



**This product has been  
discontinued**

Spec Sheet

# Cisco UCS C420 M3 High-Performance Rack Server

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## OVERVIEW

The Cisco® UCS C420 M3 High-Performance Rack Server is a high-density, four-socket, two-rack-unit (2RU) rack server designed for compute, I/O, storage and memory-intensive standalone applications.

The UCS C420 M3 server ([Figure 1](#)) extends the capabilities of the Cisco Unified Computing System™, using Intel's latest Xeon E5-4600 Series multi-core processors to deliver increased performance and efficiency.

**Figure 1** Cisco UCS C420 M3 High-Density Rack Server

### Front View



### Rear View

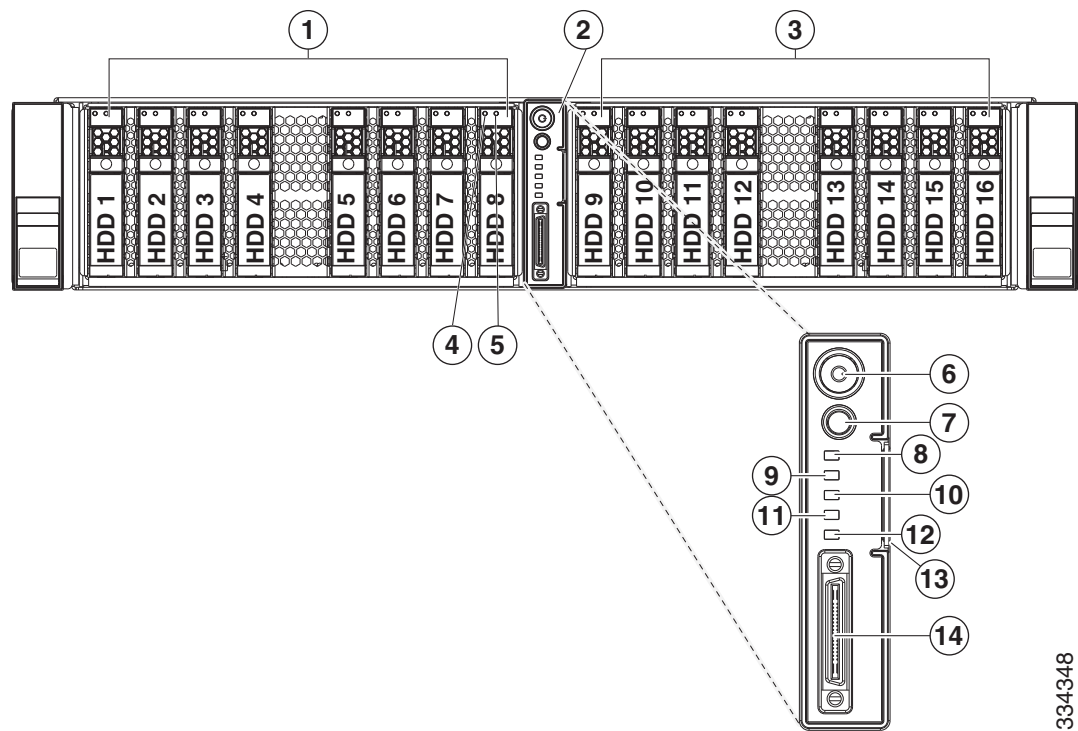


# DETAILED VIEWS

## Chassis Front View

Figure 2 shows the Cisco UCS C420 M3 General-Purpose Rack Server.

Figure 2 Chassis Front View



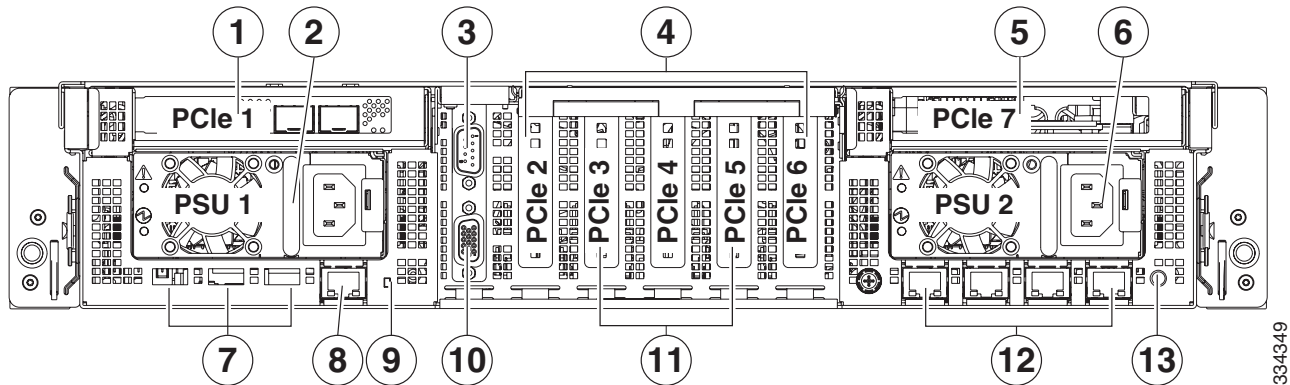
|   |                           |    |                                                                                              |
|---|---------------------------|----|----------------------------------------------------------------------------------------------|
| 1 | Modular drive bay 1       | 8  | System status LED                                                                            |
| 2 | Operator panel            | 9  | Fan status LED                                                                               |
| 3 | Modular drive bay 2       | 10 | Temperature status LED                                                                       |
| 4 | Hard drive fault LED      | 11 | Power supply status LED                                                                      |
| 5 | Hard drive activity LED   | 12 | Network link activity LED                                                                    |
| 6 | Power button/LED          | 13 | Asset tag (serial number)                                                                    |
| 7 | Identification button/LED | 14 | KVM connector (used with KVM cable that provides two USB, one VGA, and one serial connector) |

For more information regarding the KVM cable connection, see [KVM CABLE on page 59](#).

## Chassis Rear View

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

**Figure 3 Chassis Rear View**



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|          |                                                                                                                                                               |           |                                                                                                                                   |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | Horizontal PCIe slot (PCIe slot #1, standard-profile, half-length, x16, with NCSI)                                                                            | <b>9</b>  | Rear system fault LED                                                                                                             |
| <b>2</b> | Power supply #1                                                                                                                                               | <b>10</b> | VGA video connector                                                                                                               |
| <b>3</b> | RS-232 serial connector                                                                                                                                       | <b>11</b> | Optional RAID controller cards (up to two, supported in designated PCIe slots 3 and 5). See <a href="#">Table 11 on page 25</a> . |
| <b>4</b> | Five PCIe slots on motherboard (five half-height, half-length, x8 slots)<br>PCIe slot numbering is 2, 3, 4, 5, 6 (left to right)<br>PCIe slot 4 supports NCSI | <b>12</b> | 1-Gb Base-T LOM ports (four RJ-45 ports, 10/100/1000 Mbps capable)                                                                |
| <b>5</b> | Horizontal PCIe slot (PCIe slot #7, full-height, half-length, x16, with NCSI)                                                                                 | <b>13</b> | Rear Identification button/LED                                                                                                    |
| <b>6</b> | Power supply #2                                                                                                                                               |           | —                                                                                                                                 |
| <b>7</b> | Three USB 2.0 ports                                                                                                                                           |           | —                                                                                                                                 |
| <b>8</b> | 10/100/1000 dedicated management Ethernet ports (RJ-45)                                                                                                       |           | —                                                                                                                                 |

## 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 on page 8](#).

**Table 1 Capabilities and Features**

| Capability/Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis            | Two rack unit (2RU) chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CPU                | Either two or four Intel® Xeon® E5-4600 series processors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Chipset            | Intel® Patsburg-J platform controller hub (PCH) chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Memory             | 48 slots for registered DIMMs (RDIMMs) and load-reduced DIMMs (LRDIMMs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Expansion slots    | <p>There are seven PCIe expansion slots:</p> <ul style="list-style-type: none"> <li>■ Four slots for PCIe x 8 vertically-mounted cards (slots 2, 3, 5, and 6) <ul style="list-style-type: none"> <li>• PCIe x8, 1/2 height, 1/2 length, 16x connectors</li> </ul> </li> <li>■ One slot for an NCSI PCIe x 8 vertically mounted card (slot 4) <ul style="list-style-type: none"> <li>• PCIe x 16, 1/2 height, 1/2 length</li> </ul> </li> <li>■ Two NCSI slots on separate riser cards for horizontally-mounted cards (slot 1 at left when viewed from rear and slot 7 at right when viewed from rear) <ul style="list-style-type: none"> <li>• PCIe x 16, full-height, 1/2 length</li> </ul> </li> </ul> <p>All cards are half-length due to internal clearance. CPU 1 controls slots 1, 2, and 3 and CPU 2 controls slots 4, 5, 6, and 7.</p> |
| Storage controller | <p>Plug-in PCIe cards:</p> <ul style="list-style-type: none"> <li>■ LSI MegaRAID 9271CV-8i with external mount supercap and on-board 1 GB flash-backed write cache backup, supporting up to 16 internal drives and RAID levels 0, 1, 5, 6, 10, 50, or 60.</li> <li>■ LSI MegaRAID 9286CV-8e with external mount supercap and on-board 1 GB flash-backed write cache backup, supporting up to 8 external drives and RAID levels 0, 1, 5, 6, 10, 50, or 60.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |
| Power subsystem    | Two 1200 W power supplies (1:1 redundant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Fans               | <p>Chassis:</p> <ul style="list-style-type: none"> <li>■ Six fan modules, hot-swappable, redundant</li> </ul> <p>Power supply:</p> <ul style="list-style-type: none"> <li>■ Each power supply is equipped with a fan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Table 1 Capabilities and Features (continued)**

| Capability/Feature       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal storage devices | <ul style="list-style-type: none"> <li>■ Disk Drives <ul style="list-style-type: none"> <li>• Drives are installed into configurable (one or two) drive bay modules that provide hot-pluggable front-panel access.</li> <li>• Each drive bay module can hold up to eight 2.5in x 0.55 in (63.5 mm x 14mm) SAS3 or SATA4 hard disk drives (HDDs) or solid state drives (SSDs), for a total of 16 drives.</li> </ul> </li> <li>■ USB Flash drive <ul style="list-style-type: none"> <li>• An optional 4 GB or 8 GB USB drive can be used as a bootable drive</li> </ul> </li> <li>■ Cisco Flexible Flash internal Secure Digital (SD) cards <ul style="list-style-type: none"> <li>• Up to two optional Flexible Flash SD cards can be installed</li> </ul> </li> <li>■ UCS Storage Accelerator are also available. These PCIe flash storage devices provide independent high-speed storage.</li> </ul> |
| 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               | <ul style="list-style-type: none"> <li>■ Rear panel <ul style="list-style-type: none"> <li>• One 10/100/1000 dedicated management Ethernet port</li> <li>• Four 1-Gigabit Base-T Ethernet LOM ports (10/100/1000 Mbps capable)</li> <li>• One RS232 serial connector (on I/O riser card)</li> <li>• One 15-pin VGA connector (on I/O riser card)</li> <li>• Three USB 2.0 connectors</li> </ul> </li> <li>■ Front panel <ul style="list-style-type: none"> <li>• One KVM console connector. When used with the provided KVM cable, provides two USB, one VGA, and one serial connector.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                        |
| Baseboard management     | <p>Pilot-3 BMC, running Cisco Integrated Management Controller (CIMC) firmware.</p> <p>Depending on your CIMC settings, the CIMC can be accessed through the 10/100 dedicated management ports, the 1-Gigabit LOM ports, the optional 10-Gigabit SFP+ ports, or a Cisco P81E virtual interface card.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS C420 M3 General-Purpose Rack Server:

- *STEP 1 VERIFY BASE SKU, page 9*
- *STEP 2 CHOOSE CPU(S), page 10*
- *STEP 3 CHOOSE MEMORY, page 11*
- *STEP 4 CHOOSE HARD DISK DRIVES or SOLID STATE DRIVES, page 17*
- *STEP 5 CHOOSE MODULAR DRIVE BAYS, page 19s*
- *STEP 6 CHOOSE RAID CONFIGURATION, page 21*
- *STEP 7 CHOOSE PCIe OPTION CARD(S), page 24*
- *STEP 8 CHOOSE CISCO FLEXIBLE FLASH INTERNAL SD CARD(S), page 28*
- *STEP 9 CHOOSE POWER SUPPLIES, page 29*
- *STEP 10 SELECT AC POWER CORD(s), page 30*
- *STEP 11 ORDER TOOL-LESS SLIDE RAIL KIT, page 33*
- *STEP 12 ORDER OPTIONAL CABLE MANAGEMENT ARM, page 33*
- *STEP 13 ORDER OPTIONAL USB BOOT DRIVE, page 34*
- *STEP 14 ORDER OPTIONAL NETWORK CARD ACCESSORIES, page 34*
- *STEP 15 ORDER A TRUSTED PLATFORM MODULE, page 39*
- *STEP 16 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 40*
- *STEP 17 CHOOSE OPERATING SYSTEM MEDIA KIT, page 43*
- *STEP 18 CHOOSE SERVICE and SUPPORT LEVEL, page 44*
- *OPTIONAL STEP - ORDER RACK(s) on page 49*
- *OPTIONAL STEP - ORDER PDU on page 50*

## STEP 1 VERIFY BASE SKU

Verify the product ID (PID) of the base server as shown in [Table 2](#).

