



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

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OVERVIEW

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

The enterprise-class UCS C240 M3 server extends the capabilities of Cisco's Unified Computing System portfolio in a 2U form factor with the addition of the Intel® Xeon E5-2600 v2 and E5-2600 series processor family CPUs that deliver the best combination of performance, flexibility and efficiency gains. In addition, the UCS C240 M3 server provides 24 DIMM slots, up to 24 drives and 4 x 1 GbE LOM ports to provide outstanding levels of internal memory and storage expandability along with exceptional performance.

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

Front View



Rear View

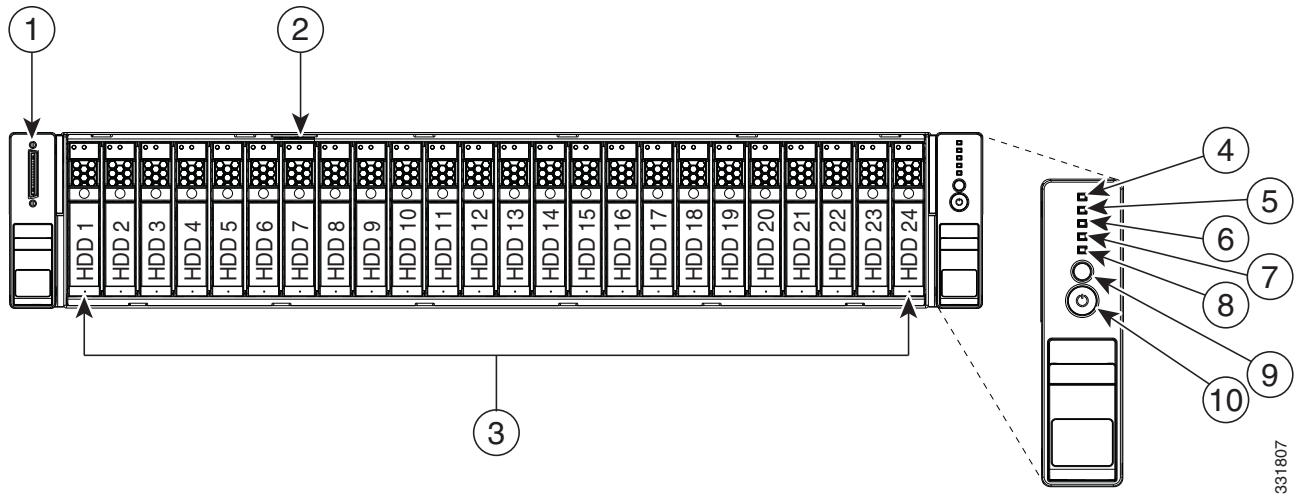


DETAILED VIEWS

Chassis Front View

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

Figure 2 Chassis Front View



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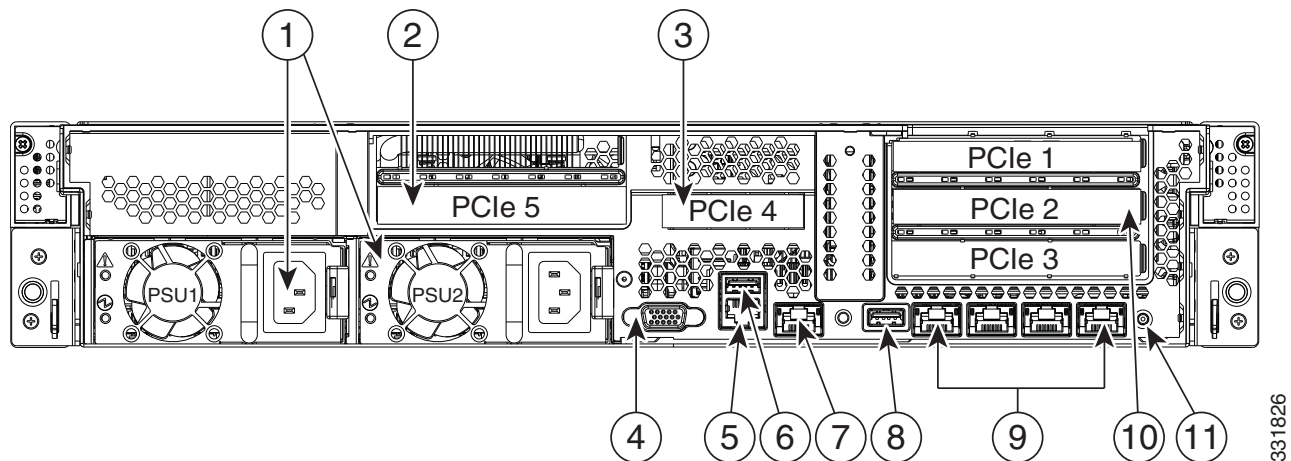
1	KVM connector (used with KVM cable that provides two USB, one VGA, and one serial connector)	6	Temperature status LED
2	Asset tag (serial number)	7	Fan status LED
3	Drives (up to 24 2.5-inch hot-swappable drives)	8	System status LED
4	Network link activity LED	9	Identification button/LED
5	Power supply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

For more information about the KVM cable connection, see [KVM CABLE, page 83](#).

Chassis Rear View

Figure 3 shows the external features of the rear panel.

Figure 3 Chassis Rear View



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

Notes . . .

1. PCIe slot 1 is not available when a double-width GPU is installed in slot 2.
2. For serial port pinout details, see [Serial Port Details, page 75](#)

BASE SERVER STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER, page 11*.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	Two rack unit (2RU) chassis
CPU	One or two Intel Xeon E5-2600 v2 or E5-2600 series processor family CPUs
Chipset	Intel® C600 series chipset
Memory	24 slots for registered or unbuffered ECC DIMMs (RDIMMs or UDIMMs) or load-reduced DIMMs (LRDIMMs)
Multi-bit Error Protection	This server supports multi-bit error protection.
NIC	<p>Embedded quad-port Intel i350 PCIe-based Gigabit Ethernet controller, supporting the following:</p> <ul style="list-style-type: none"> ■ Pre-Execution Boot (PXE boot) ■ iSCSI boot ■ Checksum and segmentation offload ■ NIC teaming
Expansion slots	<p>Five PCIe slots (on two riser cards)</p> <ul style="list-style-type: none"> ■ Riser 1 (PCIe slots 1, 2, and 3) ■ Riser 2 (PCIe slots 4 and 5)
Internal storage devices	<p>Drives are installed into front-panel drive bays that provide hot-pluggable access.</p> <ul style="list-style-type: none"> ■ Small Form Factor (SFF) drives. The server can hold up to: <ul style="list-style-type: none"> • 24 2.5 inch (63.5 mm) SAS or SATA hard drives (HDDs) or solid state drives (SSDs) with the 24-drive backplane server configuration • 16 2.5 inch (63.5 mm) SAS or SATA HDDs or SSDs with the 16-drive backplane server configuration ■ The server also contains one internal USB 2.0 port on the motherboard that you can use with a USB thumb drive for additional storage ■ UCS Storage Accelerator are also available. These PCIe flash storage devices provide independent high-speed storage.
Cisco Flexible Flash drives	<p>The server supports up to two internal Cisco Flexible Flash drives (SD cards).</p> <ul style="list-style-type: none"> ■ The first SD card is pre-loaded with four virtual drives. The four virtual drives contain, respectively, the Cisco Server Configuration Utility, the Cisco Host Upgrade Utility, the Cisco C-Series server drivers set, and a blank virtual drive on which you can install an OS or a hypervisor. ■ 4 GB is available for general use ■ The second SD card is blank and can be used to mirror the first SD card. It can be used to protect the Hypervisor Partition with RAID1.

Capability/Feature	Description
Storage controller	<ul style="list-style-type: none"> ■ Embedded RAID (3 Gbs) <ul style="list-style-type: none"> • Embedded SATA-only RAID controller, supporting up to four SATA-only drives (RAID 0, 1, 10), or • ROM5 RAID upgrade, supporting up to eight SAS+SATA HDDs or SSDs (RAID 0, 1, 10), or • ROM55 RAID upgrade, supporting up to eight SAS+SATA HDDs or SSDs (RAID 0, 1, 5, 10). <p>Note that embedded RAID options can be supported only with the version of the C240 M3 SFF server that has been configured with a 16-drive backplane.</p> <ul style="list-style-type: none"> ■ Mezzanine Cards (6 Gbs) - two versions <ul style="list-style-type: none"> • Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 SAS+SATA drives with the 16-drive backplane or 16 SAS+SATA drives with the 24-drive backplane (this card supports a maximum of 16 drives for a RAID volume). The card supports RAID 0, 1, 5, 10, and 50. This card has a product ID (PID) of UCSC-RAID-11-C240. • Cisco UCSC RAID SAS 2008M-8i Mezzanine Card supports up to 8 SAS+SATA drives with the 16-drive backplane or 16 SAS+SATA drives with the 24-drive backplane (this card supports a maximum of 16 drives for a RAID volume). The card supports RAID 0, 1, and 10. This card has a product ID (PID) of UCSC-RAID-MZ-240. <p>Note that mezzanine cards are used as follows:</p> <ul style="list-style-type: none"> • A mezzanine card in a 16-drive backplane system can support up to 8 drives. The reason for this is that the 16-drive backplane does not support a SAS expander. • A mezzanine card in a 24-drive backplane system can support up to 16 drives, due to a 16-drive limit for a RAID volume for this card. <ul style="list-style-type: none"> ■ PCIe RAID Controllers (6 Gbs) <ul style="list-style-type: none"> • LSI MegaRAID SAS 9271-8i or 9271CV-8i 8-port PCIe RAID controller with on-board 1 GB data cache and chassis-mounted (remote) supercap for data cache power backup (supercap not present on 9271-8i), supporting RAID levels 0, 1, 5, 6, 10, 50, 60 and up to 24 internal SAS +SATA drives when configured with 24-drive backplane. When used with a 16-drive backplane version of the server, one controller can control up to 8 drives. Two controllers must be installed to control 16 drives. • LSI MegaRAID 9285CV-8e or 9286CV-8e 8-port PCIe RAID controller with on-board 1 GB cache and chassis-mounted (remote) supercap for data cache power backup, supporting RAID levels 0, 1, 5, 6, 10, 50, 60. Supports 8 external SAS ports (up to 240 external drives). • Cisco Nytro MegaRAID 200 GB PCIe RAID controller with on-board 1 GB data cache and 200 GB flash memory. The controller supports up to 24 drives on the 24-drive backplane version of the server and supports RAID levels 0, 1, 5, 6, 10, 50, and 60. SAS + SATA drives are supported.

