisco UCS P81E Virtual Interface Card/ 2-port 10Gbps)
- UCS-PCIE-BSFP (Broadcom 57712)
- N2XX-AEPCI01 (Emulex OCe10102-F)
- N2XX-AIPCI01 (Intel Dual Port Ethernet X520)
- UCSC-PCIE-CSC-02 (Cisco VIC 1225 Dual Port 10Gb SFP+ CNA)

Choose Optional SFP Modules

Optical Cisco SFP+ modules are listed in *Table 11*.

Table 11 Available SFP Modules

Product ID (PID)	PID Description
SFP-10G-SR	10GBASE-SR SFP+ Module 850 nm, multimode, SR, 3.3V, LC connector, with Digital Optical Monitoring
DS-SFP-FC8G-SW	8 Gbit SFP+ Module 850 nm, multimode, SR, 3.3V, LC connector, with Digital Optical Monitoring

Approved Configurations

(1) Choose Up to Two SFP+ Modules for Each Network Card Ordered

- You may choose one or two SFP+ optical modules cables for each network card ordered. You would normally order two modules for connecting to the primary and redundant network switching equipment. With the SFP+ optical modules, you can use common fiber optic cables, widely available.

See *Figure 5 on page 30* for typical SFP+ and twinax connections to the network cards.

Caveats

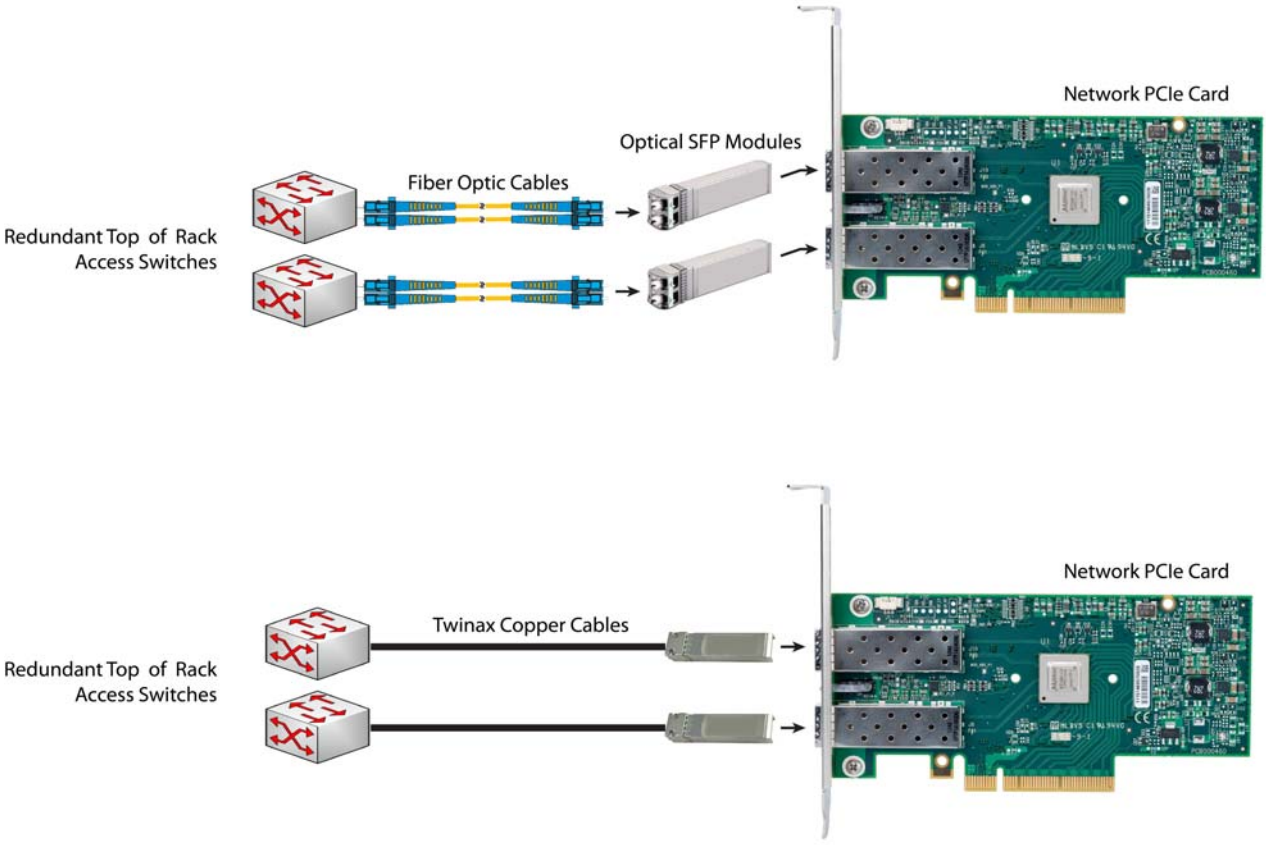
The SFP-10G-SR optical module listed in *Table 11* should be ordered only for the following PCIe cards, as they do not come by default with any optical modules:

- N2XX-ACPCI01 (Cisco UCS P81E Virtual Interface Card/ 2-port 10Gbps)
- UCSC-PCIE-BSFP (Broadcom 57712)
- N2XX-ABPCI02 (Broadcom 57711)
- N2XX-AEPCI01 (Emulex OCe10102-F)
- UCSC-PCIE-CSC-02 (Cisco VIC 1225 Dual Port 10Gb SFP+ CNA)

The DS-SFP-FC8G-SW optical module listed in *Table 11* should be ordered only for the following PCIe cards, as they do not come by default with any optical modules:

- N2XX-AEPCI05 (Emulex LPe 12002, 8Gb dual-port Fibre Channel HBA)

Figure 5 Network Card Connections



STEP 8 ORDER POWER SUPPLY

The C240 M3 server requires one power supply. A lightly loaded server may require one or two 650 W power supplies. A fully loaded server might need to be powered with two 1200 W power supplies (see *Table 12*). Use the power calculator at the following link to determine the needed power based on the options chosen (CPUs, drives, memory, and so on):

https://express.salire.com/Go/Cisco/Cisco-UCS-Power-Calculator.aspx

Table 12 Power Supply

Product ID (PID)	PID Description
UCSC-PSU-650W	650 W power supply (CSCI platinum).
UCSC-PSU2-1200	1200 W power supply (CSCI platinum).

NOTE: In a two power supply server, both power supplies must be identical.

STEP 9 SELECT AC POWER CORD(s)

Using *Table 13*, select the appropriate AC power cords. You can select a minimum of no power cords and a maximum of two. If you select the option R2XX-DMYMPWRCORD, no power cord is shipped with the server.