**Table 2** PID of the Base C420 M3 Rack Server

| Product ID (PID) | Description                                                                        |
|------------------|------------------------------------------------------------------------------------|
| UCSC-C420-M3     | UCS C420 M3 without CPUs, memory DIMMs, disk drives, PCIe cards, or power supplies |

The UCSC-C420-M3 base server:

- Includes a rail kit (UCSC-RAIL-2U)
- Does not include CPUs, memory DIMMs, hard disk drives (HDDs), solid-state drives (SSDs), or plug-in PCIe cards



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

## STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Intel Xeon processor E5-4600 product family of CPUs
- Intel® Patsburg-J platform controller hub (PCH) chipset
- Cache size of 10, 12, 15, 16, or 20 MB

### Choose CPUs

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

**Table 3 Available CPUs: Intel Xeon E5-4600 Family**

| Product ID (PID) | Intel Number | Clock Freq (GHz) | Power (W) | Cache Size (MB) | Cores | QPI  | Highest DDR3 DIMM Clock Support (MHz) |
|------------------|--------------|------------------|-----------|-----------------|-------|------|---------------------------------------|
| UCS-CPU-E5-4603  | E5-4603      | 2.00             | 95        | 10              | 4     | 6.40 | 1066                                  |
| UCS-CPU-E5-4607  | E5-4607      | 2.20             | 95        | 12              | 6     | 6.40 | 1066                                  |
| UCS-CPU-E5-4610  | E5-4610      | 2.40             | 95        | 15              | 6     | 7.20 | 1333                                  |
| UCS-CPU-E5-4620  | E5-4620      | 2.20             | 95        | 16              | 8     | 7.20 | 1333                                  |
| UCS-CPU-E5-4640  | E5-4640      | 2.40             | 95        | 20              | 8     | 8.00 | 1600                                  |
| UCS-CPU-E5-4650  | E5-4650      | 2.70             | 130       | 20              | 8     | 8.00 | 1600                                  |

### Approved Configurations

#### (1) Two-CPU Configuration:

- Choose two identical CPUs from [Table 3](#).

#### (2) Four-CPU Configuration:

- Choose four identical CPUs from [Table 3](#)

### Caveats

- You must select either two or four identical processors.
- You are not allowed to select 1 or 3 processors.

## STEP 3 CHOOSE MEMORY

The standard memory features are:

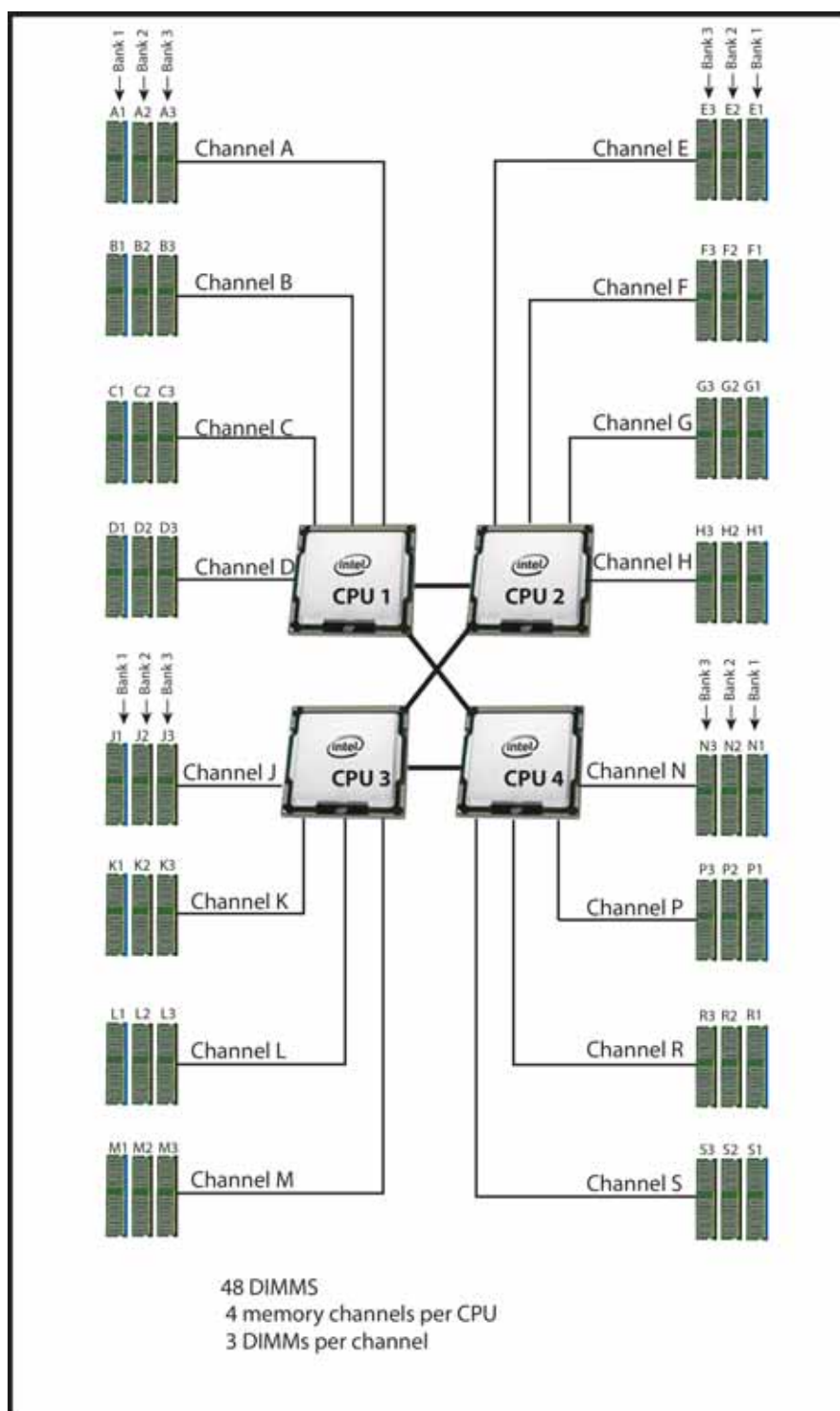
- DIMMs
  - Clock speed: 1600 MHz
  - Ranks per DIMM: 1, 2, or 4
  - Operational voltage: 1.35/1.5 V
  - Registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs)
- Each CPU controls four DDR3 channels, with up to three DIMMs per channel (DPC).



**NOTE:** Memory speeds of 1333 MHz are supported for 3 DPC configurations when using 8 GB and 16 GB RDIMMs

---

Figure 4 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 LRDIMM/PC3-12800/4R/x4/1.35v | 1.5/1.35 V | 4              |
| UCS-MR-1X041RY-A <sup>1</sup>  | 4 GB DDR3-1600-MHz RDIMM/PC3-12800/1R/1.35v      | 1.5/1.35 V | 1              |
| UCS-MR-1X082RY-A               | 8 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/1.35v      | 1.5/1.35 V | 2              |
| UCS-MR-1X162RY-A               | 16 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/1.35v     | 1.5/1.35 V | 2              |
| <b>Memory Mirroring Option</b> |                                                  |            |                |
| N01-MMIRROR                    | Memory mirroring option                          |            |                |

1. No longer shipping as of 6/1/2015

## Approved Configurations

### (1) 2-CPU configuration without memory mirroring:

- Select from 2 to 12 DIMMs per CPU in increments of two (2, 4, 6, 8, 10, or 12 DIMMs per CPU). Refer to [Memory Population Rules on page 53](#), for more detailed information.

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

- Select DIMMs in increments of 4 identical DIMMs across channels (either 4, 8, 12, 16, 20, or 24 total DIMMs). The DIMMs will be placed by the factory for memory mirroring as shown in [Table 5](#).

**Table 5** DIMM Placement for Memory Mirroring (for 2 CPUs)

| Number of DIMMs | CPU 1 DIMM Placement in Channels (for identical DIMMs) |                     |                     | CPU 2 DIMM Placement in Channels (for identical DIMMs) |                     |                     |
|-----------------|--------------------------------------------------------|---------------------|---------------------|--------------------------------------------------------|---------------------|---------------------|
|                 | Blue Slot (Slot 1)                                     | Black Slot (Slot 2) | Black Slot (Slot 3) | Blue Slot (Slot 1)                                     | Black Slot (Slot 2) | Black Slot (Slot 3) |
| 4               | (A1,B1)                                                |                     |                     | (E1,F1)                                                |                     |                     |
| 8               | (A1,B1);<br>(C1,D1)                                    | —                   | —                   | (E1,F1);<br>(G1,H1)                                    | —                   | —                   |
| 12              | (A1,B1);<br>(C1,D1)                                    | (A2,B2)             | —                   | (E1,F1);<br>(G1,H1)                                    | (E2,F2)             |                     |
| 16              | (A1,B1);<br>(C1,D1)                                    | (A2,B2);<br>(C2,D2) | —                   | (E1,F1);<br>(G1,H1)                                    | (E2,F2);<br>(G2,H2) | —                   |
| 20              | (A1,B1);<br>(C1,D1)                                    | (A2,B2);<br>(C2,D2) | (A3,B3)             | (E1,F1);<br>(G1,H1)                                    | (E2,F2);<br>(G2,H2) | (E3,F3)             |
| 24              | (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) |

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 13](#).

**(3) 4-CPU configuration without memory mirroring:**

- Select from 4 to 12 DIMMs per CPU in increments of 4 (4, 8, or 12 DIMMs per CPU). Refer to [Memory Population Rules on page 53](#), for more detailed information.

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

- Select DIMMs in increments of 8 identical DIMMs across channels (either 8, 16, 24, 32, 40, or 48 total DIMMs). The DIMMs will be placed by the factory for memory mirroring as shown in [Table 5](#).

**Table 6 DIMM Placement for Memory Mirroring (for 4 CPUs)**

| # DIMMs | CPU 1 DIMM Slot |                |                | CPU 2 DIMM Slot |                |                | CPU 3 DIMM Slot |                |                | CPU 4 DIMM Slot |                |                |
|---------|-----------------|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|----------------|
|         | 1               | 2              | 3              | 1               | 2              | 3              | 1               | 2              | 3              | 1               | 2              | 3              |
| 8       | C1,D1           | —              | —              | E1,F1           | —              | —              | J1,K1           | —              | —              | R1,S1           | —              | —              |
| 16      | C1,D1<br>A1,B1  | —              | —              | E1,F1<br>G1,H1  | —              | —              | J1,K1<br>L1,M1  | —              | —              | R1,S1<br>N1,P1  | —              | —              |
| 24      | C1,D1<br>A1,B1  | C2,D2          | —              | E1,F1<br>G1,H1  | E2,F2          | —              | J1,K1<br>L1,M1  | J2,K2          | —              | R1,S1<br>N1,P1  | R2,S2          | —              |
| 32      | C1,D1<br>A1,B1  | C2,D2<br>A2,B2 | —              | E1,F1<br>G1,H1  | E2,F2<br>G2,H2 | —              | J1,K1<br>L1,M1  | J2,K2<br>L2,M2 | —              | R1,S1<br>N1,P1  | R2,S2<br>N2,P2 | —              |
| 40      | C1,D1<br>A1,B1  | C2,D2<br>A2,B2 | C3,D3          | E1,F1<br>G1,H1  | E2,F2<br>G2,H2 | E3,F3          | J1,K1<br>L1,M1  | J2,K2<br>L2,M2 | J3,K3          | R1,S1<br>N1,P1  | R2,S2<br>N2,P2 | R3,S3          |
| 48      | C1,D1<br>A1,B1  | C2,D2<br>A2,B2 | C3,D3<br>A3,B3 | E1,F1<br>G1,H1  | E2,F2<br>G2,H2 | E3,F3<br>G3,H3 | J1,K1<br>L1,M1  | J2,K2<br>L2,M2 | J3,K3<br>L3,M3 | R1,S1<br>N1,P1  | R2,S2<br>N2,P2 | R3,S3<br>N3,P3 |

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 4 on page 13](#).