Capability/Feature	Description
Video	<p>The Emulex Pilot 3 Integrated Baseboard Management Controller provides video:</p> <ul style="list-style-type: none"> ■ Matrox G200e video controller ■ Integrated 2D graphics core with hardware acceleration ■ Supports all display resolutions up to 1920 x 1200 x 16 bpp resolution at 60 Hz ■ 24-bit color depth for all resolutions less than 1600x1200 ■ 256 MB video memory
Interfaces	<p>Rear panel</p> <ul style="list-style-type: none"> ■ One RJ-45 10/100/1000 Ethernet management port, using Cisco Integrated Management Controller (CIMC) firmware ■ Four 1-GbE (10/100/1000 Mbps capable) LOM ports ■ One RJ45 serial port connector ■ Two USB 2.0 port connectors ■ One DB15 VGA connector ■ Various PCIe card ports (dependent on which cards are installed) <ul style="list-style-type: none"> • Converged Network Adapter (CNA) ports • Network Interface Card (NIC) ports • Host Bus Adapter (HBA) ports <p>Front panel</p> <ul style="list-style-type: none"> ■ One KVM console connector (supplies two USB 2.0, one VGA, and one serial connector)
WoL	The 1-Gb Base-T Ethernet LAN ports support the wake-on-LAN (WoL) standard.
InfiniBand	The bus slots in this server support the InfiniBand architecture.
Front Panel	<ul style="list-style-type: none"> ■ A front panel controller provides status indications and control buttons
Power subsystem	One power supply is required (either 650 W or 1200 W AC, or 930 W DC). An additional power supply may be ordered to provide 1+1 redundancy. The power supplies must match in a redundant power supply configuration.
ACPI	This server supports the advanced configuration and power interface (ACPI) 4.0 standard.
Fans	<p>Chassis:</p> <ul style="list-style-type: none"> ■ Six hot-swappable fans for front-to-rear cooling <p>Power supply:</p> <ul style="list-style-type: none"> ■ Each power supply is equipped with a fan.
Integrated management processor	<p>BMC running Cisco Integrated Management Controller (CIMC) firmware.</p> <p>Depending on your CIMC settings, the CIMC can be accessed through the 1-GbE dedicated management port, the 1-GbE LOM ports, or a Cisco virtual interface card (VIC).</p>

CONFIGURING the SERVER

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

- [*STEP 1 VERIFY SERVER SKU, page 12*](#)
- [*STEP 2 SELECT CPU\(s\), page 13*](#)
- [*STEP 3 SELECT MEMORY, page 16*](#)
- [*STEP 4 SELECT RAID CONFIGURATION, page 22*](#)
- [*STEP 5 SELECT HARD DISK DRIVES \(HDDs\) or SOLID STATE DRIVES \(SSDs\), page 31*](#)
- [*STEP 6 SELECT PCIe OPTION CARD\(s\), page 33*](#)
- [*STEP 7 ORDER OPTIONAL NETWORK CARD ACCESSORIES, page 35*](#)
- [*STEP 8 ORDER GPU CARDS and ACCESSORIES \(OPTIONAL\), page 40*](#)
- [*STEP 9 ORDER POWER SUPPLY, page 44*](#)
- [*STEP 10 SELECT AC POWER CORD\(s\), page 45*](#)
- [*STEP 11 ORDER OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM, page 48*](#)
- [*STEP 12 ORDER A TRUSTED PLATFORM MODULE \(OPTIONAL\), page 49*](#)
- [*STEP 13 ORDER CISCO FLEXIBLE FLASH SD CARD MODULE \(OPTIONAL\), page 50*](#)
- [*STEP 14 ORDER OPTIONAL USB 2.0 DRIVE, page 51*](#)
- [*STEP 15 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 52*](#)
- [*STEP 16 SELECT OPERATING SYSTEM MEDIA KIT, page 55*](#)
- [*STEP 17 SELECT SERVICE and SUPPORT LEVEL, page 56*](#)
- [*OPTIONAL STEP - ORDER RACK\(s\), page 61*](#)
- [*OPTIONAL STEP - ORDER PDU, page 62*](#)

STEP 1 VERIFY SERVER SKU

Select one server product ID (PID) from [Table 2](#).

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

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

The Cisco C240 M3 server:

- Includes one tool-less rail kit (UCSC-RAIL-2U), adjustable from 26 inches (660 mm) to 36 inches (914 mm)
- Includes either a 24- or 16-drive backplane.



NOTE: Embedded RAID can only be used with the 16-drive backplane version of the server.

Mezzanine cards can be used as follows:

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



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

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



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

STEP 2 SELECT CPU(s)

The standard CPU features are:

- Intel Xeon E5-2600 v2 and E5-2600 series processor family CPUs (see the following link for instructions on how to upgrade your server from Intel Xeon E5-2600 to Intel Xeon E5-2600 v2 CPUs:
http://preview.cisco.com/en/US/docs/unified_computing/ucs/c/CPU/IVB/install/IVB-C.html)
- Intel® C600 series chipset
- Cache sizes of up to 30 MB

Select CPUs

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

Table 3 Available Intel CPUs: Intel Xeon E5-2600 v2 and E5-2600 series processor family CPUs

Product ID (PID)	Intel Number	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	QPI	Highest DDR3 DIMM Clock Support (MHz) ¹
Intel Xeon E5-2600 v2							
UCS-CPU-E52697B	E5-2697B v2	2.70	130	30	12	8 GT/s	1866
UCS-CPU-E52695B	E5-2695B v2	2.40	115	30	12	8 GT/s	1866
UCS-CPU-E52690B	E5-2690B v2	3.00	130	25	10	8 GT/s	1866
UCS-CPU-E52680B	E5-2680B v2	2.80	115	25	10	8 GT/s	1866
UCS-CPU-E52670B	E5-2670B v2	2.50	115	25	10	8 GT/s	1866
UCS-CPU-E52667B	E5-2667B v2	3.30	130	25	8	8 GT/s	1866
UCS-CPU-E52660B	E5-2660B v2	2.20	95	25	10	8 GT/s	1866
UCS-CPU-E52650B	E5-2650B v2	2.60	95	20	8	8 GT/s	1866
UCS-CPU-E52640B	E5-2640B v2	2.00	95	20	8	7.2 GT/s	1600
UCS-CPU-E52637B	E5-2637B v2	3.50	130	15	4	8 GT/s	1866
UCS-CPU-E52630B	E5-2630B v2	2.60	80	15	6	7.2 GT/s	1600
UCS-CPU-E52620B	E5-2620B v2	2.10	80	15	6	7.2 GT/s	1600
UCS-CPU-E52643B	E5-2643B v2	3.50	130	25	6	8 GT/s	1866
UCS-CPU-E52650LB	E5-2650LB v2	1.70	70	25	10	8 GT/s	1600
UCS-CPU-E52630LB	E5-2630LB v2	2.40	60	15	6	7.2 GT/s	1600
UCS-CPU-E52609B	E5-2609B v2	2.50	80	10	4	6.4 GT/s	1333

Table 3 Available Intel CPUs: Intel Xeon E5-2600 v2 and E5-2600 series processor family CPUs

Product ID (PID)	Intel Number	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	QPI	Highest DDR3 DIMM Clock Support (MHz) ¹
Intel Xeon E5-2600 ²							
UCS-CPU-E5-2690	E5-2690	2.90	135	20	8	8 GT/s	1600
UCS-CPU-E5-2680	E5-2680	2.70	130	20	8	8 GT/s	1600
UCS-CPU-E5-2670	E5-2670	2.60	115	20	8	8 GT/s	1600
UCS-CPU-E5-2667	E5-2667	2.90	130	15	6	8 GT/s	1600
UCS-CPU-E5-2665	E5-2665	2.40	115	20	8	8 GT/s	1600
UCS-CPU-E5-2660	E5-2660	2.20	95	20	8	8 GT/s	1600
UCS-CPU-E5-2650	E5-2650	2.00	95	20	8	8 GT/s	1600
UCS-CPU-E5-2650L	E5-2650L	1.80	70	20	8	8 GT/s	1600
UCS-CPU-E5-2643	E5-2643	3.30	130	10	4	8 GT/s	1600
UCS-CPU-E5-2640	E5-2640	2.50	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2630	E5-2630	2.30	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2630L	E5-2630L	2.00	60	15	6	7.2 GT/s	1333
UCS-CPU-E5-2620	E5-2620	2.00	95	15	6	7.2 GT/s	1333
UCS-CPU-E5-2609	E5-2609	2.40	80	10	4	6.4 GT/s	1066

Notes . . .

1. If higher or lower speed DIMMs are selected than what is shown in the table for a given CPU, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.
2. 1866-MHz DIMMs cannot be used with Intel Xeon E5-2600 CPUs

Approved Configurations

(1) 1-CPU configurations:

- Select any one CPU listed in [Table 3](#).

(2) 2-CPU Configurations:

- Select two identical CPUs from any one of the rows of [Table 3 on page 13](#).

Caveats

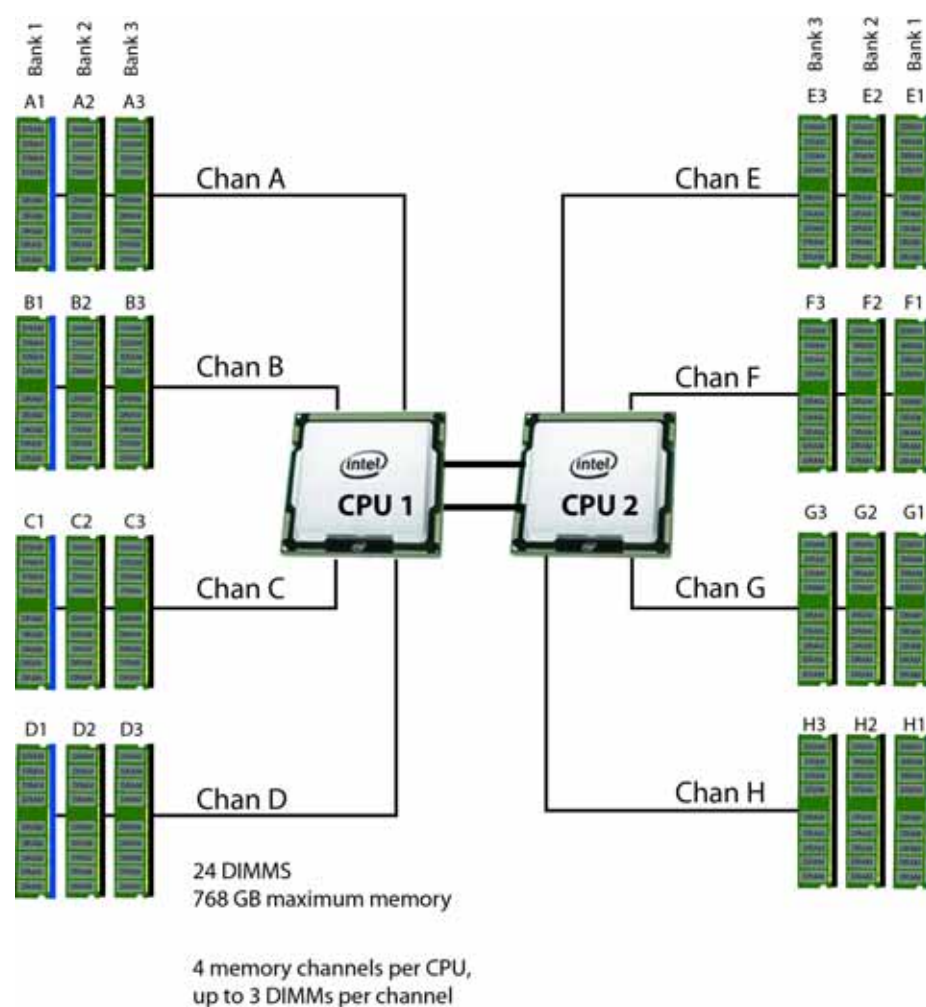
- You can select either one processor or two identical processors.
- For optimal performance, select DIMMs with the highest clock speed for a given processor (see [Table 3 on page 13](#)). If you select DIMMs whose speeds are lower or higher than that shown in the tables, suboptimal performance will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