Table 13 Available Power Cords

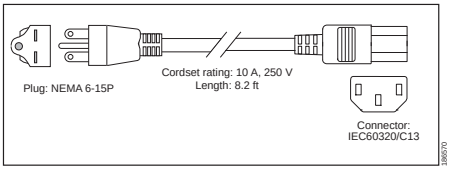
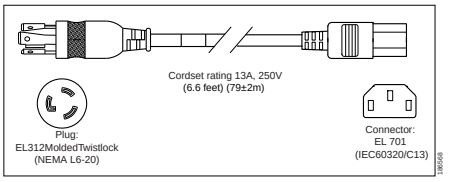
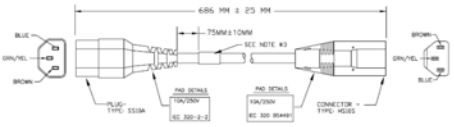
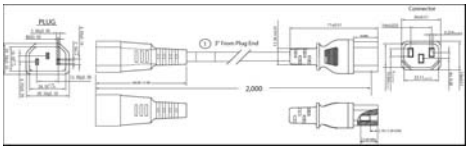
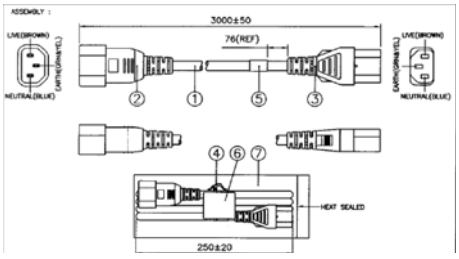
Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America	
CAB-AC-250V/13A	Power Cord, NEMA L6-20 250V/20A plug-IEC320/C13 receptacle, North America,	
CAB-C13-CBN	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V	
CAB-C13-C14-2M	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V	
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/C13, 3.0M	

Table 13 Available Power Cords

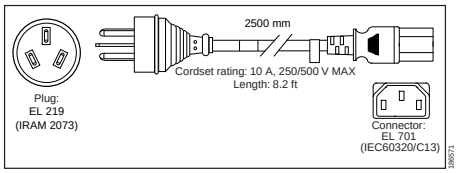
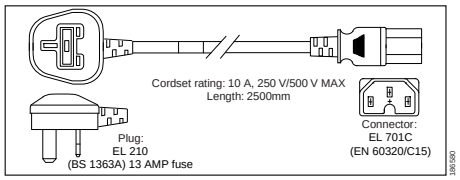
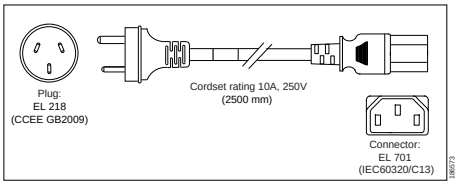
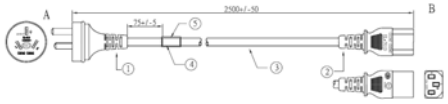
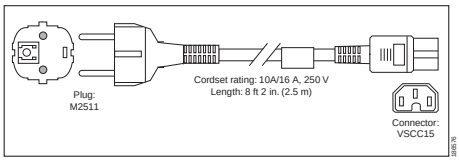
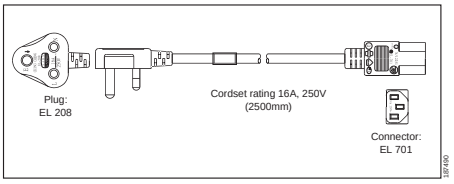
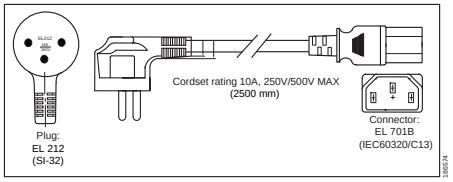
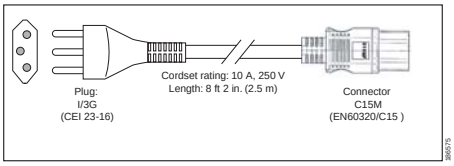
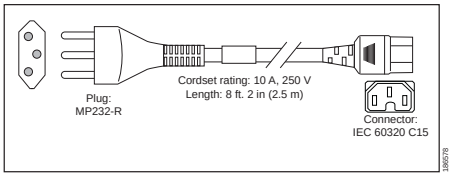
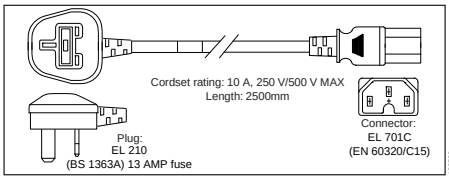
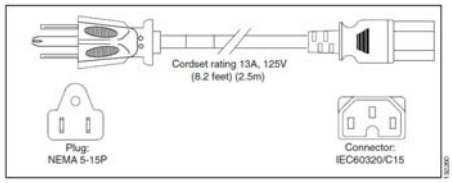
Product ID (PID)	PID Description	Images
SFS-250V-10A-AR	Power Cord, SFS, 250V, 10A, Argentina	
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	
SFS-250V-10A-CN	Power Cord, SFS, 250V, 10A, China	
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	
SFS-250V-10A-ID	Power Cord, SFS, 250V, 10A, India	
SFS-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	

Table 13 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK	
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	
CAB-JPN-3PIN	Power Cord 3PIN, Japan	Image not available

STEP 10 ORDER OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM

The reversible cable management arm mounts on either the right or left slide rails at the rear of the server and is used for cable management. Use *Table 14* to order a cable management arm.

Table 14 Cable Management Arm

Product ID (PID)	PID Description
UCSC-CMA2	Cable Management Arm for C240 rack servers

For more information about the cable management arm, see the *Cisco UCS C240 M3 Installation and Service Guide* at this URL:

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/C240.pdf

STEP 11 ORDER A TRUSTED PLATFORM MODULE

Trusted Platform Module (TPM) is a computer chip (microcontroller) that can securely store artifacts used to authenticate the platform (server). These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments.

The TPM ordering information is listed in *Table 15*.

Table 15 Trusted Platform Module

Product ID (PID)	PID Description
UCSX-TPM1-001	Trusted Platform Module

STEP 12 ORDER CISCO FLEXIBLE FLASH SD CARD MODULE (OPTIONAL)

You can order one optional 16 GB Cisco Flexible Flash secure digital (SD) card. This SD card contains preloaded software for simplified server operation. The ordering information is listed in *Table 16*.

Table 16 Secure Digital (SD) Card

Product ID (PID)	PID Description
UCSC-SD-16G-C240	16GB SD Card for C240 servers

See *Figure 6 on page 49* for the location of the SD cards. There are two locations, SD1 and SD2; however at present only SD1 is supported.

STEP 13 ORDER OPTIONAL USB 2.0 DRIVE

You may order one optional USB 2.0 drive. The USB drive ordering information is listed in *Table 17*.

Table 17 USB 2.0 Drive

Product ID (PID)	PID Description
UCS-USBFLSH-S-4GB	4GB Flash USB Drive (shorter length) for all servers except C260

See *Figure 6 on page 49* for the location of the USB connector.

STEP 14 SELECT OPERATING SYSTEM

Several operating systems are available from which to choose. Select one of the operating systems shown in *Table 18*.

Table 18 Operating Systems

PID Description	Product ID (PID)
SUSE Linux Enterprise Server	
SLES-1A	SLES/1yr subscription/svcs required/0 media
SLES-3A	SLES/3yr subscription/svcs required/0 media
Red Hat Enterprise Linux	
RHEL-2S-1G-1A	RHEL/2 Socket/1 Guest/1Yr Svcs Required
RHEL-2S-1G-3A	RHEL/2 Socket/1 Guest/3Yr Svcs Required
RHEL-2S-4G-1A	RHEL/2 Socket/4 Guest/1Yr Svcs Required
RHEL-2S-4G-3A	RHEL/2 Socket/4 Guest/3Yr Svcs Required
RHEL-2S-UG-1A	RHEL/2 Socket/U Guest/1Yr Svcs Required
RHEL-2S-UG-3A	RHEL/2 Socket/U Guest/3Yr Svcs Required
RHEL Add-Ons	
RHEL-HA-2S-1A	RHEL Option/High-Availability/2 Socket/1Yr Svcs Required
RHEL-RS-2S-1A	RHEL Option/Resilient w/Ha /2 Socket/1 Yr Svcs Required
RHEL-SFS-2S-1A	RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required
RHEL-HA-2S-3A	RHEL Option/High-Availability/2 Socket/3Yr Svcs Required
RHEL-RS-2S-3A	RHEL Option/Resilient Storage w/ HA /2 Socket/3 Yr Svcs Reqd
RHEL-SFS-2S-3A	RHEL Option/Scalable File System/2 Socket/3 Yr Svcs Required
Windows Server	
MSWS-08R2-STHV	Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL)
MSWS-08R2-ENHV	Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL)
MSWS-08R2-DCHV2S	Windows Svr 2008 R2-2 CPU-Data Center
MSWS-08R2-DCHV4S	Windows Svr 2008 R2-4 CPU-Data Center
VMWare Server	
VMW-VS5-STD-1A	VMware vSphere 5 Standard for 1 Processor, 1 Year, Support Required
VMW-VS5-STD-2A	VMware vSphere 5 Standard for 1 Processor, 2 Year, Support Required