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

**Caveats**

- The server supports 1, 2, or 3 DIMMs per channel (DPC) for single- or dual-rank RDIMMs.
- The server supports only one or two quad-rank registered DIMMs (RDIMMs) per channel.
- The server supports one, two, or three quad-rank load-reduced DIMMs (LRDIMMs) per channel.
- Memory speeds of 1333 MHz are supported for 3 DPC when using 8 GB or 16 GB RDIMMs.
- The server supports registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs), however, do not mix RDIMMs and LRDIMMs in a server.

- When using mirroring, DIMMs must be installed in identical pairs across paired DDR3 buses. That is, mirrored pairs in channels A and B must be identical and pairs in channels C and D must be identical. However, the DIMMs used in channels A and B and in C and D can be different.
- UDIMMs and non-ECC DIMMs are not supported.
- The minimum configuration is one DIMM installed in any of CPU1's blue sockets (A1, B1, C1, or D1).
- There is no hard requirement to install DIMMs evenly across all CPUs. However, for optimal performance, populate sockets as shown in [Table 33 on page 54](#).
- A DIMM installed in a socket for an absent CPU is not accessible by other CPUs.
- When populating a channel, install to the blue socket first, then fill the black sockets inward toward the CPU.

For more information regarding memory, see [CPUs and DIMMs on page 52](#).

## STEP 4 CHOOSE HARD DISK DRIVES or SOLID STATE DRIVES

The standard disk drive features are:

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

### Choose Drives

The available drives are listed in [Table 7](#).

**Table 7 Available Hot-Pluggable Sled-Mounted HDDs and SSDs**

| Product ID (PID)  | PID Description                                               | Drive Type | Capacity |
|-------------------|---------------------------------------------------------------|------------|----------|
| <b>HDDs</b>       |                                                               |            |          |
| A03-D146GC2       | 146 GB 6 Gb SAS 15K RPM SFF HDD                               | SAS        | 146 GB   |
| A03-D1TBSATA      | 1 TB 6 Gb SATA 7.2K RPM SFF HDD                               | SATA       | 1 TB     |
| A03-D300GA2       | 300 GB 6 Gb SAS 10K RPM SFF HDD                               | SAS        | 300 GB   |
| A03-D500GC3       | 500 GB 6 Gb SATA 7.2K RPM SFF                                 | SATA       | 500 GB   |
| A03-D600GA2       | 600 GB 6 Gb SAS 10K RPM SFF HDD                               | SAS        | 600 GB   |
| UCS-HDD900GI2F106 | 900 GB 6Gb SAS 10K RPM SFF HDD                                | SAS        | 900 GB   |
| <b>SSDs</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-SD400G0KA2-G  | 400 GB 2.5 inch Enterprise Value SSD                          | SATA       | 400 GB   |
| UCS-SD100G0KA2-G  | 100 GB 2.5 inch Enterprise Value SSD                          | SATA       | 100 GB   |
| UCS-SD300G0KA2-E  | 300 GB Std Height 15mm SATA SSD                               | SATA       | 300 GB   |
| UCS-SD200G0KA2-E  | 200 GB Std Height 15mm SATA SSD                               | SATA       | 200 GB   |

### Approved Configurations

#### (1) One Drive Bay

- If you select one drive bay (see [STEP 5 CHOOSE MODULAR DRIVE BAYS, page 19](#)), you may select up to eight drives. You can mix SAS and SATA drives.

### (1) Two Drive Bay

- If you select two drive bays (see [STEP 5 CHOOSE MODULAR DRIVE BAYS, page 19](#)), you may select up to sixteen drives. You can mix SAS and SATA drives.

### Caveats

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- You can mix hard drives and SSDs in the same server. However, You cannot configure a logical volume (virtual drive) that contains a mix of hard drives and SSDs. That is, when you create a logical volume, it must contain all hard drives or all SSDs.

## STEP 5 CHOOSE MODULAR DRIVE BAYS

The C420 M3 server accommodates two drive bays, with each bay holding up to eight drives. You should choose the number of drive bays based on the number of drives you selected in [STEP 4 CHOOSE HARD DISK DRIVES or SOLID STATE DRIVES, page 17](#).

The modular drive bays each come with a backplane and transition card installed. The transition card connects the drive bay backplane to the motherboard. There are two types of transition cards:

- Nonexpander (default): Two internal cables from the transition card to a plug-in RAID controller card are required to control eight drives. One of the connectors allows control of drives 1 through 4 on the backplane. The other connector allows control of drives 5 through 8 on the backplane.
- Expander (optional): One internal cable from the transition card to a plug-in RAID controller card is required to control eight drives. This one connector allows control of drives 1 through 8 on the backplane

### Choose Drive Bays

Choose one or two of the drive bays listed in [Table 8](#).

**Table 8 Available Drive Bays**

| Product ID (PID)         | PID Description                            |
|--------------------------|--------------------------------------------|
| <b>Drive Bay Options</b> |                                            |
| UCSC-DBKP-08D            | 8 Drive Backplane For C-Series             |
| UCSC-DBKP-08E            | 8 Drive Backplane W/ Expander For C-Series |

### Approved Configurations

#### (1) One Standard Drive Bay with Nonexpander Transition Card

- This option accommodate a maximum of eight drives. All eight drives can be controlled with two cables connected from the transition card to a single RAID controller.

#### (2) Two Standard Drive Bays with Nonexpander Transition Cards

- This option accommodates a maximum of sixteen drives. Two RAID controllers are required to control all sixteen drives. Two cables must be connected to each RAID controller from each transition card.

### (3) Two Standard Drive Bays with Expander Transition Cards

- This option accommodates a maximum of sixteen drives. One RAID controller is required to control all sixteen drives. One cable must be connected to the RAID controller from each transition card.



**NOTE:** With this configuration, two RAID controllers can also be installed, with one cable from each transition card to each RAID controller.

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### Caveats

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- You cannot mix drive bay types. You must order either one or two identical drive bay types listed in [Table 8 on page 19](#).

## STEP 6 CHOOSE RAID CONFIGURATION

The C420 M3 server accommodates either one or two RAID controllers. The RAID controllers available are:

- LSI MegaRAID 9271CV-8i. Provides 2 x4 SAS ports for controlling internal drives.
- LSI MegaRAID 9286CV-8e. Provides 2 x4 SAS ports for controlling external drives.

The C420 M3 contains two drive bays, each housing up to eight HDDs or SSDs. Each RAID controller for internal drives connects to a transition card that connects the drive bay backplane to the motherboard. Each RAID controller for external drives has two rear mini-SAS SFF-8088 x4 connectors for cabling to external drives. Cisco can provide factory-configured RAID 0, 1, 5, 6, and 10 systems depending on the RAID implementation chosen and the number of drives ordered. Note that factory-configured RAID is not available for RAID controllers that control external storage arrays. Factory-configured RAID options are listed at the end of [Table 9](#). Note that RAID levels 50 and 60 are supported on the RAID controllers, but are not factory configurable.

### Choose RAID Options

Choose one or two RAID controllers, and one RAID configuration option listed in [Table 9](#).

**Table 9 Available RAID Options**

| Product ID (PID)        | PID Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RAID Controllers</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| UCS-RAID9271CV-8i       | <p>LSI MegaRAID SAS 9271CV-i (RAID 0, 1, 5, 6, 10)</p> <ul style="list-style-type: none"> <li>■ Each controller takes up one PCIe slot (slots 3 and 5 are used for RAID controllers).</li> <li>■ Supports from one to sixteen internal SAS or SATA drives, depending on the type of transition board installed: <ul style="list-style-type: none"> <li>• One drive bay with nonexpander transition board: up to eight drives supported with one RAID controller having two cables connected to the transition card.</li> <li>• Two drive bays with nonexpander transition boards: up to sixteen drives supported with one RAID controller having two cables connected to one transition card and a second RAID controller having two cables connected to the second transition card</li> <li>• One drive bay with expander transition board: up to eight drives supported with one RAID controller having one cable connected to the transition card.</li> <li>• Two drive bays with expander transition boards: up to sixteen drives supported with one RAID controller having one cable connected to one transition card and a second cable connected to the second transition card</li> </ul> </li> <li>■ Includes a external mount 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)</li> </ul> |

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

| Product ID (PID)          | PID Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UCS-RAID9286CV-8e         | LSI MegaRAID SAS 9286CV-e (RAID 0, 1, 5, 6, 10) <ul style="list-style-type: none"> <li>■ Each controller takes up one PCIe slot (slots 3 and 5 are used for RAID controllers).</li> <li>■ Supports from one to eight external SAS or SATA drives.</li> <li>■ Includes a external mount supercapacitor to power on-board 1 GB flash-backed write cache.</li> <li>■ 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 this controller, because the factory does not control the storage array attached to the 9286CV-e RAID controller.</li> </ul> |
| <b>RAID Configuration</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| R2XX-RAID0                | Factory pre-configured RAID striping option<br>Enable RAID 0 Setting. Requires a minimum of 1 hard drive.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| R2XX-RAID1                | Factory pre-configured RAID mirroring option<br>Enable RAID 1 Setting. Requires exactly 2 drives, with same size, speed, capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| R2XX-RAID5                | Factory pre-configured RAID option<br>Enable RAID 5 Setting. Requires minimum 3 drives of same size, speed, capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| R2XX-RAID6                | Factory pre-configured RAID option<br>Enable RAID 6 Setting. Requires minimum 4 drives of same size, speed, capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| R2XX-RAID10               | Factory pre-configured RAID option<br>Enable RAID 10 Setting. Requires an even number of drives with a minimum of 4 drives of same size, speed, capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



**NOTE:** No RAID option can be chosen if you have one of the following configurations:

- A mix of SAS and SATA drives
- No drives

### Approved Configurations

#### (1) One Controller Card for Internal Drives

- Choose one LSI MegaRAID SAS 9271CV-i RAID controller. You will be able to control from one to sixteen internal drives with the 9271CV-i controller, depending on the drive bay(s) selected and the type of installed transition card.

#### (2) One Controller Card for External Drives

- Choose one LSI MegaRAID SAS 9286CV-e RAID controller. You will be able to control up to eight external drives.

**(3) One Controller Card for Internal Drives and One Controller Card for External Drives**

- Choose one LSI MegaRAID SAS 9271CV-i RAID controller and one LSI MegaRAID SAS 9286CV-e RAID controller. You will be able to control:
  - From one to sixteen internal drives with the 9271CV-i controller, depending on the drive bay(s) selected and the type of installed transition card.
  - From one to eight external drives with the 9286CV-e controller

**(4) Two Controller Cards for Internal Drives**

- Choose two LSI MegaRAID SAS 9271CV-i RAID controllers. You will be able to control eight drives on each backplane with each RAID controller, for maximum throughput.

**(5) Two Controller Cards for External Drives**

- Choose two LSI MegaRAID SAS 9286CV-e RAID controllers. You will be able to control up to eight external drives from each RAID controller.

**Caveats**

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- See [Table 11 on page 25](#) for information on the slot numbers where the RAID controllers are installed.
- If you selected two drive bays with nonexpander transition cards, you will need two RAID controllers to control the maximum number of drives (16). All other drive bay configurations require only one RAID controller card to control the maximum number of drives that can be installed in the drive bays.
- You can choose an optional RAID configuration (RAID 0, 1, 5, 6, or 10), which is pre-configured at the factory. If you do not choose a RAID configuration, the disks will be configured as a JBOD.



