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Spec Sheet

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

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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.

The enterprise-class UCS C240 M3 server extends the capabilities of Cisco's Unified Computing System portfolio in a 2U form factor with the addition of the Intel® Xeon E5-2600 v2 and 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 ports 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

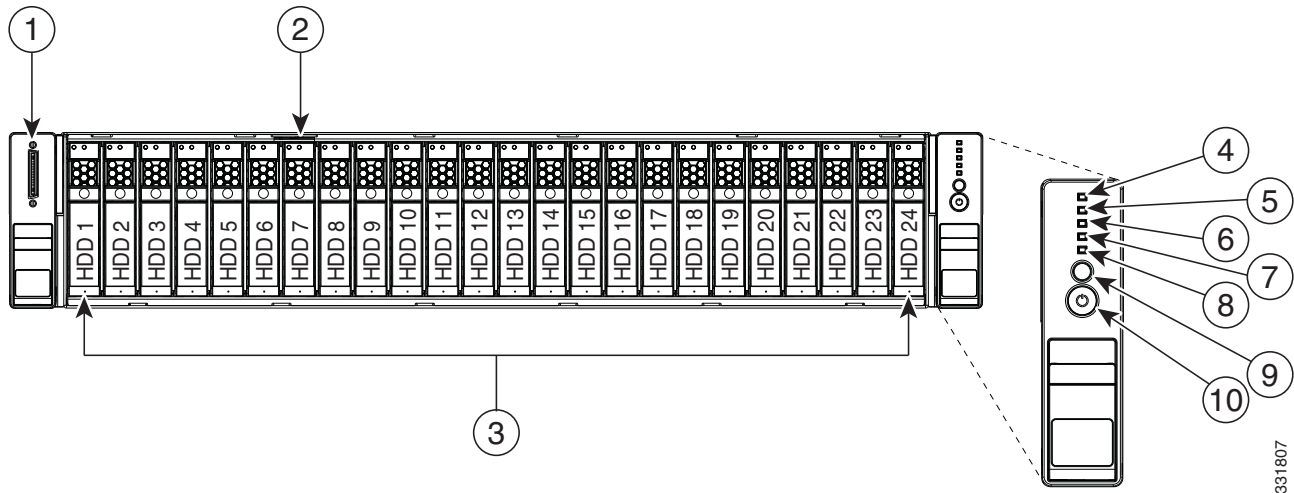


# DETAILED VIEWS

## Chassis Front View

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

Figure 2 Chassis Front View



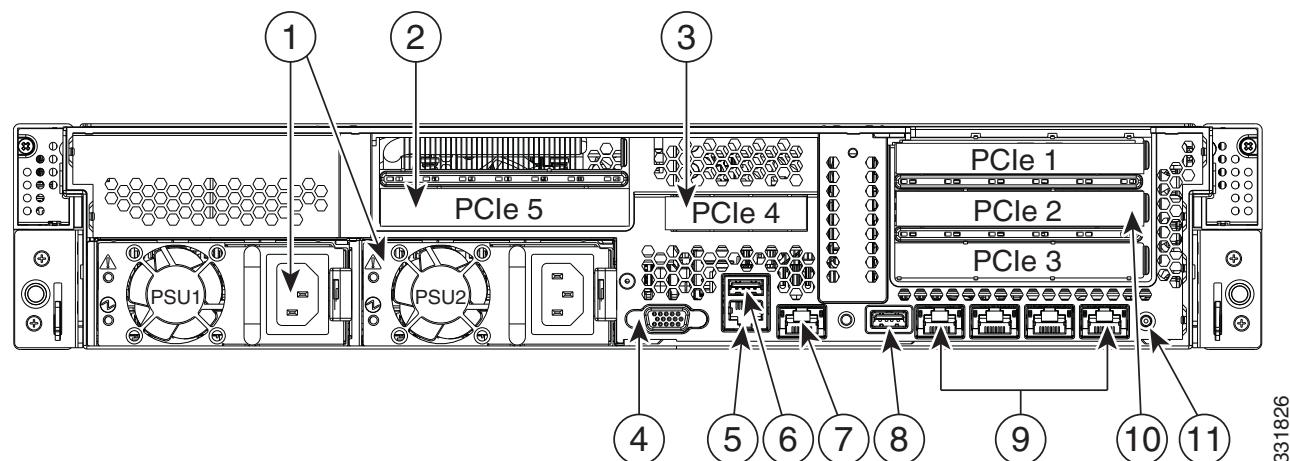
|   |                                                                                                    |    |                               |
|---|----------------------------------------------------------------------------------------------------|----|-------------------------------|
| 1 | KVM connector<br>(used with KVM cable that provides two USB,<br>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<br>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 88](#).

## Chassis Rear View

**Figure 3** shows the external features of the rear panel.

**Figure 3 Chassis Rear View**



331826

|          |                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | Power supplies (up to two)                                                                                                                                                                        | <b>7</b>  | One RJ-45 10/100/1000 Ethernet dedicated management port                                                                                                                                                                                                                                                                                                |
| <b>2</b> | Standard-profile PCIe slot on riser 2:<br>PCIe 5—full-height, 3/4-length (approximately 10.5 in. long), x16 lane width, x24 connector, GPU ready, and supports Cisco Virtual Interface Card (VIC) | <b>8</b>  | USB 2.0 port                                                                                                                                                                                                                                                                                                                                            |
| <b>3</b> | PCIe slot on riser 2:<br>PCIe 4—half-height, half-length (9.64 in.), x8 lane width, x16 connector, no NCSI <sup>2</sup> support                                                                   | <b>9</b>  | Quad 1-GbE ports (LAN1, LAN2, LAN3, and LAN4)                                                                                                                                                                                                                                                                                                           |
| <b>4</b> | VGA video connector                                                                                                                                                                               | <b>10</b> | Standard-profile PCIe slots on riser 1(three):<br>PCIe 1—full-height, 3/4-length, x8 lane width, x16 connector <sup>a</sup><br>PCIe 2—full-height, 3/4-length (approximately 10.5 in. long), x16 lane width, x24 connector, GPU ready, and supports Cisco Virtual Interface Card (VIC)<br>PCIe 3—full-height, half-length, x8 lane width, x16 connector |
| <b>5</b> | Serial connector (RJ-45) <sup>b</sup>                                                                                                                                                             | <b>11</b> | Rear Identification button/LED                                                                                                                                                                                                                                                                                                                          |
| <b>6</b> | USB 2.0 port                                                                                                                                                                                      |           | —                                                                                                                                                                                                                                                                                                                                                       |

### Notes . . .

- a. PCIe slot 1 is not available when a double-width GPU is installed in slot 2.
- b. For serial port pinout details, see [Serial Port Details, page 80](#)

## 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 11](#).

**Table 1 Capabilities and Features**

| Capability/Feature          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis                     | Two rack unit (2RU) chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CPU                         | One or two Intel Xeon E5-2600 v2 or E5-2600 series processor family CPUs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Chipset                     | Intel® C600 series chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Memory                      | 24 slots for registered or unbuffered ECC DIMMs (RDIMMs or UDIMMs) or load-reduced DIMMs (LRDIMMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Multi-bit Error Protection  | This server supports multi-bit error protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| NIC                         | <p>Embedded quad-port Intel i350 PCIe-based Gigabit Ethernet controller, supporting the following:</p> <ul style="list-style-type: none"> <li>■ Pre-Execution Boot (PXE boot)</li> <li>■ iSCSI boot</li> <li>■ Checksum and segmentation offload</li> <li>■ NIC teaming</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Expansion slots             | <p>Five PCIe slots (on two riser cards)</p> <ul style="list-style-type: none"> <li>■ Riser 1 (PCIe slots 1, 2, and 3)</li> <li>■ Riser 2 (PCIe slots 4 and 5)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Internal storage devices    | <p>Drives are installed into front-panel drive bays that provide hot-pluggable access.</p> <ul style="list-style-type: none"> <li>■ Small Form Factor (SFF) drives. The server can hold up to: <ul style="list-style-type: none"> <li>• 24 2.5 inch (63.5 mm) SAS or SATA hard drives (HDDs) or solid state drives (SSDs) with the 24-drive backplane server configuration</li> <li>• 16 2.5 inch (63.5 mm) SAS or SATA HDDs or SSDs with the 16-drive backplane server configuration</li> </ul> </li> <li>■ 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</li> <li>■ UCS Storage Accelerator are also available. These PCIe flash storage devices provide independent high-speed storage.</li> </ul> |
| Cisco Flexible Flash drives | <p>The server supports up to two internal 32 GB Cisco Flexible Flash drives (SD cards).</p> <p>The second SD card is blank and can be used to mirror the first SD card. It can be used to protect the Hypervisor Partition with RAID1.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Capability/Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage controller | <ul style="list-style-type: none"> <li>■ Embedded RAID (3 Gbs) <ul style="list-style-type: none"> <li>• Embedded SATA-only RAID controller, supporting up to four SATA-only drives (RAID 0, 1, 10), or</li> <li>• ROM5 RAID upgrade, supporting up to eight SAS+SATA HDDs or SSDs (RAID 0, 1, 10), or</li> <li>• ROM55 RAID upgrade, supporting up to eight SAS+SATA HDDs or SSDs (RAID 0, 1, 5, 10).</li> </ul> </li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>■ Mezzanine Cards (6 Gbs) - two versions <ul style="list-style-type: none"> <li>• Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 SAS+SATA drives with the 16-drive backplane or 16 SAS+SATA drives with the 24-drive backplane (this card supports a maximum of 16 drives for a RAID volume). The card supports RAID 0, 1, 5, 10, and 50 plus JBOD. This card has a product ID (PID) of UCSC-RAID-11-C240.</li> <li>• Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 SAS+SATA drives with the 16-drive backplane or 16 SAS+SATA drives with the 24-drive backplane (this card supports a maximum of 16 drives for a RAID volume). The card supports RAID 0, 1, and 10 plus JBOD. This card has a product ID (PID) of UCSC-RAID-MZ-240.</li> </ul> </li> </ul> <p>Note that mezzanine cards are used as follows:</p> <ul style="list-style-type: none"> <li>• A mezzanine card in a 16-drive backplane system can support up to 8 drives. The reason for this is that the 16-drive backplane does not support a SAS expander.</li> <li>• A mezzanine card in a 24-drive backplane system can support up to 16 drives, due to a 16-drive limit for a RAID volume for this card.</li> </ul> <ul style="list-style-type: none"> <li>■ PCIe RAID Controllers (6 Gbs) <ul style="list-style-type: none"> <li>• LSI MegaRAID SAS 9271-8i or 9271CV-8i 8-port PCIe RAID controller with on-board 1 GB data cache and chassis-mounted (remote) supercap for data cache power backup (supercap not present on 9271-8i), supporting RAID levels 0, 1, 5, 6, 10, 50, 60 and up to 24 internal SAS +SATA drives when configured with 24-drive backplane. When used with a 16-drive backplane version of the server, one controller can control up to 8 drives. Two controllers must be installed to control 16 drives.</li> <li>• LSI MegaRAID 9285CV-8e or 9286CV-8e 8-port PCIe RAID controller with on-board 1 GB cache and chassis-mounted (remote) supercap for data cache power backup, supporting RAID levels 0, 1, 5, 6, 10, 50, 60. Supports 8 external SAS ports (up to 240 external drives).</li> <li>• Cisco Nytro MegaRAID 200 GB PCIe RAID controller with on-board 1 GB data cache and 200 GB flash memory. The controller supports up to 24 drives on the 24-drive backplane version of the server and supports RAID levels 0, 1, 5, 6, 10, 50, and 60. SAS + SATA drives are supported.</li> </ul> </li> </ul> |

| Capability/Feature              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video                           | <p>The Cisco Integrated Management Controller (CIMC) provides video using the Matrox G200e video/graphics controller:</p> <ul style="list-style-type: none"> <li>■ Integrated 2D graphics core with hardware acceleration</li> <li>■ DDR2/3 memory interface supports up to 512 MB of addressable memory (8 MB is allocated by default to video memory)</li> <li>■ Supports display resolutions up to 1920 x 1200 16bpp @ 60Hz</li> <li>■ High-speed integrated 24-bit RAMDAC</li> <li>■ Single lane PCI-Express host interface running at Gen 1 speed</li> </ul>                                                                                                                                                                                                                        |
| Interfaces                      | <p>Rear panel</p> <ul style="list-style-type: none"> <li>■ One RJ-45 10/100/1000 Ethernet management port, using Cisco Integrated Management Controller (CIMC) firmware</li> <li>■ Four 1-GbE (10/100/1000 Mbps capable) LOM ports</li> <li>■ One RJ45 serial port connector</li> <li>■ Two USB 2.0 port connectors</li> <li>■ One DB15 VGA connector</li> <li>■ Various PCIe card ports (dependent on which cards are installed) <ul style="list-style-type: none"> <li>• Converged Network Adapter (CNA) ports</li> <li>• Network Interface Card (NIC) ports</li> <li>• Host Bus Adapter (HBA) ports</li> </ul> </li> </ul> <p>Front panel</p> <ul style="list-style-type: none"> <li>■ One KVM console connector (supplies two USB 2.0, one VGA, and one serial connector)</li> </ul> |
| WoL                             | The 1-Gb Base-T Ethernet LAN ports support the wake-on-LAN (WoL) standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| InfiniBand                      | The bus slots in this server support the InfiniBand architecture.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Front Panel                     | <ul style="list-style-type: none"> <li>■ A front panel controller provides status indications and control buttons</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Power subsystem                 | One power supply is required (either 650 W or 1200 W AC, or 930 W DC). An additional power supply may be ordered to provide 1+1 redundancy. The power supplies must match in a redundant power supply configuration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ACPI                            | This server supports the advanced configuration and power interface (ACPI) 4.0 standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Fans                            | <p>Chassis:</p> <ul style="list-style-type: none"> <li>■ Six hot-swappable fans for front-to-rear cooling</li> </ul> <p>Power supply:</p> <ul style="list-style-type: none"> <li>■ Each power supply is equipped with a fan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Integrated management processor | <p>BMC running Cisco Integrated Management Controller (CIMC) firmware.</p> <p>Depending on your CIMC settings, the CIMC can be accessed through the 1-GbE dedicated management port, the 1-GbE LOM ports, or a Cisco virtual interface card (VIC).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## CONFIGURING the SERVER

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

- [\*STEP 1 VERIFY SERVER SKU, page 12\*](#)
- [\*STEP 2 SELECT CPU\(s\), page 13\*](#)
- [\*STEP 3 SELECT MEMORY, page 16\*](#)
- [\*STEP 4 SELECT RAID CONFIGURATION, page 22\*](#)
- [\*STEP 5 SELECT HARD DISK DRIVES \(HDDs\) or SOLID STATE DRIVES \(SSDs\), page 32\*](#)
- [\*STEP 6 SELECT PCIe OPTION CARD\(s\), page 35\*](#)
- [\*STEP 7 ORDER OPTIONAL NETWORK CARD ACCESSORIES, page 37\*](#)
- [\*STEP 8 ORDER GPU CARDS and ACCESSORIES \(OPTIONAL\), page 43\*](#)
- [\*STEP 9 ORDER POWER SUPPLY, page 47\*](#)
- [\*STEP 10 SELECT AC POWER CORD\(s\), page 48\*](#)
- [\*STEP 11 ORDER OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM, page 51\*](#)
- [\*STEP 12 SELECT NIC MODE \(OPTIONAL\), page 52\*](#)
- [\*STEP 13 ORDER A TRUSTED PLATFORM MODULE \(OPTIONAL\), page 53\*](#)
- [\*STEP 14 ORDER CISCO FLEXIBLE FLASH SD CARD MODULE \(OPTIONAL\), page 54\*](#)
- [\*STEP 15 ORDER OPTIONAL USB 2.0 DRIVE, page 55\*](#)
- [\*STEP 16 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 56\*](#)
- [\*STEP 17 SELECT OPERATING SYSTEM MEDIA KIT, page 59\*](#)
- [\*STEP 18 SELECT SERVICE and SUPPORT LEVEL, page 60\*](#)
- [\*OPTIONAL STEP - ORDER RACK\(s\), page 65\*](#)
- [\*OPTIONAL STEP - ORDER PDU, page 66\*](#)

## 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 (UCSC-RAIL-2U), 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 the 16-drive backplane version of the server.

Mezzanine cards can be used as follows:

- A mezzanine card in a 16-drive backplane system supports up to 8 drives.
- A mezzanine card in a 24-drive backplane system supports up to 16 drives.



**NOTE:** The Cisco Nytro MegaRAID 200 GB PCIe RAID controller can only be used with the 24-drive backplane version of the server.

- Does not include power supply, CPU, memory, hard disk drives (HDDs), solid-state drives (SSDs), SD cards, or 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 Xeon E5-2600 v2 and E5-2600 series processor family CPUs (see the following link for instructions on how to upgrade your server from Intel Xeon E5-2600 to Intel Xeon E5-2600 v2 CPUs:  
[http://preview.cisco.com/en/US/docs/unified\\_computing/ucs/c/CPU/IVB/install/IVB-C.html](http://preview.cisco.com/en/US/docs/unified_computing/ucs/c/CPU/IVB/install/IVB-C.html))
- Intel® C600 series chipset
- Cache sizes of up to 30 MB

### Select CPUs

The available CPUs are listed in [Table 3](#).

**Table 3 Available Intel CPUs: Intel Xeon E5-2600 v2 and 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) <sup>a</sup> |
|------------------------------|--------------|------------------|-----------|-----------------|-------|----------|----------------------------------------------------|
| <b>Intel Xeon E5-2600 v2</b> |              |                  |           |                 |       |          |                                                    |
| UCS-CPU-E52697B              | E5-2697B v2  | 2.70             | 130       | 30              | 12    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52695B              | E5-2695B v2  | 2.40             | 115       | 30              | 12    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52690B              | E5-2690B v2  | 3.00             | 130       | 25              | 10    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52680B              | E5-2680B v2  | 2.80             | 115       | 25              | 10    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52670B              | E5-2670B v2  | 2.50             | 115       | 25              | 10    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52667B              | E5-2667B v2  | 3.30             | 130       | 25              | 8     | 8 GT/s   | 1866                                               |
| UCS-CPU-E52660B              | E5-2660B v2  | 2.20             | 95        | 25              | 10    | 8 GT/s   | 1866                                               |
| UCS-CPU-E52650B              | E5-2650B v2  | 2.60             | 95        | 20              | 8     | 8 GT/s   | 1866                                               |
| UCS-CPU-E52640B              | E5-2640B v2  | 2.00             | 95        | 20              | 8     | 7.2 GT/s | 1600                                               |
| UCS-CPU-E52637B              | E5-2637B v2  | 3.50             | 130       | 15              | 4     | 8 GT/s   | 1866                                               |
| UCS-CPU-E52630B              | E5-2630B v2  | 2.60             | 80        | 15              | 6     | 7.2 GT/s | 1600                                               |
| UCS-CPU-E52620B              | E5-2620B v2  | 2.10             | 80        | 15              | 6     | 7.2 GT/s | 1600                                               |
| UCS-CPU-E52643B              | E5-2643B v2  | 3.50             | 130       | 25              | 6     | 8 GT/s   | 1866                                               |
| UCS-CPU-E52650LB             | E5-2650LB v2 | 1.70             | 70        | 25              | 10    | 8 GT/s   | 1600                                               |
| UCS-CPU-E52630LB             | E5-2630LB v2 | 2.40             | 60        | 15              | 6     | 7.2 GT/s | 1600                                               |
| UCS-CPU-E52609B              | E5-2609B v2  | 2.50             | 80        | 10              | 4     | 6.4 GT/s | 1333                                               |

**Table 3 Available Intel CPUs: Intel Xeon E5-2600 v2 and 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) <sup>a</sup> |
|---------------------------|--------------|------------------|-----------|-----------------|-------|----------|----------------------------------------------------|
| <b>Intel Xeon E5-2600</b> |              |                  |           |                 |       |          |                                                    |
| 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 . . .**

- a. 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 13](#).