Table 18 Operating Systems *(continued)*

PID Description	Product ID (PID)
VMW-VS5-STD-3A	VMware vSphere 5 Standard for 1 Processor, 3 Year, Support Required
VMW-VS5-STD-4A	VMware vSphere 5 Standard for 1 Processor, 4 Year, Support Required
VMW-VS5-STD-5A	VMware vSphere 5 Standard for 1 Processor, 5 Year, Support Required
VMW-VS5-ENT-1A	VMware vSphere 5 Enterprise for 1 Processor, 1 Year Support Required
VMW-VS5-ENT-2A	VMware vSphere 5 Enterprise for 1 CPU, 2 Yr Support Required
VMW-VS5-ENT-3A	VMware vSphere 5 Enterprise for 1 CPU, 3 Yr Support Required
VMW-VS5-ENT-4A	VMware vSphere 5 Enterprise for 1 Processor, 4 Year Support
VMW-VS5-ENT-5A	VMware vSphere 5 Enterprise for 1 CPU, 5 Yr Support Required
VMW-VS5-ENTP-1A	VMware vSphere 5 Enterprise Plus for 1 Processor, 1 Year Support Required
VMW-VS5-ENTP-2A	VMware vSphere 5 Enterprise Plus for 1 CPU, 2 Yr Support Required
VMW-VS5-ENTP-3A	VMware vSphere 5 Enterprise Plus for 1 Processor, 3 Year Support Required
VMW-VS5-ENTP-4A	VMware vSphere 5 Enterprise Plus for 1 Processor, 4 Year Support Required
VMW-VS5-ENTP-5A	VMware vSphere 5 Enterprise Plus for 1 Processor, 5 Year Support Required

STEP 15 SELECT OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in *Table 19*.

Table 19 OS Media

Product ID (PID)	PID Description
RHEL-6	RHEL 6 Recovery Media Only (Multilingual)
SLES-11	SLES 11 media only (multilingual)
MSWS-08R2-STHV-RM	Windows Svr 2008 R2 ST (1-4CPU, 5CAL), Media
MSWS-08R2-ENHV-RM	Windows Svr 2008 R2 EN (1-8CPU, 25CAL), Media
MSWS-08R2-DCHV-RM	Windows Svr 2008 R2 DC (1-8CPU, 25CAL), Media

STEP 16 SELECT OPTIONAL VALUE-ADDED SOFTWARE

You can select from a variety of value-added software listed in *Table 20*.

Table 20 Value Added Software

Product ID (PID)	PID Description
BMC-SE-4C	BMC BladeLogic Standard Edition, 4 Cores, Support Required
BMC-SE-6C	BMC BladeLogic Standard Edition, 6 Cores, Support Required
BMC-SE-8C	BMC BladeLogic Standard Edition, 8 Cores, Support Required
BMC-SE-10C	BMC BladeLogic Standard Edition, 10 Cores, Support Required
BMC-AE-4C	BladeLogic Advanced Edition, 4 Cores, Support Required
BMC-AE-6C	BMC BladeLogic Advanced Edition, 6 Cores, Support Required
BMC-AE-8C	BMC BladeLogic Advanced Edition, 8 Cores, Support Required
BMC-AE-10C	BMC BladeLogic Advanced Edition, 10 Cores, Support Required
BMC-002	BMC BladeLogic CM for Physical Cisco Servers
BMC-012	BMC BPPM Per Server
VMW-VC5-STD-1A	VMware vCenter 5 Standard for 1 Processor, 1 Year, Support Required
VMW-VC5-STD-2A	VMware vCenter 5 Standard for 1 Processor, 2 Year, Support Required
VMW-VC5-STD-3A	VMware vCenter 5 Standard for 1 Processor, 3 Year, Support Required
VMW-VC5-STD-4A	VMware vCenter 5 Standard for 1 Processor, 4 Year, Support Required
VMW-VC5-STD-5A	VMware vCenter 5 Standard for 1 Processor, 5 Year, Support Required
N1K-VLEM-UCS-1	Nexus 1000V License PAK for 1 Virtual Ethernet module
N1K-CSK9-UCS-404	Nexus 1000V VSM Virtual Appliance Software

STEP 17 SELECT SERVICE and SUPPORT LEVEL

A variety of service options are available, as described in this section.

Unified Computing Warranty, No Contract

If you have noncritical implementations and choose no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

Unified Computing Support Service

For support of the entire Cisco Unified Computing System, Cisco offers the Cisco Unified Computing Support Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to the Cisco Technical Assistance Center (TAC) is provided around the clock, from anywhere in the world.

For UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Unified Computing Support Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in *Table 21*.

Table 21 UCS Computing Support Service

Product ID (PID)	On Site?	Description
CON-UCS1-C240-M3-W	No	UC Support 8X5XNBD
CON-UCS2-C240-M3-W	No	UC Support 8X5X4
CON-UCS3-C240-M3-W	No	UC Support 24x7x4
CON-UCS4-C240-M3-W	No	UC Support 24x7x2
CON-UCS5-C240-M3-W	Yes	UC Support 8X5XNBD
CON-UCS6-C240-M3-W	Yes	UC Support 8X5X4
CON-UCS7-C240-M3-W	Yes	UC Support 24x7x4
CON-UCS8-C240-M3-W	Yes	UC Support 24x7x2

Unified Computing Warranty Plus Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Unified Computing Warranty Plus Service. You can choose from several levels of advanced parts replacement coverage, including onsite parts replacement in as little as two hours. Warranty Plus provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. See *Table 22*.

Table 22 UCS Computing Warranty Plus Service

Product ID (PID)	On Site?	Description
CON-UCW2-C240-M3-W	No	UC Warranty Plus 8x5x4
CON-UCW3-C240-M3-W	No	UC Warranty Plus 24x7x4
CON-UCW4-C240-M3-W	No	UC Warranty Plus 24x7x2
CON-UCW5-C240-M3-W	Yes	UC Warranty Plus 8X5XNBD
CON-UCW6-C240-M3-W	Yes	UC Warranty Plus 8X5X4
CON-UCW7-C240-M3-W	Yes	UC Warranty Plus 24x7x4
CON-UCW8-C240-M3-W	Yes	UC Warranty Plus 24x7x2

Unified Computing Drive Retention Service

With the Cisco Unified Computing Drive Retention (UCDR) Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive. In exchange for a Cisco replacement drive, you provide a signed Certificate of Destruction (CoD) confirming that the drive has been removed from the system listed, is no longer in service, and has been destroyed.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The UCDR service enables you to retain your drives and ensures that the sensitive data on those drives is not compromised, which reduces the risk of any potential liabilities. This service also enables you to comply with regulatory, local, and federal requirements.

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in *Table 23*.

NOTE: Cisco does not offer a certified drive destruction service as part of this service.