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

---

## STEP 7 CHOOSE PCIe OPTION CARD(S)

The standard PCIe card offerings are:

- Converged Network Adapters (CNA)
- Network Interface Cards (NICs)
- Host Bus Adapters (HBAs)
- UCS Storage Accelerators

### Choose PCIe Option Cards

The available PCIe option cards are listed in [Table 10](#).

**Table 10 Available PCIe Option Cards**

| Product ID (PID)                        | PID Description                                           | Card Height |
|-----------------------------------------|-----------------------------------------------------------|-------------|
| <b>Converged Network Adapters (CNA)</b> |                                                           |             |
| UCSC-PCIE-CSC-02                        | Cisco VIC 1225 Dual Port 10Gb SFP+ CNA                    | Half        |
| UCSC-PCIE-C10T-02                       | Cisco VIC 1225T Dual Port 10GBASE-T CNA                   | Half        |
| UCSC-PCIE-BSFP                          | Broadcom 57712 Dual Port 10Gb SFP+ w/TOE iSCSI            | Half        |
| UCSC-PCIE-B3SFP                         | Broadcom 57810 10Gb AFEX SFP+                             | Half        |
| UCSC-PCIE-BTG                           | Broadcom 57712 Dual Port 10GBASE-T w/TOE iSCSI            | Half        |
| UCSC-PCIE-ESFP                          | Emulex OCE11102-FX Dual Port 10Gb SFP+ CNA                | Half        |
| UCSC-PCIE-QSFP                          | Qlogic QLE8242-CU Dual Port 10 GbE FCoE CNA               | Half        |
| UCSC-PCIE-Q8362                         | Qlogic QLE8362 dual-port 10 GbE FCoE CNA                  | Half        |
| <b>Network Interface Cards (NICs)</b>   |                                                           |             |
| N2XX-ABPCI03-M3                         | Broadcom 5709 Quad Port 1Gb w/TOE iSCSI for M3 Servers    | Half        |
| N2XX-AIPCI01                            | Intel Dual Port 10 GbE Ethernet X520 Server Adapter       | Half        |
| UCSC-PCIE-IRJ45                         | Intel i350 Quad Port 1Gb Adapter                          | Half        |
| UCSC-PCIE-ITG                           | Intel X520 Dual Port 10GBASE-T Adapter                    | Half        |
| <b>Host Bus Adapters (HBAs)</b>         |                                                           |             |
| N2XX-AEPCI03                            | Emulex LPe 11002, 4Gb Fibre Channel PCIe Dual Channel HBA | Half        |
| N2XX-AEPCI05                            | Emulex LPe 12002, 8Gb dual port Fibre Channel HBA         | Half        |
| N2XX-AQPCI03                            | Qlogic QLE2462, 4Gb dual port Fibre Channel HBA           | Half        |
| N2XX-AQPCI05                            | Qlogic QLE2562, 8Gb dual port Fibre Channel HBA           | Half        |

**Table 10 Available PCIe Option Cards (continued)**

| Product ID (PID)                | PID Description                                            | Card Height |
|---------------------------------|------------------------------------------------------------|-------------|
| 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        |
| <b>UCS Storage Accelerators</b> |                                                            |             |
| 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) Slot Usage Guidelines

- For the best performance, populate the PCIe slots in the order shown in [Table 11](#) for each type of add-on card. For each card type, populate the primary slot first, followed by the secondary slot, then any alternate slots. See [Figure 5](#) for the slot locations.

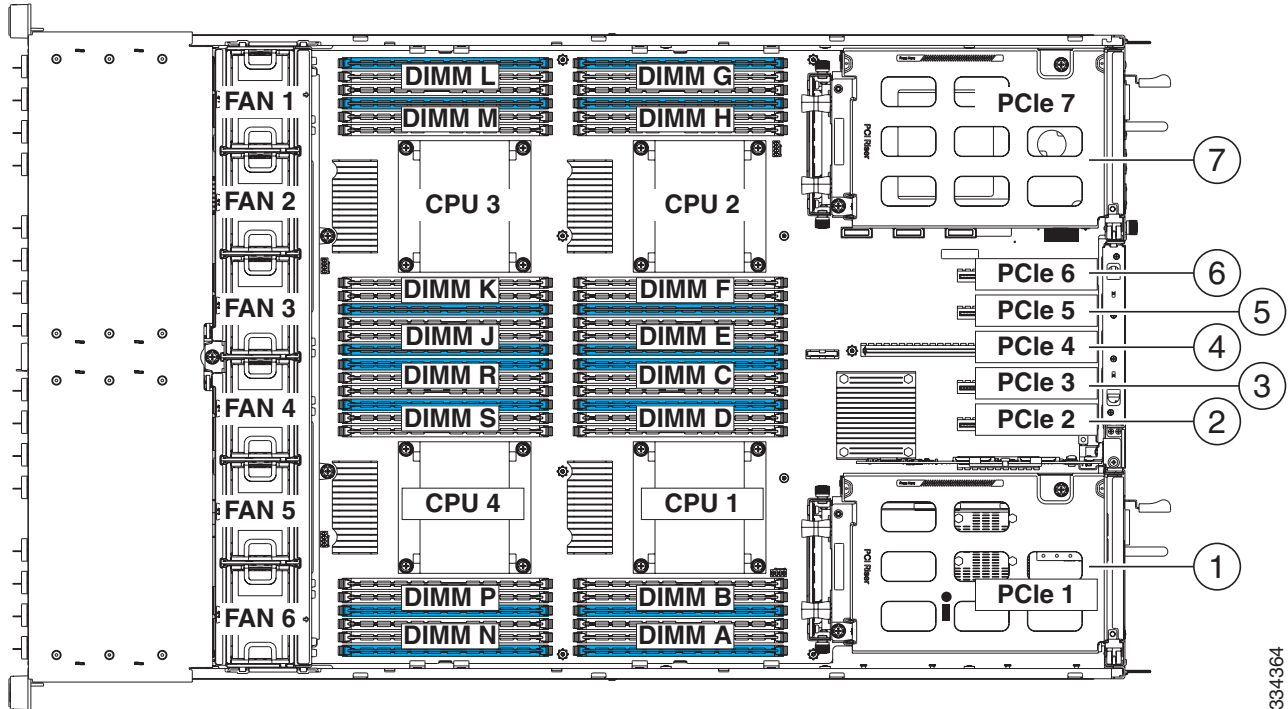
**Table 11 Recommended PCIe Slot Population**

| PCIe Card Type <sup>1</sup>                         | Primary Slot | Secondary Slot | Alternate Slots  |
|-----------------------------------------------------|--------------|----------------|------------------|
| RAID Controller for internal drives                 | 3            | 5              |                  |
| RAID Controller for external drives                 | 2            | 6              |                  |
| Low-profile NIC                                     | 6            | 3              | 1, 2, 5, or 7    |
| Cisco VIC 1225 Dual Port 10Gb SFP+ CNA <sup>2</sup> | 4            | 7 <sup>3</sup> | 1                |
| <b>UCS Storage Accelerators</b>                     |              |                |                  |
| UCSC-F-FIO-3000M <sup>4</sup>                       | —            | —              | 1, 7             |
| UCSC-F-FIO-1205M <sup>5</sup>                       | —            | —              | 1, 2, 3, 5, 6, 7 |
| UCSC-F-FIO-785M <sup>5</sup>                        | —            | —              | 1, 2, 3, 5, 6, 7 |
| UCSC-F-FIO-365M <sup>5</sup>                        | —            | —              | 1, 2, 3, 5, 6, 7 |

1. Slot 4 is reserved for the Cisco VIC 1225. A maximum of six additional PCIe cards can be installed in the six remaining slots. Note that the maximum quantity of certain PCIe cards may be limited.

2. This card 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). The card is a half-height, half-length, dual-port, 10-Gb PCIe card supporting 10G SFP+ optical and copper twinax connections.

3. To use the Cisco Card NIC mode, this card must be installed in PCIe slot 7. Slot 7 can operate while the server is in standby power mode.
4. The UCSC-F-FIO-3000M is a full-height card and must be installed only in slots 1 or 7
5. Not supported in slot 4

**Figure 5** PCIe Slot Locations

334364

**Table 12** PCIe Expansion Slot Numbering

| Slot Number       | Slot Characteristics                                                                     |
|-------------------|------------------------------------------------------------------------------------------|
| 7 (on riser card) | PCI-Express Gen-3x16, x16 connector, half-length, full-height, NCSI <sup>1</sup> support |
| 6                 | PCI-Express Gen-3x8, x8 connector, half-length, half-height                              |
| 5                 | PCI-Express Gen-3x8, x8 connector, half-length, half-height                              |
| 4                 | PCI-Express Gen-3x8, x16 connector, half-length, half-height, NCSI support               |
| 3                 | PCI-Express Gen-3x8, x8 connector, half-length, half-height                              |
| 2                 | PCI-Express Gen-3x8, x8 connector, half-length, half-height                              |
| 1 (on riser card) | PCI-Express Gen-3x16, x16 connector, half-length, full-height, NCSI support              |

1. NCSI = Network Communications Services Interface protocol. An NCSI slot is powered even when the server is in standby power mode.

## Caveats

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- Slots 1 and 7 accommodate standard profile (full-height) cards. To use a low-profile card in one of these slots, you must have a standard-profile rear panel attached to the card. Slots 2, 3, 4, 5, and 6 are accommodate only half-height PCIe cards.
- The Cisco VIC 1225 Dual Port 10Gb SFP+ CNA card may be installed in slot 1, 4, or 7, and up to three cards can be installed at the same time.
- Slot 4 is reserved for the VIC card. No other card is to be installed in slot 4.
- To help ensure that your operating system is compatible with the cards you have selected, please 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 8 CHOOSE CISCO FLEXIBLE FLASH INTERNAL SD CARD(S)

A secure digital (SD) flash memory card can be optionally inserted into a dedicated I/O riser card that comes standard on the C420 M3 motherboard (see [Figure 7 on page 51](#)). A second SD card can be installed for a mirrored boot image configuration. Select one or two SD cards as desired from [Table 13](#).

**Table 13 Cisco Flexible Flash Secure Digital Cards**

| Product ID (PID) | PID Description                      |
|------------------|--------------------------------------|
| UCSC-SD-16G      | 16 GB SD card module for UCS servers |
| UCS-SD-32G-S     | 32 GB SD card module for UCS servers |

### Supported Configurations

- (1) Select one or two Cisco Flexible Flash secure digital cards
- (2) Do not mix 16 GB cards with 32 GB cards. The allowed configurations are:
  - One 16 GB SD card
  - One 32 GB SD card
  - Two 16 GB SD cards
  - Two 32 GB SD cards

For more information on Cisco FlexFlash, see the following link:

[http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/white\\_paper\\_c11-718938.html](http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/white_paper_c11-718938.html)

## STEP 9 CHOOSE POWER SUPPLIES

Two 1200 W power supplies are required. Select a quantity of two power supplies from [Table 14](#).

**Table 14** Available Power Supplies

| Product ID (PID) | PID Description               |
|------------------|-------------------------------|
| UCSC-PSU2-1200   | 1200W 2U Power Supply For UCS |

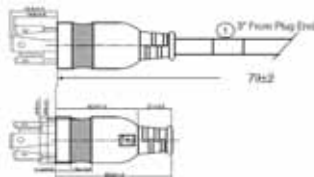
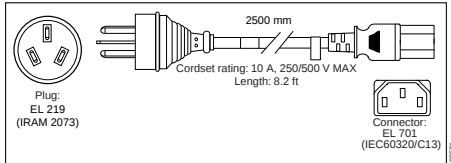
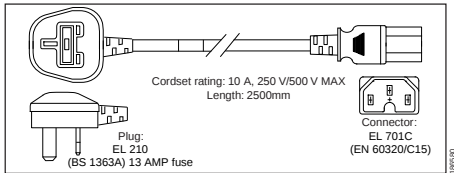
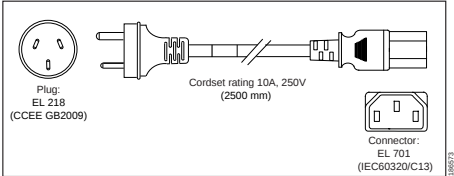
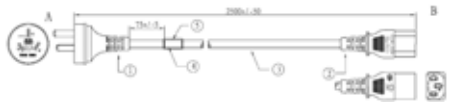
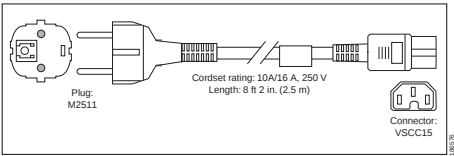


**NOTE:** It is recommended that the C420 M3 server always be operated with two 1200 W power supplies, which can be operated in a 1+1 redundancy configuration.