## Caveats

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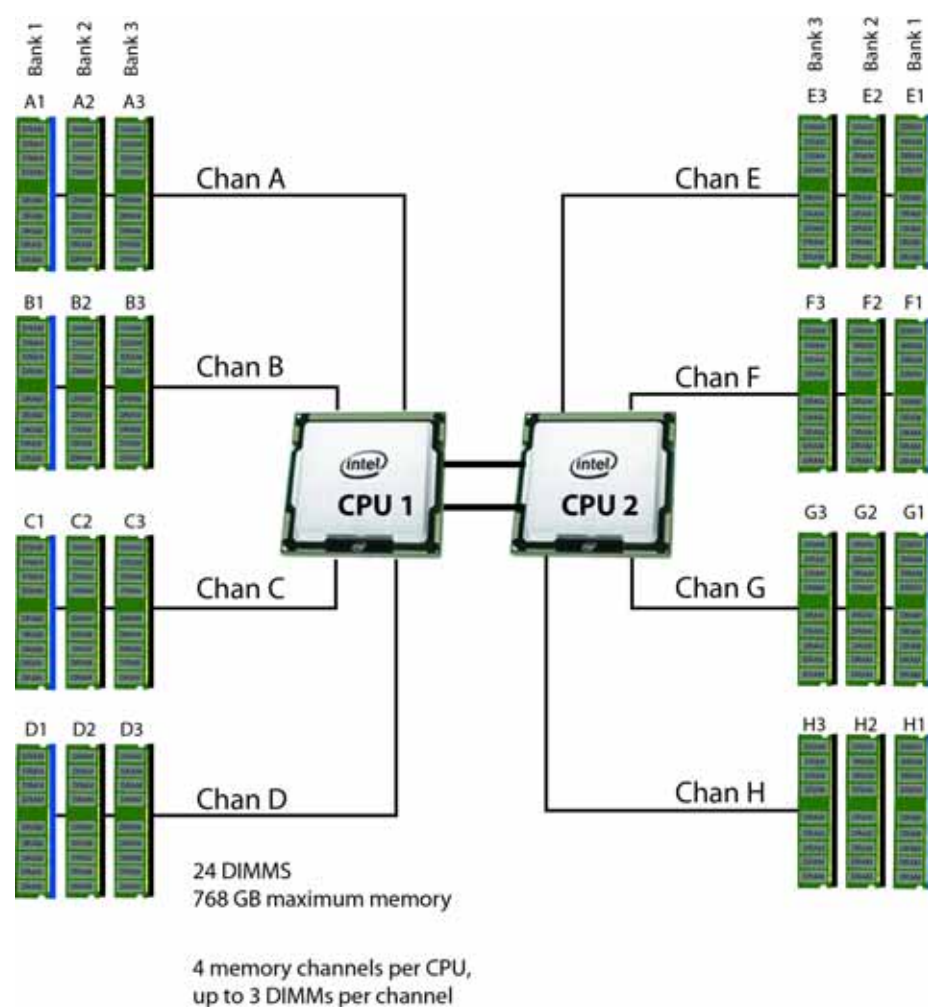
- You can select either one processor or two identical processors.
- For optimal performance, select DIMMs with the highest clock speed for a given processor (see [Table 3 on page 13](#)). If you select DIMMs whose speeds are lower or higher than that shown in the tables, suboptimal performance will result.

## STEP 3 SELECT MEMORY

The standard memory features are:

- DIMMs
  - Clock speed: 1866, 1600, or 1333 MHz
  - Ranks per DIMM: 1, 2, or 4
  - Operational voltage: 1.5 V or 1.35 V
  - Registered or unbuffered ECC DDR3 DIMMs (RDIMMs or UDIMMs) 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/<br>DIMM |
|--------------------------------|---------------------------------------------------|-------------------------|----------------|
| <b>DIMM Options</b>            |                                                   |                         |                |
| UCS-ML-1X324RY-A               | 32 GB DDR3-1600-MHz LR DIMM/PC3-12800/4R/x4/1.35v | 1.5/1.35 V <sup>a</sup> | 4              |
| UCS-ML-1X324RZ-A               | 32 GB DDR3-1866-MHz LR DIMM/PC3-14900/4R/4x/1.5v  | 1.5 V                   | 4              |
| UCS-MR-1X162RY-A               | 16 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/x4/1.35v   | 1.5/1.35 V <sup>1</sup> | 2              |
| UCS-MR-1X162RZ-A               | 16 GB DDR3-1866-MHz RDIMM PC3-14900/2R/x4/        | 1.5 V                   | 2              |
| UCS-MR-1X082RY-A               | 8 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/x4/1.35v    | 1.5/1.35 V <sup>1</sup> | 2              |
| <b>Memory Mirroring Option</b> |                                                   |                         |                |
| N01-MMIRROR                    | Memory mirroring option                           |                         |                |

**Notes . . .**

- a. Dual voltage DIMM (operates at 1.5 V with BIOS is set for memory performance mode (default), or 1.35 V when BIOS is set for power-savings mode).

The DDR3 DIMMs that have been discontinued but are still supported are shown in [Table 5](#).

**Table 5 Discontinued but Still Supported DDR3 DIMMs**

| Product ID (PID) | PID Description                                    | Voltage    | Ranks /DIMM |
|------------------|----------------------------------------------------|------------|-------------|
| DIMM Options     |                                                    |            |             |
| UCS-MU-1X042RE-A | 4 GB DDR3-1600-MHz ECC UDIMM/PC3-12800/2R/x8/1.35v | 1.35v      | 2           |
| UCS-MR-1X041RX-A | 4 GB DDR3-1333-MHz RDIMM/PC3-10600/1R/x4/1.35V     | 1.35v      | 1           |
| UCS-MR-1X041RY-A | 4 GB DDR3-1600-MHz RDIMM/PC3-12800/1R/x4/1.35V     | 1.5/1.35 V | 1           |
| UCS-MR-1X082RX-A | 8 GB DDR3-1333-MHz RDIMM/PC3-10600/2R/x4/1.35V     | 1.5/1.35 V | 2           |
| UCS-MR-1X082RZ-A | 8 GB DDR3-1866-MHz RDIMM/PC3-14900/2R/x4/1.5       | 1.5 V      | 2           |

### Approved Configurations

#### (1) 1-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs. Refer to [Memory Population Rules, page 70](#), for more detailed information.

#### (2) 1-CPU configuration with memory mirroring:

- Select 2, 4, 6, 8, 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 <u>identical</u> DIMMs) |                     |                      |
|-----------------------|---------------------------------------------------------------|---------------------|----------------------|
|                       | Blue Slot (Slot 1)                                            | Black Slot (Slot 2) | Black Slots (Slot 3) |
| 2                     | (A1, B1)                                                      | —                   | —                    |
| 4                     | (A1,B1); (C1,D1)                                              | —                   | —                    |
| 8                     | (A1,B1); (C1,D1)                                              | (A2,B2); (C2,D2)    | —                    |
| 12 <sup>a</sup>       | (A1,B1); (C1,D1)                                              | (A2,B2); (C2,D2)    | (A3,B3); (C3,D3)     |

#### Notes . . .

- If this 3DPC configuration is implemented with quad-rank DIMMs (the 32 GB LR DIMM), the maximum DIMM speed will be 1066 MHz, even though the DIMM is specified to operate at a higher speed.

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 17](#).

#### (3) 2-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs per CPU. Refer to [Memory Population Rules, page 70](#), for more detailed information.

**(4) 2-CPU configuration with memory mirroring:**

- Select 2, 4, 6, 8, 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 <u>identical</u> DIMMs) |                     |                     | CPU 2 DIMM Placement in Channels (for <u>identical</u> DIMMs) |                     |                     |
|-------------------------|---------------------------------------------------------------|---------------------|---------------------|---------------------------------------------------------------|---------------------|---------------------|
|                         | Blue Slots                                                    | Black Slots         | Black Slots         | Blue Slots                                                    | Black Slots         | Black Slots         |
| 2                       | (A1, B1)                                                      | —                   | —                   | (E1, F1)                                                      | —                   | —                   |
| 4                       | (A1,B1);<br>(C1,D1)                                           | —                   | —                   | (E1,F1);<br>(G1,H1)                                           | —                   | —                   |
| 8                       | (A1,B1);<br>(C1,D1)                                           | (A2,B2);<br>(C2,D2) | —                   | (E1,F1);<br>(G1,H1)                                           | (E2,F2);<br>(G2,H2) | —                   |
| 12 <sup>a</sup>         | (A1,B1);<br>(C1,D1)                                           | (A2,B2);<br>(C2,D2) | (A3,B3);<br>(C3,D3) | (E1,F1);<br>(G1,H1)                                           | (E2,F2);<br>(G2,H2) | (E3,F3);<br>(G3,H3) |

**Notes . . .**

- a. If this 3DPC configuration is implemented with quad-rank DIMMs (the 32 GB LR DIMM), the maximum DIMM speed will be 1066 MHz, even though the DIMM is specified to operate at a higher speed.

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 17](#).



**NOTE:** System performance is optimized when the DIMM type and quantity are equal for both CPUs, and when all channels are filled equally across the CPUs in the server.

## Caveats

- System speed is dependent on how many DIMMs are populated per channel. See [Table 6](#) for details.

Table 6 DIMM Memory Speeds

| DIMM Speed | DPC  | 1333-MHz Capable CPU |       |                 |       | 1600-MHz Capable CPU |                   |                 |       | 1866-MHz Capable CPU |                   |                 |       |
|------------|------|----------------------|-------|-----------------|-------|----------------------|-------------------|-----------------|-------|----------------------|-------------------|-----------------|-------|
|            |      | LRDIMM               |       | RDIMM (DR, SR)  |       | LRDIMM               |                   | RDIMM (DR, SR)  |       | LRDIMM               |                   | RDIMM (DR, SR)  |       |
|            |      | Voltages             |       | Voltages        |       | Voltages             |                   | Voltages        |       | Voltages             |                   | Voltages        |       |
|            |      | 1.3 V                | 1.5 V | 1.3 V           | 1.5 V | 1.3 V                | 1.5 V             | 1.3 V           | 1.5 V | 1.3 V                | 1.5 V             | 1.3 V           | 1.5 V |
| 1333 DIMM  | 1DPC | 1333                 | 1333  | 1333            | 1333  | 1333                 | 1333              | 1333            | 1333  | 1333                 | 1333              | 1333            | 1333  |
|            | 2DPC | 1333                 | 1333  | 1333            | 1333  | 1333                 | 1333              | 1333            | 1333  | 1333                 | 1333              | 1333            | 1333  |
|            | 3DPC | 1066                 | 1066  | NA <sup>a</sup> | 1066  | 1066                 | 1066              | NA <sup>1</sup> | 1066  | 1066                 | 1066              | NA <sup>1</sup> | 1066  |
| 1600 DIMM  | 1DPC | 1333                 | 1333  | 1333            | 1333  | 1600 <sup>b</sup>    | 1600 <sup>2</sup> | 1333            | 1600  | 1600 <sup>2</sup>    | 1600 <sup>2</sup> | 1333            | 1600  |
|            | 2DPC | 1333                 | 1333  | 1333            | 1333  | 1600 <sup>2</sup>    | 1600 <sup>2</sup> | 1333            | 1600  | 1600 <sup>2</sup>    | 1600 <sup>2</sup> | 1333            | 1600  |
|            | 3DPC | 1066                 | 1066  | NA <sup>1</sup> | 1066  | 1066                 | 1066              | NA <sup>1</sup> | 1333  | 1066                 | 1066              | NA <sup>1</sup> | 1333  |
| 1866 DIMM  | 1DPC | NA <sup>1</sup>      | 1333  | NA <sup>1</sup> | 1333  | NA <sup>1</sup>      | 1600              | NA <sup>1</sup> | 1600  | NA <sup>1</sup>      | 1866              | NA <sup>1</sup> | 1866  |
|            | 2DPC | NA <sup>1</sup>      | 1333  | NA <sup>1</sup> | 1333  | NA <sup>1</sup>      | 1600              | NA <sup>1</sup> | 1600  | NA <sup>1</sup>      | 1866              | NA <sup>1</sup> | 1866  |
|            | 3DPC | NA <sup>1</sup>      | 1066  | NA <sup>1</sup> | 1066  | NA <sup>1</sup>      | 1066              | NA <sup>1</sup> | 1333  | NA <sup>1</sup>      | 1333              | NA <sup>1</sup> | 1333  |

## Notes . . .

- NA = not applicable
- These DIMMs operate at 1333 MHz instead of 1600 MHz when used with any E5-2600 CPUs. They operate at 1600 MHz when used with E5-2600 v2 CPUs that support 1600- and 1866-MHz speeds.

- For optimum performance, do not mix DIMMs with different frequencies. If you mix DIMM frequencies, the system defaults to the lower frequency.
- Do not mix RDIMMs with LRDIMMs
- DIMMs for CPU 1 and CPU 2 (when populated) must always be configured identically.
- Memory mirroring reduces the amount of available memory by 50% (quantity of DIMMs must be even for mirroring).
- By default, starting with UCSM 2.0.4, DIMMs run in memory performance mode (1.5v) by BIOS default, which yields faster memory speeds than when the BIOS is set for the memory to run in power-savings mode. Memory speed is dependent on factors such as:
  - CPU choice
  - DIMM choice
  - DIMM population (how many DIMMs per channel are populated)

- BIOS setting.

For the DIMMs to run in power-savings mode (1.35 V, if the DIMM supports this), change the BIOS setting to power-savings mode.

- With 3 RDIMMs populated per channel, memory always runs at 1.5 V regardless if the BIOS setting is power-savings mode (1.35 V) or performance mode (1.5 V).
- With 3 LRDIMMs populated per channel, memory can operate at 1.5 V or 1.35 V, depending on the BIOS setting.
- With 3 DIMMs populated per channel, 16 GB and 8 GB 1600-MHz RDIMMs run at a maximum speed of 1333 and 1066 MHz, respectively (for 1600- and 1866-MHz CPUs). Other memory devices are limited to 1066 MHz operation when populated at 3 DPC.

For more information regarding memory, see [CPUs and DIMMs, page 68](#).

## STEP 4 SELECT RAID CONFIGURATION



**NOTE:** For the UCSC-C240-M3S2 (16-drive server), if you do not select a mezzanine card, a PCIe RAID controller, 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)



**NOTE:** The UCSC-C240-M3S (24-drive server) does not support embedded RAID, which is normally installed on the motherboard and does not consume a PCIe slot. The only RAID support available for the 24-drive version is through a PCIe RAID controller or a mezzanine card.



**NOTE:** When creating a RAID volume, follow these guidelines:

- Use the same capacity for each drive in the volume
- Use either all SAS drives or all SATA drives
- Use either all HDDs or all SSDs



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

- Embedded RAID = 8
- LSI MegaRAID 9271-8i or 9271CV-8i RAID controller card = 64
- LSI MegaRAID 9285CV-8e or 9286CV-8e RAID controller card = 64
- Cisco Nytro MegaRAID 200 GB PCIe RAID controller = 64
- Cisco UCSC RAID SAS 2008M-8i Mezzanine Card = 16

The RAID controller choices are:

### (1) Embedded RAID (on motherboard) (not supported in 24 HDD backplane systems)



**NOTE:** The RAID configuration options listed in [Table 9 on page 25](#) are not available if you choose embedded RAID (in this case, you must configure RAID yourself using separate software).

### (2) Mezzanine RAID controller cards (not supported in 1-CPU systems)

### (3) 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.

## Select RAID Options

Select as follows (these choices are dependent on the number of CPUs installed and the backplane used (24-drive or 16-drive backplane)):

- One embedded RAID upgrade option for internal drives, or
- One mezzanine RAID controller for internal drives, or
- One mezzanine RAID controller for internal drives and one RAID controller for external drives, or
- One RAID controller for internal drives, or
- One RAID controller for internal drives and one RAID controller for external drives, or
- Two RAID controllers for internal drives



**NOTE:** For details on all valid combinations of embedded RAID, mezzanine RAID, and internal/external drive RAID controller combinations, see [RAID Details, page 77](#).

**Table 7 Available Embedded RAID Options**

| Product ID (PID)                                                         | PID Description                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Embedded RAID Controllers (16-drive backplane server option only)</b> |                                                                                                                                                                                                                                                                                                                  |
| UCSC-RAID-ROM5                                                           | Onboard RAID, consisting of a plug-in storage controller unit (SCU), supporting up to 8 internal SAS +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, consisting of two plug-in modules (an SCU plus a software key module) supporting up to 8 internal SAS+SATA drives. SAS and SATA drives can be mixed. This option supports RAID 0, 1, 5, and 10 and operates at 3 Gb/s. Operating systems supported are Windows and Linux only (no VMware support). |



**NOTE:** VMware ESX/ESXi or any other virtualized environments are not supported for use with the embedded MegaRAID controller. Hypervisors such as Hyper-V, Xen, or KVM are also not supported for use with the embedded MegaRAID controller

**Table 8 Available Mezzanine Card RAID Options**

| Product ID (PID)                                            | PID Description                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mezzanine RAID Controllers (not supported in 1-CPU systems) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| UCSC-RAID-11-C240                                           | <p>Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 5, 10, and 50 plus JBOD supported), operating at 6 Gbs.</p> <ul style="list-style-type: none"> <li>■ Supports up to 8 internal SAS+SATA drives with the 16-drive system or up to 16 internal SAS+SATA drives with the 24-drive system. SAS and SATA drives can be mixed.</li> <li>■ Factory-configured RAID options available: RAID 0, 1, 5, and 10 (see the RAID PIDs section in this table)</li> </ul> |
| UCSC-RAID-MZ-240                                            | <p>Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 10 plus JBOD supported), operating at 6 Gbs.</p> <ul style="list-style-type: none"> <li>■ Supports up to 8 internal SAS+SATA drives with the 16-drive system or up to 16 SAS+SATA internal drives with the 24-drive system. SAS and SATA drives can be mixed.</li> <li>■ Factory-configured RAID options available: RAID 0, 1, and 10 (see the RAID PIDs section in this table)</li> </ul>               |

**Table 9 Available PCIe RAID Controller Options**

| Product ID (PID)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PID Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RAID Controllers<sup>a</sup></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| For the UCSC-240-M3S (24-drive backplane), PCIe RAID controllers are installed by default in slot 3 for 1-CPU systems and slot 4 for 2-CPU systems; for the UCSC-C240-M3S2 (16-drive backplane), the controllers are installed by default in slot 3 for 1-CPU systems and in slots 4 and 3 for 2-CPU systems.                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| UCS-RAID9271-8I or<br>UCS-RAID9271CV-8I                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>LSI MegaRAID SAS 9271-8i or 9271CV-8i RAID controller card with data cache backup (RAID 0, 1, 5, 6, 10, 50, and 60), operating at 6 Gbs.</p> <ul style="list-style-type: none"> <li>■ The UCSC-C240-M3S2 server has the following features: <ul style="list-style-type: none"> <li>• 16 disk drive backplane</li> <li>• Backplane does not include a SAS expander, and can support 8 or 16 HDDs</li> <li>• Single RAID controller is required to support 8 HDDs</li> <li>• Need to configure two RAID controllers to support all 16 HDDs</li> </ul> </li> <li>■ The UCSC-C240-M3S server has the following features: <ul style="list-style-type: none"> <li>• 24 disk drive backplane</li> <li>• Backplane includes a SAS expander, and can support all 24 HDDs</li> <li>• Single Raid controller is required to support all 24 HDDs</li> </ul> </li> <li>■ The 9271CV-8i RAID controller card includes a 1 GB Transportable Memory Module (TMM) and a chassis-mounted (remote) supercapacitor (supercapacitor not available on the 9271-8i) for data cache power backup</li> <li>■ Factory-configured RAID options available: RAID 0, 1, 5, 6, and 10 (see the RAID PIDs section in this table)</li> <li>■ SAS and SATA drives can be mixed</li> </ul> |
| <div style="display: flex; align-items: flex-start;">  <div> <p><b>NOTE:</b> For applications requiring Virtualization support (VMs), with write cache/scalable performance, use the 9271CV-8I RAID controller instead of the mezzanine RAID controllers (UCSC-RAID-11-C240 or UCSC-RAID-MZ-240), as the latter controllers do not support a write cache.</p> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Table 9 Available PCIe RAID Controller Options (*continued*)

| Product ID (PID)                          | PID Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UCS-RAID-9285CV-E or<br>UCS-RAID9286CV-8E | <p>LSI MegaRAID SAS 9285CV-8e or 9286CV-8e (RAID 0, 1, 5, 6, 10)</p> <ul style="list-style-type: none"> <li>■ Supports eight external SAS ports (up to 240 external drives).</li> </ul> <hr/> <p> <b>NOTE:</b> For SAS 9285CV-8e or 9286CV-8e external drive enclosure support, see the compatibility list (enclosure section) at the following link:</p> <p><a href="http://tinyurl.com/b4etshk">http://tinyurl.com/b4etshk</a></p> <p>Cisco is able to support customers with questions related to the SAS 9285CV-8e or 9286CV-8e RAID cards; however, customers should contact their storage vendor for technical support related to enclosure/JBOD.</p> <hr/> <ul style="list-style-type: none"> <li>■ Includes an chassis-mount (remote) supercapacitor to power on-board 1 GB flash-backed write cache.</li> <li>■ Factory-configured RAID options: RAID 0, 1, 5, 6, 10 (see the RAID Configuration section in this table). Note that factory RAID configuration is not available for these controllers, because the factory does not control the storage array attached to them.</li> </ul>                                 |
| UCSC-NYTRO-200GB                          | <p>Cisco Nytro MegaRAID 200 GB RAID controller</p> <ul style="list-style-type: none"> <li>■ Supports up to 24 internal SAS+SATA drives with the 24-drive backplane system. SAS and SATA drives can be mixed.</li> <li>■ 1 GB data cache backup</li> <li>■ 200 GB flash memory.</li> <li>■ Supports RAID 0, 1, 5, 6, 10, 50, and 60</li> <li>■ Operates at 6 Gbps.</li> <li>■ Supported only in the 24-drive backplane version of the server</li> </ul> <hr/> <p> <b>NOTE:</b></p> <ul style="list-style-type: none"> <li>■ Must be installed in slot 3 only.</li> <li>■ Supported only with the operating systems listed in <a href="http://www.cisco.com/c/en/us/support/servers-unified-computing/unified-computing-system/products-technical-reference-list.html">http://www.cisco.com/c/en/us/support/servers-unified-computing/unified-computing-system/products-technical-reference-list.html</a></li> <li>■ Supported only in 2-CPU systems.</li> <li>■ Supports only HDDs (not SSDs).</li> <li>■ Cannot coexist with multiple RAID controllers (embedded RAID, mezzanine RAID card, or PCIe RAID controller).</li> </ul> |