STEP 3 SELECT MEMORY

The standard memory features are:

- DIMMs
 - Clock speed: 1866, 1600, or 1333 MHz
 - Ranks per DIMM: 1, 2, or 4
 - Operational voltage: 1.5 V or 1.35 V
 - Registered or unbuffered ECC DDR3 DIMMs (RDIMMs or UDIMMs) or load-reduced DIMMs (LRDIMMs)
- Memory is organized with four memory channels per CPU, with up to three DIMMs per channel, as shown in [Figure 4](#).

Figure 4 C240 M3 SFF Memory Organization



Select DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The available memory DIMMs and mirroring option are listed in [Table 4](#).



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

Table 4 Available DDR3 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks/ DIMM
DIMM Options¹			
UCS-ML-1X324RY-A	32 GB DDR3-1600-MHz LR DIMM/PC3-12800/4R/x4/1.35v	1.5/1.35 V ²	4
UCS-ML-1X324RZ-A	32 GB DDR3-1866-MHz LR DIMM/PC3-14900/4R/4x/1.5v	1.5 V	4
UCS-MR-1X162RY-A	16 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/x4/1.35v	1.5/1.35 V ²	2
UCS-MR-1X162RZ-A	16 GB DDR3-1866-MHz RDIMM PC3-14900/2R/x4/	1.5 V	2
UCS-MR-1X082RY-A	8 GB DDR3-1600-MHz RDIMM/PC3-12800/2R/x4/1.35v	1.5/1.35 V ²	2
UCS-MR-1X082RX-A ³	8 GB DDR3-1333-MHz RDIMM/PC3-10600/2R/x4/1.35v	1.5/1.35 V ²	2
UCS-MR-1X082RZ-A	8 GB DDR3-1866-MHz RDIMM/PC3-14900/2R/x4/	1.5 V	2
UCS-MR-1X041RY-A	4 GB DDR3-1600-MHz RDIMM/PC3-12800/1R/x4/1.35v	1.5/1.35 V ²	1
UCS-MR-1X041RX-A ³	4 GB DDR3-1333-MHz RDIMM/PC3-10600/1R/x4/1.35v	1.35 V	1
UCS-MU-1X042RE-A ³	4 GB DDR3-1600-MHz ECC UDIMM/PC3-12800/2R/x8/1.35v	1.35 V	2
Memory Mirroring Option			
N01-MMIRROR	Memory mirroring option		

Notes . . .

1. 1866-MHz DIMMs cannot be used with Intel Xeon E5-2600 CPUs
2. Dual voltage DIMM (operates at 1.5 V with BIOS is set for memory performance mode (default), or 1.35 V when BIOS is set for power-savings mode).
3. No longer shipping as of November, 2013

Approved Configurations

(1) 1-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs. Refer to [Memory Population Rules, page 66](#), for more detailed information.

(2) 1-CPU configuration with memory mirroring:

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

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

Notes . . .

1. Not recommended (for performance reasons)
2. If this 3DPC configuration is implemented with quad-rank DIMMs (the 32 GB LR DIMM), the maximum DIMM speed will be 1066 MHz, even though the DIMM is specified to operate at a higher speed.

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

(3) 2-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs per CPU. Refer to [Memory Population Rules, page 66](#), for more detailed information.

(4) 2-CPU configuration with memory mirroring:

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

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

Notes . . .

1. Not recommended (for performance reasons)
2. If this 3DPC configuration is implemented with quad-rank DIMMs (the 32 GB LR DIMM), the maximum DIMM speed will be 1066 MHz, even though the DIMM is specified to operate at a higher speed.

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



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

Caveats

- System speed is dependent on how many DIMMs are populated per channel. See [Table 5](#) for details.

Table 5 DIMM Memory Speeds

DIMM Speed	DPC	1333-MHz Capable CPU				1600-MHz Capable CPU				1866-MHz Capable CPU			
		LRDIMM		RDIMM (DR, SR)		LRDIMM		RDIMM (DR, SR)		LRDIMM		RDIMM (DR, SR)	
		Voltages		Voltages		Voltages		Voltages		Voltages		Voltages	
		1.3 V	1.5 V	1.3 V	1.5 V	1.3 V	1.5 V	1.3 V	1.5 V	1.3 V	1.5 V	1.3 V	1.5 V
1333 DIMM	1DPC	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333
	2DPC	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333
	3DPC	1066	1066	NA ¹	1066	1066	1066	NA ¹	1066	1066	1066	NA ¹	1066
1600 DIMM	1DPC	1333	1333	1333	1333	1600 ²	1600 ²	1333	1600	1600 ²	1600 ²	1333	1600
	2DPC	1333	1333	1333	1333	1600 ²	1600 ²	1333	1600	1600 ²	1600 ²	1333	1600
	3DPC	1066	1066	NA ¹	1066	1066	1066	NA ¹	1333	1066	1066	NA ¹	1333
1866 DIMM ³	1DPC	NA ¹	1333	NA ¹	1333	NA ¹	1600	NA ¹	1600	NA ¹	1866	NA ¹	1866
	2DPC	NA ¹	1333	NA ¹	1333	NA ¹	1600	NA ¹	1600	NA ¹	1866	NA ¹	1866
	3DPC	NA ¹	1066	NA ¹	1066	NA ¹	1066	NA ¹	1333	NA ¹	1333	NA ¹	1333

Notes . . .

1. NA = not applicable
2. These DIMMs operate at 1333 MHz instead of 1600 MHz when used with any E5-2600 CPUs. They operate at 1600 MHz when used with E5-2600 v2 CPUs that support 1600- and 1866-MHz speeds.
3. 1866-MHz DIMMs are only offered and supported with E5-2600 v2 CPU-configured servers

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

- DIMM population (how many DIMMs per channel are populated)
- BIOS setting.

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

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

For more information regarding memory, see [CPUs and DIMMs, page 64](#).

STEP 4 SELECT RAID CONFIGURATION



NOTE: For the UCSC-C240-M3S2 (16-drive server), if you do not select a mezzanine card, a PCIe RAID controller, or one of the embedded RAID upgrade options, you will have an embedded SATA-only RAID controller that supports up to four SATA-only drives (RAID 0, 1, 10)



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



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

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



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

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

The RAID controller choices are:

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



NOTE: The RAID configuration options listed in [Table 8 on page 24](#) are not available if you choose embedded RAID (in this case, you must configure RAID yourself using separate software).

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

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

Select RAID Options

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

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



NOTE: For details on all valid combinations of embedded RAID, mezzanine RAID, and internal/external drive RAID controller combinations, see [RAID Details, page 72](#).

Table 6 Available Embedded RAID Options

Product ID (PID)	PID Description
Embedded RAID Controllers (16-drive backplane server option only)	
UCSC-RAID-ROM5	Onboard RAID, consisting of a plug-in storage controller unit (SCU), supporting up to 8 internal SAS +SATA drives. SAS and SATA drives can be mixed. This option supports RAID 0, 1, and 10, and operates at 3 Gb/s. Operating systems supported are Windows and Linux only (no VMware support).
UCSC-RAID-ROM55	Onboard RAID, consisting of two plug-in modules (an SCU plus a software key module) supporting up to 8 internal SAS+SATA drives. SAS and SATA drives can be mixed. This option supports RAID 0, 1, 5, and 10 and operates at 3 Gb/s. Operating systems supported are Windows and Linux only (no VMware support).



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

Table 7 Available Mezzanine Card RAID Options

Product ID (PID)	PID Description
Mezzanine RAID Controllers (not supported in 1-CPU systems)	

Table 7 Available Mezzanine Card RAID Options (*continued*)

Product ID (PID)	PID Description
UCSC-RAID-11-C240	<p>Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 5, 10, and 50 supported), operating at 6 Gbs.</p> <ul style="list-style-type: none"> ■ Supports up to 8 internal SAS+SATA drives with the 16-drive system or up to 16 internal SAS+SATA drives with the 24-drive system. SAS and SATA drives can be mixed. ■ Factory-configured RAID options available: RAID 0, 1, 5, and 10 (see the RAID PIDs section in this table)
UCSC-RAID-MZ-240	<p>Cisco UCSC RAID SAS 2008M-8i Mezzanine Card (RAID 0, 1, 10 supported), operating at 6 Gbs.</p> <ul style="list-style-type: none"> ■ Supports up to 8 internal SAS+SATA drives with the 16-drive system or up to 16 SAS+SATA internal drives with the 24-drive system. SAS and SATA drives can be mixed. ■ Factory-configured RAID options available: RAID 0, 1, and 10 (see the RAID PIDs section in this table)

Table 8 Available PCIe RAID Controller Options

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

Table 8 Available PCIe RAID Controller Options (*continued*)



Product ID (PID)	PID Description
UCS-RAID-9285CV-E or UCS-RAID9286CV-8E	<p>LSI MegaRAID SAS 9285CV-8e or 9286CV-8e (RAID 0, 1, 5, 6, 10)</p> <ul style="list-style-type: none"> ■ Supports eight external SAS ports (up to 240 external drives). <hr/> <p> NOTE: For SAS 9285CV-8e or 9286CV-8e external drive enclosure support, see the compatibility list (enclosure section) at the following link:</p> <p>http://tinyurl.com/b4etshk</p> <p>Cisco is able to support customers with questions related to the SAS 9285CV-8e or 9286CV-8e RAID cards; however, customers should contact their storage vendor for technical support related to enclosure/JBOD.</p> <hr/> <ul style="list-style-type: none"> ■ Includes an chassis-mount (remote) supercapacitor to power on-board 1 GB flash-backed write cache. ■ Factory-configured RAID options: RAID 0, 1, 5, 6, 10 (see the RAID Configuration section in this table). Note that factory RAID configuration is not available for these controllers, because the factory does not control the storage array attached to them.
UCSC-NYTRO-200GB	<p>Cisco Nytro MegaRAID 200 GB RAID controller</p> <ul style="list-style-type: none"> ■ Supports up to 24 internal SAS+SATA drives with the 24-drive backplane system. SAS and SATA drives can be mixed. ■ 1 GB data cache backup ■ 200 GB flash memory. ■ Supports RAID 0, 1, 5, 6, 10, 50, and 60 ■ Operates at 6 Gbps. ■ Supported only in the 24-drive backplane version of the server <hr/> <p> NOTE:</p> <ul style="list-style-type: none"> ■ Must be installed in slot 3 only. ■ Supported only with RHEL 6.3 OS. ■ Supported only in 2-CPU systems. ■ Supported only in systems with E5-2600 series processor family CPUs (not in systems with E5-2600 v2 series processor family CPUs) ■ Supports only HDDs. ■ Cannot coexist with multiple RAID controllers (embedded RAID, mezzanine RAID card, or PCIe RAID controller).