## STEP 10 SELECT AC POWER CORD(s)

Select the appropriate AC power cords listed in [Table 15](#). You may select a minimum of no power cords and a maximum of two power cords. If you select the option R2XX-DMYMPWRCORD, no power cord is shipped with the server.

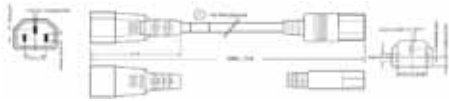
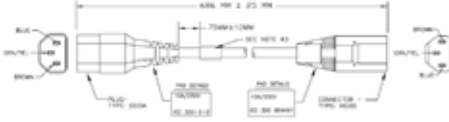
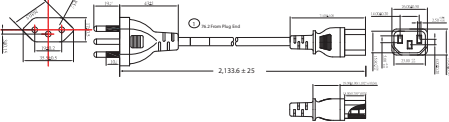
**Table 15 Available Power Cords**

| Product ID (PID) | PID Description                                               | Images                                                                               |
|------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------|
| R2XX-DMYMPWRCORD | No power cord (dummy PID to allow for a no power cord option) | Not applicable                                                                       |
| CAB-AC-L620-C13  | AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft                     |    |
| CAB-250V-10A-AR  | Power Cord, SFS, 250V, 10A, Argentina                         |   |
| CAB-9K10A-AU     | Power Cord, 250VAC 10A 3112 Plug, Australia                   |  |
| CAB-250V-10A-CN  | Power Cord, SFS, 250V, 10A, China                             |  |
| CAB-250V-10A-CN  | AC Power Cord - 250V, 10A - PRC                               |  |
| CAB-9K10A-EU     | Power Cord, 250VAC 10A CEE 7/7 Plug, EU                       |  |

**Table 15 Available Power Cords (continued)**

| Product ID (PID) | PID Description                                         | Images                                                                                                                                           |
|------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 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>                          |
| 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 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 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>Plug: EL 210 (BS 1363A) 13 AMP fuse</p> <p>Cordset rating: 10 A, 250 V/500 V MAX Length: 2500mm</p> <p>Connector: EL 701 C (EN 60320/C15)</p> |
| CAB-C13-C14-2M   | CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V |                                                                                                                                                  |
| CAB-9K12A-NA     | Power Cord, 125VAC 13A NEMA 5-15 Plug, North America    | <p>Plug: NEMA 5-15P</p> <p>Cordset rating 13A, 125V (3.2 mm) (2.5m)</p> <p>Connector: IEC60320/C15</p>                                           |

**Table 15 Available Power Cords (continued)**

| Product ID (PID) | PID Description                                   | Images                                                                             |
|------------------|---------------------------------------------------|------------------------------------------------------------------------------------|
| CAB-C13-C14-AC   | Power cord, C13 to C14 (recessed receptacle), 10A |  |
| CAB-C13-CBN      | CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V |  |
| CAB-250V-10A-BR  | Power Cord - 250V, 10A - Brazil                   |  |
| CAB-JPN-3PIN     | Power Cord 3PIN, Japan                            | Image not available                                                                |

## STEP 11 ORDER TOOL-LESS SLIDE RAIL KIT

A tool-less slide rail kit (PID UCSC-RAIL-2U) is available for the C420 M3 server. The slide rail is adjustable from 26 inches (660 mm) to 36 inches (914 mm). Order one slide rail kit listed in [Table 16](#).

**Table 16** Cable Management Arm

| Product ID (PID) | PID Description                      |
|------------------|--------------------------------------|
| UCSC-RAIL-2U     | 2U Rail Kit for UCS C-Series servers |

## STEP 12 ORDER OPTIONAL CABLE MANAGEMENT ARM

The cable management arm attaches to the left slide rail at the rear of the server and is used for cable management. You can order one of the cable management arms listed in [Table 17](#).

**Table 17** Cable Management Arm

| Product ID (PID) | PID Description                        |
|------------------|----------------------------------------|
| UCSC-CMA-0002    | Cable Management Arm - 2U For C-Series |

## STEP 13 ORDER OPTIONAL USB BOOT DRIVE

An optional 4 GB or 8 GB USB drive may be ordered and used as a boot drive. The USB drive plugs into a vertical USB slot on the motherboard. You can order one USB boot drive listed in [Table 18](#).

**Table 18 Available USB Drive**

| Product ID (PID)  | PID Description | Drive Type | Capacity |
|-------------------|-----------------|------------|----------|
| UCS-USBFLSH-S-4GB | 4GB USB Drive   | USB        | 4 GB     |
| UCS-USBFLSHA-8GB  | 8 GB USB Drive  | USB        | 8 GB     |

### Approved Configurations

- Select one USB drive from [Table 18](#).

### Caveats

None

## STEP 14 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 19](#) 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 19 Available Twinax Cables**

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

## Approved Configurations

---

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

- You may choose one or two twinax cables for each 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 20](#).

**Table 20 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

---

### (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 6 on page 38](#) for typical SFP+ and twinax connections to the network cards.

## Caveats

---

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 21 PCIe Card Compatibility**

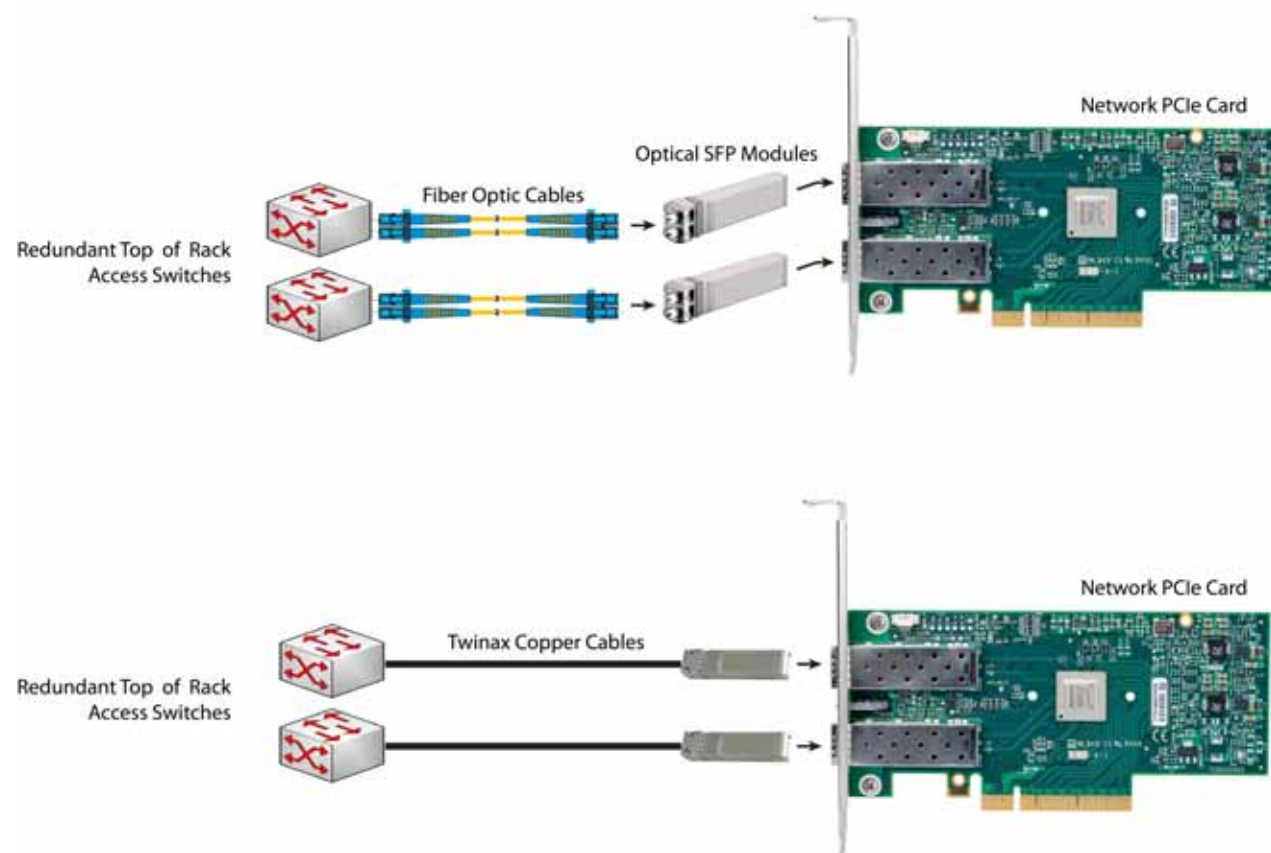
| PCIe Cards                                                                             | Twinax Cables           | Cisco SFP Modules                               |            |                |
|----------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------|------------|----------------|
|                                                                                        |                         | 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>1</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 21 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 |            |                |

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

Figure 6 Network Card Connections



## STEP 15 ORDER A TRUSTED PLATFORM MODULE

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

The TPM ordering information is listed in [Table 22](#).

**Table 22**     **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 16 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several operating systems and value-added software programs are available. Select as desired from [Table 23](#).

**Table 23 OSs and Value-Added Software (for 4-CPU servers)**

| PID Description                 | Product ID (PID)                                             |
|---------------------------------|--------------------------------------------------------------|
| <b>Cisco One</b>                |                                                              |
| C1F2PUCSK9                      | Cisco ONE Foundation Perpetual UCS                           |
| C1F2SICFBK9                     | Cisco ONE Foundation Subsr Intercloud Fabric For Business    |
| C1A1PUCSK9                      | Cisco ONE Enterprise Cloud Perpetual UCS                     |
| C1UCS-OPT-OUT                   | Cisco One Data Center Compute Opt Out Option                 |
| <b>Microsoft Windows Server</b> |                                                              |
| 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-12-DC2S-NS                 | Windows Server 2012 Datacenter (2 CPU/Unlim VM) No Cisco Svc |
| MSWS-12R2-ST2S                  | Windows Server 2012 R2 Standard (2 CPU/2 VMs)                |
| MSWS-12R2-DC2S                  | Windows Server 2012 R2 Datacenter (2 CPU/Unlimited VMs)      |
| MSWS-12R2-ST2S-NS               | Windows Server 2012 R2 Standard (2 CPU/2 VMs) No Cisco SVC   |
| MSWS-12R2-DC2S-NS               | Windows Server 2012 R2 Datacen (2 CPU/Unlim VM) No Cisco Svc |
| <b>SUSE</b>                     |                                                              |
| SLES-2S2V-1A                    | SUSE Linux Enterprise Srvr (1-2 CPU,1 Phys);1yr Support Reqd |
| SLES-2S2V-3A                    | SUSE Linux Enterprise Srvr (1-2 CPU,1 Phys);3yr Support Reqd |
| SLES-2S2V-5A                    | SUSE Linux Enterprise Srvr (1-2 CPU,1 Phys);5yr Support Reqd |
| SLES-2SUV-1A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);1yr Support Reqd |
| SLES-2SUV-3A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);3yr Support Reqd |
| SLES-2SUV-5A                    | SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);5yr Support Reqd |
| SLES-2S2V-1A                    | SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 1yr Support Reqd  |
| SLES-2S2V-3A                    | SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 3yr Support Reqd  |
| SLES-2S2V-5A                    | SUSE Linux Enterprise Srvr (4 CPU,1 Phys); 5yr Support Reqd  |
| SLES-2SUV-1A                    | SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 1yr Support Reqd |
| SLES-2SUV-3A                    | SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 3yr Support Reqd |
| SLES-2SUV-5A                    | SUSE Linux Enterprise Srvr (4 CPU,Unl Vrt); 5yr Support Reqd |
| SLES-2S-HA-1S                   | SUSE Linux High Availability Ext (1-2 CPU); 1yr Support Reqd |
| SLES-2S-HA-3S                   | SUSE Linux High Availability Ext (1-2 CPU); 3yr Support Reqd |
| SLES-2S-HA-5S                   | SUSE Linux High Availability Ext (1-2 CPU); 5yr Support Reqd |
| SLES-2S-GC-1S                   | SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Support Reqd |
| SLES-2S-GC-3S                   | SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr Support Reqd |