**Table 9 Available PCIe RAID Controller Options (continued)**

| Product ID (PID)                                                    | PID Description                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supercapacitor Option</b>                                        |                                                                                                                                                                                                                                               |
| UCS-RAID-CV-SC=                                                     | LSI CacheVault Power Module. This is a spare supercapacitor. It is the exact same supercapacitor that ships with the 9271CV-8i, 9285CV-8e, and 9286CV-8e cards listed earlier in this table and can be used as a replacement or upgrade part. |
| <b>RAID Configuration Options (not available for embedded RAID)</b> |                                                                                                                                                                                                                                               |
| R2XX-SRAID0                                                         | Enable Single Disk Raid 0 Setting (for the following PIDs only): <ul style="list-style-type: none"> <li>■ UCS-RAID9271-8i or UCS-RAID9271CV-8i</li> <li>■ UCSC-RAID-11-C240</li> <li>■ UCSC-RAID-MZ-240</li> </ul>                            |
| R2XX-RAID0                                                          | Factory preconfigured RAID striping option<br>Enable RAID 0 Setting. Requires a minimum of one hard drive.                                                                                                                                    |
| R2XX-RAID1                                                          | Factory preconfigured RAID mirroring option<br>Enable RAID 1 Setting. Requires exactly two drives with the same size, speed, capacity.                                                                                                        |
| R2XX-RAID5                                                          | Factory preconfigured RAID option<br>Enable RAID 5 Setting. Requires a minimum of three drives of the same size, speed, capacity.                                                                                                             |
| R2XX-RAID6                                                          | Factory preconfigured RAID option<br>Enable RAID 6 Setting. Requires a minimum of four drives of the same size, speed, capacity.                                                                                                              |
| R2XX-RAID10                                                         | Factory preconfigured RAID option<br>Enable RAID 10 Setting. Requires a even number of drives (minimum of four drives) of the same size, speed, capacity.                                                                                     |

**Notes . . .**

- a. The 9285CV-8e supports PCI Express Gen 2  
9271-8i, 9271CV-8i, 9286CV-8e, and Cisco Nytro MegaRAID 200 GB support PCI Express Gen 3.



**NOTE:** The 9266CV-8i and 9285CV-8e RAID controllers will reach end-of-life (EOL) in November, 2013. After then, they will no longer be available.



**NOTE:** Although RAID levels 50 and 60 are not orderable from the factory, they are supported for selected controllers as shown in [Table 7 on page 23](#)



**CAUTION:** If one of your RAID cards is equipped with a battery backup unit (BBU), be aware that hot swapping the BBU is not supported. Please perform a graceful shutdown of the server prior to replacing the BBU.

## Approved Configurations

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The C240 M3 SFF server can be ordered as a UCSC-C240-M3S2 (16-drive backplane with no SAS expander) or a UCSC-C240-M3S (24-drive backplane with SAS expander).

- ROM5 and ROM 55 embedded RAID upgrade options support up to 8 internal drives with the 16-drive backplane and are not supported for the 24-drive backplane.
- Mezzanine cards (UCSC-RAID-11-C240 and UCSC-RAID-MZ-240) support up to internal 8 drives for the 16-drive backplane, and up to 16 internal drives for the 24-drive backplane.
- The SAS 9271-8i and 9271CV-8i PCIe cards support up to 8 internal drives each for the 16-drive backplane, and up to 24 drives for the 24-drive backplane. For the UCSC-C240-M3S2 server, a two-CPU system is required to support two 9271-8i or 9271CV-8i PCIe cards and up to 16 drives. For the UCSC-C240-M3 server, a single 9271-8i or 9271CV-8i PCIe card supports up to 24 drives in either a one-CPU or two-CPU system.
- The Cisco Nytro MegaRAID 200 GB card supports up to 24 internal drives for the 2-CPU 24-drive backplane only.
- LSI MegaRAID SAS 9285CV-8e and 9286CV-8e PCIe cards support up to 8 external SAS ports (240 external drives).



**NOTE:** For the 16-drive backplane server, if you do not select a mezzanine card, a PCIe RAID controller, 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).

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See [Table 10](#) for a summary of the supported RAID configuration options.



**NOTE:** As shown in the table, the NYTRO MegaRAID 200 RAID controller is supported only in slot 3 of a 2-CPU 24-drive backplane system (UCSC-C240-M3S).

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Table 10 Supported RAID Configurations

| Server             | # CPUs | Embedded RAID <sup>a</sup> | Mezz RAID <sup>b</sup>   | NYTRO MegaRAID 200 RAID Card | Internal PCIe RAID #1 <sup>c</sup>      | Internal PCIe RAID #2 | External PCIe RAID <sup>d</sup>    | # Drives Supported       | PCIe Slots <sup>e</sup> |
|--------------------|--------|----------------------------|--------------------------|------------------------------|-----------------------------------------|-----------------------|------------------------------------|--------------------------|-------------------------|
|                    |        |                            |                          |                              |                                         |                       |                                    |                          | 1 2 3 4 5               |
| C240 M3 SFF 24 HDD | 1      | Not allowed                | Not allowed <sup>f</sup> | Not allowed                  | Installed slot 3 (default) <sup>g</sup> | Not allowed           | Not allowed                        | 24 internal              | A A C U U               |
| C240 M3 SFF 24 HDD | 1      | Not allowed                | Not allowed              | Not allowed                  | Not allowed                             | Not allowed           | Installed in slots 1, 2, or 3      | 0 internal 240 external  | A A A U U               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Installed                | Not allowed                  | Not allowed                             | Not allowed           | Card absent                        | 16 internal              | A A A A A               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Not allowed              | Not allowed                  | Installed slot 4 (default)              | Not allowed           | Card absent                        | 24 internal              | A A A C A               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Not allowed <sup>h</sup> | Installed Slot 3             | Not allowed                             | Not allowed           | Not allowed                        | 24 internal              | A A C A A               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Card absent              | Not allowed                  | Card absent                             | Not allowed           | Installed any slot                 | 0 internal 240 external  | A A A A A               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Installed                | Not allowed                  | Not allowed                             | Not allowed           | Installed any slot                 | 16 internal 240 external | A A A A A               |
| C240 M3 SFF 24 HDD | 2      | Not allowed                | Not allowed              | Not allowed                  | Installed slot 4 (default)              | Not allowed           | Installed any slot (except slot 4) | 24 internal 240 external | A A A C A               |
| C240 M3 SFF 16 HDD | 1      | Enabled                    | Not allowed              | Not allowed                  | Not allowed                             | Not allowed           | Not allowed                        | 8 internal               | A A A U U               |
| C240 M3 SFF 16 HDD | 1      | Not allowed                | Not allowed              | Not allowed                  | Installed slot 3 (default)              | Not allowed           | Not allowed                        | 8 internal               | A A C U U               |
| C240 M3 SFF 16 HDD | 1      | Not allowed                | Not allowed              | Not allowed                  | Not allowed                             | Not allowed           | Installed any slot                 | 0 internal 240 external  | A A A U U               |
| C240 M3 SFF 16 HDD | 2      | Enabled                    | Not allowed              | Not allowed                  | Not allowed                             | Not allowed           | Not allowed                        | 8 internal               | A A A A A               |

Table 10 Supported RAID Configurations

| Server             | # CPUs | Embedded RAID <sup>a</sup> | Mezz RAID <sup>b</sup> | NYTRO MegaRAID 200 RAID Card | Internal PCIe RAID #1 <sup>c</sup> | Internal PCIe RAID #2      | External PCIe RAID <sup>d</sup>    | # Drives Supported       | PCIe Slots <sup>e</sup> |   |   |   |   |
|--------------------|--------|----------------------------|------------------------|------------------------------|------------------------------------|----------------------------|------------------------------------|--------------------------|-------------------------|---|---|---|---|
|                    |        |                            |                        |                              |                                    |                            |                                    |                          | 1                       | 2 | 3 | 4 | 5 |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Installed              | Not allowed                  | Not allowed                        | Not allowed                | Card absent                        | 8 internal               | A                       | A | A | A | A |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Not allowed            | Not allowed                  | Installed slot 4 (default)         | Card absent                | Card absent                        | 8 internal               | A                       | A | A | O | A |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Not allowed            | Not allowed                  | Installed slot 4 (default)         | Installed slot 3 (default) | Not allowed                        | 16 internal <sup>i</sup> | A                       | A | O | O | A |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Card absent            | Not allowed                  | Card absent                        | Card absent                | Installed any slot                 | 0 internal 240 external  | A                       | A | A | A | A |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Installed              | Not allowed                  | Not allowed                        | Not allowed                | Installed any slot                 | 8 internal 240 external  | A                       | A | A | A | A |
| C240 M3 SFF 16 HDD | 2      | Not allowed                | Not allowed            | Not allowed                  | Installed slot 4 (default)         | Not allowed                | Installed any slot (except slot 4) | 8 internal 240 external  | A                       | A | A | O | A |

## Notes . . .

- a. Embedded RAID is only compatible with the 16 HDD backplane. It cannot be used with the 24 HDD backplane.
- b. Never disable OPROM for the mezzanine slot if the mezzanine card is present, or the system will not boot. If you remove the mezzanine card and disable its OPROM, you can boot from another bootable device (RAID card, embedded RAID, or from SAN via an HBA or CNA card). When you boot from a device, make sure its OPROM is enabled, it is in the proper boot sequence, and its BIOS is configured for a bootable device.
- c. If you want to boot from a device other than the 9271-8i or 9271CV-8i MegaRAID PCIe card, you can leave the card installed. Just disable the OPROM for its slot, and the system will boot even with the card installed.
- d. External RAID card is the 9285CV-8e or 9286CV-8e. Any of these can be installed simultaneously with either one mezzanine RAID controller card or one internal RAID controller card (9271-8i or 9271CV-8i).
- e. A = available slot, O = occupied slot, U = unsupported slot (slots 4 and 5 are not supported in 1-CPU systems)
- f. The mezzanine cards are not supported in 1-CPU systems
- g. The OPROM is enabled for the default PCIe RAID controller slots. If you want to enable a different slot, you must go into the BIOS and enable the OPROM for the desired slot and disable the OPROM for the default PCIe slot (see [Figure 9 on page 79](#)).
- h. The mezzanine cards are not supported in 1-CPU systems
- i. Two RAID cards are required to control all 16 drives in the C240 SFF 16 HDD backplane system.

## Caveats

- If you select an internal drive RAID controller, it is installed by default in PCIe slot 4 (half-height) or 3 (full-height); however, you can go into the BIOS and change the option

ROM (OPROM) setting to enable a different slot for an internal drive RAID controller. Any remaining slot can then be used for an external drive RAID controller or for a PCIe expansion card.

- Note that when just one CPU is populated, only a single Cisco 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 (the Cisco VIC 1225 or 1285). 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.
- For the PCIe RAID controllers, 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.
- A system with 16-drive backplane supports up to 4 SATA-only drives if no ROM upgrade, mezzanine RAID card, or PCIe RAID controller is chosen.



**NOTE:** RAID for the external RAID controllers (LSI MegaRAID SAS 9286CV-e and LSI MegaRAID SAS 9285CV-e) is not factory configured.

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**NOTE:** For more important information regarding RAID support, see [RAID Details, page 77](#) and [RAID Option ROM \(OPROM\) Settings, page 79](#).

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## 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 11](#).

**Table 11 Available Hot-Pluggable Sled-Mounted HDDs and SSDs**

| Product ID (PID)      | PID Description                                                    | Drive Type | Capacity |
|-----------------------|--------------------------------------------------------------------|------------|----------|
| <b>HDDs</b>           |                                                                    |            |          |
| <b>12 Gbps Drives</b> |                                                                    |            |          |
| UCS-HD600G15K12G      | 600 GB 12G SAS 15K RPM SFF HDD                                     | SAS        | 600 GB   |
| UCS-HD450G15K12G      | 450 GB 12G SAS 15K RPM SFF HDD                                     | SAS        | 450 GB   |
| UCS-HD300G15K12G      | 300GB 12G SAS 15K RPM SFF HDD                                      | SAS        | 300 GB   |
| UCS-HD12TB10K12G      | 1.2 TB 12G SAS 10K RPM SFF HDD                                     | SAS        | 1.2 TB   |
| UCS-HD900G10K12G      | 900 GB 12G SAS 10K RPM SFF HDD                                     | SAS        | 900 GB   |
| UCS-HD600G10K12G      | 600 GB 12G SAS 10K RPM SFF HDD                                     | SAS        | 600 GB   |
| UCS-HD300G10K12G      | 300 GB 12G SAS 10K RPM SFF HDD                                     | SAS        | 300 GB   |
| UCS-HD2T7K12G         | 2 TB 12G SAS 7.2K RPM SFF HDD                                      | SAS        | 2 TB     |
| UCS-HD1T7K12G         | 1 TB 12G SAS 7.2K RPM SFF HDD                                      | SAS        | 1 TB     |
| <b>SSDs</b>           |                                                                    |            |          |
| <b>12 Gbps Drives</b> |                                                                    |            |          |
| UCS-SD16TB12S4-EP     | 1.6 TB 2.5 inch Enterprise Performance 12G SAS SSD (10X endurance) | SAS        | 1.6 TB   |
| UCS-SD800G12S4-EP     | 800 GB 2.5 inch Enterprise Performance 12G SAS SSD (10X endurance) | SAS        | 800 GB   |
| UCS-SD400G12S4-EP     | 400 GB 2.5 inch Enterprise Performance 12G SAS SSD (10X endurance) | SAS        | 400 GB   |

**Table 11 Available Hot-Pluggable Sled-Mounted HDDs and SSDs (continued)**

| Product ID (PID)     | PID Description                                               | Drive Type | Capacity |
|----------------------|---------------------------------------------------------------|------------|----------|
| <b>6 Gbps Drives</b> |                                                               |            |          |
| UCS-SD800G0KS2-EP    | 800 GB 2.5 inch Enterprise Performance SAS SSD (Samsung 1625) | SAS        | 800 GB   |
| UCS-SD400G0KS2-EP    | 400 GB 2.5 inch Enterprise Performance SAS SSD (Samsung 1625) | SAS        | 400 GB   |
| UCS-SD200G0KS2-EP    | 200 GB 2.5 inch Enterprise Performance SAS SSD (Samsung 1625) | SAS        | 200 GB   |
| UCS-SD480GBKS4-EV    | 480 GB 2.5 inch Enterprise Value 6G SATA SSD (Intel 3510)     | SATA       | 480 GB   |
| UCS-SD120GBKS4-EV    | 120 GB 2.5 inch Enterprise Value 6G SATA SSD (Intel 3510)     | SATA       | 120 GB   |
| UCS-SD960GBKS4-EV    | 960 GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung PM863)  | SATA       | 960 GB   |
| UCS-SD400G0KA2-G     | 400 GB SATA 2.5 inch Enterprise Value SSD                     | SATA       | 400 GB   |
| UCS-SD100G0KA2-G     | 100 GB SATA 2.5 inch Enterprise Value SSD                     | SATA       | 100 GB   |



**NOTE:** When creating a RAID volume, follow these guidelines:

- Use the same capacity for each drive in the volume
- Use either all SAS drives or all SATA drives
- Use either all HDDs or all SSDs

### Approved Configurations

#### (1) Onboard RAID, Mezzanine Cards, and all PCIe RAID Controllers

- For systems with a 16-drive backplane:
  - If you have not selected an onboard RAID upgrade option (ROM5 or ROM55), a mezzanine card, or a PCIe RAID controller for internal drives (LSI MegaRAID SAS 9271-8i or 9271CV-8i), you may select up to 4 SATA-only drives from [Table 11](#).
  - Select up to 8 drives for ROM5 or ROM55 embedded RAID upgrade or a mezzanine card.
  - Select up to 16 drives for the SAS 9271-8i or 9271CV-8i controller. Note that two identical RAID controllers are required to support 16 drives (each controller supports up to 8 drives).
- For systems with a 24-drive backplane:
  - Select up to 16 drives for mezzanine cards (only supported in 2-CPU systems).
  - Select up to 24 drives for the SAS 9271-8i or 9271CV-8i controller. Only one controller is required to support up to 24 drives.

### Caveats

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- 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)
- UCS Storage Accelerators

### Select PCIe Option Cards

The available PCIe option cards are listed in [Table 12](#).

**Table 12 Available PCIe Option Cards**

| Product ID (PID)                         | PID Description                                           | Card Height |
|------------------------------------------|-----------------------------------------------------------|-------------|
| <b>Converged Network Adapters (CNAs)</b> |                                                           |             |
| UCSC-PCIE-CSC-02                         | Cisco VIC 1225 Dual Port 10Gb SFP+ CNA                    | Half        |
| UCSC-PCIE-C10T-02                        | Cisco VIC 1225T Dual Port 10GBaseT CNA                    | Half        |
| UCSC-PCIE-C40Q-02                        | Cisco VIC 1285 Dual Port 40 Gb QSFP CNA                   | Half        |
| UCSC-PCIE-ESFP                           | Emulex OCe11102-FX dual-port 10 GbE FCoE CNA (Gen 3 CNA)  | Half        |
| UCSC-PCIE-B3SFP                          | Broadcom 57810 10Gb A-FEX SFP+                            | Half        |
| UCSC-PCIE-Q8362                          | Qlogic QLE8362 dual-port 10 GbE FCoE CNA                  | Half        |
| <b>Network Interface Cards (NICs)</b>    |                                                           |             |
| 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-ITG                            | Intel X540 Dual Port 10GBase-T 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        |
| <b>Host Bus Adapters (HBAs)</b>          |                                                           |             |
| 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-AQPCI05                             | QLogic QLE2562 Dual Port 8Gb Fibre Channel HBA            | Half        |
| UCSC-PCIE-Q2672                          | Qlogic QLE2672-CSC, 16Gb Fibre Channel HBA with SR Optics | Half        |
| UCSC-PCIE-E16002                         | Emulex LPe16002-M6, 16Gb Fibre Channel HBA with SR Optics | Half        |

**Table 12 Available PCIe Option Cards (continued)**

| Product ID (PID)                | PID Description                                               | Card Height |
|---------------------------------|---------------------------------------------------------------|-------------|
| <b>UCS Storage Accelerators</b> |                                                               |             |
| UCSC-F-FIO-5200MP               | UCS 5200 GB Fusion ioMemory3 PX Performance line for C-Series | Full        |
| UCSC-F-FIO-2600MP               | UCS 2600 GB Fusion ioMemory3 PX Performance line for C-Series | Half        |
| UCSC-F-FIO-1300MP               | UCS 1300 GB Fusion ioMemory3 PX Performance line for C-Series | Half        |
| UCSC-F-FIO-1000MP               | UCS 1000 GB Fusion ioMemory3 PX Performance line for C-Series | Half        |
| UCSC-F-FIO-3000M                | Cisco UCS 3.0 TB MLC Fusion ioDrive2 for C-Series Servers     | Full        |
| UCSC-F-FIO-1205M                | Cisco UCS 1205 GB MLC Fusion ioDrive2 for C-Series Servers    | Half        |
| UCSC-F-FIO-785M                 | Cisco UCS 785 GB MLC Fusion ioDrive2 for C-Series Servers     | Half        |
| UCSC-F-FIO-365M                 | Cisco UCS 365GB MLC Fusion ioDrive2 for C-Series Servers      | Half        |

### Approved Configurations

#### (1) No PCIe RAID controller

- If you did not choose a PCIe RAID controller (for example, you are using embedded RAID or a mezzanine RAID controller), you can select up to three PCIe option cards listed in [Table 12](#) for a 1-CPU system or up to five for a 2-CPU system.