Table 8 Available PCIe RAID Controller Options (*continued*)

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

Notes . . .

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



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



NOTE: Although RAID levels 50 and 60 are not orderable from the factory, they are supported for selected controllers as shown in [Table 6 on page 23](#)

Approved Configurations

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

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



NOTE: For the 16-drive backplane server, if you do not select a mezzanine card, a PCIe RAID controller, or one of the embedded RAID upgrade options, you will have an embedded SATA-only RAID controller that supports up to four SATA-only drives (RAID 0, 1, 10).

See [Table 9](#) for a summary of the supported RAID configuration options.



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

Table 9 Supported RAID Configurations

Server	# CPUs	Embedded RAID ¹	Mezz RAID ²	NYTRO MegaRAID 200 RAID Card	Internal PCIe RAID #1 ³	Internal PCIe RAID #2	External PCIe RAID ⁴	# Drives Supported	PCIe Slots ⁵				
									1	2	3	4	5
C240 M3 SFF 24 HDD	1	Not allowed	Not allowed ⁶	Not allowed	Installed slot 3 (default) ⁷	Not allowed	Not allowed	24 internal	A	A	C	U	U
C240 M3 SFF 24 HDD	1	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Installed in slots 1, 2, or 3	0 internal 240 external	A	A	A	U	U
C240 M3 SFF 24 HDD	2	Not allowed	Installed	Not allowed	Not allowed	Not allowed	Card absent	16 internal	A	A	A	A	A
C240 M3 SFF 24 HDD	2	Not allowed	Not allowed	Not allowed	Installed slot 4 (default)	Not allowed	Card absent	24 internal	A	A	A	C	A
C240 M3 SFF 24 HDD	2	Not allowed	Not allowed ⁸	Installed Slot 3	Not allowed	Not allowed	Not allowed	24 internal	A	A	C	A	A
C240 M3 SFF 24 HDD	2	Not allowed	Card absent	Not allowed	Card absent	Not allowed	Installed any slot	0 internal 240 external	A	A	A	A	A
C240 M3 SFF 24 HDD	2	Not allowed	Installed	Not allowed	Not allowed	Not allowed	Installed any slot	16 internal 240 external	A	A	A	A	A
C240 M3 SFF 24 HDD	2	Not allowed	Not allowed	Not allowed	Installed slot 4 (default)	Not allowed	Installed any slot (except slot 4)	24 internal 240 external	A	A	A	C	A
C240 M3 SFF 16 HDD	1	Enabled	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	8 internal	A	A	A	U	U
C240 M3 SFF 16 HDD	1	Not allowed	Not allowed	Not allowed	Installed slot 3 (default)	Not allowed	Not allowed	8 internal	A	A	C	U	U
C240 M3 SFF 16 HDD	1	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	Installed any slot	0 internal 240 external	A	A	A	U	U
C240 M3 SFF 16 HDD	2	Enabled	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed	8 internal	A	A	A	A	A

Table 9 Supported RAID Configurations

Server	# CPUs	Embedded RAID ¹	Mezz RAID ²	NYTRO MegaRAID 200 RAID Card	Internal PCIe RAID #1 ³	Internal PCIe RAID #2	External PCIe RAID ⁴	# Drives Supported	PCIe Slots ⁵				
									1	2	3	4	5
C240 M3 SFF 16 HDD	2	Not allowed	Installed	Not allowed	Not allowed	Not allowed	Card absent	8 internal	A	A	A	A	A
C240 M3 SFF 16 HDD	2	Not allowed	Not allowed	Not allowed	Installed slot 4 (default)	Card absent	Card absent	8 internal	A	A	A	O	A
C240 M3 SFF 16 HDD	2	Not allowed	Not allowed	Not allowed	Installed slot 4 (default)	Installed slot 3 (default)	Not allowed	16 internal ⁹	A	A	O	O	A
C240 M3 SFF 16 HDD	2	Not allowed	Card absent	Not allowed	Card absent	Card absent	Installed any slot	0 internal 240 external	A	A	A	A	A
C240 M3 SFF 16 HDD	2	Not allowed	Installed	Not allowed	Not allowed	Not allowed	Installed any slot	8 internal 240 external	A	A	A	A	A
C240 M3 SFF 16 HDD	2	Not allowed	Not allowed	Not allowed	Installed slot 4 (default)	Not allowed	Installed any slot (except slot 4)	8 internal 240 external	A	A	A	O	A

Notes . . .

1. Embedded RAID is only compatible with the 16 HDD backplane. It cannot be used with the 24 HDD backplane.
2. Never disable OPROM for the mezzanine slot if the mezzanine card is present, or the system will not boot. If you remove the mezzanine card and disable its OPROM, you can boot from another bootable device (RAID card, embedded RAID, or from SAN via an HBA or CNA card). When you boot from a device, make sure its OPROM is enabled, it is in the proper boot sequence, and its BIOS is configured for a bootable device.
3. If you want to boot from a device other than the 9271-8i or 9271CV-8i MegaRAID PCIe card, you can leave the card installed. Just disable the OPROM for its slot, and the system will boot even with the card installed.
4. External RAID card is the 9285CV-8e or 9286CV-8e. Any of these can be installed simultaneously with either one mezzanine RAID controller card or one internal RAID controller card (9271-8i or 9271CV-8i).
5. A = available slot, O = occupied slot, U = unsupported slot (slots 4 and 5 are not supported in 1-CPU systems)
6. The mezzanine cards are not supported in 1-CPU systems
7. The OPROM is enabled for the default PCIe RAID controller slots. If you want to enable a different slot, you must go into the BIOS and enable the OPROM for the desired slot and disable the OPROM for the default PCIe slot (see [Figure 9 on page 74](#)).
8. The mezzanine cards are not supported in 1-CPU systems
9. Two RAID cards are required to control all 16 drives in the C240 SFF 16 HDD backplane system.

Caveats

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

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

- Note that when just one CPU is populated, only a single Cisco 1225 Virtual Interface Card (VIC) card is supported and it must be installed in the full-height PCIe slot (slot 2) on riser 1. So take this into account when populating RAID controller cards. When two CPUs are populated, two VIC cards are supported (the Cisco VIC 1225). One can be installed in slot 2 of riser 1 and one in slot 5 of riser 2. The primary slot for a VIC card is slot 2. If you have only one of these cards, install it in slot 2.
- For the PCIe RAID controllers, you can choose an optional RAID configuration (RAID 0, 1, 5, 6, or 10), which is preconfigured at the factory. The RAID level you choose must be an available RAID choice for the controller selected. RAID levels 50 and 60 are supported, although they are not available as configuration options.
- A system with 16-drive backplane supports up to 4 SATA-only drives if no ROM upgrade, mezzanine RAID card, or PCIe RAID controller is chosen.



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



NOTE: For more important information regarding RAID support, see [RAID Details, page 72](#) and [RAID Option ROM \(OPROM\) Settings, page 74](#).

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

The standard disk drive features are:

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

Select Drives

The available drives are listed in [Table 10](#).

Table 10 Available Hot-Pluggable Sled-Mounted HDDs and SSDs

Product ID (PID)	PID Description	Drive Type	Capacity
HDDs			
UCS-HD12T10KS2-E	1.2 TB 6Gb SAS 10K RPM SFF HDD	SAS	1.2 TB
A03-D1TBSATA	1 TB SATA 7.2K RPM SFF HDD	SATA	1 TB
UCS-HD1T7KS2-E	1 TB SAS 7.2K RPM 2.5 inch HDD	SAS	1 TB
UCS-HDD900GI2F106	900 GB 6Gb SAS 10K RPM SFF HDD	SAS	900 GB
A03-D600GA2	600 GB 6Gb SAS 10K RPM SFF HDD	SAS	600 GB
A03-D500GC3	500 GB SATA 7.2K RPM SFF HDD	SATA	500 GB
A03-D300GA2	300 GB 6Gb SAS 10K RPM SFF HDD	SAS	300 GB
SSDs			
UCS-SD800G0KS2-EP	800 GB 2.5 inch Enterprise Performance SAS SSD	SAS	800 GB
UCS-SD400G0KS2-EP	400 GB 2.5 inch Enterprise Performance SAS SSD	SAS	400 GB
UCS-SD400G0KA2-G	400 GB SATA 2.5" Enterprise Value SSD	SATA	400 GB
UCS-SD300G0KA2-E	300 GB SATA 2.5" Enterprise Performance SSD	SATA	300 GB
UCS-SD200G0KS2-EP	200 GB 2.5 inch Enterprise Performance SAS SSD	SAS	200 GB
UCS-SD200G0KA2-E	200 GB SATA 2.5" Enterprise Performance SSD	SATA	200 GB
UCS-SD100G0KA2-G	100 GB SATA 2.5" Enterprise Value SSD	SATA	100 GB
UCS-SD100G0KA2-E	100 GB SATA 2.5" Enterprise Performance SSD	SATA	100 GB



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

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

Approved Configurations

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

- For systems with a 16-drive backplane:
 - If you have not selected an onboard RAID upgrade option (ROM5 or ROM55), a mezzanine card, or a PCIe RAID controller for internal drives (LSI MegaRAID SAS 9271-8i or 9271CV-8i), you may select up to 4 SATA-only drives from [Table 10](#).
 - Select up to 8 drives for ROM5 or ROM55 embedded RAID upgrade or a mezzanine card.
 - Select up to 16 drives for the SAS 9271-8i or 9271CV-8i controller. Note that two identical RAID controllers are required to support 16 drives (each controller supports up to 8 drives).
- For systems with a 24-drive backplane:
 - Select up to 16 drives for mezzanine cards (only supported in 2-CPU systems).
 - Select up to 24 drives for the SAS 9271-8i or 9271CV-8i controller. Only one controller is required to support up to 24 drives.