**Table 23 OSs and Value-Added Software (for 4-CPU servers) (continued)**

| PID Description                            | Product ID (PID)                                                     |
|--------------------------------------------|----------------------------------------------------------------------|
| SLES-2S-GC-5S                              | SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr Support Reqd         |
| SLES-SAP-2S2V-1A                           | SLES for SAP Applications (1-2 CPU,1 Phys); 1yr Support Reqd         |
| SLES-SAP-2S2V-3A                           | SLES for SAP Applications (1-2 CPU,1 Phys); 3yr Support Reqd         |
| SLES-SAP-2S2V-5A                           | SLES for SAP Applications (1-2 CPU,1 Phys); 5yr Support Reqd         |
| SLES-SAP-2SUV-1A                           | SLES for SAP Applications (1-2 CPU,Unl Vrt);1yr Support Reqd         |
| SLES-SAP-2SUV-3A                           | SLES for SAP Applications (1-2 CPU,Unl Vrt);3yr Support Reqd         |
| SLES-SAP-2SUV-5A                           | SLES for SAP Applications (1-2 CPU,Unl Vrt);5yr Support Reqd         |
| <b>Nexus 1000V for Hyper-V and vSphere</b> |                                                                      |
| N1K-VSG-UCS-BUN                            | Over half off N1K and VSG w/ purchase of UCS B/C Series              |
| N1K-VLEM-UCS-1                             | Nexus 1000V License Paper Delivery (1 CPU) for bundles               |
| VSG-VLEM-UCS-1                             | VSG License Paper Delivery (1 CPU) for bundles                       |
| <b>UCS Director</b>                        |                                                                      |
| CUIC-PHY-SERV-BM-U                         | Cisco Cloupia Resource Lic - One Phy Server node bare metal          |
| CUIC-PHY-SERV-U                            | Cisco Cloupia Resource Lic - One physical Server node                |
| CUIC-TERM                                  | Acceptance of Cisco Cloupia 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 - 60 days evaluation                         |
| EVAL-UCS-PM-EE                             | UCS Performance Manager Express - 60 days evaluation                 |
| NFR-UCS-PM-IE                              | UCS Performance Manager - Not For Resale                             |
| NFR-UCS-PM-EE                              | CS Performance Manager Express - Not For Resale                      |
| <b>IMC Supervisor</b>                      |                                                                      |
| EVAL-CIMC-SUP                              | EVAL: IMC Supervisor-Branch Mgt SW for C/E-Series - 50 Svrs          |
| EVAL-CIMC-SUP-BAS                          | EVAL: IMC Supervisor One-time Site Installation License              |
| CIMC-SUP-B01                               | IMC Supervisor-Branch Mgt SW for C-Series & E-Series up to 100 Svrs  |
| CIMC-SUP-B02                               | IMC Supervisor- Branch Mgt SW for C-Series & E-Series up to 250 Svrs |
| CIMC-SUP-B10                               | IMC Supervisor- Branch Mgt SW for C-Series & E-Series up to 1K Svrs  |
| CIMC-SUP-BASE-K9                           | IMC Supervisor One-time Site Installation License                    |
| CIMC-SUP-TERM                              | Acceptance of Cisco IMC Supervisor License Terms                     |
| <b>VMWare 5</b>                            |                                                                      |
| VMW-VS5-STD-1A                             | VMware vSphere 5 Standard for 1 Processor, 1 Year, Support Rqd       |
| VMW-VS5-STD-2A                             | VMware vSphere 5 Standard for 1 Processor, 2 Year, Support Rqd       |
| VMW-VS5-STD-3A                             | VMware vSphere 5 Standard for 1 Processor, 3 Year, Support Rqd       |
| VMW-VS5-STD-4A                             | VMware vSphere 5 Standard for 1 Processor, 4 Year, Support Rqd       |
| VMW-VS5-STD-5A                             | VMware vSphere 5 Standard for 1 Processor, 5 Year, Support Rqd       |
| VMW-VS5-ENT-1A                             | VMware vSphere 5 Enterprise for 1 Processor, 1 Year Support Rqd      |

**Table 23 OSs and Value-Added Software (for 4-CPU servers) (continued)**

| PID Description | Product ID (PID)                                                     |
|-----------------|----------------------------------------------------------------------|
| VMW-VS5-ENT-2A  | VMware vSphere 5 Enterprise for 1 CPU, 2 Yr Support Rqd              |
| VMW-VS5-ENT-3A  | VMware vSphere 5 Enterprise for 1 CPU, 3 Yr Support Rqd              |
| VMW-VS5-ENT-4A  | VMware vSphere 5 Enterprise for 1 Processor, 4 Year Support Rqd      |
| VMW-VS5-ENT-5A  | VMware vSphere 5 Enterprise for 1 CPU, 5 Yr Support Rqd              |
| VMW-VS5-ENTP-1A | VMware vSphere 5 Enterprise Plus for 1 Processor, 1 Year Support Rqd |
| VMW-VS5-ENTP-2A | VMware vSphere 5 Enterprise Plus for 1 CPU, 2 Yr Support Rqd         |
| VMW-VS5-ENTP-3A | VMware vSphere 5 Enterprise Plus for 1 Processor, 3 Year Support Rqd |
| VMW-VS5-ENTP-4A | VMware vSphere 5 Enterprise Plus for 1 Processor, 4 Year Support Rqd |
| VMW-VC5-STD-1A  | VMware vCenter 5 Server Standard, 1 yr support required              |
| VMW-VC5-STD-2A  | VMware vCenter 5 Server Standard, 2 yr support required              |
| VMW-VC5-STD-3A  | VMware vCenter 5 Server Standard, 3 yr support required              |
| VMW-VC5-STD-4A  | VMware vCenter 5 Server Standard, 4 yr support required              |
| VMW-VC5-STD-5A  | VMware vCenter 5 Server Standard, 5 yr support required              |

## STEP 17 CHOOSE OPERATING SYSTEM MEDIA KIT

Choose the optional operating system media listed in [Table 24](#).

**Table 24** OS Media

| Product ID (PID)  | PID Description                                                  |
|-------------------|------------------------------------------------------------------|
| RHEL-6            | RHEL 6 Recovery Media Only (Multilingual)                        |
| 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 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 Datacenter (2 CPU/Unlimited VM) Rec Media |

## STEP 18 CHOOSE 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) parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

### Unified Computing Support Service

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

For UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Unified Computing Support Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in [Table 25](#).

**Table 25 Unified Computing Support Service**

| Product ID (PID) | On Site? | Description                         |
|------------------|----------|-------------------------------------|
| CON-PREM-C420M3  | Yes      | ONSITE 24X7X2 UCS C420 M3 Server    |
| CON-OSP-C420M3   | Yes      | ONSITE 24X7X4 UCS C420 M3 Server    |
| CON-OSE-C420M3   | Yes      | ONSITE 8X5X4 UCS C420 M3 Server     |
| CON-OS-C420M3    | Yes      | ONSITE 8X5XNBD UCS C420 M3 Server   |
| CON-SNT-C420M3   | No       | SMARTNET 8X5XNBD UCS C420 M3 Server |
| CON-SNTE-C420M3  | No       | SMARTNET 8X5X4 UCS C420 M3 Server   |
| CON-SNTP-C420M3  | No       | SMARTNET 24X7X4 UCS C420 M3 Server  |
| CON-S2P-C420M3   | No       | SMARTNET 24X7X2 UCS C420 M3 Server  |

### Unified Computing Warranty Plus Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Unified Computing Warranty Plus Service. You can choose from several levels of advanced parts replacement coverage, including onsite parts replacement in as little as four hours. Warranty Plus 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 26](#).

**Table 26 UCS Computing Warranty Plus Service**

| Product ID (PID) | Service Level GSP | On Site? | Description                         |
|------------------|-------------------|----------|-------------------------------------|
| CON-UCW5-C420M3  | UCW5              | Yes      | UCS HW 8X5XNBDOS UCS C420 M3 Server |
| CON-UCW7-C420M3  | UCW7              | Yes      | UCS HW 24X7X40S UCS C420 M3 Server  |

### 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 27](#).

**Table 27 Partner Support Service for UCS**

| Product ID (PID) | Service Level GSP | On Site? | Description                             |
|------------------|-------------------|----------|-----------------------------------------|
| CON-PSJ1-C420M3  | PSJ1              | No       | UCS SUPP PSS 8X5XNBD UCS C420 M3 Server |
| CON-PSJ2-C420M3  | PSJ2              | No       | UCS SUPP PSS 8X5X4 UCS C420 M3 Server   |
| CON-PSJ3-C420M3  | PSJ3              | No       | UCS SUPP PSS 24X7X4 UCS C420 M3 Server  |
| CON-PSJ4-C420M3  | PSJ4              | No       | UCS SUPP PSS 24X7X2 UCS C420 M3 Server  |

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See [Table 28](#).

**Table 28 Partner Support Service for UCS (Hardware Only)**

| Product ID (PID) | Service Level GSP | On Site? | Description                            |
|------------------|-------------------|----------|----------------------------------------|
| CON-PSW2-C420M3  | PSW2              | No       | UCS W PL PSS 8X5X4 UCS C420 M3 Server  |
| CON-PSW3-C420M3  | PSW3              | No       | UCS W PL PSS 24X7X4 UCS C420 M3 Server |
| CON-PSW4-C420M3  | PSW4              | No       | UCS W PL PSS 24X7X2 UCS C420 M3 Server |

### 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 29](#).

**Table 29 UCS Computing Combined Support Service**

| Product ID (PID) | Service Level GSP | On Site? | Description                              |
|------------------|-------------------|----------|------------------------------------------|
| CON-NCF2-C420M3  | NCF2              | No       | CMB SPT SVC 24X7X2 UCS C420 M3 Server    |
| CON-NCF2P-C420M3 | NCF2P             | Yes      | CMB SPT SVC 24X7X2OS UCS C420 M3 Server  |
| CON-NCF4P-C420M3 | NCF4P             | Yes      | CMB SPT SVC 24X7X4OS UCS C420 M3 Server  |
| CON-NCF4S-C420M3 | NCF4S             | Yes      | CMB SPT SVC 8X5X4OS UCS C420 M3 Server   |
| CON-NCFCs-C420M3 | NCFCs             | Yes      | CMB SPT SVC 8X5XNBDOS UCS C420 M3 Server |
| CON-NCFE-C420M3  | NCFE              | No       | CMB SPT SVC 8X5X4 UCS C420 M3 Server     |
| CON-NCFP-C420M3  | NCFP              | No       | CMB SPT SVC 24X7X4 UCS C420 M3 Server    |
| CON-NCFT-C420M3  | NCFT              | No       | CMB SPT SVC 8X5XNBD UCS C420 M3 Server   |

#### 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, thereby reducing 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 30](#).



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

**Table 30 Drive Retention Service Options**

| Service Description                      | Service Level GSP | Service Level  | Product ID (PID) |
|------------------------------------------|-------------------|----------------|------------------|
| UCS Support Service With Drive Retention | UCSD5             | 8x5xNBD Onsite | CON-UCSD5-C420M3 |
|                                          | UCSD7             | 24x7x4 Onsite  | CON-UCSD7-C420M3 |
| UCS Warranty Plus With Drive Retention   | UCWD5             | 8x5xNBD Onsite | CON-UCWD5-C420M3 |
|                                          | UCWD7             | 24x7x4 Onsite  | CON-UCWD7-C420M3 |

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

[http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco\\_UC\\_Warranty\\_Support\\_DS.pdf](http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco_UC_Warranty_Support_DS.pdf)

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

[http://www.cisco.com/en/US/products/ps10312/serv\\_group\\_home.html](http://www.cisco.com/en/US/products/ps10312/serv_group_home.html)

## OPTIONAL STEP - ORDER RACK(s)

The optional R42610 rack is available from Cisco for the C-Series servers, including the C420 M3 server. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in [Table 31](#). Racks are shipped separately from the C420 M3 server.