#### (2) One PCIe RAID controller card

- If you selected one PCIe RAID controller, you can select up to two of the optional PCIe cards listed in [Table 12](#) for a 1-CPU system or up to four for a 2-CPU system.

#### (3) Two PCIe RAID controllers

- If you selected two PCIe RAID controllers (only supported in 16 HDD backplane 2-CPU systems), you can select three of the optional PCIe cards listed in [Table 12](#).

### Caveats

- Do not mix Fusion io storage accelerator families (do not mix “MP” family cards with “M” family cards).
- For 1-CPU systems:
  - Only the three PCIe slots on PCIe riser 1 are available. The three slots are full-height PCIe slots 1, 2, and 3 (see [Figure 3 on page 7](#)). 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 (the half-height Cisco VIC 1225 or 1285 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 8](#) for the slot descriptions.
  - Fusion ioDrive2 cards can be installed in slots 1, 2, or 3. Note that only the Cisco UCS 3.0 TB MLC Fusion ioDrive2 and Cisco UCS 5200 GB Fusion ioMemory3 cards are full-height; all other Fusion io cards are half-height and therefore may need an adapter to hold them securely in the full-height slot.
- 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 slot 4.
  - Two VIC cards may be installed in 2-CPU systems, using slots 2 or 5. See [Table 1 on page 8](#) for the slot descriptions.
  - Up to four Cisco UCS 3.0 TB MLC Fusion ioDrive2 or Cisco UCS 5200 GB Fusion ioMemory3 full-height cards are supported and can be installed in slots 1, 2, 3, or 5.
  - Up to five of the other Fusion io cards are supported and can be installed in slots 1, 2, 3, 4, and 5, although an adapter may be needed when installing one of these half-height cards in slots 1, 2, 3, or 5 (the full-height slots).
- Additional considerations for the Cisco VIC 1225 and 1285:
- Supports 10G SFP+ optical and copper twinax connections.
  - The server supports installation of up to two Cisco VIC cards and they are supported only in PCIe slots 2 and 5.
  - The primary slot for the Cisco VIC is PCIe slot 2. If there is only one card, it must be installed in PCIe slot 2.
  - 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, or to see additional cards that have been qualified to work with the UCS C240 M3 server, but are not sold on the Cisco pricelist, check the Hardware Compatibility List at this URL:

[http://www.cisco.com/en/US/products/ps10477/prod\\_technical\\_reference\\_list.html](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 13** 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 13 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) |

### Approved Configurations

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

- You may choose one or two twinax cables for each compatible PCIe 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.

### Choose Optional SFP Modules

Optical Cisco SFP+ modules are listed in **Table 14**.

**Table 14 Available SFP Modules**

| Product ID (PID) | PID Description                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------|
| SFP-10G-SR       | 10GBASE-SR SFP+ Module<br>850 nm, multimode, SR, 3.3V, LC connector, with Digital Optical Monitoring |
| SFP-10G-LR       | 10GBASE-LR SFP+ Module<br>1310 nm, single mode, LR, 3.3 V, with Digital Optical Monitoring           |
| DS-SFP-FC8G-SW   | 8 Gbit SFP+ Module<br>850 nm, multimode, SR, 3.3V, LC connector, with Digital Optical Monitoring     |

## Approved Configurations

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

- You may choose one or two SFP+ optical modules cables for each compatible PCIe 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 the [Figure 5 on page 42](#) for typical SFP+ and twinax connections to the network cards.

## Caveats

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Check the table on the following page for compatibility between the PCIe network cards and SFPs or twinax cables.



**NOTE: The table shows all PCIe network cards for all C-series servers. Not all of the cards shown in the table are supported in this server. The intent of the table is to show compatibility between cards and twinax cables or SFPs.**

---

**Table 15 PCIe Card Compatibility**

| PCIe Cards                                                                             | Twinax Cables           | Cisco SFP Modules                               |            |                |
|----------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------|------------|----------------|
|                                                                                        |                         | SFP-10G-SR                                      | SFP-10G-LR | DS-SFP-FC8G-SW |
| Converged Network Adapters (CNAs)                                                      |                         |                                                 |            |                |
| UCSC-PCIE-BSFP<br>(Broadcom 57712 Dual Port 10Gb SFP+ w/TOE iSCSI)                     | Yes                     | Yes                                             | No         |                |
| UCSC-PCIE-CSC-02<br>(Cisco VIC 1225 Dual Port 10Gb SFP+ CNA)                           | Yes                     | Yes                                             | Yes        | No             |
| UCSC-PCIE-C10T-02<br>(Cisco VIC 1225T Dual Port 10GBaseT CNA)                          | No                      | No                                              | No         | No             |
| UCSC-MLOM-CSC-02<br>(Cisco UCS VIC1227 VIC MLOM - Dual Port 10Gb SFP+)                 | Yes                     | Yes                                             | Yes        | No             |
| UCSC-MLOM-C10T-02<br>(Cisco UCS VIC1227T VIC MLOM - Dual Port 10GBaseT)                | No                      | No                                              | No         | No             |
| UCSC-PCIE-C40Q-02<br>(Cisco VIC 1285 Dual Port 40Gb QSFP CNA)                          | Yes                     | No <sup>a</sup>                                 | No         |                |
| UCSC-PCIE-C40Q-03<br>(Cisco VIC 1385 Dual Port 40Gb QSFP+ CNA w/RDMA)                  | Yes                     | No <sup>1</sup>                                 | No         |                |
| UCSC-PCIE-ESFP<br>(Emulex OCe11102-FX dual-port 10 GbE FCoE CNA (Gen 3 CNA))           | Yes                     | Yes                                             | No         |                |
| UCSC-PCIE-QSFP<br>(QLogic QLE8242-CU dual-port 10 GbE FCoE CNA)                        | Yes                     | Use Qlogic SFP                                  |            |                |
| UCSC-PCIE-B3SFP<br>(Broadcom 57810 10Gb A-FEX SFP+)                                    | Yes                     | Yes                                             | No         |                |
| UCSC-PCIE-Q8362<br>(Qlogic QLE8362 dual-port 10 GbE FCoE CNA)                          | Yes                     | Use Qlogic SFP                                  |            |                |
| UCSC-PCIE-E14102<br>(Emulex OCe14102-UX dual-port 10 GbE FCoE CNA)                     | Yes                     | Yes                                             | No         |                |
| Network Interface Cards (NICs)                                                         |                         |                                                 |            |                |
| N2XX-ABPCI01-M3<br>(Broadcom 5709 Dual-Port Ethernet PCIe Adapter for M3 Servers)      | Use RJ45 Ethernet cable |                                                 |            |                |
| N2XX-ABPCI03-M3<br>(Broadcom 5709 Quad Port 10/100/1Gb NIC w/TOE iSCSI for M3 Servers) | Use RJ45 Ethernet cable |                                                 |            |                |
| N2XX-AIPCI01<br>(Intel X520 Dual Port 10Gb SFP+ Adapter)                               | Yes                     | Use Intel SFP<br>CDE2-SFP-1WLR or CDE2-SFP-1WSR |            |                |
| UCSC-PCIE-ITG<br>(Intel X540 Dual Port 10GBase-T Adapter)                              | Use RJ45 Ethernet cable |                                                 |            |                |
| UCSC-PCIE-IRJ45<br>(Intel i350 Quad Port 1Gb Adapter)                                  | Use RJ45 Ethernet cable |                                                 |            |                |

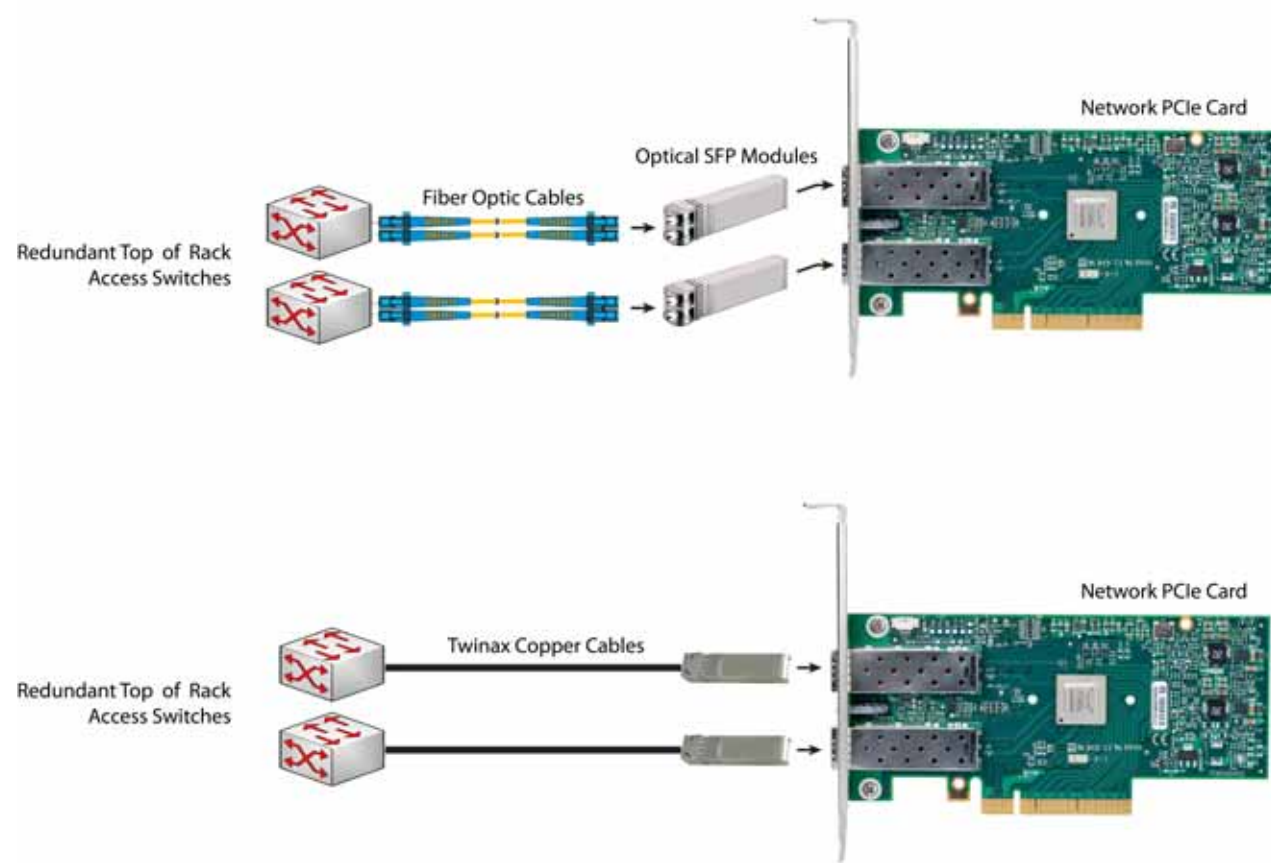
**Table 15 PCIe Card Compatibility (continued)**

| PCIe Cards                                                                      | Twinax Cables | Cisco SFP Modules                |            |                |
|---------------------------------------------------------------------------------|---------------|----------------------------------|------------|----------------|
|                                                                                 |               | SFP-10G-SR                       | SFP-10G-LR | DS-SFP-FC8G-SW |
| UCSC-PCIE-BTG<br>(Broadcom 57712 Dual Port 10GBASE-T w/TOE iSCSI)               | Yes           | No                               | No         |                |
| Host Bus Adapters (HBAs)                                                        |               |                                  |            |                |
| N2XX-AEPCI03<br>(Emulex LPe 11002 Dual Port 4Gb Fibre Channel HBA)              | No            | Preinstalled - do not change SFP |            |                |
| N2XX-AEPCI05<br>(Emulex LPe 12002 Dual Port 8Gb Fibre Channel HBA)              | No            | Preinstalled - do not change SFP |            |                |
| N2XX-AQPCI03<br>(QLogic QLE2462 Dual Port 4Gb Fibre Channel HBA)                | No            | Preinstalled - do not change SFP |            |                |
| N2XX-AQPCI05<br>(QLogic QLE2562 Dual Port 8Gb Fibre Channel HBA)                | No            | Preinstalled - do not change SFP |            |                |
| UCSC-PCIE-Q2672<br>(Qlogic QLE2672-CSC, 16Gb Fibre Channel HBA with SR Optics)  | No            | Preinstalled - do not change SFP |            |                |
| UCSC-PCIE-E16002<br>(Emulex LPe16002-M6, 16Gb Fibre Channel HBA with SR Optics) | No            | Preinstalled - do not change SFP |            |                |

**Notes . . .**

- a. This card supports a 4x10 Gbps QSFP to SFP breakout fiber cable.

Figure 5 Network Card Connections



## STEP 8 ORDER GPU CARDS and ACCESSORIES (OPTIONAL)

The GPU offerings are:

- GPU upgrade kit
- GPU PCIe cards
- GPU power cables



**NOTE:** The GPU cards and accessories are orderable for both the 16-drive and 24-drive backplane versions of the server.

### Select GPU Options

The available GPU PCIe options are listed in [Table 16](#).

**Table 16 Available PCIe Option Cards**

| Product ID (PID)                               | PID Description                                                                                                                                                                                                   | Card Size                |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>GPU Kit</b>                                 |                                                                                                                                                                                                                   |                          |
| UCSC-GPUKIT1-C240                              | C240 GPU upgrade kit for NVIDIA GPU with two PCIe replacement risers, brace, a “Y” power cable (for dual GPUs), a “straight” power cable (for single GPU), and an adapter cable for the power cables <sup>a</sup> | N/A                      |
| <b>GPU PCIe Cards</b>                          |                                                                                                                                                                                                                   |                          |
| UCSC-GPU-VGXX1                                 | NVIDIA GRID K1                                                                                                                                                                                                    | Full-height, double wide |
| UCSC-GPU-VGXX2                                 | NVIDIA GRID K2                                                                                                                                                                                                    | Full-height, double wide |
| UCSC-GPU-K40 <sup>b</sup>                      | NVIDIA Tesla K40                                                                                                                                                                                                  | Full-height, double wide |
| <b>GPU Individual Power Cables<sup>c</sup></b> |                                                                                                                                                                                                                   |                          |
| UCSC-GPUCBL-88Y=                               | 8-to-8 pin “Y” GPU power cable for dual K1 or dual K2 in the C240 M3 server                                                                                                                                       |                          |
| UCSC-GPUCBL-88S=                               | 8-to-8 pin “straight” GPU power cable for single K1 or K2 in the C240 M3 server                                                                                                                                   |                          |
| UCSC-GPUCBL-KIT=                               | GPU power cable kit, containing 8-to-8 pin “Y” and “straight” cables                                                                                                                                              |                          |

**Notes . . .**

- a. The upgrade kit is not needed for chassis version v02 and later. It is only required for the older v01 C240 M3 chassis version.
- b. The K40 requires the server to have E5-2600 v2 CPUs and a minimum CIMC firmware level of 1.5.7.
- c. These cables are for the v02 and later chassis version.

## Approved Configurations

### (1) GPU Kit

- Select a GPU kit to prepare the C240 M3 chassis (V01 chassis version only) for GPU capability. If you have a newer v02 or later chassis, you do not need a GPU kit.

### (2) GPU Power Cables

- When you order one or two GPUs for a v02 or later chassis version, you also need to order one or two power cables. Order the “Y” power cable (UCSC-GPUCBL-88Y=) for 2 GPUs and the “straight” power cable (UCSC-GPUCBL-88S=) for a single GPU.

### (3) NVIDIA GRID GPU Slot Population Rules

**Table 17** shows the rules for populating NVIDIA GRID K1 or K2 GPU cards in the server.



**CAUTION:** When using *dual* NVIDIA GRID K2 GPU cards, you must preserve at least 10 mm of space between servers to ensure adequate airflow and cooling. NVIDIA GRID K1 GPU cards do not require this gap.



**CAUTION:** When using GRID GPU cards, the operating temperature range is 32° to 95°F (0° to 35°C).

**Table 17** NVIDIA GRID GPU Population Rules by Server Version

| C240 M3 Server Version       | Single K1 GPU | Dual K1 GPUs               | Single K2 GPU | Dual K2 GPUs               |
|------------------------------|---------------|----------------------------|---------------|----------------------------|
| Server version v01           | Slot 5        | Slots 2 <sup>a</sup> and 5 | Slot 5        | Not supported              |
| Server version v02 and later | Slot 5        | Slots 2 <sup>1</sup> and 5 | Slot 5        | Slots 2 <sup>1</sup> and 5 |

**Notes . . .**

- a. When a GPU is installed in slot 2, slot 1 is blocked and unavailable for use.

### (4) NVIDIA Tesla GPU Slot Population Rules

**Table 18** shows the rules for populating NVIDIA Tesla GPU cards in the server.



**CAUTION:** When using *dual* NVIDIA Tesla GPU cards, you must preserve at least 10 mm of space between servers to ensure adequate airflow and cooling.



**CAUTION:** When using NVIDIA Tesla GPU cards, the operating temperature range is 32° to 95°F (0° to 35°C).

**Table 18** NVIDIA Tesla GPU Population Rules by Server Version

| C240 M3 Server Version       | Single Tesla GPU | Dual Tesla GPUs |
|------------------------------|------------------|-----------------|
| Server version v01           | Slot 5           | Not supported   |
| Server version v02 and later | Slot 5           | Slots 2 and 5   |

#### Caveats

- The V01 server version requires ordering a GPU upgrade kit (two PCIe risers, brace, “Y” power cable, straight power cable, and power cable adapter). The v02 and later server version requires ordering a “Y” power cable to support two GPUs or a straight power cable to support a single GPU. The power cable plugs into the motherboard GPU power connector and to the appropriate GPU(s).
- Slot 5 is the preferred slot for the first GPU.
- NVIDIA GRID K1 and K2 GPUs can be mixed. No other GPU mixing is allowed.
- If two GPUs are installed, a VIC card cannot be selected because a VIC card can only be plugged into either slot 2 or slot 5 in a 2-CPU system.

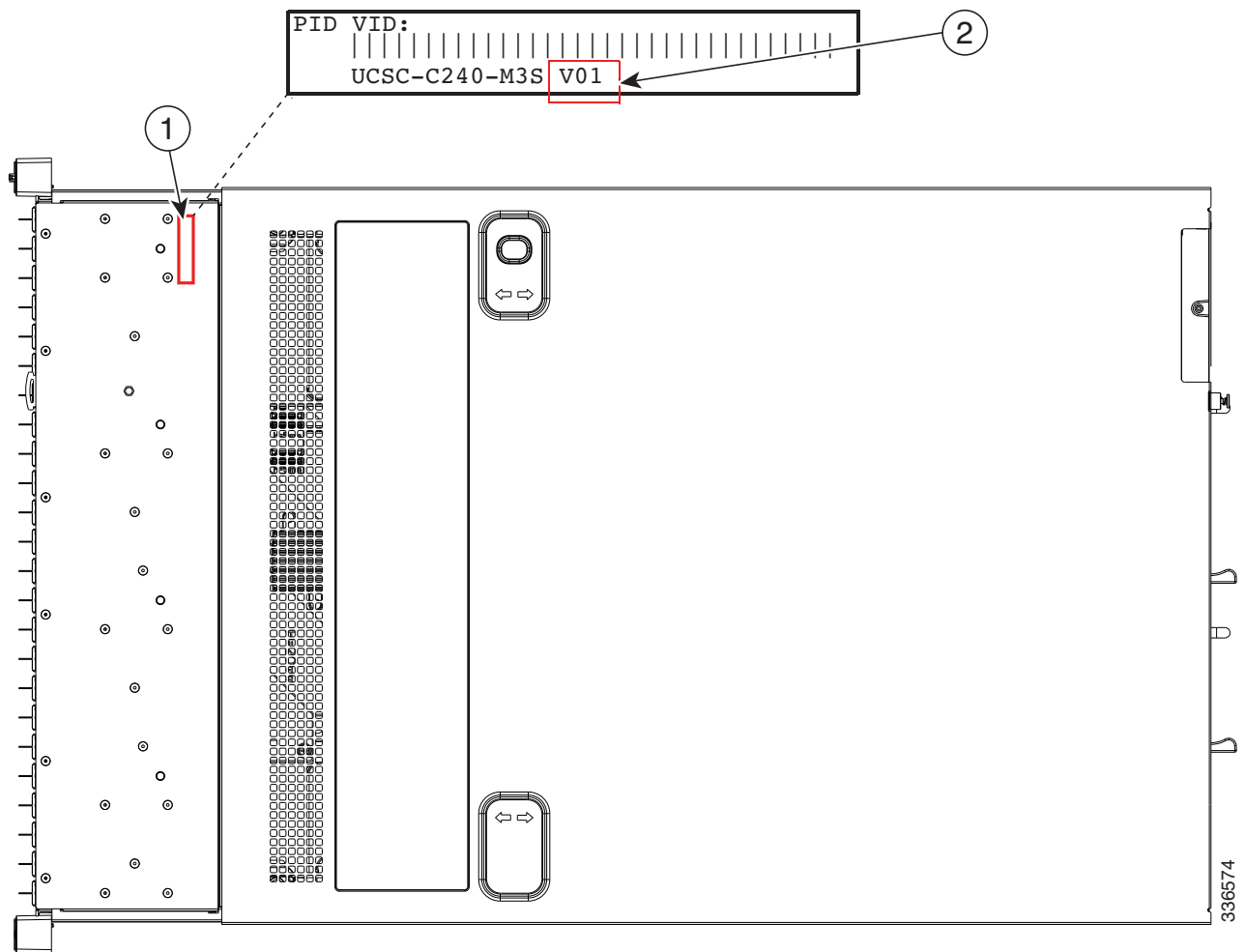


**NOTE:** To discover your chassis version (v01 or v02 or later), look at the label on the top left side of the chassis (see [Figure 6 on page 46](#)). The version number (V01 or v02 or later) is shown in the label.