Caveats

- You can mix SATA and SAS drives.

STEP 6 SELECT PCIe OPTION CARD(s)

The standard PCIe card offerings are:

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

Select PCIe Option Cards

The available PCIe option cards are listed in [Table 11](#).

Table 11 Available PCIe Option Cards

Product ID (PID)	PID Description	Card Height
Converged Network Adapters (CNAs)		
UCSC-PCIE-BSFP	Broadcom 57712 Dual Port 10Gb SFP+ w/TOE iSCSI	Half
UCSC-PCIE-CSC-02	Cisco VIC 1225 Dual Port 10Gb SFP+ CNA	Half
UCSC-PCIE-C10T-02	Cisco VIC 1225T Dual Port 10GBaseT CNA	Half
UCSC-PCIE-ESFP	Emulex OCe11102-FX dual-port 10 GbE FCoE CNA (Gen 3 CNA)	Half
UCSC-PCIE-QSFP	QLogic QLE8242-CU dual-port 10 GbE FCoE CNA	Half
UCSC-PCIE-B3SFP	Broadcom 57810 10Gb A-FEX SFP+	Half
UCSC-PCIE-Q8362	QLogic QLE8362 dual-port 10 GbE FCoE CNA	Half
Network Interface Cards (NICs)		
N2XX-ABPCI01-M3	Broadcom 5709 Dual Port 1Gb w/TOE iSCSI for M3 Servers	Half
N2XX-ABPCI03-M3	Broadcom 5709 Quad Port 1Gb w/TOE iSCSI for M3 Servers	Half
N2XX-AIPCI01	Intel X520 Dual Port 10Gb SFP+ Adapter	Half
UCSC-PCIE-ITG	Intel X540 Dual Port 10GBase-T Adapter	Half
UCSC-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	Half
UCSC-PCIE-BTG	Broadcom 57712 Dual Port 10GBASE-T w/TOE iSCSI	Half
Host Bus Adapters (HBAs)		
N2XX-AEPCI03	Emulex LPe 11002 Dual Port 4Gb Fibre Channel HBA	Half
N2XX-AEPCI05	Emulex LPe 12002 Dual Port 8Gb Fibre Channel HBA	Half
N2XX-AQPCI03	QLogic QLE2462 Dual Port 4Gb Fibre Channel HBA	Half

Table 11 Available PCIe Option Cards (*continued*)

Product ID (PID)	PID Description	Card Height
N2XX-AQPCI05	QLogic QLE2562 Dual Port 8Gb Fibre Channel HBA	Half
UCSC-PCIE-Q2672	Qlogic QLE2672-CSC, 16Gb Fibre Channel HBA with SR Optics	Half
UCSC-PCIE-E16002	Emulex LPe16002-M6, 16Gb Fibre Channel HBA with SR Optics	Half
UCS Storage Accelerators		
UCSC-F-FIO-3000M	Cisco UCS 3.0 TB MLC Fusion ioDrive2 for C-Series Servers	Full
UCSC-F-FIO-1205M	Cisco UCS 1205 GB MLC Fusion ioDrive2 for C-Series Servers	Half
UCSC-F-FIO-785M	Cisco UCS 785 GB MLC Fusion ioDrive2 for C-Series Servers	Half
UCSC-F-FIO-365M	Cisco UCS 365GB MLC Fusion ioDrive2 for C-Series Servers	Half

Approved Configurations

(1) No PCIe RAID controller

- If you did not choose a PCIe RAID controller (for example, you are using embedded RAID or a mezzanine RAID controller), you can select up to three PCIe option cards listed in [Table 11](#) for a 1-CPU system or up to five for a 2-CPU system.

(2) One PCIe RAID controller card

- If you selected one PCIe RAID controller, you can select up to two of the optional PCIe cards listed in [Table 11](#) for a 1-CPU system or up to four for a 2-CPU system.

(3) Two PCIe RAID controllers

- If you selected two PCIe RAID controllers (only supported in 16 HDD backplane 2-CPU systems), you can select three of the optional PCIe cards listed in [Table 11](#).

Caveats

- For 1-CPU systems:
 - Only the three PCIe slots on PCIe riser 1 are available. The three slots are full-height PCIe slots 1, 2, and 3 (see [Figure 3 on page 7](#)). These are the three slots on the right when looking at the rear of the server.
 - Neither the PCIe riser 2 (with the two PCIe slots numbered PCIe 4 and PCIe 5, at the left when viewing the server from the rear) nor the mezzanine card are supported on 1-CPU systems.
 - Only a single VIC card (the half-height Cisco VIC 1225 PCIe card) may be installed on a 1-CPU system, and it must be installed in slot 2 of riser 1. See [Table 1 on page 8](#) for the slot descriptions.

- Fusion ioDrive2 cards can be installed in slots 1, 2, or 3. Note that the only the Cisco UCS 3.0 TB MLC Fusion ioDrive2 card is full-height; all other Fusion ioDrive2 cards are half-height and therefore may need an adapter to hold them securely in the available slots.
- For 2-CPU systems:
 - Five PCIe slots are available, three on PCIe riser 1 (PCIe slots 1, 2, and 3) and two on PCIe riser 2 (PCIe slots 4 and 5).
 - All of the slots are full-height except slot 4.
 - Two VIC cards may be installed in 2-CPU systems, using slots 2 or 5. See [Table 1 on page 8](#) for the slot descriptions.
 - Up to four Cisco UCS 3.0 TB MLC Fusion ioDrive2 full-height cards are supported and can be installed in slots 1, 2, 3, or 5.
 - Up to five of the other Fusion ioDrive2 cards (1205-, 785- and 365-GB versions) are supported and can be installed in slots 1, 2, 3, 4, and 5, although an adapter may be needed when installing one of these half-height cards in slots 1, 2, 3, or 5 (the full-height slots).
- Additional considerations for the Cisco VIC 1225:
 - Supports 10G SFP+ optical and copper twinax connections.
 - The server supports installation of up to two Cisco VIC 1225 cards and they are supported only in PCIe slots 2 and 5.
 - The primary slot for the Cisco VIC 1225 is PCIe slot 2. If there is only one card, it must be installed in PCIe slot 2.
 - To use the Cisco Card NIC mode, this card must be installed in PCIe slot 2. Slot 2 can operate while the server is in standby power mode.
 - Requires that the server has CIMC firmware version 1.4(6) or later installed. There is a heartbeat LED on the top of the card that indicates when firmware is active.
 - To use this card for UCS integration (Cisco UCS Manager mode) with Cisco UCS Manager 2.1(0) or later, the minimum card-firmware and uboot image level is 2.1(0.306).
- To help ensure that your operating system is compatible with the card you have selected, or to see additional cards that have been qualified to work with the UCS C240 M3 server, but are not sold on the Cisco pricelist, check the Hardware Compatibility List at this URL:

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

STEP 7 ORDER OPTIONAL NETWORK CARD ACCESSORIES

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

Choose Optional Twinax Cables

[Table 12](#) 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 12 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 13](#).

Table 13 Available SFP Modules

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

Approved Configurations

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

- You may choose one or two SFP+ optical modules cables for each 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 [Figure 5 on page 39](#) for typical SFP+ and twinax connections to the network cards.