**Table 31** Racks and Rack Options

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

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

For more information about the R42610 rack, see [RACKS on page 56](#).

## OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers, including the C420 M3 server. This PDU is available in a zero rack unit (RU) style (see [Table 31](#)).

**Table 32** PDU Options

| Product ID (PID) | PID Description                        |
|------------------|----------------------------------------|
| RP208-30-1P-U-1  | Cisco Single-Phase PDU 2x C13, 4x C19  |
| RP208-30-1P-U-2  | Cisco Single-Phase PDU 20x C13, 4x C19 |

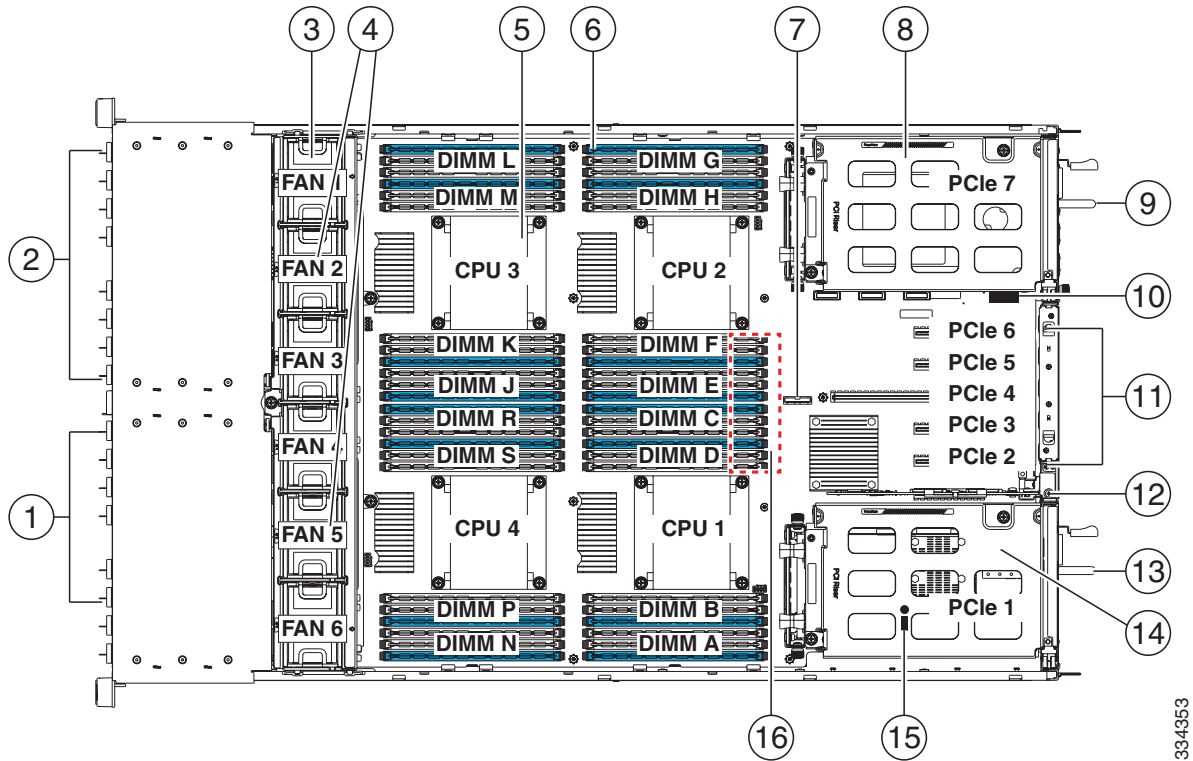
For more information about the PDU, see [PDUs on page 58](#).

# SUPPLEMENTAL MATERIAL

## CHASSIS

An internal view of the C420 M3 chassis with the top cover removed is shown in [Figure 7](#).

**Figure 7** C420 M3 With Top Cover Removed



|          |                                                                                                           |           |                                                                             |
|----------|-----------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------|
| <b>1</b> | Drive bay module 2<br>(up to eight 2.5-inch drives, hot-pluggable)                                        | <b>9</b>  | Power supply 2 (hot-pluggable)                                              |
| <b>2</b> | Drive bay module 1<br>(up to eight 2.5-inch drives, hot-pluggable)                                        | <b>10</b> | USB 2.0 slot on motherboard                                                 |
| <b>3</b> | Fan tray, with six hot-pluggable fan modules                                                              | <b>11</b> | PCIe slots 2–6 on motherboard                                               |
| <b>4</b> | Drive backplane transition cards<br>(up to two on chassis floor, not visible under fan tray in this view) | <b>12</b> | I/O riser (includes two sockets for Cisco Flexible Flash internal SD cards) |
| <b>5</b> | CPUs and heatsinks (two or four)                                                                          | <b>13</b> | Power supply 1 (hot-pluggable)                                              |
| <b>6</b> | DIMM sockets on motherboard (up to 48)                                                                    | <b>14</b> | PCIe riser 2 (horizontal PCIe slot 1)                                       |
| <b>7</b> | RTC battery on motherboard                                                                                | <b>15</b> | TPM socket (on motherboard, not visible under power supply in this view)    |
| <b>8</b> | PCIe riser 1 (horizontal PCIe slot 7)                                                                     | <b>16</b> | RAID backup unit (SuperCap power module) mounting location                  |

## CPUs and DIMMs

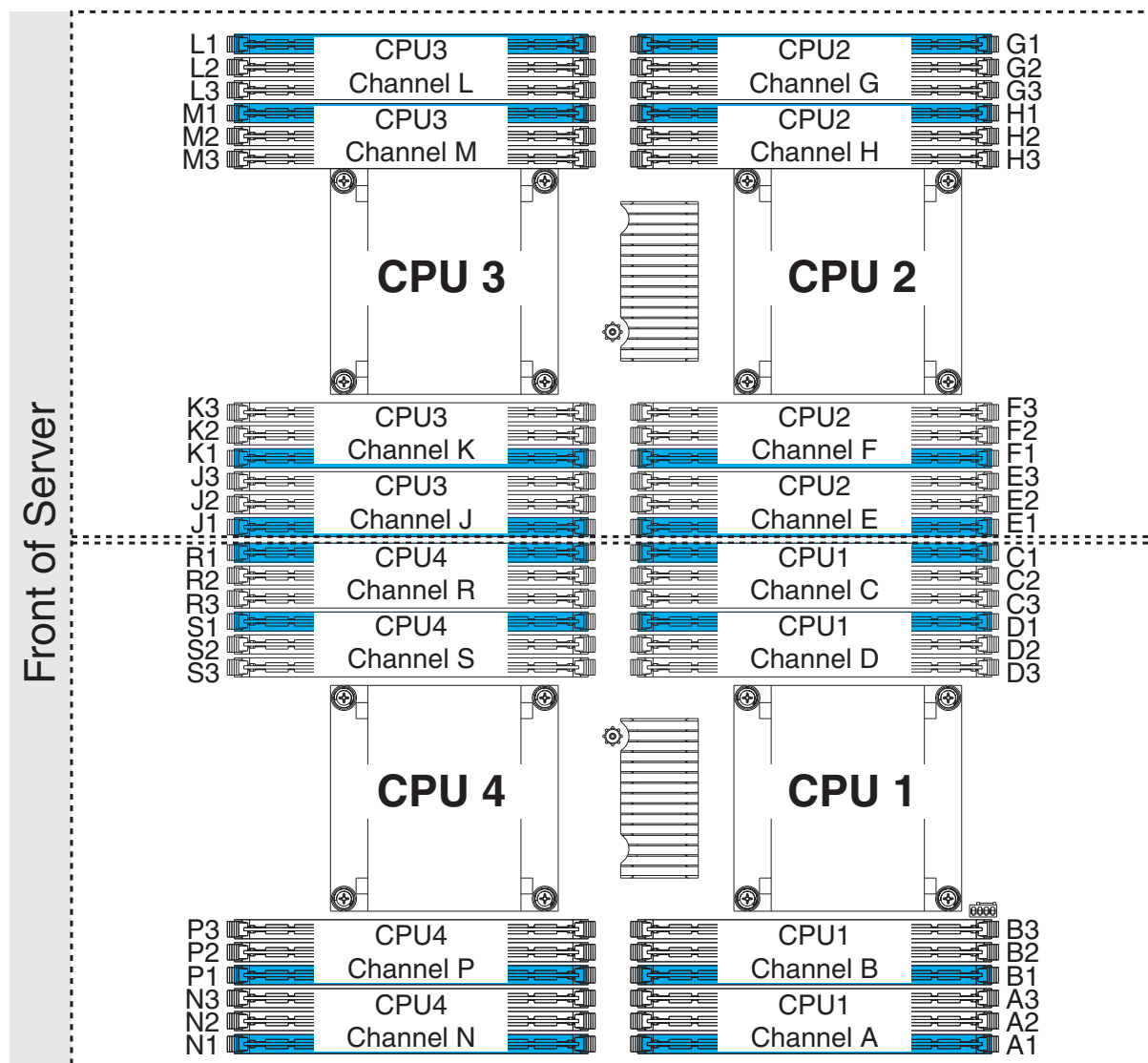
### Physical Layout

Each CPU controls four DDR3 channels, with up to three DIMMs per channel (DPC). The channels are organized as follows:

- CPU1: channels A, B, C, D
- CPU2: channels E, F, G, H
- CPU3: channels J, K, L, M
- CPU4: channels N, P, R, S

The physical layout of the CPUs, memory risers, and memory riser channels is shown in [Figure 8](#).

**Figure 8** Physical Layout



334359

## Memory Population Rules

When considering the memory configuration of your server, you should observe the following:

- The server supports 1, 2, or 3 DIMMs per channel for single- or dual-rank DIMMs.
- The server supports registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs). However, do not mix RDIMMs and LRDIMMs in a server.
- The DRAM controller for each channel can operate independently, or in lockstep-pair mode for mirroring. When using mirroring, DIMMs must be installed in identical pairs across paired DDR3 buses. That is, mirrored pairs in channels A and B must be identical and pairs in channels C and D must be identical. However, the DIMMs used in channels A/B and in C/D can be different.
- UDIMMs and non-ECC DIMMs are not supported.
- The minimum configuration is one DIMM installed in any of CPU1's blue sockets (A1, B1, C1, or D1).
- For lockstep-pair mode, minimum configuration is an identical pair installed in any of CPU1's A and B channel blue sockets; or in any of CPU1's C and D channel blue sockets.
- There is no hard requirement to install DIMMs evenly across all CPUs. However, for optimal performance, populate sockets as shown in the table below.
- A DIMM installed in a socket for an absent CPU is not accessible by other CPUs.
- When populating a channel, install to the blue socket first, then fill the black sockets inward toward the CPU.

## Recommended Configuration

- For optimal performance, populate DIMMs in the order shown in [Table 33](#) (for 2 CPUs) or [Table 34](#) (for 4 CPUs) and refer to [Figure 8 on page 52](#).