**NOTE:** See [Figure 7 on page 67](#) for the location of the 8-pin GPU power connector on the motherboard. Connect cable(s) as appropriate from this connector to the power connector on the GPU(s).

Figure 6 Serial Number Label and Chassis Version ID



|   |                                |   |                     |
|---|--------------------------------|---|---------------------|
| 1 | PID/VID label on top of server | 2 | Version ID on label |
|---|--------------------------------|---|---------------------|

## STEP 9 ORDER POWER SUPPLY

The C240 M3 server requires at least 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. A server with one GPU requires at least one 1200 W power supply; a server with two GPUs requires two 1200 W power supplies. Use the power calculator at the following link to determine the needed power based on the options chosen (CPUs, drives, memory, and so on):

<http://ucspowercalc.cisco.com>

**Table 19** 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).                   |
| UCSC-PSU2V2-930DC | 930 W - 48V V2 DC Power Supply for 2U C-Series Servers |
| UCSC-PSU-930WDC   | 930 W -48V DC power supply                             |

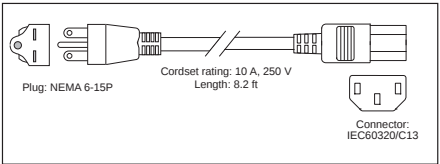
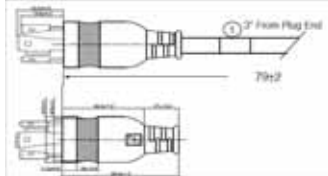
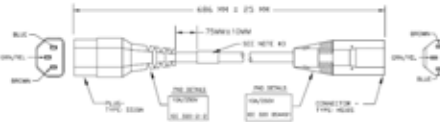
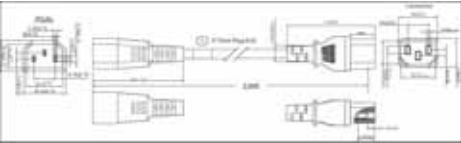
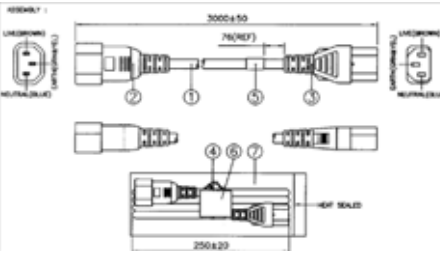


**NOTE:** In a two power supply server, both power supplies must be identical.

## STEP 10 SELECT AC POWER CORD(s)

Using [Table 20](#), 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.

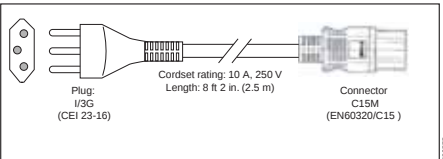
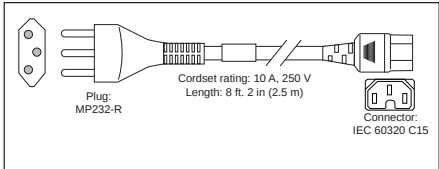
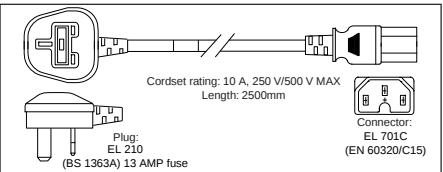
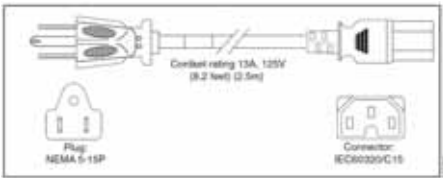
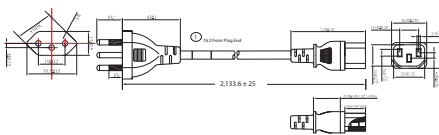
**Table 20 Available Power Cords**

| 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-L620-C13  | AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft                     |   |
| 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 20 Available Power Cords**

| Product ID (PID) | PID Description                             | Images                                                                                                                                              |
|------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| CAB-250V-10A-AR  | Power Cord, SFS, 250V, 10A, Argentina       | <p>Plug: EL 219 (IIRAM 2073)</p> <p>Cordset rating: 10 A, 250V/500 V MAX<br/>Length: 8.2 ft</p> <p>Connector: EL 701 (IEC60320/C13)</p>             |
| CAB-9K10A-AU     | Power Cord, 250VAC 10A 3112 Plug, Australia | <p>Plug: EL 210 (BS 1363A) 13 AMP fuse</p> <p>Cordset rating: 10 A, 250 V/500 V MAX<br/>Length: 2500mm</p> <p>Connector: EL 701C (EN 60320/C15)</p> |
| CAB-250V-10A-CN  | Power Cord, SFS, 250V, 10A, China           | <p>Plug: EL 218 (CCEE GB2009)</p> <p>Cordset rating 10A, 250V (2500 mm)</p> <p>Connector: EL 701 (IEC60320/C13)</p>                                 |
| CAB-250V-10A-CN  | AC Power Cord - 250V, 10A - PRC             | <p>Plug: EL 218 (CCEE GB2009)</p> <p>Cordset rating 10A, 250V (2500 mm)</p> <p>Connector: EL 701 (IEC60320/C13)</p>                                 |
| CAB-9K10A-EU     | Power Cord, 250VAC 10A CEE 7/7 Plug, EU     | <p>Plug: M2511</p> <p>Cordset rating: 10A/16 A, 250 V<br/>Length: 8 ft 2 in. (2.5 m)</p> <p>Connector: VSCC15</p>                                   |
| CAB-250V-10A-ID  | Power Cord, SFS, 250V, 10A, India           | <p>Plug: EL 208</p> <p>Cordset rating 16A, 250V (2500mm)</p> <p>Connector: EL 701</p>                                                               |
| CAB-250V-10A-IS  | Power Cord, SFS, 250V, 10A, Israel          | <p>Plug: EL 212 (SI-32)</p> <p>Cordset rating 10A, 250V/500V MAX (2500 mm)</p> <p>Connector: EL 701B (IEC60320/C13)</p>                             |

Table 20 Available Power Cords

| Product ID (PID) | PID Description                                      | Images                                                                                                                                                                                                                                 |
|------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CAB-9K10A-IT     | Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy     |  <p>Plug: I/3G (CEI 23-16)</p> <p>Cordset rating: 10 A, 250 V<br/>Length: 8 ft 2 in (2.5 m)</p> <p>Connector: C15M (EN60320/C15)</p>                 |
| CAB-9K10A-SW     | Power Cord, 250VAC 10A MP232 Plug, Switzerland       |  <p>Plug: MP232-R</p> <p>Cordset rating: 10 A, 250 V<br/>Length: 8 ft 2 in (2.5 m)</p> <p>Connector: IEC 60320 C15</p>                               |
| CAB-9K10A-UK     | Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK   |  <p>Cordset rating: 10 A, 250 V/500 V MAX<br/>Length: 2500mm</p> <p>Plug: EL 210 (BS 1363A) 13 AMP fuse</p> <p>Connector: EL 701C (EN 60320/C15)</p> |
| CAB-9K12A-NA     | Power Cord, 125VAC 13A NEMA 5-15 Plug, North America |  <p>Cordset rating: 13A, 125V (8.2 Watt) (2.5m)</p> <p>Plug: NEMA 5-15P</p> <p>Connector: IEC60320/C15</p>                                          |
| CAB-250V-10A-BR  | Power Cord - 250V, 10A - Brazil                      |                                                                                                                                                    |
| CAB-JPN-3PIN     | Power Cord 3PIN, Japan                               | Image not available                                                                                                                                                                                                                    |

## STEP 11 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 21](#) to order a cable management arm.

**Table 21** 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](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/C240.pdf)



**NOTE:** All UCS C240 M3 servers ship with a tool-less rail kit.

## STEP 12 SELECT NIC MODE (OPTIONAL)

By default, the C240 M3 server NIC mode is configured to be Shared LOM Extended. This NIC mode allows any LOM port or adapter card port to be used to access the Cisco Integrated Management Controller (CIMC). The Cisco adapter card must be installed in a slot with NCSI support.

To change the default NIC mode to Dedicated, select the PID shown in [Table 22](#). In Dedicated NIC mode, the CIMC can be accessed only through the dedicated management port. See [Chassis Rear View, page 7](#) for the location of the management port.

For more details on all the NIC mode settings, see

[http://www.cisco.com/c/en/us/td/docs/unified\\_computing/ucs/c/sw/gui/config/guide/2-0/b\\_Cisco\\_UCS\\_C-series\\_GUI\\_Configuration\\_Guide\\_201.pdf](http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/sw/gui/config/guide/2-0/b_Cisco_UCS_C-series_GUI_Configuration_Guide_201.pdf)

**Table 22**      **Dedicated NIC Mode Ordering Information**

| Product ID (PID) | PID Description                                  |
|------------------|--------------------------------------------------|
| UCSC-DLOM-01     | Dedicated Mode BIOS setting for C-Series Servers |

## STEP 13 ORDER A TRUSTED PLATFORM MODULE (OPTIONAL)

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 23](#).

**Table 23**     **Trusted Platform Module**

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



**NOTE:** The module used in this server conforms to TPM v1.2/1.3, as defined by the Trusted Computing Group (TCG).

## STEP 14 ORDER CISCO FLEXIBLE FLASH SD CARD MODULE (OPTIONAL)

You can order either one or two 32 GB SD cards. See [Figure 7 on page 67](#) for the location of the SD cards. There are two locations, SD1 and SD2.

**Table 24** 32 GB Secure Digital (SD) Card

| Product ID (PID) | PID Description               |
|------------------|-------------------------------|
| UCS-SD-32G-S     | 32 GB SD Card for UCS servers |

---

### Caveats

- The following configurations are valid:
  - One 32 GB SD card
  - Two 32 GB cards

## STEP 15 ORDER OPTIONAL USB 2.0 DRIVE

You can order one optional USB 2.0 drive. The USB drive ordering information is listed in [Table 25](#).

**Table 25**     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 7 on page 67](#) for the location of the USB connector.

## STEP 16 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several software programs are available. Select as desired from [Table 26](#).

**Table 26 Software (for 2-CPU servers)**

| PID Description                            | Product ID (PID)                                              |
|--------------------------------------------|---------------------------------------------------------------|
| <b>Cisco One</b>                           |                                                               |
| C1F2PUCSK9                                 | Cisco ONE Foundation Perpetual UCS                            |
| C1A1PUCSK9                                 | Cisco ONE Enterprise Cloud Perpetual UCS                      |
| C1UCS-OPT-OUT                              | Cisco One Data Center Compute Opt Out Option                  |
| <b>Energy Management (JouleX)</b>          |                                                               |
| CEM-DC-PER                                 | Perpetual License Key for Cisco Energy Management for DC      |
| <b>UCS Director</b>                        |                                                               |
| CUIC-PHY-SERV-BM-U                         | Cisco UCS Director Resource Lic - 1 Phy Sevr node bare metal  |
| CUIC-PHY-SERV-U                            | Cisco UCS Director Resource Lic - One physical Server node    |
| CUIC-TERM                                  | Acceptance of Cisco UCS Director License Terms                |
| <b>UCS Performance Manager</b>             |                                                               |
| UCS-PM-IE                                  | UCS Performance Manager                                       |
| UCS-PM-EE                                  | UCS Performance Manager Express                               |
| EVAL-UCS-PM-IE                             | UCS Performance Manager - 90 days evaluation                  |
| EVAL-UCS-PM-EE                             | UCS Performance Manager Express - 90 days evaluation          |
| <b>Nexus 1000V for Hyper-V and vSphere</b> |                                                               |
| N1K-VSG-UCS-BUN                            | Nexus 1000V Adv Edition for vSphere Paper License Qty 1       |
| <b>IMC Supervisor</b>                      |                                                               |
| CIMC-SUP-B10                               | IMC Supervisor- Branch Mgt SW for C & E-Series up to 1K Svrs  |
| CIMC-SUP-B02                               | IMC Supervisor- Branch Mgt SW for C & E-Series up to 250 Svrs |
| <b>UCS Multi-Domain Manager</b>            |                                                               |
| UCS-MDMGR-100S                             | UCS Multi-Domain Manager (Central) Per Server License (100+)  |
| UCS-MDMGR-50S                              | UCS Multi-Domain Manager (Central) Per Server License (50+)   |
| UCS-MDMGR-1S                               | UCS Multi-Domain Manager (Central) Per Server License         |
| UCS-MDMGR-10S                              | UCS Multi-Domain Manager (Central) Per Server License (10+)   |
| UCS-MDMGR-1DMN                             | UCS Multi-Domain Manager (Central) Per Domain License         |
| <b>VMware vCenter</b>                      |                                                               |
| VMW-VCS-STD-1A                             | VMware vCenter 6 Server Standard, 1 yr support required       |
| VMW-VCS-STD-3A                             | VMware vCenter 6 Server Standard, 3 yr support required       |
| VMW-VCS-STD-5A                             | VMware vCenter 6 Server Standard, 5 yr support required       |
| VMW-VCS-FND-1A                             | VMware vCenter 6 Server Foundation (3 Host), 1 yr supp reqd   |
| VMW-VCS-FND-3A                             | VMware vCenter 6 Server Foundation (3 Host), 3 yr supp reqd   |
| VMW-VCS-FND-5A                             | VMware vCenter 6 Server Foundation (3 Host), 5 yr supp reqd   |
| <b>Microsoft Windows Server</b>            |                                                               |
| MSWS-12R2-DC2S                             | Windows Server 2012 R2 Datacenter (2 CPU/Unlimited VMs)       |

**Table 26 Software (for 2-CPU servers) (continued)**

| PID Description   | Product ID (PID)                                             |
|-------------------|--------------------------------------------------------------|
| MSWS-12-ST2S      | Windows Server 2012 Standard (2 CPU/2 VMs)                   |
| MSWS-12-DC2S      | Windows Server 2012 Datacenter (2 CPU/Unlimited VMs)         |
| MSWS-12-ST2S-NS   | Windows Server 2012 Standard (2 CPU/2 VMs) No Cisco SVC      |
| MSWS-12R2-DC2S-NS | Windows Server 2012 R2 Datacen (2 CPU/Unlim VM) No Cisco Svc |
| MSWS-12R2-ST2S    | Windows Server 2012 R2 Standard (2 CPU/2 VMs)                |
| MSWS-12-DC2S-NS   | Windows Server 2012 Datacenter (2 CPU/Unlim VM) No Cisco Svc |
| MSWS-12R2-ST2S-NS | Windows Server 2012 R2 Standard (2 CPU/2 VMs) No Cisco SVC   |
| <b>Red Hat</b>    |                                                              |
| RHEL-2S2V-3A      | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req  |
| RHEL-2S2V-1A      | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 1-Yr Support Req  |
| <b>VMware</b>     |                                                              |
| VMW-VSP-EPL-5A    | VMware vSphere 6 Ent Plus (1 CPU), 5-yr, Support Required    |
| VMW-VSP-STD-1A    | VMware vSphere 6 Standard (1 CPU), 1-yr, Support Required    |
| VMW-VSP-STD-3A    | VMware vSphere 6 Standard (1 CPU), 3-yr, Support Required    |
| VMW-VSP-EPL-3A    | VMware vSphere 6 Ent Plus (1 CPU), 3-yr, Support Required    |
| VMW-VSP-EPL-1A    | VMware vSphere 6 Ent Plus (1 CPU), 1-yr, Support Required    |
| VMW-VSP-STD-5A    | VMware vSphere 6 Standard (1 CPU), 5-yr, Support Required    |
| <b>SLES SAP</b>   |                                                              |
| SLES-SAP-2S2V-1S  | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 1-Yr SnS       |
| SLES-SAP-2SUV-1S  | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 1-Yr SnS       |
| SLES-SAP-2S2V-3S  | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS       |
| SLES-SAP-2SUV-3S  | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 3-Yr SnS       |
| SLES-SAP-2S2V-5S  | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS       |
| SLES-SAP-2SUV-5S  | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 5-Yr SnS       |
| SLES-SAP-2S2V-5A  | SLES for SAP Apps (1-2 CPU, 1-2 VM); 5-Yr Support Reqd       |
| SLES-SAP-2SUV-3A  | SLES for SAP Apps (1-2 CPU, Unl VM); 3-Yr Support Reqd       |
| SLES-SAP-2S2V-3A  | SLES for SAP Apps (1-2 CPU, 1-2 VM); 3-Yr Support Reqd       |
| SLES-SAP-2SUV-5A  | SLES for SAP Apps (1-2 CPU, Unl VM); 5-Yr Support Reqd       |
| SLES-SAP-2S2V-1A  | SLES for SAP Apps (1-2 CPU, 1-2 VM); 1-Yr Support Reqd       |
| SLES-SAP-2SUV-1A  | SLES for SAP Apps (1-2 CPU, Unl VM); 1-Yr Support Reqd       |
| <b>SUSE</b>       |                                                              |
| SLES-2S2V-1A      | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 1-Yr Support Req |
| SLES-2SUV-1A      | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 1-Yr Support Req |
| SLES-2S2V-3A      | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req |
| SLES-2SUV-3A      | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 3-Yr Support Req |
| SLES-2S2V-5A      | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req |
| SLES-2SUV-5A      | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 5-Yr Support Req |
| SLES-2S2V-1S      | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS    |

**Table 26 Software (for 2-CPU servers) (continued)**

| PID Description | Product ID (PID)                                          |
|-----------------|-----------------------------------------------------------|
| SLES-2SUV-1S    | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 1-Yr SnS |
| SLES-2S2V-3S    | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS |
| SLES-2SUV-3S    | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 3-Yr SnS |
| SLES-2S2V-5S    | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS |
| SLES-2SUV-5S    | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 5-Yr SnS |
| SLES-2S-HA-1S   | SUSE Linux High Availability Ext (1-2 CPU); 1yr SnS       |
| SLES-2S-HA-3S   | SUSE Linux High Availability Ext (1-2 CPU); 3yr SnS       |
| SLES-2S-HA-5S   | SUSE Linux High Availability Ext (1-2 CPU); 5yr SnS       |
| SLES-2S-GC-1S   | SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Sns       |
| SLES-2S-GC-3S   | SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr SnS       |
| SLES-2S-GC-5S   | SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr SnS       |

## STEP 17 SELECT OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in [Table 27](#).

**Table 27 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                |
| MSWS-12-ST2S-RM   | Windows Server 2012 Standard (2 CPU/2 VMs) Recovery Media    |
| MSWS-12-DC2S-RM   | Windows Server 2012 Datacenter(2 CPU/Unlimited VM) Rec Media |
| MSWS-12R2-ST2S-RM | Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media |
| MSWS-12R2-DC2S-RM | Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media |

## STEP 18 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 to have no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) onsite parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Ongoing 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.

### SMARTnet for UCS

For support of the entire Unified Computing System, Cisco offers the Cisco SMARTnet for UCS Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to 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 Cisco SMARTnet for UCS 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 28](#).