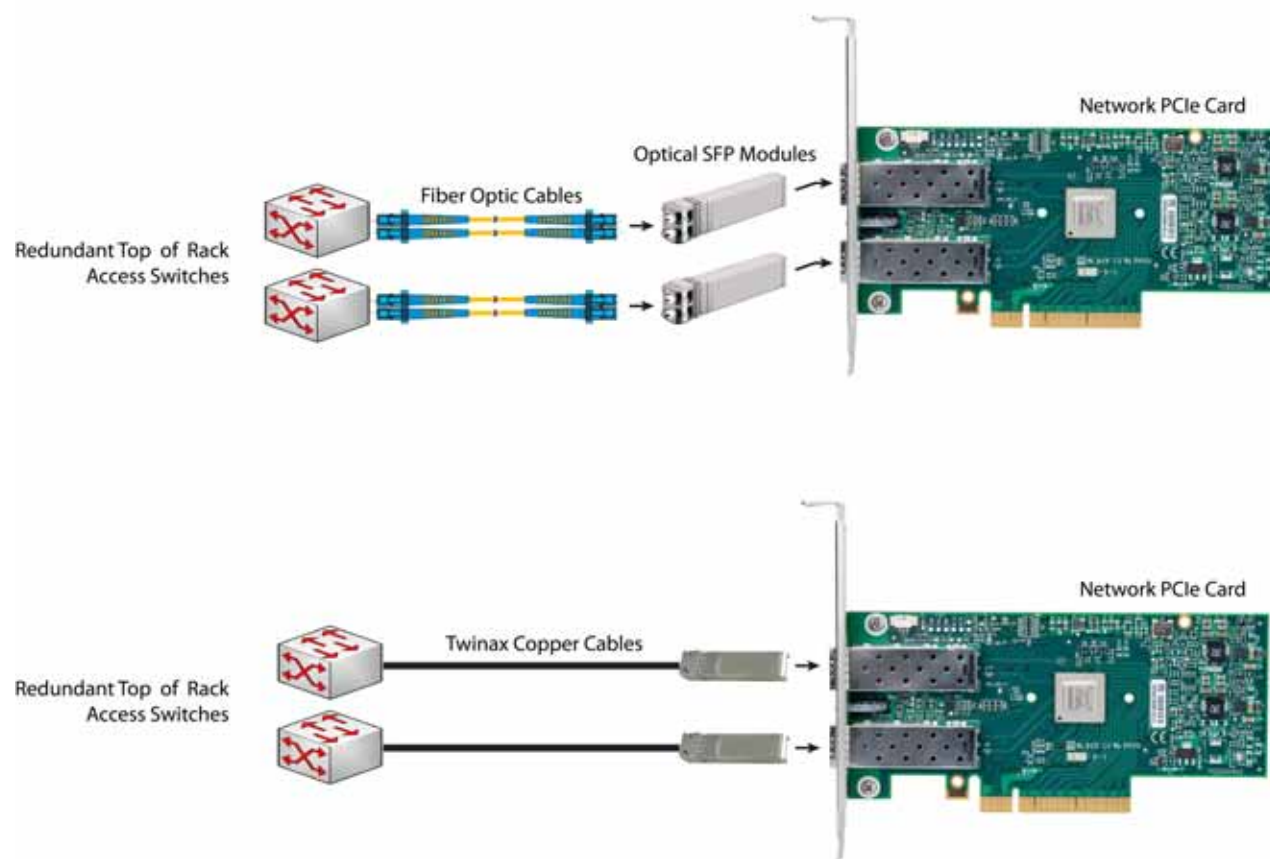
Caveats

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

Table 14 PCIe Card Compatibility

PCIe Cards	Twinax Cables	Cisco SFP Modules	
		SFP-10G-SR	DS-SFP-FC8G-SW
Converged Network Adapters (CNAs)			
UCSC-PCIE-BSFP (Broadcom 57712 Dual Port 10Gb SFP+ w/TOE iSCSI)	Yes	Yes	No
UCSC-PCIE-CSC-02 (Cisco VIC 1225 Dual Port 10Gb SFP+ CNA)	Yes	Yes	No
UCSC-PCIE-C10T-02 (Cisco VIC 1225T Dual Port 10GBaseT CNA)	Yes	No	No
UCSC-PCIE-ESFP (Emulex OCe11102-FX dual-port 10 GbE FCoE CNA (Gen 3 CNA))	Yes	Yes	No
UCSC-PCIE-QSFP (QLogic QLE8242-CU dual-port 10 GbE FCoE CNA)	Yes	Use Qlogic SFP	
UCSC-PCIE-B3SFP (Broadcom 57810 10Gb A-FEX SFP+)	Yes	Yes	No
UCSC-PCIE-Q8362 (Qlogic QLE8362 dual-port 10 GbE FCoE CNA)	Yes	Use Qlogic SFP	
Network Interface Cards (NICs)			
N2XX-ABPCI01 (Broadcom 5709 Dual-Port Ethernet PCIe Adapter for M3 Servers)	Yes	No	No
N2XX-ABPCI03-M3 (Broadcom 5709 Quad Port 10/100/1Gb NIC w/TOE iSCSI for M3 Servers)	Use RJ45 Ethernet cable		
N2XX-AIPCI01 (Intel X520 Dual Port 10Gb SFP+ Adapter)	Yes	Use Intel SFP	
UCSC-PCIE-ITG (Intel X540 Dual Port 10GBase-T Adapter)	Yes	No	No
UCSC-PCIE-IRJ45 (Intel i350 Quad Port 1Gb Adapter)	Use RJ45 Ethernet cable		
UCSC-PCIE-BTG (Broadcom 57712 Dual Port 10GBASE-T w/TOE iSCSI)	Yes	No	No
Host Bus Adapters (HBAs)			
N2XX-AEPCI03 (Emulex LPe 11002 Dual Port 4Gb Fibre Channel HBA)	No	Preinstalled - do not change SFP	
N2XX-AEPCI05 (Emulex LPe 12002 Dual Port 8Gb Fibre Channel HBA)	No	Preinstalled - do not change SFP	
N2XX-AQPCI03 (QLogic QLE2462 Dual Port 4Gb Fibre Channel HBA)	No	Preinstalled - do not change SFP	
N2XX-AQPCI05 (QLogic QLE2562 Dual Port 8Gb Fibre Channel HBA)	No	Preinstalled - do not change SFP	
UCSC-PCIE-Q2672 (Qlogic QLE2672-CSC, 16Gb Fibre Channel HBA with SR Optics)	No	Preinstalled - do not change SFP	
UCSC-PCIE-E16002 (Emulex LPe16002-M6, 16Gb Fibre Channel HBA with SR Optics)	No	Preinstalled - do not change SFP	

Figure 5 Network Card Connections



STEP 8 ORDER GPU CARDS and ACCESSORIES (OPTIONAL)

The GPU offerings are:

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



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

Select GPU Options

The available GPU PCIe options are listed in [Table 15](#).

Table 15 Available PCIe Option Cards

Product ID (PID)	PID Description	Card Size
GPU Kit		
UCSC-GPUKIT1-C240	C240 GPU upgrade kit for NVIDIA GPU with two PCIe replacement risers, brace, a “Y” power cable (for dual GPUs), a “straight” power cable (for single GPU), and an adapter cable for the power cables ¹	N/A
GPU PCIe Cards		
UCSC-GPU-VGXX1	NVIDIA GRID K1	Full-height, double wide
UCSC-GPU-VGXX2	NVIDIA GRID K2	Full-height, double wide
UCSC-GPU-K10	NVIDIA Tesla K10	Full-height, double wide
UCSC-GPU-K20	NVIDIA Tesla K20	Full-height, double wide
UCSC-GPU-K20X	NVIDIA Tesla K20X	Full-height, double wide
GPU Individual Power Cables²		
UCSC-GPUCBL-88Y=	8-to-8 pin “Y” GPU power cable for dual K1 or dual K2 in the C240 M3 server	
UCSC-GPUCBL-88S=	8-to-8 pin “straight” GPU power cable for single K1 or K2 in the C240 M3 server	
UCSC-GPUCBL-KIT=	GPU power cable kit, containing 8-to-8 pin “Y” and “straight” cables	

Notes . . .

1. The upgrade kit is not needed for new server orders. It is only required for the older V01 C240 M3 chassis version.
2. These cables are for the V02 chassis version.

Approved Configurations

(1) GPU Kit

- Select a GPU kit to prepare the C240 M3 chassis (V01 chassis version only) for GPU capability. If you have a newer V02 chassis, you do not need a GPU kit.

(2) GPU Power Cables

- When you order one or two GPUs for a V02 chassis version, you also need to order one or two power cables. Order the “Y” power cable (UCSC-GPUCBL-88Y=) for 2 GPUs and the “straight” power cable (UCSC-GPUCBL-88S=) for a single GPU.

(3) NVIDIA GRID GPU Slot Population Rules

Table 16 shows the rules for populating NVIDIA GRID K1 or K2 GPU cards in the server.



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



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



NOTE: Mixing different GPU cards in the same server is not supported.



NOTE: All GPU cards require two CPUs and two 1200 W power supplies in the server.

Table 16 NVIDIA GRID GPU Population Rules by Server Version

C240 M3 Server Version	Single K1 GPU	Dual K1 GPUs	Single K2 GPU	Dual K2 GPUs
Server version V01	Slot 5	Slots 2 ¹ and 5	Slot 5	Not supported
Server version V02	Slot 5	Slots 2 ¹ and 5	Slot 5	Slots 2 and 5

Notes . . .

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

(4) NVIDIA Tesla GPU Slot Population Rules

Table 17 shows the rules for populating NVIDIA Tesla GPU cards in the server.



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



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



NOTE: Mixing different GPU cards in the same server is not supported.



NOTE: All GPU cards require two CPUs and two 1200 W power supplies in the server.

Table 17 NVIDIA Tesla GPU Population Rules by Server Version

C240 M3 Server Version	Single Tesla GPU	Dual Tesla GPUs
Server version V01	Slot 5	Not supported
Server version V02	Slot 5	Slots 2 and 5

Caveats

- The V01 server version requires ordering a GPU upgrade kit (two PCIe risers, brace, “Y” power cable, straight power cable, and power cable adapter). The V02 server version requires ordering a “Y” power cable to support two GPUs or a straight power cable to support a single GPU. The power cable plugs into the motherboard GPU power connector and to the appropriate GPU(s).
- Slot 5 is the preferred slot for the first GPU.
- If two GPUs are installed, a VIC card cannot be selected because a VIC card can only be plugged into either slot 2 or slot 5 in a 2-CPU system.

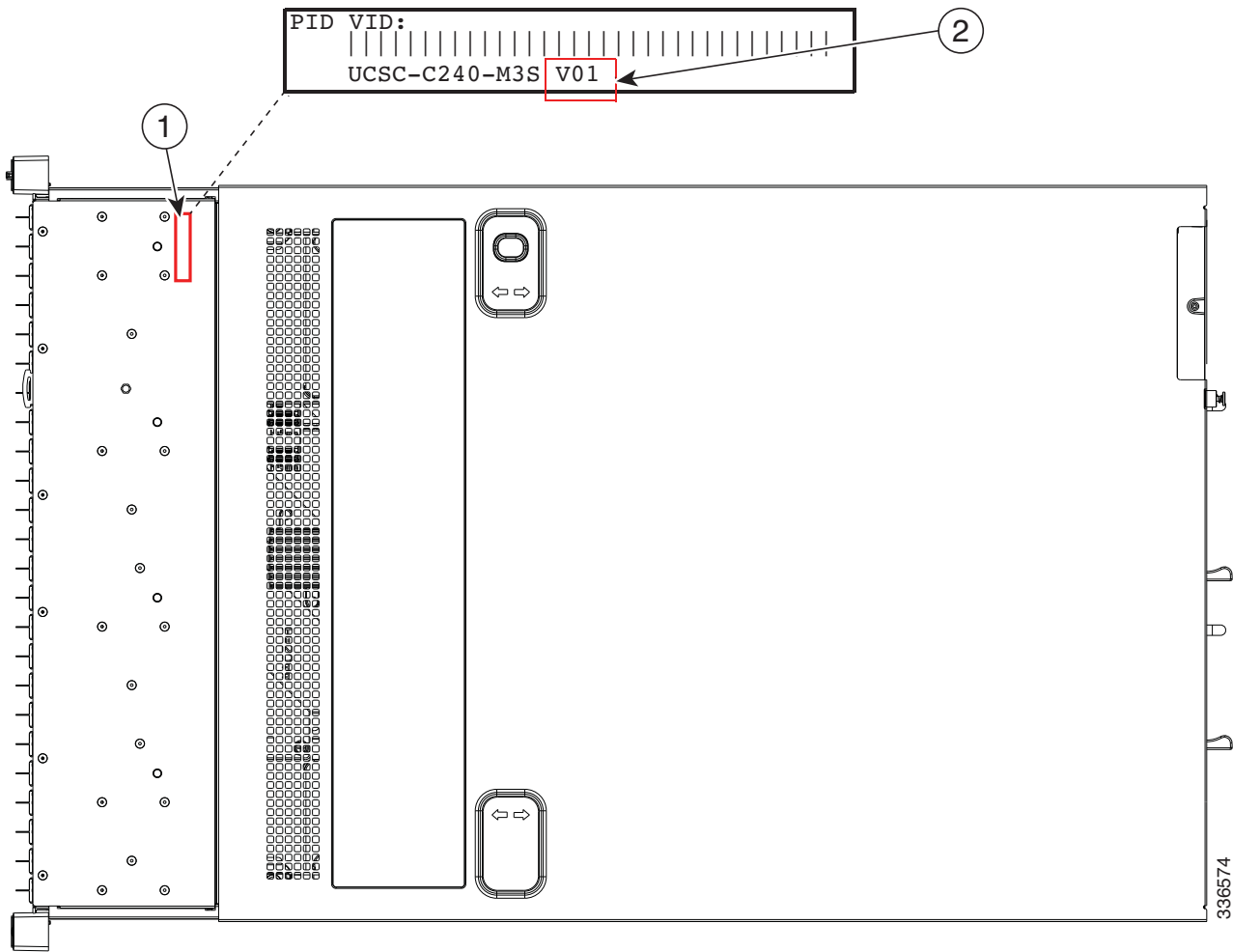


NOTE: To discover your chassis version (V01 or V02), look at the label on the top left side of the chassis (see [Figure 6 on page 43](#)). The version number (V01 or V02) is shown in the label.