**Table 33 Recommended 2-CPU DIMM Installation Order**

| # DIMMs Installed | CPU Number | DIMM Socket | DIMM Socket Color |
|-------------------|------------|-------------|-------------------|
| 1                 | CPU1       | C1          | Blue              |
| 2                 | CPU2       | E1          | Blue              |
| 3                 | CPU1       | D1          | Blue              |
| 4                 | CPU2       | F1          | Blue              |
| 5                 | CPU1       | B1          | Blue              |
| 6                 | CPU2       | H1          | Blue              |
| 7                 | CPU1       | A1          | Blue              |
| 8                 | CPU2       | G1          | Blue              |
| 9                 | CPU1       | C2          | Black             |
| 10                | CPU2       | E2          | Black             |
| 11                | CPU1       | D2          | Black             |
| 12                | CPU2       | F2          | Black             |
| 13                | CPU1       | B2          | Black             |
| 14                | CPU2       | H2          | Black             |
| 15                | CPU1       | A2          | Black             |
| 16                | CPU2       | G2          | Black             |
| 17                | CPU1       | C3          | Black             |
| 18                | CPU2       | E3          | Black             |
| 19                | CPU1       | D3          | Black             |
| 20                | CPU2       | F3          | Black             |
| 21                | CPU1       | B3          | Black             |
| 22                | CPU2       | H3          | Black             |
| 23                | CPU1       | A3          | Black             |
| 24                | CPU2       | G3          | Black             |

**Table 34 Recommended 4-CPU DIMM Installation Order**

| # DIMMs Installed | CPU Number | DIMM Socket | DIMM Socket Color | # DIMMs Installed | CPU Number | DIMM Socket | DIMM Socket Color |
|-------------------|------------|-------------|-------------------|-------------------|------------|-------------|-------------------|
| 1                 | CPU1       | C1          | Blue              | 25                | CPU1       | B2          | Black             |
| 2                 | CPU2       | E1          | Blue              | 26                | CPU2       | H2          | Black             |
| 3                 | CPU3       | J1          | Blue              | 27                | CPU3       | M2          | Black             |
| 4                 | CPU4       | R1          | Blue              | 28                | CPU4       | P2          | Black             |
| 5                 | CPU1       | D1          | Blue              | 29                | CPU1       | A2          | Black             |
| 6                 | CPU2       | F1          | Blue              | 30                | CPU2       | G2          | Black             |
| 7                 | CPU3       | K1          | Blue              | 31                | CPU3       | L2          | Black             |
| 8                 | CPU4       | S1          | Blue              | 32                | CPU4       | N2          | Black             |
| 9                 | CPU1       | B1          | Blue              | 33                | CPU1       | C3          | Black             |
| 10                | CPU2       | H1          | Blue              | 34                | CPU2       | E3          | Black             |
| 11                | CPU3       | M1          | Blue              | 35                | CPU3       | J3          | Black             |
| 12                | CPU4       | P1          | Blue              | 36                | CPU4       | R3          | Black             |
| 13                | CPU1       | A1          | Blue              | 37                | CPU1       | D3          | Black             |
| 14                | CPU2       | G1          | Blue              | 38                | CPU2       | F3          | Black             |
| 15                | CPU3       | L1          | Blue              | 39                | CPU3       | K3          | Black             |
| 16                | CPU4       | N1          | Blue              | 40                | CPU4       | S3          | Black             |
| 17                | CPU1       | C2          | Black             | 41                | CPU1       | B3          | Black             |
| 18                | CPU2       | E2          | Black             | 42                | CPU2       | H3          | Black             |
| 19                | CPU3       | J2          | Black             | 43                | CPU3       | M3          | Black             |
| 20                | CPU4       | R2          | Black             | 44                | CPU4       | P3          | Black             |
| 21                | CPU1       | D2          | Black             | 45                | CPU1       | A3          | Black             |
| 22                | CPU2       | F2          | Black             | 46                | CPU2       | G3          | Black             |
| 23                | CPU3       | K2          | Black             | 47                | CPU3       | L3          | Black             |
| 24                | CPU4       | S2          | Black             | 48                | CPU4       | N3          | Black             |

## RACKS

The Cisco R42610 rack (see [Figure 9](#)) 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 35](#).

**Table 35 Cisco R42610 Rack Specifications**

| Parameter                                               | Standard Rack                                    | Expansion Rack                                      |
|---------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Dimensions (H x W x D)                                  | 78.74 x 24 x 43.38 in.<br>(2000 x 610 x 1102 mm) | 78.74 x 23.58 x 43.38 in.<br>(2000 x 599 x 1102 mm) |
| Dimensions (H x W x D) with packaging                   | 89 x 33 x 47 in.<br>(2261 x 838 x 1194 mm)       | 89 x 33 x 47 in.<br>(2261 x 838 x 1194 mm)          |
| Distance from front mounting rail to rear mounting rail | 29.2 in. (741 mm)                                | 29.2 in. (741 mm)                                   |
| Weight                                                  | 299.83 lb (136 kg)                               | 231.49 lb (105 kg)                                  |
| Weight with packaging                                   | 354 lb<br>(161 kg)                               | 284 lb<br>(129 kg)                                  |
| Side panels included                                    | Yes                                              | No                                                  |
| Equipment mounting capacity                             | 42RU                                             | 42RU                                                |
| Static load capacity                                    | 2100 lb<br>(954 kg)                              | 2100 lb<br>(954 kg)                                 |
| Dynamic load capacity                                   | Not applicable                                   | Not applicable                                      |



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

**Figure 9** Cisco R42610 Rack



Front view - door closed



Front view - door open



Front view - door removed

PDU

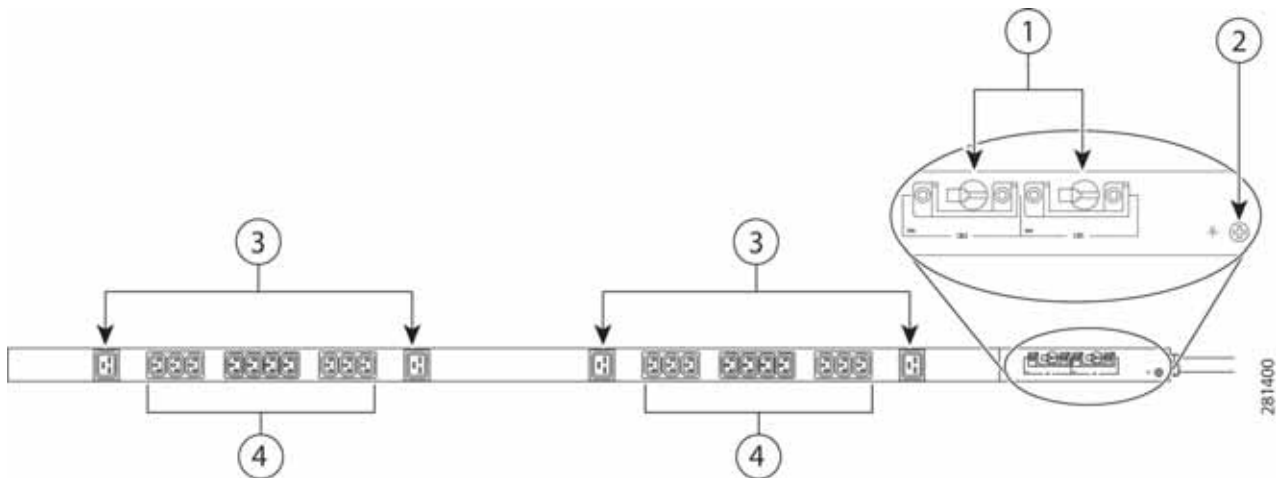
Cisco RP Series Power Distribution Units (PDUs) offer power distribution with branch circuit protection.

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

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

The C-series severs accept the zero-rack-unit (0RU) PDU. See [Figure 10](#).

Figure 10 Zero Rack Unit PDU (PID = RP208-30-2P-U-2)



|   |                   |   |           |
|---|-------------------|---|-----------|
| 1 | Breakers          | 3 | C19 plugs |
| 2 | Ground connection | 4 | C13 plugs |

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

KVM CABLE

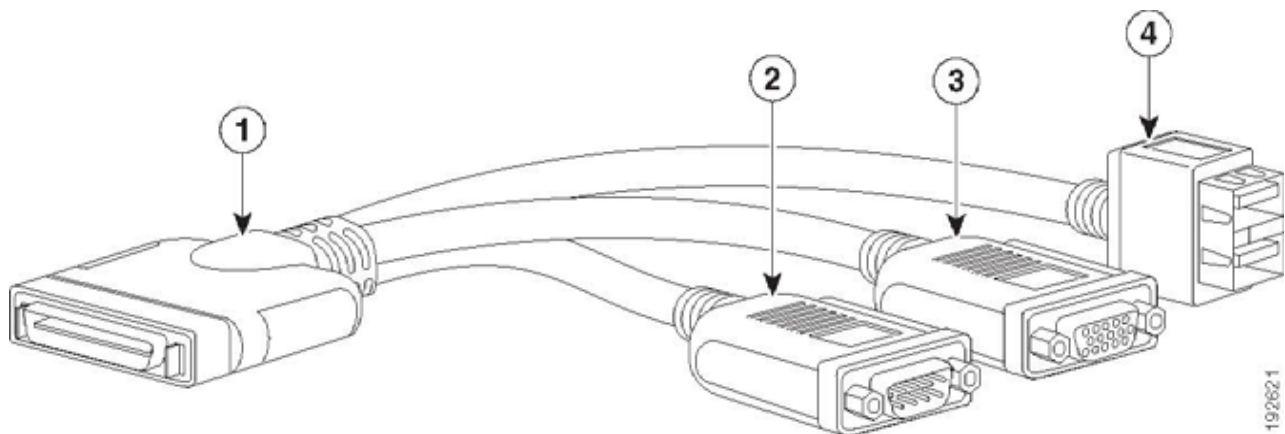
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 36](#).

Table 36 KVM Cable

| Product ID (PID) | PID Description |
|------------------|-----------------|
| 37-1016-01       | KVM Cable       |

Figure 11 KVM Cable



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

## TECHNICAL SPECIFICATIONS

### Dimensions and Weight

**Table 37 UCS C420 M3 Dimensions and Weight<sup>1</sup>**

| Parameter                                                                              | Value               |
|----------------------------------------------------------------------------------------|---------------------|
| Height                                                                                 | 3.5 in. (8.9 cm)    |
| Width (including rack-mount flanges)                                                   | 18.95 in. (48.1 cm) |
| Depth (including slide-rail brackets)                                                  | 31.5 in. (80 cm)    |
| Front Clearance                                                                        | 3 in. (7.62 cm)     |
| Side Clearance                                                                         | 1 in. (2.54 cm)     |
| Rear Clearance                                                                         | 6 in. (15.24 cm)    |
| Weight (maximum configuration, including slide rail brackets and cable management arm) | 86 lbs (39 kg)*     |

1. The system weight given here is an estimate for a fully configured system and will vary depending on the number of peripheral devices and power supplies.

### Power Specifications

The general power specifications for the C420 M3 server are listed in [Table 38](#).

**Table 38 UCS C420 M3 Power Specifications<sup>1</sup>**

| Description                                | Specification                                 |
|--------------------------------------------|-----------------------------------------------|
| AC input voltage                           | 100 to 127 VAC nominal (Range: 90 to 264 VAC) |
| AC input frequency                         | 50 to 60 Hz nominal (Range: 47 to 63 Hz)      |
| Maximum AC input current                   | 10 A at 100 VAC                               |
| Maximum AC inrush current                  | 30 A peak sub-cycle duration                  |
| Maximum output power for each power supply | 1200 W                                        |
| Power supply output voltage                | Main power: 12 VDC<br>Standby Power: 5 VDC    |
| Power supply efficiency                    | 94% Peak, complies with 80Plus Gold Standard  |

1. The C420 M3 server consumes 1100 W when configured as follows: 48 LRDIMMs (1.35 V), 16 drives, two RAID cards, mix of five networking cards, and four 130 W CPUs.



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

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

<http://ucspowercalc.cisco.com>

## Environmental Specifications

The power specifications for the C420 M3 server are listed in [Table 39](#).

**Table 39 UCS C420 M3 Environmental Specifications**

| Parameter                | Minimum                                                                                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature operating    | 10°C to 35°C (50°F to 95°F)                                                                                                                                          |
| Temperature nonoperating | -40°C to 65°C (-40°F to 149°F)                                                                                                                                       |
| Altitude operating       | 0 to 3,000 m (0 to 10,000 ft.); maximum ambient temperature decreases by 1° per 300 m                                                                                |
| Humidity nonoperating    | 5 to 93%, noncondensing                                                                                                                                              |
| Vibration nonoperating   | 2.2 Grms, 10 minutes per axis on each of the three axes                                                                                                              |
| Shock operating          | Half-sine 2 G, 11 ms pulse, 100 pulses in each direction, on each of the three axes                                                                                  |
| Shock nonoperating       | Trapezoidal, 25 G, two drops on each of six faces<br>Velocity = 175 inches per second on bottom face drop<br>Velocity = 90 inches per second on the other five faces |
| Electrostatic discharge  | Tested to ESD levels up to 15 kilovolts (kV) air discharge and up to 8 kV contact discharge without physical damage                                                  |
| Acoustic                 | Sound power: 54.7 dBA (5.7 Bels) at ambient temperature 23°C measured using the Dome Method<br>GOST MsanPiN 001-96                                                   |

## Compliance Requirements

The regulatory compliance requirements for C-Series servers are listed in [Table 40](#).

**Table 40 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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