Table 23 Drive Retention Service Options

Service Description	Service Program Name	Service Level GSP	Service Level	Product ID (PID)
UCS Mission Critical Support Service With Drive Retention	UC CRIT DR	UCMD7	24x7x4 Onsite	CON-UCMD7-C240-M3-WSFF
		UCMD8	24x7x2 Onsite	CON-UCMD8-C240-M3-WSFF
UCS Support Service With Drive Retention	UC SUPP DR	UCSD1	8x5xNBD	CON-UCSD1-C240-M3-WSFF
		UCSD2	8x5x4	CON-UCSD2-C240-M3-WSFF
		UCSD3	24x7x4	CON-UCSD3-C240-M3-WSFF
		UCSD4	24x7x2	CON-UCSD4-C240-M3-WSFF
		UCSD5	8x5xNBD Onsite	CON-UCSD5-C240-M3-WSFF
		UCSD6	8x5x4 Onsite	CON-UCSD6-C240-M3-WSFF
		UCSD7	24x7x4 Onsite	CON-UCSD7-C240-M3-WSFF
		UCSD8	24x7x2 Onsite	CON-UCSD8-C240-M3-WSFF
UCS Warranty Plus With Drive Retention	UC PLUS DR	UCWD2	8x5x4	CON-UCWD2-C240-M3-WSFF
		UCWD3	24x7x4	CON-UCWD3-C240-M3-WSFF
		UCWD4	24x7x2	CON-UCWD4-C240-M3-WSFF
		UCWD5	8x5xNBD Onsite	CON-UCWD5-C240-M3-WSFF
		UCWD6	8x5x4 Onsite	CON-UCWD6-C240-M3-WSFF
		UCWD7	24x7x4 Onsite	CON-UCWD7-C240-M3-WSFF
		UCWD8	24x7x2 Onsite	CON-UCWD8-C240-M3-WSFF

Mission Critical Support Service

This service delivers personalized technical account management, expedited technical support, and expert field support engineering for the Cisco Unified Computing System (UCS).

The Mission Critical Support Service provides a designated technical account manager (TAM) who acts as a strategic resource to help ensure that the unified computing environment runs at peak efficiency. If a problem arises that threatens business continuity, the TAM provides crisis management leadership, and your IT staff receives expedited access to Cisco's Technical Assistance Center (TAC).

Mission Critical Support Service is a layered service available for all Cisco data center products already support by a UCS Support Service or SMARTnet service contract. For further information about Cisco Mission Critical Support Service, please consult the Service Description that can be found at the following link:

http://www.cisco.com/web/about/doing_business/legal/service_descriptions/index.html

or contact your Cisco account Manager.

For more service and support information, see this URL:

http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco_UC_Warranty_Support_DS.pdf

For a complete listing of available services for Cisco Unified Computing System, see this URL:

http://www.cisco.com/en/US/products/ps10312/serv_group_home.html

OPTIONAL STEP - ORDER RACK(s)

The optional R42610 rack is available from Cisco for the C-Series servers, including the C240 M3 SFF server. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in *Table 24*. Racks are shipped separately from the C240 M3 SFF server.

Table 24 Racks and Rack Options

Product ID (PID)	PID Description
RACK-UCS[1]	Cisco R42610 expansion rack, no side panels
RACK-UCS2[1]	Cisco R42610 standard rack, w/side panels
RACK-BLANK-001	Filler panels (qty 12), 1U, plastic, toolless
RACK-CBLMGT-001	Cable mgt D rings (qty 10), metal
RACK-CBLMGT-011	Cable mgt straps (qty 10), Velcro
RACK-FASTEN-001	Mounting screws (qty 100), M6
RACK-FASTEN-002	Cage nuts (qty 50), M6
RACK-JOIN-001	Rack joining kit

Notes . . .

1. Use these same base PIDs to order spare racks (available only as next-day replacements).

For more information about the R42610 rack, see *RACKS, page 58*.

OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers, including theC240 M3 server. This PDU is available in a zero rack unit (RU) style (see *Table 24*).

Table 25 PDU Options

Product ID (PID)	PID Description
RP208-30-2P-U-2	Zero RU PDU

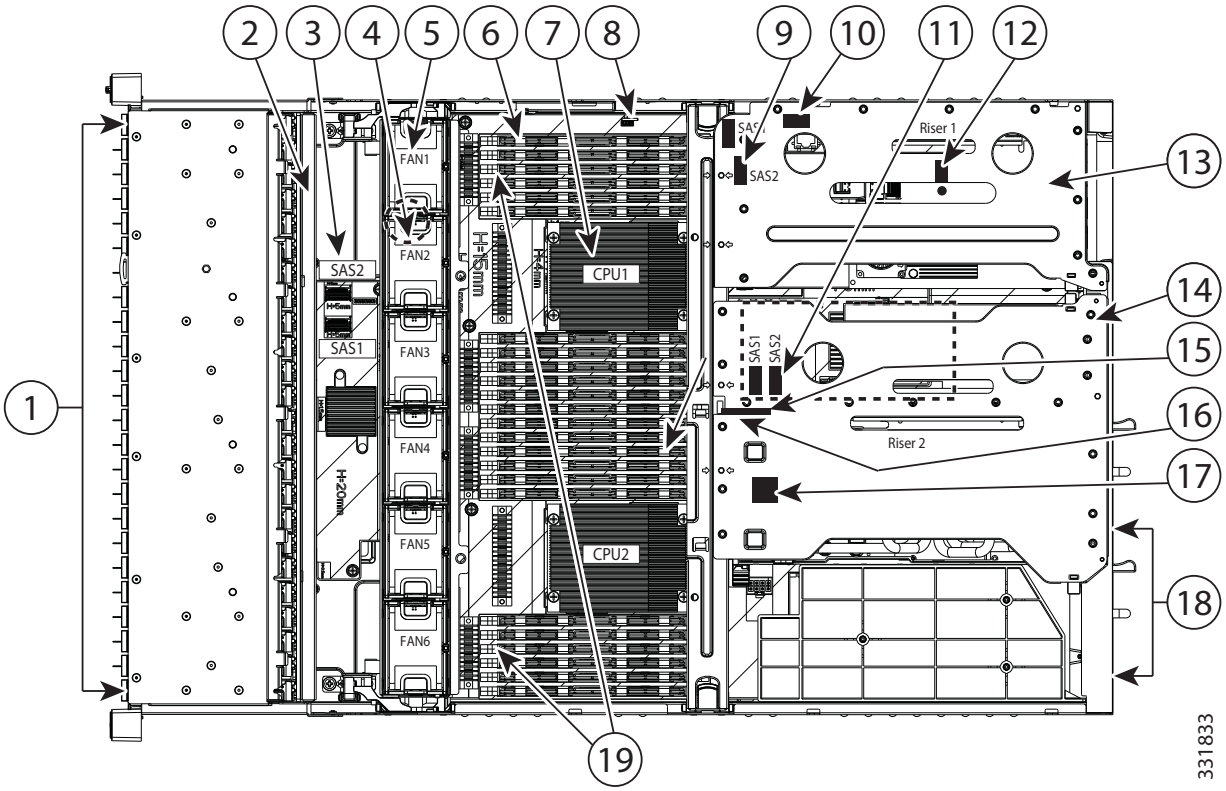
For more information about the PDU, see *PDUs, page 60*.

SUPPLEMENTAL MATERIAL

CHASSIS

An internal view of the C240 M3 chassis with the top cover removed is shown in *Figure 6*.