NOTE: See [Figure 7 on page 63](#) for the location of the 8-pin GPU power connector on the motherboard. Connect cable(s) as appropriate from this connector to the power connector on the GPU(s).

Figure 6 Serial Number Label and Chassis Version ID



1	PID/VID label on top of server	2	Version ID on label
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STEP 9 ORDER POWER SUPPLY

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

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

Table 18 Power Supply

Product ID (PID)	PID Description
UCSC-PSU-650W	650 W power supply (CSCI platinum).
UCSC-PSU2-1200	1200 W power supply (CSCI platinum).
UCSC-PSU-930WDC	930 W -48V DC power supply



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

STEP 10 SELECT AC POWER CORD(s)

Using [Table 19](#), select the appropriate AC power cords. You can select a minimum of no power cords and a maximum of two. If you select the option R2XX-DMYMPWRCORD, no power cord is shipped with the server.

Table 19 Available Power Cords

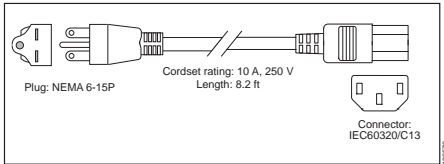
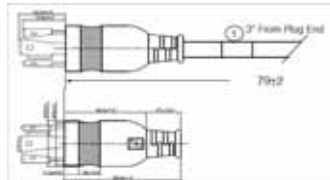
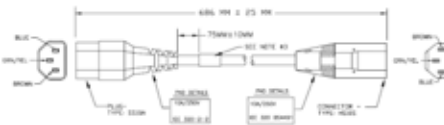
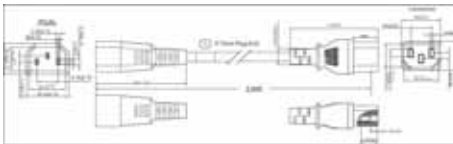
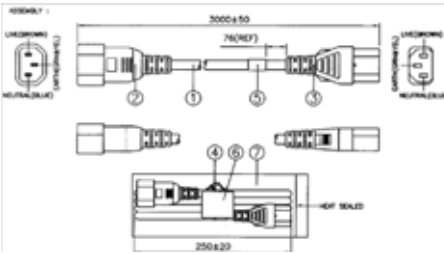
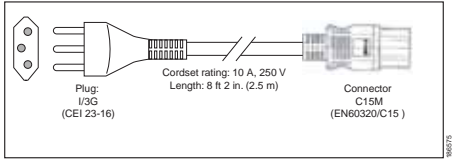
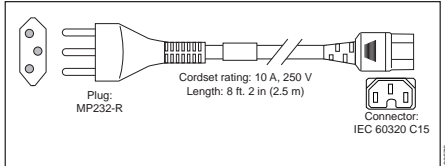
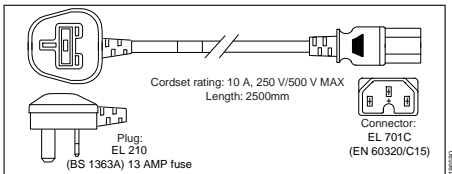
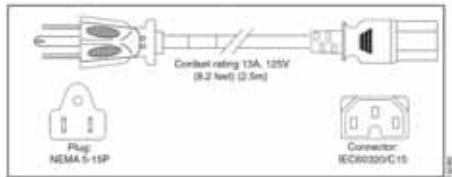
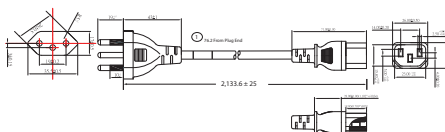
Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America	
CAB-AC-L620-C13	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft	
CAB-C13-CBN	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V	
CAB-C13-C14-2M	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V	
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/C13, 3.0M	

Table 19 Available Power Cords

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

Table 19 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	 <p>Plug: 1/3G (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>Cordset rating: 10 A, 250 V/500 V MAX Length: 2500mm</p> <p>Plug: EL 210 (BS 1363A) 13 AMP fuse</p> <p>Connector: EL 701C (EN 60320/C15)</p>
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	 <p>Cordset rating: 13A, 125V (8.2 Watt) (2.5m)</p> <p>Plug: NEMA 5-15P</p> <p>Connector: IEC60320/C15</p>
CAB-250V-10A-BR	Power Cord - 250V, 10A - Brazil	
CAB-JPN-3PIN	Power Cord 3PIN, Japan	Image not available

STEP 11 ORDER OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM

The reversible cable management arm mounts on either the right or left slide rails at the rear of the server and is used for cable management. Use [Table 20](#) to order a cable management arm.

Table 20 Cable Management Arm

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

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

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



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

STEP 12 ORDER A TRUSTED PLATFORM MODULE (OPTIONAL)

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

The TPM ordering information is listed in [Table 21](#).

Table 21 Trusted Platform Module

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



NOTE: The module used in this server conforms to TPM v1.3, as defined by the Trusted Computing Group (TCG).

STEP 13 ORDER CISCO FLEXIBLE FLASH SD CARD MODULE (OPTIONAL)

You can order up to two optional preloaded 16 GB Cisco Flexible Flash secure digital (SD) cards. The first SD card contains preloaded software for simplified server operation. The ordering information is listed in [Table 22](#).

Table 22 Secure Digital (SD) Card (preloaded with software)

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

See [Figure 7 on page 63](#) for the location of the SD cards. There are two locations, SD1 and SD2.



NOTE: You can order an optional second blank SD card. The PID for the second SD (blank) card is shown in [Table 23](#). The second SD card can be used to mirror the first SD card.

Table 23 Second Secure Digital (SD) Card (blank)

Product ID (PID)	PID Description
UCS-SD-16G	16GB SD Card (optional)

STEP 14 ORDER OPTIONAL USB 2.0 DRIVE

You can order one optional USB 2.0 drive. The USB drive ordering information is listed in [Table 24](#).

Table 24 USB 2.0 Drive

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

See [Figure 7 on page 63](#) for the location of the USB connector.

STEP 15 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

Several operating systems and value-added software programs are available. Select as desired from [Table 25](#).

Table 25 OSs and Value-Added Software (for 2-CPU servers)

PID Description	Product ID (PID)
Microsoft Windows Server	
MSWS-08R2-STHV	Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL)
MSWS-08R2-ENHV	Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL)
MSWS-08R2-DCHV2S	Windows Svr 2008 R2-2 CPU-Data Center
MSWS-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
SUSE	
SLES-SVR-2S-1G-1A	SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);1yr Support Reqd
SLES-SVR-2S-1G-3A	SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);3yr Support Reqd
SLES-SVR-2S-1G-5A	SUSE Linux Enterprise Svr (1-2 CPU,1 Phys);5yr Support Reqd
SLES-SVR-2S-UG-1A	SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);1yr Support Reqd
SLES-SVR-2S-UG-3A	SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);3yr Support Reqd
SLES-SVR-2S-UG-5A	SUSE Linux Enterprise Svr (1-2 CPU,Unl Vrt);5yr Support Reqd
SLES-SHA-2S-1A	SUSE Linux High Availability Ext (1-2 CPU); 1yr Support Reqd
SLES-SHA-2S-3A	SUSE Linux High Availability Ext (1-2 CPU); 3yr Support Reqd
SLES-SHA-2S-5A	SUSE Linux High Availability Ext (1-2 CPU); 5yr Support Reqd
SLES-HGC-2S-1A	SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Support Reqd
SLES-HGC-2S-3A	SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr Support Reqd
SLES-HGC-2S-5A	SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr Support Reqd
SLES-SAP-2S-1G-1A	SLES for SAP Applications (1-2 CPU,1 Phys); 1yr Support Reqd
SLES-SAP-2S-1G-3A	SLES for SAP Applications (1-2 CPU,1 Phys); 3yr Support Reqd
SLES-SAP-2S-1G-5A	SLES for SAP Applications (1-2 CPU,1 Phys); 5yr Support Reqd
SLES-SAP-2S-UG-1A	SLES for SAP Applications (1-2 CPU,Unl Vrt);1yr Support Reqd
SLES-SAP-2S-UG-3A	SLES for SAP Applications (1-2 CPU,Unl Vrt);3yr Support Reqd
SLES-SAP-2S-UG-5A	SLES for SAP Applications (1-2 CPU,Unl Vrt);5yr Support Reqd

Table 25 OSs and Value-Added Software (for 2-CPU servers) *(continued)*

PID Description	Product ID (PID)
Red Hat Enterprise Linux	
RHEL-2S-1G-1A	RHEL/2 Socket/1 Guest/1Yr Svcs Required
RHEL-2S-1G-3A	RHEL/2 Socket/1 Guest/3Yr Svcs Required
RHEL-2S-4G-1A	RHEL/2 Socket/4 Guest/1Yr Svcs Required
RHEL-2S-4G-3A	RHEL/2 Socket/4 Guest/3Yr Svcs Required
RHEL-2S-UG-1A	RHEL/2 Socket/U Guest/1Yr Svcs Required
RHEL-2S-UG-3A	RHEL/2 Socket/U Guest/3Yr Svcs Required
RHEL-HA-2S-1A	RHEL Option/High-Availability/2 Socket/1Yr Svcs Required
RHEL-HA-2S-3A	RHEL Option/High-Availability/2 Socket/3Yr Svcs Required
RHEL-RS-2S-1A	RHEL Option/Resilient w/Ha /2 Socket/1 Yr Svcs Required
RHEL-RS-2S-3A	RHEL Option/Resilient Storage w/ HA /2 Socket/3 Yr Svcs Req'd
RHEL-SFS-2S-1A	RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required
RHEL-SFS-2S-3A	RHEL Option/Scalable File System/2 Socket/1 Yr Svcs Required
BMC	
BMC-012	BMC BPPM Per Server
BMC-SE-4C	BMC BladeLogic Standard Edition, 4 Cores, Support Required
BMC-SE-6C	BMC BladeLogic Standard Edition, 6 Cores, Support Required
BMC-SE-8C	BMC BladeLogic Standard Edition, 8 Cores, Support Required
BMC-SE-10C	BMC BladeLogic Standard Edition, 10 Cores, Support Required
BMC-AE-4C	BMC BladeLogic Advanced Edition, 4 Cores, Support Required
BMC-AE-6C	BMC BladeLogic Advanced Edition, 6 Cores, Support Required
BMC-AE-8C	BMC BladeLogic Advanced Edition, 8 Cores, Support Required
BMC-AE-10C	BMC BladeLogic Standard Edition, 10 Cores, Support Required
UCS-BMC-TERMS	Acceptance of Terms, Standalone BMC License for UCS Servers
Nexus 1000V for Hyper-V and vSphere	
N1K-CSK9-UCS-404	Nexus 1000V VSM Virtual Appliance Software On UCS
N1K-VSG-UCS-BUN	Over half off N1K and VSG w/ purchase of UCS B/C Series
N1K-M-VSG-UCS-BUN	Nexus 1000V Adv Edition for Hyper-V Paper License Qty 1
UCS Director	
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