**Table 28** Cisco SMARTnet for UCS Service

| Product ID (PID)  | On Site? | Description                               |
|-------------------|----------|-------------------------------------------|
| CON-PREM-C240M3SF | Yes      | ONSITE 24X7X2 UCS C240 M3 Server - SFF    |
| CON-OSP-C240M3SF  | Yes      | ONSITE 24X7X4 UCS C240 M3 Server - SFF    |
| CON-OSE-C240M3SF  | Yes      | ONSITE 8X5X4 UCS C240 M3 Server - SFF     |
| CON-OS-C240M3SF   | Yes      | ONSITE 8X5XNBD UCS C240 M3 Server - SFF   |
| CON-S2P-C240M3SF  | No       | SMARTNET 24X7X2 UCS C240 M3 Server - SFF  |
| CON-SNTP-C240M3SF | No       | SMARTNET 24X7X4 UCS C240 M3 Server - SFF  |
| CON-SNTE-C240M3SF | No       | SMARTNET 8X5X4 UCS C240 M3 Server - SFF   |
| CON-SNT-C240M3SF  | No       | SMARTNET 8X5XNBD UCS C240 M3 Server - SFF |

### SMARTnet for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco SMARTnet for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. SMARTnet for UCS Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a service listed in [Table 29](#).

**Table 29 SMARTnet for UCS Hardware Only Service**

| Product ID (PID)  | Service Level GSP | On Site? | Description                                |
|-------------------|-------------------|----------|--------------------------------------------|
| CON-UCW7-C240M3SF | UCW7              | Yes      | UC PLUS 24X7X40S UCS C240 M3 Server - SFF  |
| CON-UCW5-C240M3SF | UCW5              | Yes      | UC PLUS 8X5XNBDOS UCS C240 M3 Server - SFF |

### Unified Computing Partner Support Service

Cisco Partner Support Service (PSS) is a Cisco Collaborative Services service offering that is designed for partners to deliver their own branded support and managed services to enterprise customers. Cisco PSS provides partners with access to Cisco's support infrastructure and assets to help them:

- Expand their service portfolios to support the most complex network environments
- Lower delivery costs
- Deliver services that increase customer loyalty

Partner Unified Computing Support Options enable eligible Cisco partners to develop and consistently deliver high-value technical support that capitalizes on Cisco intellectual assets. This helps partners to realize higher margins and expand their practice.

PSS is available to all Cisco PSS partners, but requires additional specializations and requirements. For additional information, see the following URL:

[www.cisco.com/go/partnerucssupport](http://www.cisco.com/go/partnerucssupport)

The two Partner Unified Computing Support Options include:

- Partner Support Service for UCS
- Partner Support Service for UCS Hardware Only

Partner Support Service for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support.

See [Table 30](#).

**Table 30 Partner Support Service for UCS**

| Product ID (PID)  | Service Level GSP | On Site? | Description                                   |
|-------------------|-------------------|----------|-----------------------------------------------|
| CON-PSJ1-C240M3SF | PSJ1              | No       | UCS SUPP PSS 8X5XNBD UCS C240 M3 Server - SFF |
| CON-PSJ2-C240M3SF | PSJ2              | No       | UCS SUPP PSS 8X5X4 UCS C240 M3 Server - SFF   |
| CON-PSJ3-C240M3SF | PSJ3              | No       | UCS SUPP PSS 24X7X4 UCS C240 M3 Server - SFF  |
| CON-PSJ4-C240M3SF | PSJ4              | No       | UCS SUPP PSS 24X7X2 UCS C240 M3 Server - SFF  |

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See [Table 31](#).

**Table 31 Partner Support Service for UCS (Hardware Only)**

| Product ID (PID)  | Service Level GSP | On Site? | Description                                  |
|-------------------|-------------------|----------|----------------------------------------------|
| CON-PSW2-C240M3SF | PSW2              | No       | UCS W PL PSS 8X5X4 UCS C240 M3 Server - SFF  |
| CON-PSW3-C240M3SF | PSW3              | No       | UCS W PL PSS 24X7X4 UCS C240 M3 Server - SFF |
| CON-PSW4-C240M3SF | PSW4              | No       | UCS W PL PSS 24X7X2 UCS C240 M3 Server - SFF |

### Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SMARTnet services for UCS help increase the availability of your vital data center infrastructure and realize the most value from your unified computing investment. The more benefits you realize from the Cisco Unified Computing System (Cisco UCS), the more important the technology becomes to your business. These services allow you to:

- Optimize the uptime, performance, and efficiency of your UCS
- Protect your vital business applications by rapidly identifying and addressing issues
- Strengthen in-house expertise through knowledge transfer and mentoring
- Improve operational efficiency by allowing UCS experts to augment your internal staff resources
- Enhance business agility by diagnosing potential issues before they affect your operations

You can choose a service listed in [Table 32](#).

**Table 32 UCS Computing Combined Support Service**

| Product ID (PID)   | Service Level GSP | On Site? | Description                                    |
|--------------------|-------------------|----------|------------------------------------------------|
| CON-NCF2-C240M3SF  | NCF2              | No       | CMB SPT SVC 24X7X2 UCS C240 M3 Server - SFF    |
| CON-NCF2P-C240M3SF | NCF2P             | Yes      | CMB SPT SVC 24X7X2OS UCS C240 M3 Server - SFF  |
| CON-NCF4P-C240M3SF | NCF4P             | Yes      | CMB SPT SVC 24X7X4OS UCS C240 M3 Server - SFF  |
| CON-NCF4S-C240M3SF | NCF4S             | Yes      | CMB SPT SVC 8X5X4OS UCS C240 M3 Server - SFF   |
| CON-NCFCS-C240M3SF | NCFC              | Yes      | CMB SPT SVC 8X5XNBDOS UCS C240 M3 Server - SFF |
| CON-NCFE-C240M3SF  | NCFE              | No       | CMB SPT SVC 8X5X4 UCS C240 M3 Server - SFF     |
| CON-NCFP-C240M3SF  | NCFP              | No       | CMB SPT SVC 24X7X4 UCS C240 M3 Server - SFF    |
| CON-NCFT-C240M3SF  | NCFT              | No       | CMB SPT SVC 8X5XNBD UCS C240 M3 Server - SFF   |

#### 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 33](#).



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

Table 33 Drive Retention Service Options

| Service Description                           | Service Program Name | Service Level GSP | Service Level  | Product ID (PID)   |
|-----------------------------------------------|----------------------|-------------------|----------------|--------------------|
| SMARTnet for UCS Service with Drive Retention | UCS DR               | UCSD7             | 24x7x4 Onsite  | CON-UCSD7-C240M3SF |
|                                               |                      | UCSD7             | 8x5xNBD Onsite | CON-UCSD5-C240M3SF |
| SMARTnet for UCS HW ONLY+Drive Retention      | UCS HW+DR            | UCWD7             | 24x7x4 Onsite  | CON-UCWD7-C240M3SF |
|                                               |                      | UCWD5             | 8x5xNBD Onsite | CON-UCWD5-C240M3SF |

For more service and support information, see the following URL:

[http://www.cisco.com/en/US/services/ps2961/ps10312/Unified\\_Computing\\_Services\\_Overview.pdf](http://www.cisco.com/en/US/services/ps2961/ps10312/Unified_Computing_Services_Overview.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](http://www.cisco.com/en/US/products/ps10312/serv_group_home.html)

## OPTIONAL STEP - ORDER RACK(s)

The optional R42612 rack is available from Cisco for the C-Series servers, including the C240 M4 SFF server. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in [Table 34](#). Racks are shipped separately from the C240 M4 SFF server.

**Table 34 Racks and Rack Options**

| Product ID (PID) | PID Description                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RACK2-UCS        | Cisco R42612 expansion rack, no side panels.<br><br>This type of rack is used for multiple-rack deployments.                                                                                                                                                                                                                                                                                   |
| RACK2-UCS2       | Cisco R42612 static (standard) rack, with side panels.<br><br>This type of rack is used for single-rack and end of row deployments. Side panels are needed for racks at the ends of multiple-rack deployments. For example, when configuring a row of 5 racks, order 1 standard rack plus 4 expansion racks. Apply the side panels from the standard rack to the racks at each end of the row. |
| RACK-BLANK-001   | Blanking panels (qty 12), 1U, plastic, toolless.<br><br>Recommended to ensure proper airflow. Fill all empty RU spaces in the front of the rack. Because each blanking panel PID includes 12 panels, use the following calculation: 42RU - occupied RU = available RU. Divide available RU by 12 to determine PID order quantity.                                                              |
| RACK-CBLMGT-001  | Cable mgt D rings (qty 10), metal.<br><br>Use the D rings to bundle system cables to ensure proper airflow.                                                                                                                                                                                                                                                                                    |
| RACK-CBLMGT-003  | Brush strip (qty 1), 1 U.<br><br>The brush strip promotes proper airflow while allowing cables to be passed from the front to the rear of the rack.                                                                                                                                                                                                                                            |
| RACK-CBLMGT-011  | Cable mgt straps (qty 10), Velcro.<br><br>Use the Velcro straps to bundle system cables to ensure proper airflow.                                                                                                                                                                                                                                                                              |
| RACK-FASTEN-001  | Mounting screws (qty 100), M6.<br><br>The rack ships with nuts and screws, but extras may be ordered.                                                                                                                                                                                                                                                                                          |
| RACK-FASTEN-002  | Cage nuts (qty 50), M6.<br><br>The rack ships with nuts and screws, but extras may be ordered.                                                                                                                                                                                                                                                                                                 |
| RACK2-JOIN-001   | Rack joining kit.<br><br>Use the kit to connect adjacent racks within a row. Order 1 unit less than the number of racks in the row.                                                                                                                                                                                                                                                            |
| RACK2-GRND-001   | Cisco R42612 grounding kit                                                                                                                                                                                                                                                                                                                                                                     |

For more information about the R42612 rack, see [RACKS, page 85](#).

## OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers, including the C240 M4 server. This PDU is available in a zero rack unit (RU) style or horizontal PDU style (see [Table 35](#)). For more information about the PDU, see [PDUs, page 87](#).

**Table 35 Available PDUs**

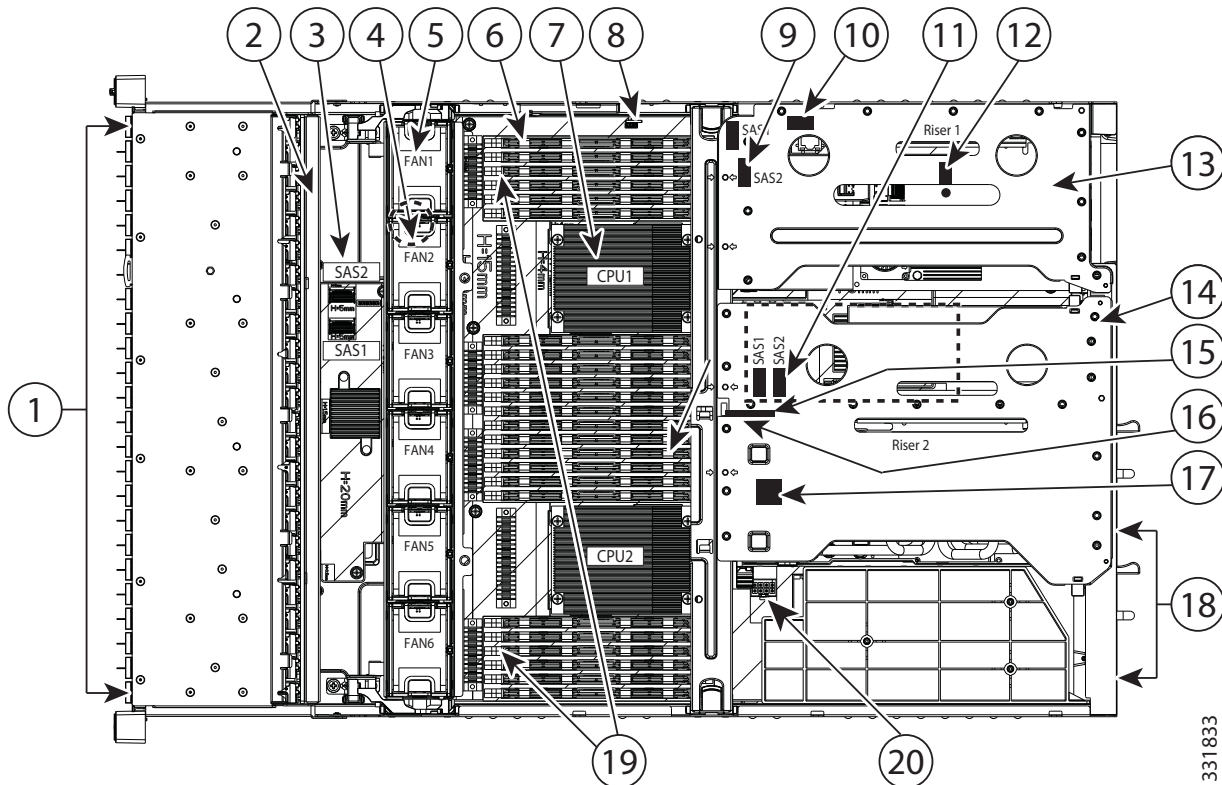
| Product ID (PID)                         | Description                                                                             | Plug              | Country       |
|------------------------------------------|-----------------------------------------------------------------------------------------|-------------------|---------------|
| <b>Zero-RU PDUs</b>                      |                                                                                         |                   |               |
| RP208-30M1P-6-36                         | 30 A, single-phase, vertical-mount PDU with 6 C19 and 36 C13 connectors                 | L6-30P            | North America |
| RP208-30M3P-6-30                         | 30 A, three-phase, vertical-mount PDU with 6 C19 and 30 C13 connectors                  | L15-30P           | North America |
| RP208-60M3P-12-9                         | 60 A, three-phase, vertical-mount PDU with 12 C19 and 9 C13 connectors                  | IEC60309<br>460P9 | North America |
| RP230-32M1P-6-36                         | 32 A, single-phase, button-mount (rear and sides) PDU with 6 C19 and 36 C13 connectors  | IEC60309<br>332P6 | International |
| RP230-32M3P-12-12                        | 32 A, single-phase, button-mount (rear and sides) PDU with 12 C19 and 12 C13 connectors | IEC60309<br>532P6 | International |
| <b>Horizontal PDUs (occupy RU space)</b> |                                                                                         |                   |               |
| RP208-30M1P-4-8<br>(1 RU space)          | 30 A, single-phase, horizontal-mount PDU with 4 C19 and 8 C13 connectors                | L6-30P            | North America |
| RP208-60M3P-12<br>(2 RU spaces)          | 48 A, three-phase, horizontal-mount PDU with 12 C19 connectors                          | L15-30P           | North America |

## SUPPLEMENTAL MATERIAL

### CHASSIS

An internal view of the C240 M3 chassis with the top cover removed is shown in [Figure 7](#).

**Figure 7 C240 M3 SFF With Top Cover Off**



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

|           |                                                         |           |                                                                                                           |
|-----------|---------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------|
| <b>8</b>  | SCU upgrade ROM header                                  | <b>18</b> | Power supplies (two, hot-swappable access through rear panel)                                             |
| <b>9</b>  | Integrated RAID on motherboard, and mini-SAS connectors | <b>19</b> | Supercap RAID data cache power backup unit mounting locations (two, on air baffle not shown in this view) |
| <b>10</b> | Software RAID key header                                | <b>20</b> | GPU-ready power connector                                                                                 |

## CPUs and DIMMs

### Physical Layout

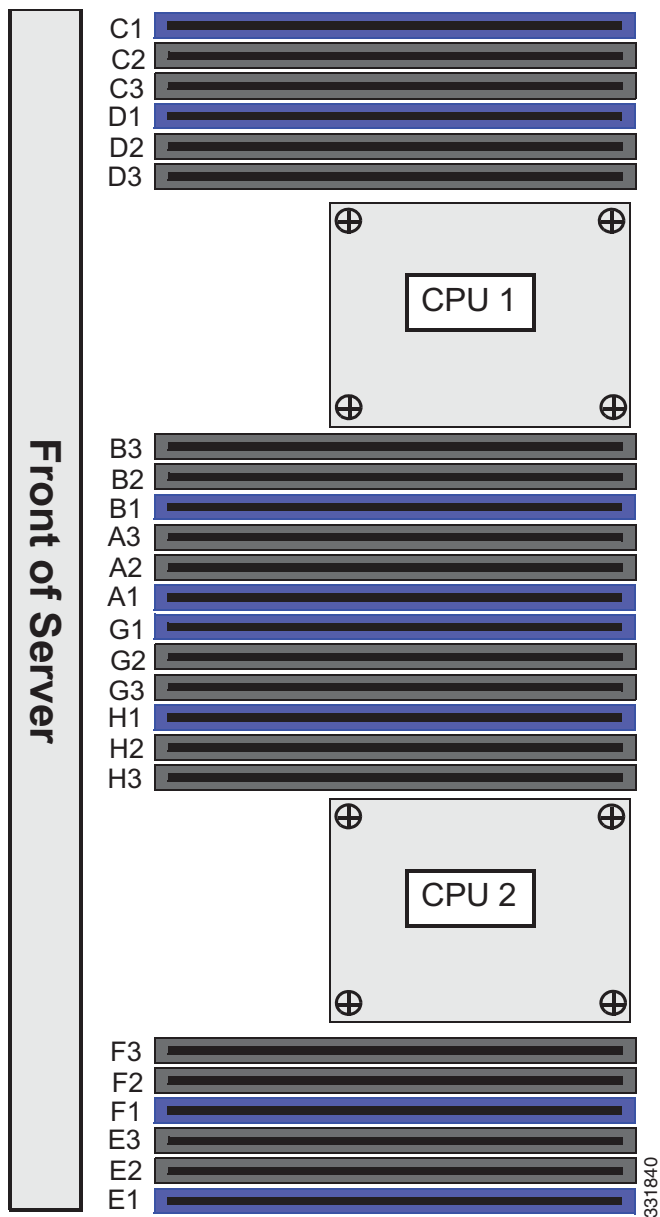
Each CPU has four DIMM channels:

- 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 8** 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 8** 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:

- 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 rules shown in [Table 36](#)

**Table 36 DIMM Rules for C240 M3 Servers**

| DIMM Parameter                         | DIMMs in the Same Channel                                                                               | DIMM in the Same Bank <sup>a</sup>                                                                        |
|----------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <u>DIMM Capacity</u>                   |                                                                                                         |                                                                                                           |
| RDIMM = 4, 8, or 16 GB                 | DIMMs in the same channel (for example, A1, A2, A3) can have different capacities.                      | For best performance, DIMMs in the same bank (for example, A1, B1, C1, D1) should have the same capacity. |
| LRDIMM = 32 GB                         | You cannot mix 32 GB LRDIMMs with any RDIMM or UDIMM                                                    | You cannot mix 32 GB LRDIMMs with any RDIMM or UDIMM                                                      |
| UDIMM = 4 GB                           | You cannot mix 4 GB UDIMMs with any RDIMM or LRDIMM                                                     | You cannot mix 4 GB UDIMMs with any RDIMM or LRDIMM                                                       |
| <u>DIMM Speed</u>                      |                                                                                                         |                                                                                                           |
| 1866-, 1600-, or 1333-MHz <sup>b</sup> | DIMMs will run at the lowest speed of the DIMMs/CPU installed                                           | DIMMs will run at the lowest speed of the DIMMs/CPU installed                                             |
| <u>DIMM Type</u>                       |                                                                                                         |                                                                                                           |
| RDIMMs, LRDIMMs, or UDIMMs             | You cannot mix DIMM types in a channel                                                                  | You cannot mix DIMM types in a bank                                                                       |
| DIMMs per Channel (DPC)                | <b>1 DPC or 2 DPC</b>                                                                                   | <b>3 DPC</b>                                                                                              |
|                                        | See <a href="#">Table 6 on page 20</a> for valid LRDIMM and RDIMM 1 DPC and 2 DPC memory configurations | See <a href="#">Table 6 on page 20</a> for valid LRDIMM and RDIMM 3 DPC configurations                    |
|                                        | UDIMMs run at 1066 MHz at 1.35 V and 1333 MHz at 1.5 V                                                  | 3 DPC is not supported for UDIMMs                                                                         |

**Notes . . .**

- a. Although you can have different DIMM capacities in the same bank, this will result in less than optimal performance. For optimal performance, all DIMMs in the same bank should be identical.
- b. Only 1866-, 1600-, and 1333-MHz DIMMs are currently available for the C240 M3 server.

## DIMM Population Order

Populate the DIMMs for a CPU according to [Table 37](#).