Figure 6 C240 M3 SFF With Top Cover Off



1	Drives (hot-swappable, accessed through front panel)	**11**	Optional mezzanine RAID controller, mini-SAS connectors SAS1 and SAS2
2	Drive backplane	**12**	Trusted platform module socket on motherboard
3	Drive backplane expander (required for 24-drive configuration)	**13**	PCIe riser 1 (three standard-profile slots)
4	RTC battery (on motherboard under fan tray)	**14**	PCIe riser 2 (one standard-profile slot and one low-profile slot))
5	Fan modules (six)	**15**	Cisco Flexible Flash card slot SD2
6	DIMM slots on motherboard (24)	**16**	Cisco Flexible Flash card slot SD1
7	CPUs and heatsinks (two)	**17**	Internal USB 2.0 port on motherboard

8	SCU upgrade ROM header	**18**	Power supplies (two, hot-swappable access through rear panel)
9	Integrated RAID on motherboard, and mini-SAS connectors	**19**	SuperCap RAID data cache power backup unit mounting locations (two, on air baffle not shown in this view)
10	Software RAID key header	**-**	

CPUs and DIMMs

Physical Layout

Each CPU has four DIMM channels:

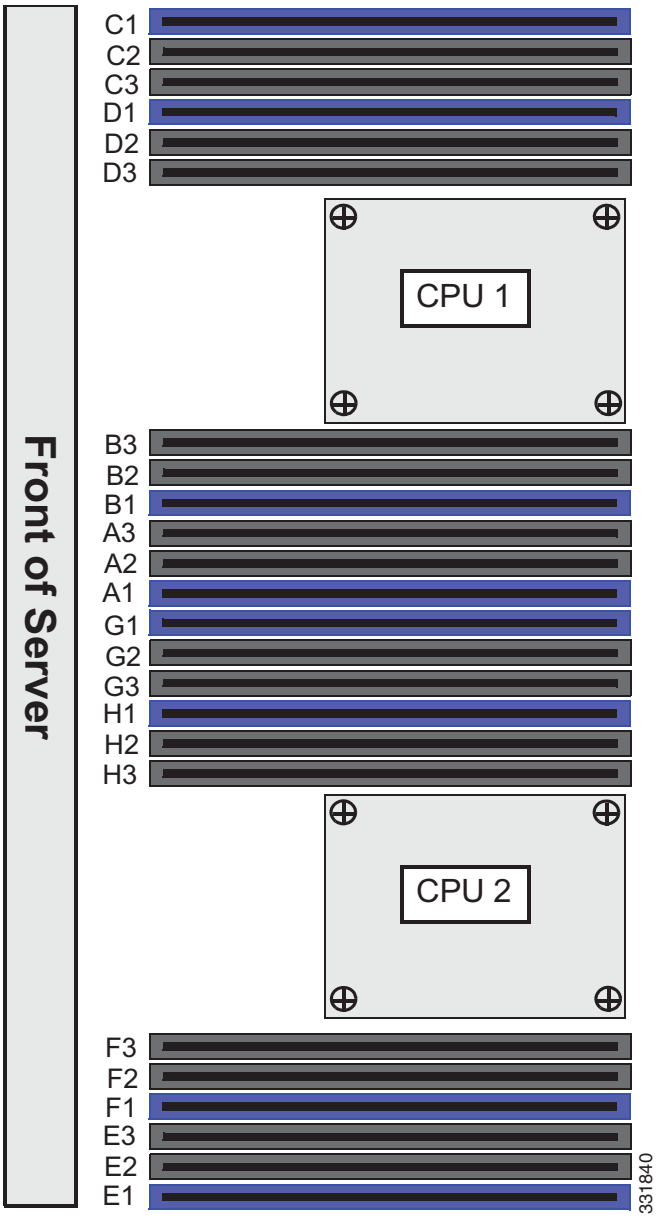
- CPU1 has channels A, B, C, and D
- CPU2 has channels E, F, G, and H

Each DIMM channel has three banks: bank 1, 2, and 3. The blue-colored DIMM slots are for bank 1 and the black-colored are for banks 2 and 3.

As an example, DIMM slots A1, B1, C1, and D1 belong to bank 1, while A2, B2, C2, and D2 belong to bank 2.

Figure 7 shows how banks and channels are physically laid out on the motherboard. The DIMM slots on the top (channels A, B, C, and D) are associated with CPU 1, while the DIMM slots on the bottom (channels E, F, G, and H) are associated with CPU 2. The bank 1 (blue) DIMM slots are always located farther away from a CPU than the corresponding bank 2 or 3 (black) slots. Bank 1 slots (blue) are populated before bank 2 and 3 slots (black).

Figure 7 Physical Layout of CPU DIMM Channels and Banks



Memory Population Rules

When considering the memory configuration of your server, you should take into account the following:

- The server supports 1, 2, or 3 DIMMs per channel for single- or dual-rank DIMMs.
- The server supports 1, 2, or 3 DIMMs per channel for quad-rank DIMMs.
- For optimum performance, populate at least one DIMM per memory channel per CPU.
- The server supports registered DIMMs (RDIMMs) or load-reduced DIMMS (LRDIMMs), however, do not mix RDIMMs and LRDIMMs in a server.
- UDIMMs and non-ECC DIMMs are not supported.
- Each channel has three DIMM slots (for example, channel A = slots A1, A2, and A3).
  - A channel can operate with one, two, or three DIMMs installed.
  - If a channel has only one DIMM, populate slot 1 first (the blue slot).
- When both CPUs are installed, populate the DIMM slots of each CPU identically.
  - Fill bank 1 blue slots in the channels first: A1, E1, B1, F1, C1, G1, D1, H1
  - Fill bank 2 black slots in the channels second: A2, E2, B2, F2, C2, G2, D2, H2
  - Fill bank 3 black slots in the channels third: A3, E3, B3, F3, C3, G3, D3, H3
- Any DIMM installed in a DIMM socket for which the CPU is absent is not recognized.
- Observe the DIMM mixing rules shown in *Table 26*

Table 26 DIMM Rules for C240 M3 Servers

DIMM Parameter	Mix Across a Single Bank?	Mix Across Multiple Bank?
DIMM Size		
RDIMM = 4, 8, or 16 GB	No—Must be same size in the same bank.	Yes—Different banks can use different DIMM sizes (as long as all DIMMs in a single bank use the same DIMM size).
LRDIMM = 32 GB	You cannot mix 32 GB LRDIMMs with any RDIMM	You cannot mix 32 GB LRDIMMs with any RDIMM
DIMM Speed		
1333 or 1600 MHz[1]	No—Must be same speed in the same bank.	Yes—but if DIMMs of mixed speed are used, the server will clock down to the lowest speed.
DIMM Type		
RDIMMs or LRDIMMs	You cannot mix LRDIMMs with RDIMMS	You cannot mix LRDIMMs with RDIMMS
32 GB DIMM Population	**1 DPC or 2 DPC**	**3 DPC**
	DIMMs will run at 1333 MHz at either 1.35 V or 1.5 V	DIMMs will run at 1066 MHz at either 1.35 V or 1.5 V

Notes . . .

1. Only 1333- and 1600-MHz DIMMs are currently available for the C240 M3 server.

Recommended Memory Configuration

This section explains the recommended DIMM population order rules for the C240 M3 server.

- All DIMMs must be DDR3 DIMMs.
- Do not mix:
  - DIMMs with different sizes or clock rates in a bank
  - RDIMMs and LRDIMMs
  - ECC and non-ECC DIMMs
- There are blue and black DIMM slots. Populate blue slots first.
- When single- and dual-rank DIMMs are populated for 2DPC, always populate the dual-rank DIMM in the blue DIMM slot and the single-rank DIMM in the black DIMM slot.

Many memory configurations are possible. For best results, follow *Table 27* when populating DIMMs.

Table 27 Recommended Memory Configurations[1]

Total System Memory Size	CPU 1 DIMMs			CPU 2 DIMMs			DIMM Max Speed (MHz)	Total DIMMs
	Blue Slots Bank 1 (A1,B1, C1,D1)	Black Slots Bank 2 (A2,B2, C2,D2)	Black Slots Bank 3 (A3,B3, C3,D3)	Blue Slots Bank 1 (E1,F1, G1,H1)	Black Slots Bank 2 (E2,F2, G2,H2)	Black Slots Bank 3 (E3,F3, G3,H3)		
32 GB	4x4 GB	—	—	4x4 GB	—	—	1600	8
	2x8 GB	—	—	2x8 GB	—	—	1600	4
64 GB	4x4 GB	4x4 GB	—	4x4 GB	4x4 GB	—	1600	16
	4x8 GB	—	—	4x8 GB	—	—	1600	8
96 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	1066	24
	4x8 GB	2x8 GB	—	4x8 GB	2x8 GB	—	1600	12
	3x16 GB	—	—	3x16 GB	—	—	1600	6
	4x8 GB	4x4 GB	—	4x8 GB	4x4 GB	—	1600	16
128 GB	4x8 GB	4x8 GB	—	4x8 GB	4x8 GB	—	1600	16
	4x16 GB	—	—	4x16 GB	—	—	1600	8
192 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	1066	24
	4x16 GB	2x16 GB	—	4x16 GB	2x16 GB	—	1600	12
	4x16 GB	4x8 GB	—	4x16 GB	4x8 GB	—	1600	16

Table 27 Recommended Memory Configurations[1] *(continued)*

Total System Memory Size	CPU 1 DIMMs			CPU 2 DIMMs			DIMM Max Speed (MHz)	Total DIMMs
	Blue Slots Bank 1 (A1,B1, C1,D1)	Black Slots Bank 2 (A2,B2, C2,D2)	Black Slots Bank 3 (A3,B3, C3,D3)	Blue Slots Bank 1 (E1,F1, G1,H1)	Black Slots Bank 2 (E2,F2, G2,H2)	Black Slots Bank 3 (E3,F3, G3,H3)		
256 GB	4x16 GB	4x16 GB	—	4x16 GB	4x16 GB	—	1600	16
384 GB	4x16 GB	4x16 GB	4x16 GB	4x16 GB	4x16 GB	4x16 GB	1066	24
512 GB	4x32 GB	4x32 GB	—	4x32 GB	4x32 GB	—	1333[2]	16
768 GB	4x32 GB	4x32 GB	4x32 GB	4x32 GB	4x32 GB	4x32 GB	1066	24

Notes . . .

1. Rows marked in yellow indicate best performance.
2. Even though the specified maximum speed of 32 GB LRDIMMs is 1600 MHz, they run at 1333 MHz in 2DPC configurations.

Supported DIMM Populations

The supported DIMM populations are listed in *Table 28*.

Table 28 Supported DIMM Configurations

CPU 1 DIMMs	Total DIMMs for CPU 1	CPU 1 Capacity	CPU 2 DIMMs	Total DIMMs for CPU 2	CPU 2 Capacity	Total Capacity for 2 CPUs
1 x 8 GB	1	8 GB	1 x 8 GB	1	8 GB	16 GB
1 x 16 GB	1	16 GB	1 x 16 GB	1	16 GB	32 GB
2 x 4 GB	2	8 GB	2 x 4 GB	2	8 GB	16 GB
4 x 4 GB	4	16 GB	4 x 4 GB	4	16 GB	32 GB
2 x 8 GB	2	16 GB	2 x 8 GB	2	16 GB	32 GB
6 x 4 GB	6	24 GB	6 x 4 GB	6	24 GB	48 GB
4 x 8 GB	4	32 GB	4 x 8 GB	4	32 GB	64 GB
8 x 4 GB	8	32 GB	8 x 4 GB	8	32 GB	64 GB
1 x 32 GB	1	32 GB	1 x 32 GB	1	32 GB	64 GB
9 x 4 GB	9	36 GB	9 x 4 GB	9	36 GB	72 GB
5 x 8 GB	5	40 GB	5 x 8 GB	5	40 GB	80 GB
10 x 4 GB	10	40 GB	10 x 4 GB	10	40 GB	80 GB
11 x 4 GB	11	44 GB	11 x 4 GB	11	44 GB	88 GB
3 x 16 GB	3	48 GB	3 x 16 GB	3	48 GB	96 GB
6 x 8 GB	6	48 GB	6 x 8 GB	6	48 GB	96 GB
4x8GB + 4x4GB	8	48 GB	4x8GB + 4x4GB	8	48 GB	96 GB
12 x 4 GB	12	48 GB	12 x 4 GB	12	48 GB	96 GB
7 x 8 GB	7	56 GB	7 x 8 GB	7	56 GB	112 GB
4 x 16 GB	4	64 GB	4 x 16 GB	4	64 GB	128 GB
8 x 8 GB	8	64 GB	8 x 8 GB	8	64 GB	128 GB
2 x 32 GB	2	64 GB	2 x 32 GB	2	64 GB	128 GB
9 x 8 GB	9	72 GB	9 x 8 GB	9	72 GB	144 GB
5 x 16 GB	5	80 GB	5 x 16 GB	5	80 GB	160 GB
4x16GB + 4x4GB	8	80 GB	4x16GB + 4x4GB	8	80 GB	160 GB
10 x 8 GB	10	80 GB	10 x 8 GB	10	80 GB	160 GB

Table 28 Supported DIMM Configurations *(continued)*

CPU 1 DIMMs	Total DIMMs for CPU 1	CPU 1 Capacity	CPU 2 DIMMs	Total DIMMs for CPU 2	CPU 2 Capacity	Total Capacity for 2 CPUs
11 x 8 GB	11	88 GB	11 x 8 GB	11	88 GB	176 GB
6 x 16 GB	6	96 GB	6 x 16 GB	6	96 GB	192 GB
4x8GB + 4x16GB	8	96 GB	4x8GB + 4x16GB	8	96 GB	192 GB
12 x 8 GB	12	96 GB	12 x 8 GB	12	96 GB	192 GB
3 x 32 GB	3	96 GB	3 x 32 GB	3	96 GB	192 GB
7 x 16 GB	7	112 GB	7 x 16 GB	7	112 GB	224 GB
8 x 16 GB	8	128 GB	8 x 16 GB	8	128 GB	256 GB
4 x 32 GB	4	128 GB	4 x 32 GB	4	128 GB	256 GB
9 x 16 GB	9	144 GB	9 x 16 GB	9	144 GB	288 GB
10 x 16 GB	10	160 GB	10 x 16 GB	10	160 GB	320 GB
11 x 16 GB	11	176 GB	11 x 16 GB	11	176 GB	352 GB
12 x 16 GB	12	192 GB	12 x 16 GB	12	192 GB	384 GB
6 x 32 GB	6	192 GB	6 x 32 GB	6	192 GB	384 GB
8 x 32 GB	8	256 GB	8 x 32 GB	8	256 GB	512 GB
12 x 32 GB	12	384 GB	12 x 32 GB	12	384 GB	768 GB

Low-Voltage DIMM Considerations

The C240 M3 server can be ordered with dual-voltage (1.35 V) DIMMs. Note the following considerations:

- Low-voltage DIMMs within the server must have the identical manufacturer, type, speed, and size.
- Low-voltage DIMMs and standard-voltage DIMMs can be mixed in the same server. Note that this causes the system BIOS to default to standard-voltage operation (Performance Mode). That is, the server cannot operate in Power Saving Mode unless all DIMMs are low-voltage DIMMs.
- CPUs that have a maximum memory frequency less than 1333 MHz support low-voltage DIMMs operating in Power Saving Mode only, and do not support Performance Mode.

RAID Summary

The C240 M3 SFF server can be ordered with a 16-drive backplane without a SAS expander or with a 24-drive backplane with a SAS expander.