**Table 37** DIMM Population Order per CPU

| DIMMs per CPU | Populate CPU 1 Slots                                | Populate CPU 2 Slots                                |
|---------------|-----------------------------------------------------|-----------------------------------------------------|
| 1             | A1                                                  | E1                                                  |
| 2             | A1, B1                                              | E1, F1                                              |
| 3             | A1, B1, C1                                          | E1, F1, G1                                          |
| 4             | A1, B1, C1, D1                                      | E1, F1, G1, H1                                      |
| 8             | A1, B1, C1, D1,<br>A2, B2, C2, D2                   | E1, F1, G1, H1,<br>E2, F2, G2, H2                   |
| 12            | A1, B1, C1, D1,<br>A2, B2, C2, D2<br>A3, B3, C3, D3 | E1, F1, G1, H1,<br>E2, F2, G2, H2<br>E3, F3, G3, H3 |

## 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 clock rates in a channel
  - 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 38](#) when populating 1600- and 1866-MHz DIMMs for Intel Xeon E5-2600 v2 CPUs and [Table 39](#) when populating 1600-MHz DIMMs for Intel Xeon E5-2600 CPUs.



**NOTE:** These tables list only some recommended and suggested configurations. There are numerous other possible configurations supported by Cisco. Cisco supports all mixing and population configurations of the Cisco DIMMs as long as the mixing does not violate the few fundamental rules noted in this document.

**Table 38 Recommended Memory Configurations for Intel Xeon E5-2600 v2 CPUs (with 1600- and 1866-MHz DIMMs)<sup>a</sup>**

| 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                           | —                                 | —                                 | N/A <sup>b</sup>     | 8           |
|                          | 2x8 GB                           | —                                 | —                                 | 2x8 GB                           | —                                 | —                                 | 1866                 | 4           |
| 64 GB                    | 4x4 GB                           | 4x4 GB                            | —                                 | 4x4 GB                           | 4x4 GB                            | —                                 | N/A <sup>2</sup>     | 16          |
|                          | 4x8 GB                           | —                                 | —                                 | 4x8 GB                           | —                                 | —                                 | 1866                 | 8           |
| 96 GB                    | 4x4 GB                           | 4x4 GB                            | 4x4 GB                            | 4x4 GB                           | 4x4 GB                            | 4x4 GB                            | N/A <sup>2</sup>     | 24          |
|                          | 3x16 GB                          | —                                 | —                                 | 3x16 GB                          | —                                 | —                                 | 1866                 | 6           |
|                          | 4x8 GB                           | 4x4 GB                            | —                                 | 4x8 GB                           | 4x4 GB                            | —                                 | N/A <sup>2</sup>     | 16          |

**Table 38 Recommended Memory Configurations for Intel Xeon E5-2600 v2 CPUs (with 1600- and 1866-MHz DIMMs)<sup>a</sup>**

| 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) |                      |             |
| 128 GB                   | 4x8 GB                           | 4x8 GB                            | —                                 | 4x8 GB                           | 4x8 GB                            | —                                 | 1866                 | 16          |
|                          | 4x16 GB                          | —                                 | —                                 | 4x16 GB                          | —                                 | —                                 | 1866                 | 8           |
| 192 GB                   | 4x8 GB                           | 4x8 GB                            | 4x8 GB                            | 4x8 GB                           | 4x8 GB                            | 4x8 GB                            | 1333                 | 24          |
|                          | 4x16 GB                          | 4x8 GB                            | —                                 | 4x16 GB                          | 4x8 GB                            | —                                 | 1866                 | 16          |
| 256 GB                   | 4x16 GB                          | 4x16 GB                           | —                                 | 4x16 GB                          | 4x16 GB                           | —                                 | 1866                 | 16          |
|                          | 4x32 GB                          | —                                 | —                                 | 4x32 GB                          | —                                 | —                                 | 1866                 | 8           |
| 384 GB                   | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 1333                 | 24          |
| 512 GB                   | 4x32 GB                          | 4x32 GB                           | —                                 | 4x32 GB                          | 4x32 GB                           | —                                 | 1866                 | 16          |
| 768 GB                   | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 1333                 | 24          |

Notes . . .

- a. Rows marked in yellow indicate best performance.
- b. 1866-MHz 4 GB DIMMs are not offered.

**Table 39 Recommended Memory Configurations for Intel Xeon E5-2600 CPUs ( with 1600-MHz DIMMs).<sup>a</sup>**

| 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           |

**Table 39 Recommended Memory Configurations for Intel Xeon E5-2600 CPUs ( with 1600-MHz DIMMs).<sup>a</sup>**

| 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) |                      |             |
| 96 GB                    | 4x4 GB                           | 4x4 GB                            | 4x4 GB                            | 4x4 GB                           | 4x4 GB                            | 4x4 GB                            | 1066                 | 24          |
|                          | 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                            | 1333                 | 24          |
|                          | 4x16 GB                          | 4x8 GB                            | —                                 | 4x16 GB                          | 4x8 GB                            | —                                 | 1600                 | 16          |
| 256 GB                   | 4x16 GB                          | 4x16 GB                           | —                                 | 4x16 GB                          | 4x16 GB                           | —                                 | 1600                 | 16          |
|                          | 4 x 32 GB                        | —                                 | —                                 | 4 x 32 GB                        | —                                 | —                                 | 1600                 | 8           |
| 384 GB                   | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 4x16 GB                          | 4x16 GB                           | 4x16 GB                           | 1333                 | 24          |
| 512 GB                   | 4x32 GB                          | 4x32 GB                           | —                                 | 4x32 GB                          | 4x32 GB                           | —                                 | 1333                 | 16          |
| 768 GB                   | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 4x32 GB                          | 4x32 GB                           | 4x32 GB                           | 1066                 | 24          |

**Notes . . .**

a. Rows marked in yellow indicate best performance.

## Additional DIMM Populations

The list in [Table 40](#) is not a complete list of all supported DIMM populations, but highlights common configuration options.

**Table 40 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                     |
| 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                     |
| 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                    |
| 11 x 8 GB      | 11                    | 88 GB          | 11 x 8 GB      | 11                    | 88 GB          | 176 GB                    |
| 4x8GB + 4x16GB | 8                     | 96 GB          | 4x8GB + 4x16GB | 8                     | 96 GB          | 192 GB                    |

Table 40 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 |
|-------------|-----------------------|----------------|-------------|-----------------------|----------------|---------------------------|
| 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                    |
| 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 Details

The available RAID configurations are shown in this section.

### (1) 1-CPU Configurations

- For a 24-drive backplane system, select one of the following:
  - One internal drive RAID controller from [Table 9 on page 25](#)
  - One external drive RAID controller from [Table 9 on page 25](#)

You may also select an appropriate optional RAID configuration listed in [Table 9 on page 25](#).

- For a 16-drive backplane system, select one of the following:
  - One embedded RAID option from [Table 7 on page 23](#)
  - One internal drive RAID controller from [Table 9 on page 25](#)
  - One external drive RAID controller from [Table 9 on page 25](#)

You may also select an appropriate optional RAID configuration listed in [Table 9 on page 25](#).



**NOTE:** In 1-CPU configurations, PCIe slot 3 is the default slot supported for an internal drive RAID controller. PCIe slots 1 or 2 can be used for one external drive RAID controller or for PCIe expansion cards. PCIe slots 4 and 5 are not supported for 1-CPU systems. You can change the default card slot for a RAID controller to a different slot by going into the BIOS and reconfiguring the option ROM (OPROM) settings.

### (2) 2-CPU Configurations

- For a 24-drive backplane system, select one of the following:
  - One mezzanine RAID controller from [Table 8 on page 24](#)
  - One internal drive RAID controller from [Table 9 on page 25](#)
  - One external drive RAID controller from [Table 9 on page 25](#)
  - One mezzanine RAID controller from [Table 8 on page 24](#) and one external PCIe RAID controller from [Table 9 on page 25](#)
  - One internal drive RAID controller from [Table 9 on page 25](#) and one external PCIe RAID controller from [Table 9 on page 25](#)

You may also select an appropriate optional RAID configuration listed in [Table 9 on page 25](#).

- For a 16-drive backplane system, select one of the following:
  - An embedded RAID option from [Table 7 on page 23](#)
  - One mezzanine RAID controller from [Table 8 on page 24](#)
  - One internal drive RAID controller from [Table 9 on page 25](#)

- Two internal drive RAID controllers from [Table 9 on page 25](#)
- One external drive RAID controller from [Table 9 on page 25](#)
- One mezzanine RAID controller from [Table 8 on page 24](#) and one external PCIe RAID controller from [Table 8 on page 24](#)
- One internal drive RAID controller from [Table 8 on page 24](#) and one external drive PCIe RAID controller from [Table 8 on page 24](#)

You may also select an appropriate optional RAID configuration listed in [Table 9 on page 25](#).



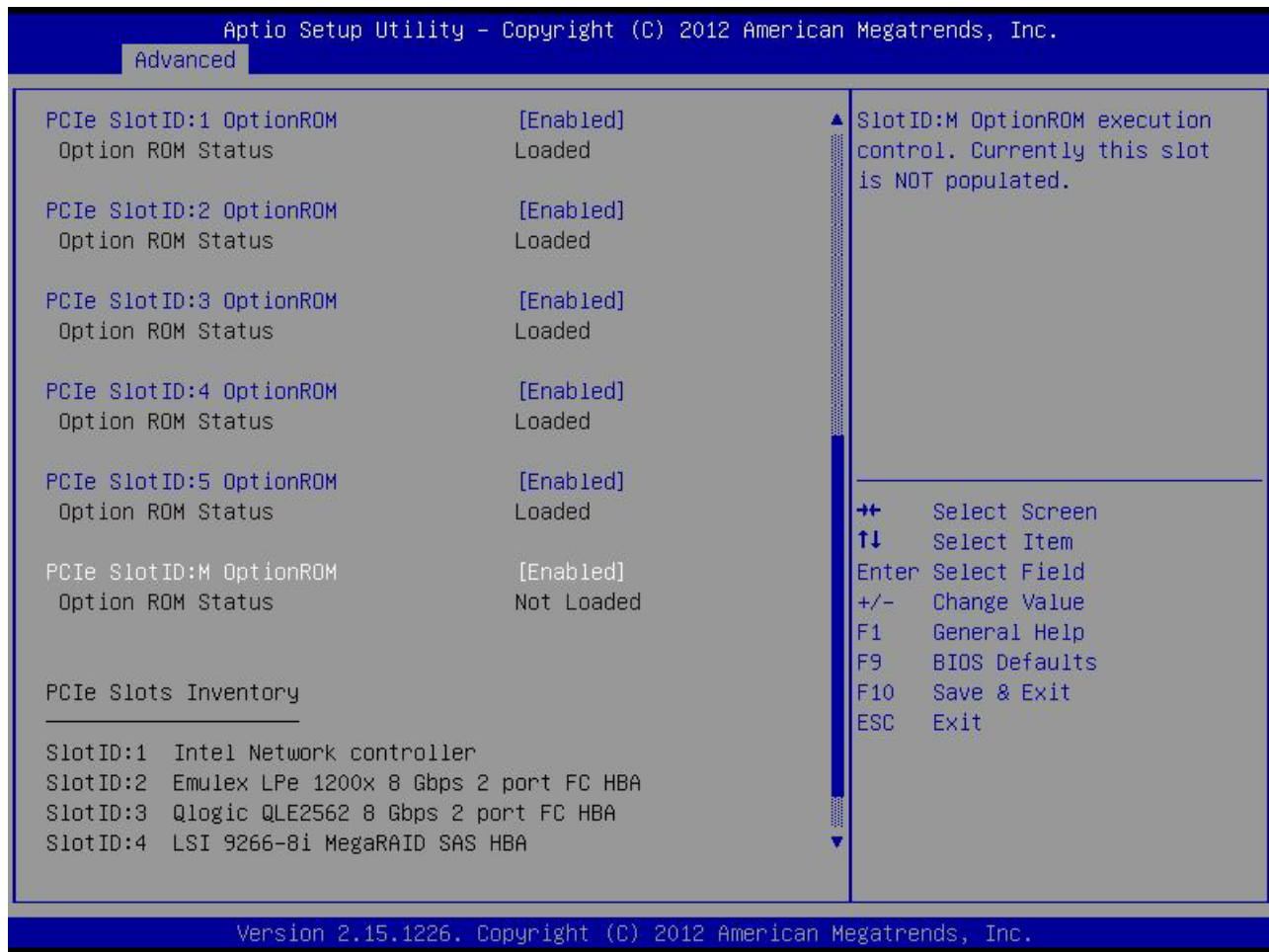
**NOTE:** In 2-CPU 24 HDD backplane configurations, PCIe slot 4 is the default slot supported for an internal drive RAID controller. In 2-CPU 16 HDD backplane configurations, PCIe slots 4 and 3 are the default slots supported for internal drive RAID controllers. The remaining slots can be used for one external drive RAID controller or PCIe expansion cards. You can change the default card slot for a RAID controller to a different slot by going into the BIOS and reconfiguring the option ROM (OPROM) settings.

---

## RAID Option ROM (OPROM) Settings

The server contains an Option ROM (OPROM) for the PCIe slots. The server has a finite amount of option ROM with which it can boot up devices. Go into the BIOS and disable the OPROM on the PCIe slots not used for booting so that resources are available for the slots that are used for booting. An example OPROM BIOS screen is shown in [Figure 9](#).

**Figure 9** Example BIOS Screen for OPROM

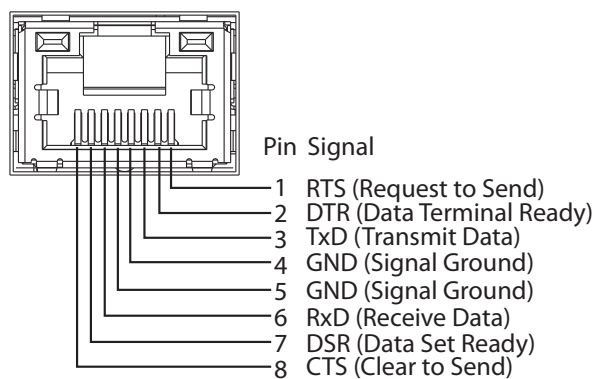


## Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in [Figure 10](#).

**Figure 10** Serial Port (Female RJ-45 Connector) Pinout

### Serial Port (RJ-45 Female Connector)



## Upgrade and Servicing-Related Parts

This section lists the upgrade and servicing-related parts you may need during the life of your server. Some of these parts are configured with every server, and some may be ordered when needed or may be ordered and kept on hand as spares for future use. See [Table 41](#).

**Table 41 Upgrade and Servicing-related Parts for UCS C240 M3 SFF Server**

| Spare Product ID (PID)                                                                                                                                                                                                                                                                                                            | Description                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N20-BBLKD=                                                                                                                                                                                                                                                                                                                        | 2.5-inch HDD Blanking Panel <sup>a</sup>                                                                                                                                                                                                     |
| UCSC-CABLE2=                                                                                                                                                                                                                                                                                                                      | Set of four spare SAS/SATA cables for C240 M3 SFF (2.5-in) containing a 16-drive backplane (with no backplane expander). Note that four cables are required to connect up to 16 drives via two LSI SAS MegaRAID 9271-8i or 9271CV-8i cards.  |
| UCSC-CABLE6=                                                                                                                                                                                                                                                                                                                      | Set of two spare SAS/SATA cables for a C240 M3 SFF (2.5-in) containing a 24-drive backplane with SAS expander. Note that a maximum of two cables are required to connect up to 24 drives via one LSI SAS MegaRAID 9271-8i or 9271CV-8i card. |
| UCSC-PCIF-01H=                                                                                                                                                                                                                                                                                                                    | PCIe Low Profile blanking panel for UCS C-Series Server                                                                                                                                                                                      |
| UCSC-PCIF-01F=                                                                                                                                                                                                                                                                                                                    | PCIe Full Height blanking panel for UCS C-Series Server                                                                                                                                                                                      |
| UCSC-HS-C240M3=                                                                                                                                                                                                                                                                                                                   | Heat Sink for UCS C240 M3 Rack Server <sup>1</sup>                                                                                                                                                                                           |
| UCS-CPU-LPCVR=                                                                                                                                                                                                                                                                                                                    | CPU load plate dust cover (for unpopulated CPU sockets)                                                                                                                                                                                      |
| UCSC-AIRBAF-C240=                                                                                                                                                                                                                                                                                                                 | Air Baffle Replacement Kit for C240 M3 Server <sup>1</sup>                                                                                                                                                                                   |
| N20-MBLIBATT=                                                                                                                                                                                                                                                                                                                     | Replacement Lithium Battery for Server Motherboard (CR2032) <sup>1</sup>                                                                                                                                                                     |
| UCS-RAID-BBU=                                                                                                                                                                                                                                                                                                                     | Battery Back-Up for 9266 <sup>b</sup>                                                                                                                                                                                                        |
| <div>  <p><b>CAUTION:</b> If one of your RAID cards is equipped with a battery backup unit (BBU), be aware that hot swapping the BBU is not supported. Please perform a graceful shutdown of the server prior to replacing the BBU.</p> </div> |                                                                                                                                                                                                                                              |
| UCS-RAID-CV-SC=                                                                                                                                                                                                                                                                                                                   | LSI CacheVault Power Module for 9266CV-8i, 9271CV-8i, 9285CV-8e and 9286CV-8e <sup>c</sup>                                                                                                                                                   |
| UCSC-PSU-BLKP=                                                                                                                                                                                                                                                                                                                    | Power supply blanking panel/filler for C-Series Servers                                                                                                                                                                                      |
| UCSC-RAIL-2UB=                                                                                                                                                                                                                                                                                                                    | Ball bearing rail kit for C240 rack servers                                                                                                                                                                                                  |
| UCSC-CMA2B                                                                                                                                                                                                                                                                                                                        | Reversible cable management arm for C240 ball bearing rail kit                                                                                                                                                                               |
| UCSC-RAIL-2U=                                                                                                                                                                                                                                                                                                                     | Friction Rail Kit for C240, C260 rack servers                                                                                                                                                                                                |
| UCSC-CMA2=                                                                                                                                                                                                                                                                                                                        | Reversible Cable Management Arm for C240 & C260 friction rail kit                                                                                                                                                                            |
| UCSC-RAIL-2U-I=                                                                                                                                                                                                                                                                                                                   | Inner rail spare for C240 and C260 friction rail kit <sup>d</sup>                                                                                                                                                                            |

**Table 41 Upgrade and Servicing-related Parts for UCS C240 M3 SFF Server**

| Spare Product ID (PID) | Description                                                                      |
|------------------------|----------------------------------------------------------------------------------|
| UCS-SD-32G-S=          | Blank SD Card for UCS servers <sup>e</sup>                                       |
| UCS-USBFLSH-S-4GB=     | 4GB SLC Flash USB Drive (shorter) for all servers except C260                    |
| N20-BKVM=              | KVM local IO cable for UCS servers console port <sup>f</sup>                     |
| UCS-CPU-EP-PNP=        | Pick n place CPU tools for M3/EP 10/8/6/4/2 core CPUs (Green) <sup>g</sup>       |
| UCS-CPU-EP2-PNP=       | Pick n place CPU tools for M3/EP v2 12 core CPUs (Purple) <sup>h</sup>           |
| UCS-CPU-GREASE2=       | Thermal grease-for 2 CPUs-only for C220/C240-Red tip syringe <sup>8</sup>        |
| UCSX-HSCK=             | UCS Processor Heat Sink Cleaning Kit (when replacing a CPU) <sup>8</sup>         |
| UCSC-CPL-C240=         | UCS C240 Control Panel/Slam Latch Kit (right & left) for 2.5-inch chassis        |
| C260-FAN-001=          | Fan assembly for C260 and C240 servers                                           |
| UCSC-GPUKIT1-C240=     | C240 GPU Upgrade Kit for NVIDIA GPU w/ two PCIe risers, mid-brace & power cables |
| UCSC-GPUCBL-88Y=       | 8 TO 8 PIN Y GPU PWR CABLE DUAL K1-K2 C240 NEW MB                                |
| UCSC-GPUCBL-88S=       | 8 TO 8 PIN STRAIGHT GPU PWR CABLE K1-K2 C240 NEW MB                              |
| UCSC-GPUCBL-KIT=       | GPU power cable kit with adapter cable plus 8 to 8 pin Y and straight cables     |
| UCSC-AIRBAF-C240=      | Air Baffle Replacement Kit for C240 M3 Server (services spare only)              |

**Notes . . .**

- This part is included/configured with your UCS server (in some cases, as determined by the configuration of your server).
- If your server contains an LSI MegaRAID SAS 9266-8i RAID controller card with battery backup (UCS-RAID-9266), the card contains a battery backup unit (UCS-RAID-BBU), which can be replaced. If your server contains an LSI MegaRAID SAS 9266-8i RAID controller card without a battery backup unit (UCS-RAID-9266NB), the card does not contain a battery backup unit (UCS-RAID-BBU); however, you can retrofit the card with a battery backup if desired. Note that you *cannot* retrofit a UCS-RAID-9266NB or UCS-RAID-9266 RAID card with an LSI Cachevault Power Module (also known as a Supercap).
- You can order a replacement only for the RAID cards listed. You cannot retrofit a UCS-RAID-9266NB or UCS-RAID-9266 RAID card with an LSI Cachevault Power Module (also known as a Supercap)
- The server is shipped with the inner rail attached to the chassis.
- This SD card is blank. The required image for the C240 server can be downloaded to the card.
- This part is included/configured with the server chassis.
- This part is included with the purchase of each optional or spare Intel Xeon E5-2600 CPU processor kit.
- This part is included with the purchase of each optional or spare Intel Xeon E5-2600 v2 CPU processor kit.