- ROM5 and ROM 55 embedded RAID upgrade options support up to 8 drives with the 16-drive backplane with no SAS expander and are not supported for the 24-drive backplane with the SAS expander.
- Mezzanine cards (UCSC-RAID-11-C240 and UCSC-RAID-MZ-240) support up to 8 drives for the 16-drive backplane with no SAS expander, and up to 16 drives for the 24-drive backplane with the SAS expander
- SAS 9266-8i and SAS 9266CV-8i PCIe cards support up to 8 drives each for the 16-drive backplane with no SAS expander, and up to 24 drives for 24-drive backplane with SAS expander

NOTE: If you do not select a mezzanine card, a plug-in PCIe RAID card, or one of the embedded RAID upgrade options, you will have an embedded SATA-only RAID controller that supports up to four SATA-only drives (RAID 0, 1, 10).

RACKS

The Cisco R42610 rack (see *Figure 8*) is certified for Cisco UCS installation at customer sites and is suitable for the following equipment:

- Cisco UCS B-Series servers and fabric interconnects
- Cisco UCS C-Series and select Nexus switches

The rack is compatible with hardware designed for EIA-standard 19-inch racks. Rack specifications are listed in *Table 29*.

Table 29 Cisco R42610 Rack Specifications

Parameter	Standard Rack	Expansion Rack
Dimensions (H x W x D)	78.74 x 24 x 43.38 in. (2000 x 610 x 1102 mm)	78.74 x 23.58 x 43.38 in. (2000 x 599 x 1102 mm)
Dimensions (H x W x D) with packaging	89 x 33 x 47 in. (2261 x 838 x 1194 mm)	89 x 33 x 47 in. (2261 x 838 x 1194 mm)
Distance from front mounting rail to rear mounting rail	29.2 in (741 mm)	29.2 in (741 mm)
Weight	299.83 lb (136 kg)	231. 49 lb (105 kg)
Weight with packaging	354 lb (161 kg)	284 lb (129 kg)
Side panels included	Yes	No
Equipment mounting capacity	42RU	42RU
Static load capacity	2100 lb (954 kg)	2100 lb (954 kg)
Dynamic load capacity	Not applicable	Not applicable

NOTE: The AC input connector is an IEC 320 C-14 15 A/250 VAC power inlet.

Figure 8 Cisco R42610 Rack

Front view - door closed

Front view - door open

Front view - door removed

PDUs

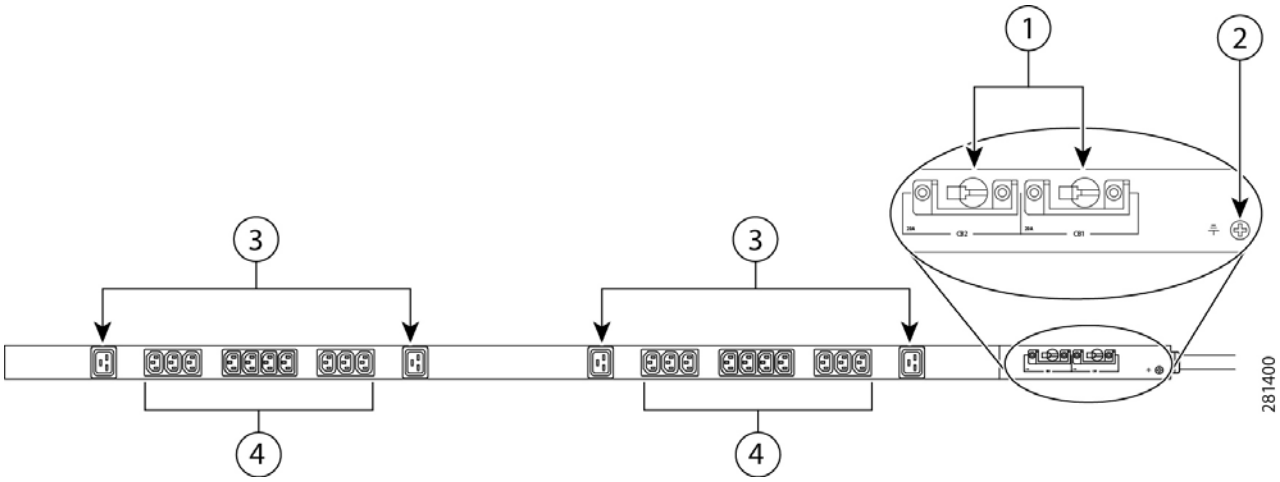
Cisco RP Series Power Distribution Units (PDUs) offer power distribution with branch circuit protection.

Cisco RP Series PDU models distribute power to up to 24 outlets. The architecture organizes power distribution, simplifies cable management, and enables you to move, add, and change rack equipment without an electrician.

With a Cisco RP Series PDU in the rack, you can replace up to two dozen input power cords with just one. The fixed input cord connects to the power source from overhead or under-floor distribution. Your IT equipment is then powered by PDU outlets in the rack using short, easy-to-manage power cords.

The C-series severs accept the zero-rack-unit (0RU) PDU. See *Figure 9*).

Figure 9 Zero Rack Unit PDU (PID = RP208-30-2P-U-2)



1	Breakers	**3**	C19 plugs
2	Ground connection	**4**	C13 plugs

Cisco RP Series PDU models provide two 20-ampere (A) circuit breakers for groups of receptacles. The effects of a tripped circuit are limited to a receptacle group. Simply press a button to reset that circuit.

KVM CABLE

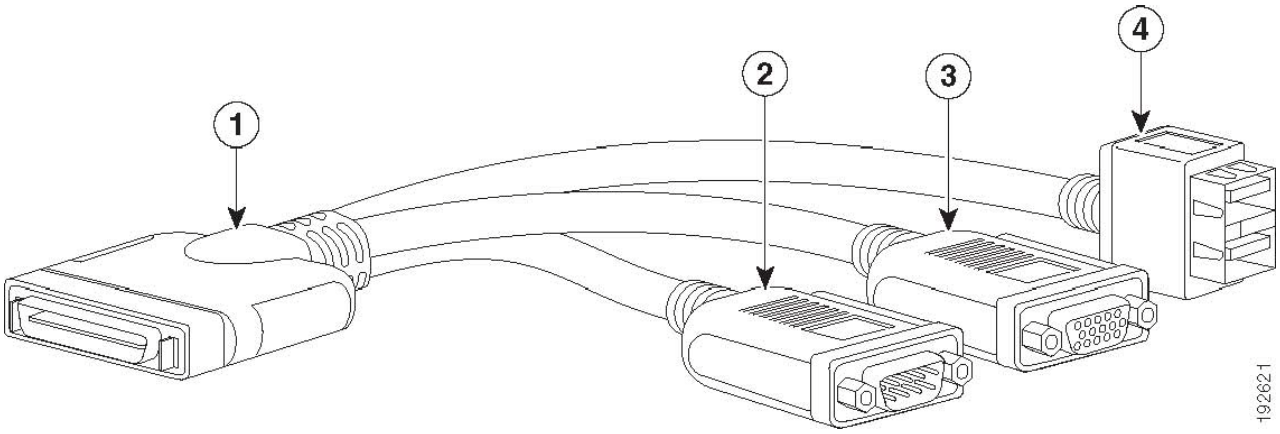
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB 2.0 ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in *Table 30*.

Table 30 KVM Cable

Product ID (PID)	PID Description
N20-BKVM	KVM cable for B-Series Blade Server console port

Figure 10 KVM Cable

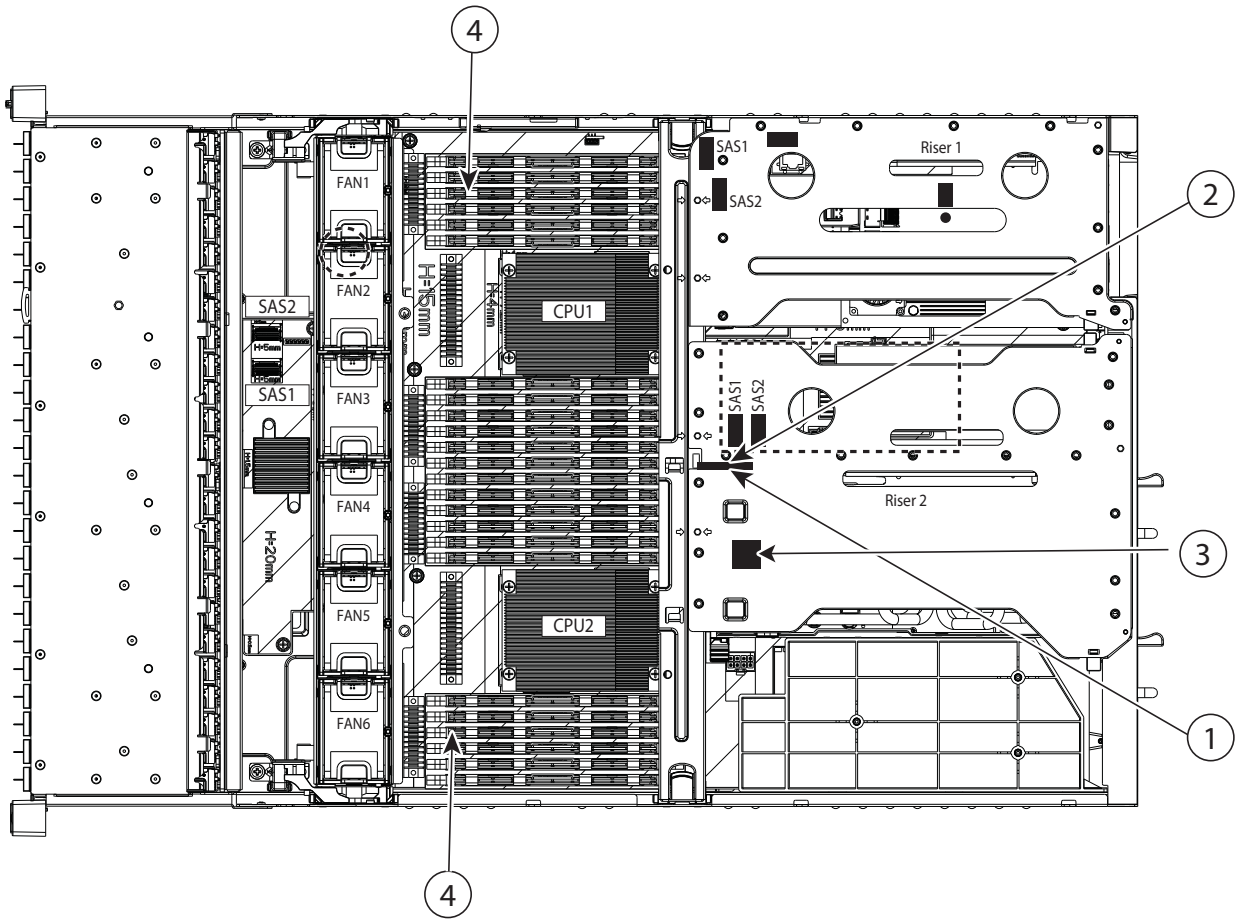


1	Connector (to server front panel)	**3**	VGA connector (for a monitor)
2	DB-9 serial connector	**4**	Two-port USB 2.0 connector (for a mouse and keyboard)

Motherboard USB and SD Ports, and RAID Card Backup Locations

The C240 M3 SFF motherboard has a general-purpose USB socket and two SD sockets, as shown in *Figure 11*. The mounting locations for RAID card backup are also shown

Figure 11 Motherboard USB and SD Ports and RAID Backup Location



1	SD1 connector (on riser 2 board)	**3**	USB connector (on motherboard)
2	SD2 connector (on riser 2 board)	**4**	SuperCap RAID data cache power backup unit mounting locations (two, on air baffle not shown in this view)

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 31 UCS C240 M3 Dimensions and Weight

Parameter	Value
Height	3.43 in. (8.70 cm)
Width (including slam latches)	17.54 in.(44.55 cm)
Depth	28.04 in. (71.23 cm)
Front Clearance	3 in. (76 mm)
Side Clearance	1 in. (25 mm)
Rear Clearance	6 in. (152 mm)
Weight[1]	
Maximum (8 HDDs, 2 CPUs, 24 DIMMs, 2 power supplies)	60 lbs (27.2 kg)
Minimum (1 HDD, 1 CPU, 1 DIMM, 1 power supply)	38.4 lbs (17.4 kg)
Bare (0 HDD, 0 CPU, 0 DIMM, 1 power supply)	32.1 lbs (14.6 kg)

Notes . . .

1. Weight includes inner rail, which is attached to the server. Weight does not include outer rail, which is attached to the rack.

Power Specifications

The server is available with two types of power supplies:

- 650 W
- 1200 W

The general power specifications for the C240 M3 SFF server are listed as follows:

- 650 W power supply (see *Table 32*).
- 1200 W power supply (see *Table 32*).

Table 32 UCS C240 M3 SFF Power Specifications (650 W power supply)

Description	Specification
AC input voltage range	90 to 264 VAC (self-ranging, 180 to 264 VAC nominal)
AC input frequency	Range: 47 to 63 Hz (single phase, 50 to 60Hz nominal)

Table 32 UCS C240 M3 SFF Power Specifications (650 W power supply) *(continued)*

Description	Specification
Maximum AC inrush current	11 A
Maximum AC input current	7.6 A peak at 100 VAC 3.65 A peak at 208 VAC
Maximum output power for each power supply	650 W
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC
Power supply efficiency	CSCI Platinum

NOTE: AC input connector is an IEC 320 C-14 15A/250VAC power inlet.

Table 33 UCS C240 M3 SFF Power Specifications (1200 W power supply)

Description	Specification
AC input voltage range	90 to 264 VAC (self-ranging, 180 to 264 VAC nominal)
AC input frequency	Range: 47 to 63 Hz (single phase, 50 to 60Hz nominal)
Maximum AC inrush current	30 A
Maximum AC input current	11 A peak at 100 VAC 7 A peak at 208 VAC
Maximum output power for each power supply	1200 W at 200 to 240 V 800 W at 100 to 120 V
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC
Power supply efficiency	CSCI Platinum

NOTE: AC input connector is an IEC 320 C-14 15A/250VAC power inlet.

For configuration-specific power specifications, use the Cisco UCS Power Calculator at this URL:

https://express.salire.com/Go/Cisco/Cisco-UCS-Power-Calculator.aspx.

Environmental Specifications

The power specifications for the C240 M3 server are listed in *Table 34*.

Table 34 UCS C240 M3 Environmental Specifications

Parameter	Minimum
Temperature operating	41 to 104° F (5 to 40° C) derate the maximum temperature by 1°C per every 305 m of altitude above sea level
Temperature nonoperating	–40 to 149°F (–40 to 65°C)
Humidity (RH) operating, non-condensing	10 to 90%
Altitude operating	0 to 3,000 m (0 to 10,000 ft.)
Altitude nonoperating	0 to 12,192 m (0 to 40,000 ft.)
Sound Power level, Measure A-weighted per ISO7779 LWAd (Bels)Operation at 73°F (23°C)	5.8
Sound Pressure level, Measure A-weighted per ISO7779 LpAm (dBA)Operation at 73°F (23°C)	43

Compliance Requirements

The regulatory compliance requirements for C-Series servers are listed in *Table 35*.

Table 35 UCS C-Series Regulatory Compliance Requirements

Parameter	Description
Regulatory Compliance	Products should comply with CE Markings per directives 2004/108/EC and 2006/95/EC
Safety	UL 60950-1 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1 GB4943 2001
EMC - Emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A CISPR22 Class A EN55022 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN22 Class A CNS13438 Class A
EMC - Immunity	EN55024 CISPR24 EN300386 KN24

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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