**Drive Blanking Panels**

A drive blanking panel (N20-BBLKD=) must be installed if you remove a disk drive from a UCS server. These panels are required to maintain system temperatures at safe operating levels, and to keep dust away from system components.

## Upgrading your Server from Intel Xeon E5-2600 to Intel Xeon E5-2600 v2 CPUs (or downgrading from Intel Xeon E5-2600 v2 to Intel Xeon E5-2600 CPUs)

See the following link:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/hw/CPU/IVB/install/IVB-B.html](http://www.cisco.com/en/US/docs/unified_computing/ucs/hw/CPU/IVB/install/IVB-B.html)

## Adding an Additional CPU (with CPU heat sink)

All Cisco UCS two CPU socket-capable servers can be upgraded from having one to having two CPUs configured. You will need to order and install a heat sink when adding any additional CPU to a server. Instructions for installing the new CPU and heat sink can be found at the following link:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/hw/C240/install/replace.html#wp1233864](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864)

## Motherboard Lithium Battery

You can order a replacement motherboard battery. Installation instructions are found at this link:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/hw/C240/install/replace.html#wp1307315](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1307315)

## CPU Removal and Installation (“pick n place”) Tool Set

The Pick n Place tool set includes two tools:

- Pick and pull cap tool - used to pull off the plastic protective cap covering an empty CPU socket and to remove or lift a CPU processor without touching it
- Pick and place tool - used to install a CPU in its socket without damage. Must be used each time a CPU is installed in a UCS “M3” server.

Instructions for using this tool set are found at the following link:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/hw/C240/install/replace.html#wp1233864](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864)



**NOTE:** When you purchase a spare CPU, the Pick n Place Toolkit is included.

---

## Thermal Grease (with syringe applicator) for CPU to Heatsink Seal

Thermal grease must be applied to the top of the CPU where it comes in contact with the heat sink. Instructions for applying thermal grease are found at:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/hw/C240/install/replace.html#wp1233864](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864)



**CAUTION:** Use only the thermal grease specified for this server (UCS-CPU-GREASE2=). This thermal grease comes in a red-tipped syringe and is to be used only in the C220 M3 and C240 M3 servers. Other servers use thermal grease in a blue-tipped syringe (UCS-CPU-GREASE=).

Thermal grease for other systems may have different thermal conductivity properties and may cause overheating if used in the C220 M3 or C240 M3 servers.

**DO NOT** use thermal grease available for purchase at any commercial electronics store. If these instructions are not followed, the CPU may overheat and be destroyed.

**CAUTION:**



**NOTE:** When you purchase a spare CPU, the thermal grease with syringe applicator is included.

---

## Air Baffle Replacement Kit

Air baffles are designed to direct airflow through the server to maintain server temperature at a safe operating level. These baffles must always remain installed during server operation. The Air Baffle Replacement Kit includes the air baffles needed for one UCS C240 M3 server.

## CPU Heat Sink Cleaning Kit

The cleaning kit is used to remove the existing thermal compound from the bottom of the heat sink during a CPU replacement process. Instructions for cleaning are found at the following link:

[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/hw/C240/install/replace.html#wp1233864](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864)



**NOTE:** When you purchase a spare CPU, the CPU cleaning kit is included.

## RACKS

The Cisco R42612 rack (see [Figure 11 on page 86](#)) is certified for Cisco UCS installation at customer sites and is suitable for the following equipment:

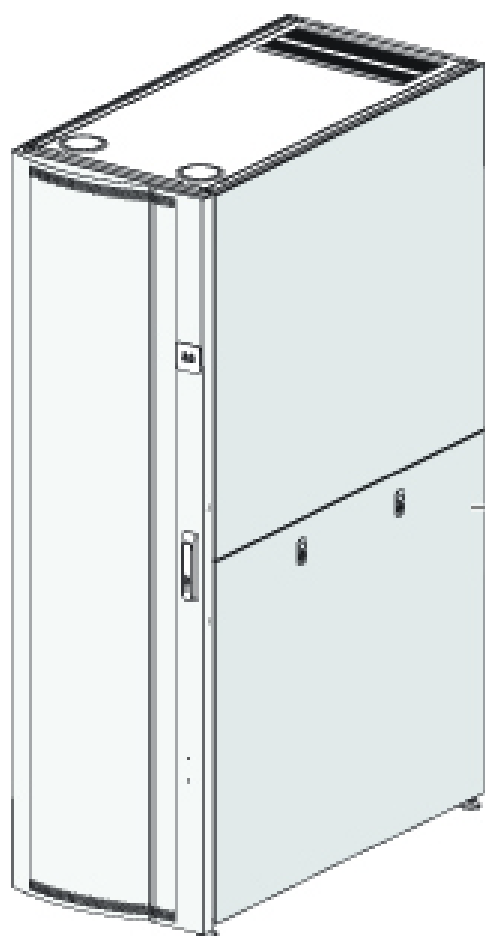
- Cisco UCS B-Series servers and fabric interconnects
- Cisco UCS C-Series and select Nexus switches

The rack is compatible with hardware designed for EIA-standard 19-inch racks. Rack specifications are listed in [Table 42](#).

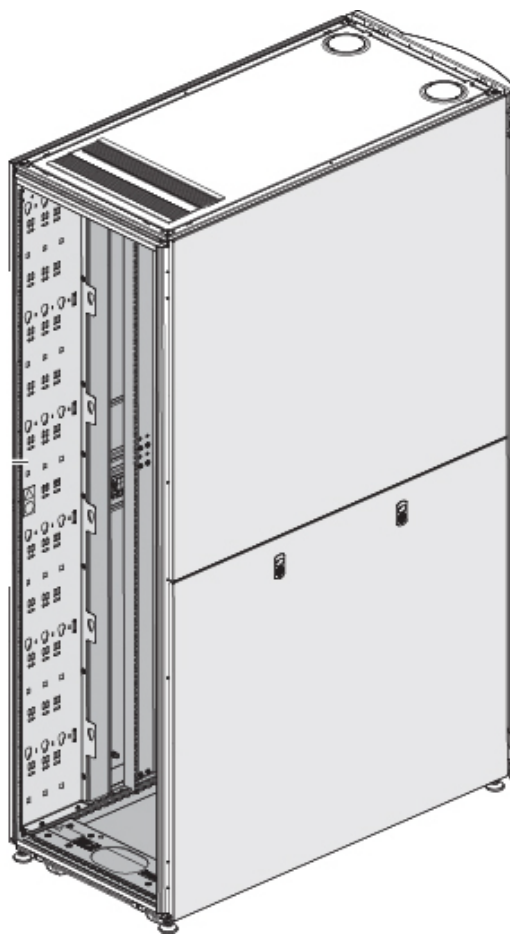
**Table 42 R42612 Specifications**

| Cisco R42612 Rack                                             | Standard<br>(Static with side panels)               | Expansion<br>(Static without Side Panels)           |
|---------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| Dimensions<br>(H x W x D)                                     | 79.25 x 23.50 x 49.84 in.<br>(2013 x 597 x 1266 mm) | 79.25 x 23.50 x 49.84 in.<br>(2013 x 597 x 1266 mm) |
| Dimensions<br>(H x W x D)<br>with packaging                   | 84.25 x 32 x 54.84 in.<br>(2140 x 813 x 1393 mm)    | 84.25 x 32 x 54.84 in.<br>(2140 x 813 x 1393 mm)    |
| Distance from front<br>mounting rail to rear<br>mounting rail | 29.19 in. (741.5 mm)                                | 29.19 in. (741.5 mm)                                |
| Weight                                                        | 339.51 lb (154 kg)                                  | 264.55 lb (120 kg)                                  |
| Weight with<br>packaging                                      | 410.06 lb (186 kg)                                  | 335.10 lb (152 kg)                                  |
| Side panels included                                          | Yes                                                 | No                                                  |
| Equipment mounting<br>capacity                                | 42 RU                                               | 42 RU                                               |
| Static load capacity                                          | 2700 lb (1224.7 kg)                                 | 2700 lb (1224.7 kg)                                 |
| Dynamic load<br>capacity                                      | N/A                                                 | N/A                                                 |

Figure 11 Cisco R42612 Rack



Front View



Rear View

## PDU

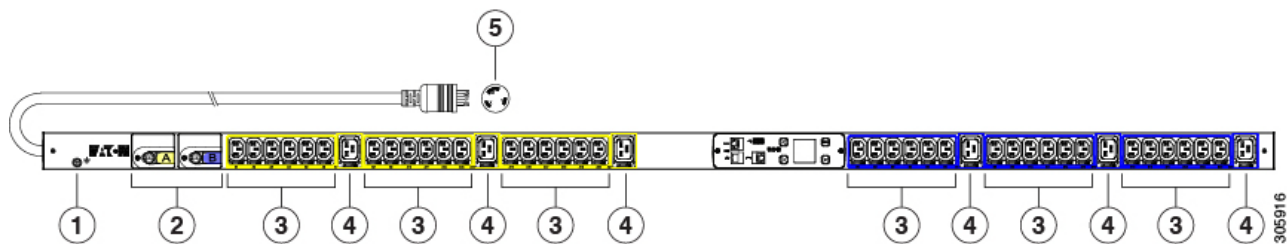
Cisco RP Series Power Distribution Units (PDUs) offer power distribution with branch circuit protection.

Cisco RP Series PDU models distribute power to up to 42 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) or horizontal PDU. See [Figure 12](#) for one example of a zero rack unit PDU.

**Figure 12** RP208-30M1P-6-36 PDU



1 = Ground

2 = 20 A circuit breakers

3 = IEC 60320 C13 outlets

4 = EC 60320 C19 outlets

5 = NEMA L6-30P plug

KVM CABLE

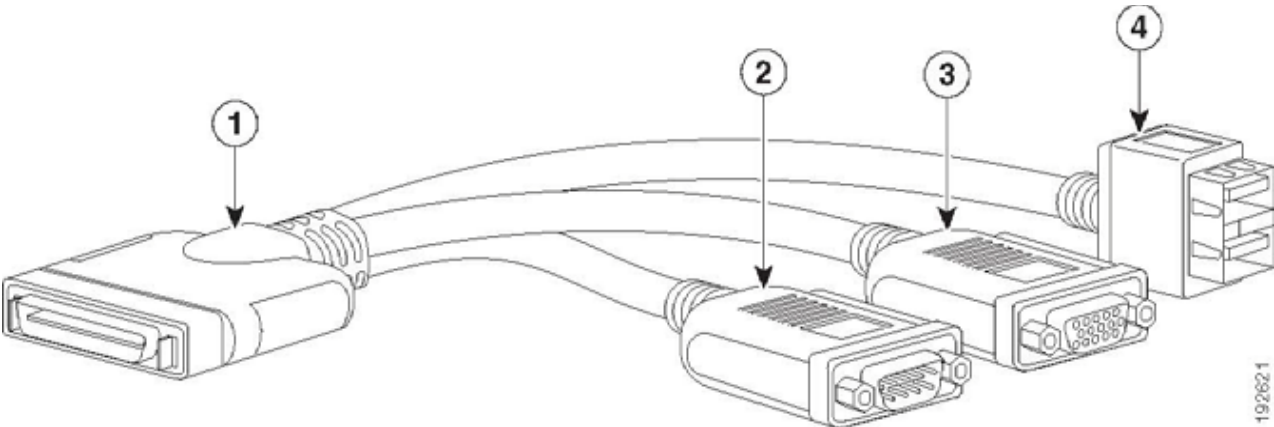
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB 2.0 ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 43](#).

Table 43 KVM Cable

| Product ID (PID) | PID Description                   |
|------------------|-----------------------------------|
| N20-BKVM         | KVM cable for server console port |

Figure 13 KVM Cable

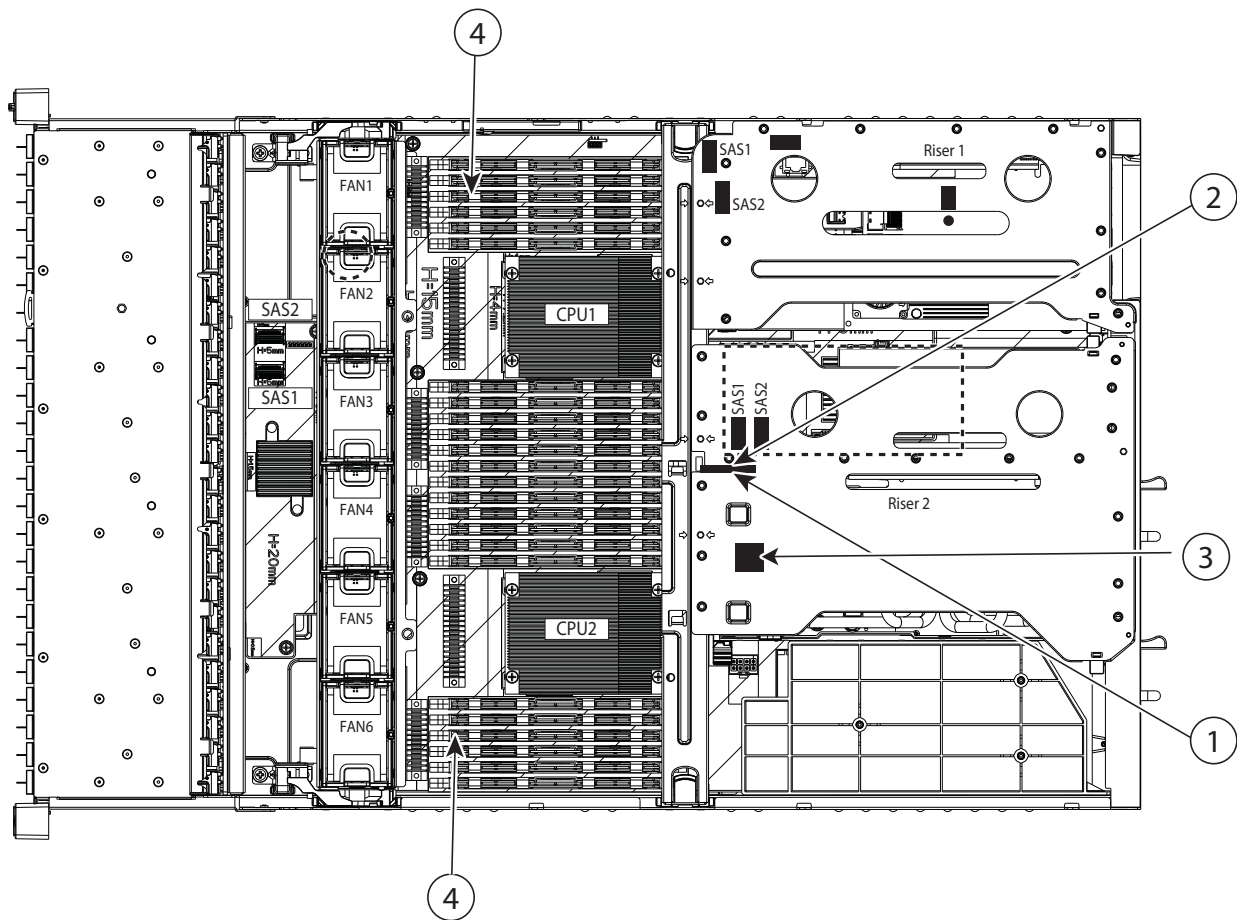


|   |                                   |   |                                                       |
|---|-----------------------------------|---|-------------------------------------------------------|
| 1 | Connector (to server front panel) | 3 | VGA connector (for a monitor)                         |
| 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 14*. The mounting locations for RAID card backup are also shown

Figure 14     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 44 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 <sup>a</sup>                                   |                      |
| Maximum (24 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 . . .**

- a. 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 three types of power supplies:

- 650 W (AC)
- 1200 W (AC)
- 930 W (DC)

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

- 650 W (AC) power supply (see [Table 45](#)).
- 1200 W (AC) power supply (see [Table 46](#)).
- 930 W (DC) power supply (see [Table 47](#)).

**Table 45 UCS C240 M3 SFF Power Specifications 650 W AC 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                  | 11 A                                                  |
| Maximum AC input current                   | 7.6 A peak at 100 VAC<br>3.65 A peak at 208 VAC       |
| Maximum output power for each power supply | 650 W                                                 |
| Power supply output voltage                | Main power: 12 VDC<br>Standby power: 12 VDC           |
| Power supply efficiency                    | CSCI Platinum                                         |



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

**Table 46 UCS C240 M3 SFF Power Specifications 1200 W AC 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<br>7 A peak at 208 VAC           |
| Maximum output power for each power supply | 1200 W at 200 to 240 V<br>800 W at 100 to 120 V       |
| Power supply output voltage                | Main power: 12 VDC<br>Standby power: 12 VDC           |
| Power supply efficiency                    | CSCI Platinum                                         |



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

**Table 47 UCS C240 M3 SFF Power Specifications 930 W DC power supply)**

| Description                          | Specification                                       |
|--------------------------------------|-----------------------------------------------------|
| Class                                | ■ RSP1                                              |
| <b>Input</b>                         |                                                     |
| DC input voltage range               | ■ 40 to 72 VDC (self-ranging, 48 to 60 VDC nominal) |
| DC line input current (steady state) | ■ 23 A peak at 48 VDC                               |
| <b>Output</b>                        |                                                     |
| 12 V main power output               | ■ 930 W                                             |
| 12 V standby power output            | ■ 30 W                                              |
| Power supply output voltage          | ■ Main power: 12 VDC<br>■ Standby power: 12 VDC     |
| Rated output load                    | ■ 2.5 A minimum (within 40 - 72 VDC range)          |

**Table 48 UCS C240 M3 SFF Power Specifications (930 W DC V2 power supply)**

| Description                           | Specification                                                    |
|---------------------------------------|------------------------------------------------------------------|
| AC input voltage                      | Voltage Range: -48 to -60 VDC nominal<br>(range: -40 to -60 VDC) |
| Max DC Input current                  | 23 A at -48 VDC                                                  |
| Maximum Input Power                   | 1104 W at -48 VDC                                                |
| Maximum output power per power supply | 930 W                                                            |
| Maximum inrush current                | 35 A (sub cycle duration)                                        |
| Maximum hold up time                  | 4 ms @ 930 W                                                     |
| Power supply output voltage           | 12 VDC                                                           |
| Power supply standby voltage          | 12 VDC                                                           |
| Efficiency rating                     | > 92% at 50% Load                                                |
| Form Factor                           | RSP1                                                             |

**Table 48 UCS C240 M3 SFF Power Specifications (930 W DC V2 power supply) (continued)**

| Description     | Specification                             |
|-----------------|-------------------------------------------|
| Input connector | 3 wire Connector (Molex MINIFIT SR. R/A ) |

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

<http://ucspowercalc.cisco.com>.

## Environmental Specifications

The power specifications for the C240 M3 server are listed in [Table 49](#).

**Table 49 UCS C240 M3 Environmental Specifications**

| Parameter                                                                                     | Minimum                                                                                                         |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Temperature operating                                                                         | 41 to 104° F (5 to 40° C)<br>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)<br>Operation at 73° F (23° C)   | 5.8                                                                                                             |
| Sound Pressure level, Measure A-weighted per ISO7779 LpAm (dBA)<br>Operation at 73° F (23° C) | 43                                                                                                              |

## Compliance Requirements

The regulatory compliance requirements for C-Series servers are listed in [Table 50](#).

**Table 50 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<br>CAN/CSA-C22.2 No. 60950-1 Second Edition<br>EN 60950-1 Second Edition<br>IEC 60950-1 Second Edition<br>AS/NZS 60950-1<br>GB4943 2001                                   |
| EMC - Emissions       | 47CFR Part 15 (CFR 47) Class A<br>AS/NZS CISPR22 Class A<br>CISPR22 Class A<br>EN55022 Class A<br>ICES003 Class A<br>VCCI Class A<br>EN61000-3-2<br>EN61000-3-3<br>KN22 Class A<br>CNS13438 Class A |
| EMC - Immunity        | EN55024<br>CISPR24<br>EN300386<br>KN24                                                                                                                                                              |



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