Table 25 OSs and Value-Added Software (for 2-CPU servers) *(continued)*

PID Description	Product ID (PID)
VMware 5	
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
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-VS5-ENTP-5A	VMware vSphere 5 Enterprise Plus for 1 Processor, 5 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
UCS-VMW-TERMS	Acceptance of Terms, Standalone VMW License for UCS Servers

STEP 16 SELECT OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in [Table 26](#).

Table 26 OS Media

Product ID (PID)	PID Description
RHEL-6	RHEL 6 Recovery Media Only (Multilingual)
SLES-11	SLES 11 media only (multilingual)
MSWS-08R2-STHV-RM	Windows Svr 2008 R2 ST (1-4CPU, 5CAL), Media
MSWS-08R2-ENHV-RM	Windows Svr 2008 R2 EN (1-8CPU, 25CAL), Media
MSWS-08R2-DCHV-RM	Windows Svr 2008 R2 DC (1-8CPU, 25CAL), Media
MSWS-12-ST2S-RM	Windows Server 2012 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12-DC2S-RM	Windows Server 2012 Datacenter(2 CPU/Unlimited VM) Rec Media

STEP 17 SELECT SERVICE and SUPPORT LEVEL

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

Unified Computing Warranty, No Contract

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

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

SMARTnet for UCS

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

For UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco SMARTnet for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in [Table 27](#).

Table 27 Cisco SMARTnet for UCS Service

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

SMARTnet for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco SMARTnet for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. SMARTnet for UCS Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a service listed in [Table 28](#).

Table 28 SMARTnet for UCS Hardware Only Service

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

Unified Computing Partner Support Service

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

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

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

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

www.cisco.com/go/partnerucssupport

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 29](#).

Table 29 Partner Support Service for UCS

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

Partner Support Service for UCS Hardware Only provides customers with replacement parts in as little as two hours. See [Table 30](#).

Table 30 Partner Support Service for UCS (Hardware Only)

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

Unified Computing Combined Support Service

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

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

You can choose a service listed in [Table 31](#).

Table 31 UCS Computing Combined Support Service

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

Unified Computing Drive Retention Service

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

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

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in [Table 32](#).



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

Table 32 Drive Retention Service Options

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

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

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

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

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

OPTIONAL STEP - ORDER RACK(s)

The optional R42610 rack is available from Cisco for the C-Series servers, including the C240 M3 SFF server. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in [Table 33](#). Racks are shipped separately from the C240 M3 SFF server.

Table 33 Racks and Rack Options

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

Notes . . .

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

For more information about the R42610 rack, see [RACKS, page 80](#).

OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers, including the C240 M3 server. This PDU is available in a zero rack unit (RU) style (see [Table 33](#)).

Table 34 PDU Options

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

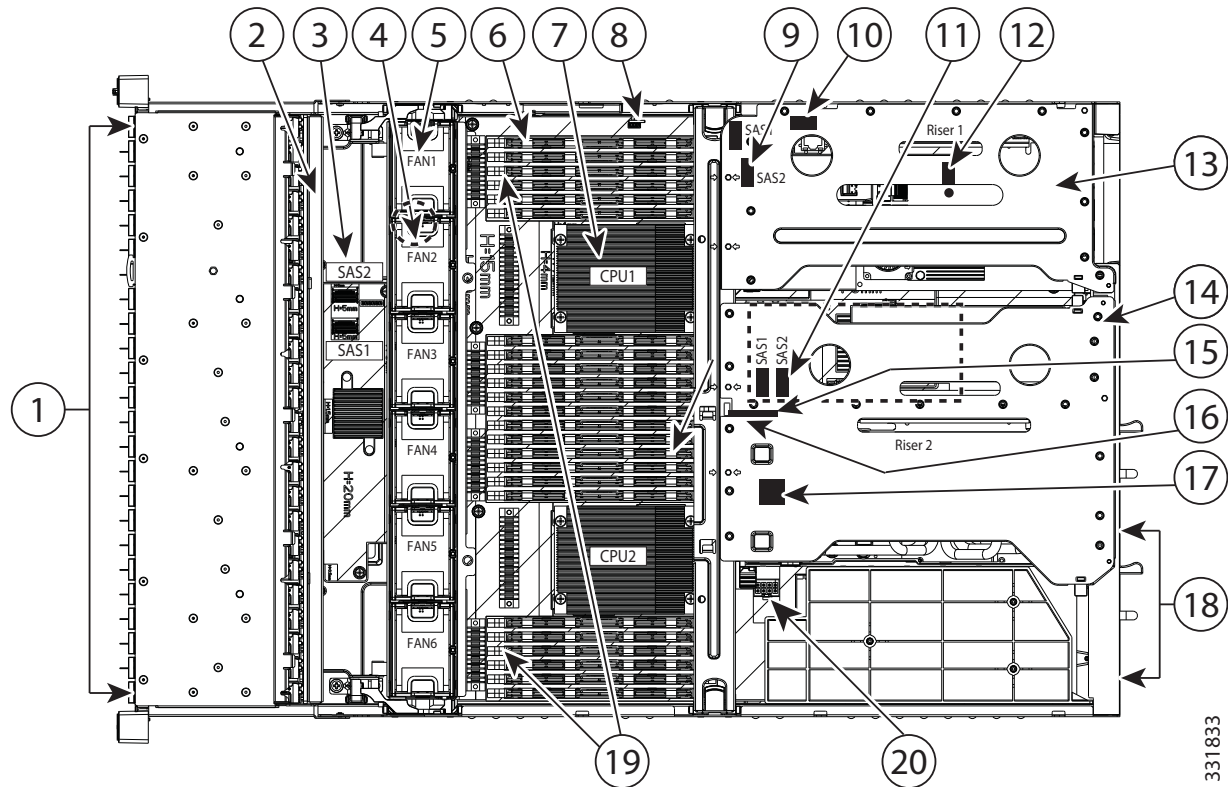
For more information about the PDU, see [PDUs, page 82](#).

SUPPLEMENTAL MATERIAL

CHASSIS

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

Figure 7 C240 M3 SFF With Top Cover Off



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

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

CPUs and DIMMs

Physical Layout

Each CPU has four DIMM channels:

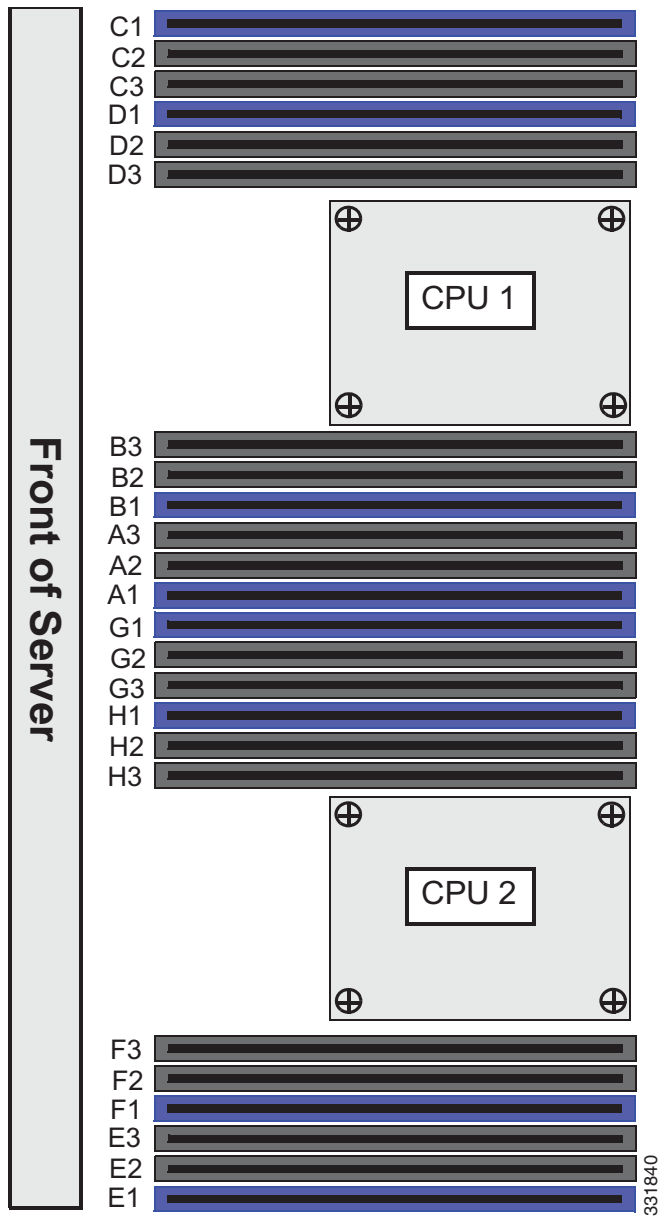
- CPU1 has channels A, B, C, and D
- CPU2 has channels E, F, G, and H

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

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

Figure 8 shows how banks and channels are physically laid out on the motherboard. The DIMM slots on the top (channels A, B, C, and D) are associated with CPU 1, while the DIMM slots on the bottom (channels E, F, G, and H) are associated with CPU 2. The bank 1 (blue) DIMM slots are always located farther away from a CPU than the corresponding bank 2 or 3 (black) slots. Bank 1 slots (blue) are populated before bank 2 and 3 slots (black).

Figure 8 Physical Layout of CPU DIMM Channels and Banks



Memory Population Rules

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

- Each channel has three DIMM slots (for example, channel A = slots A1, A2, and A3).
 - A channel can operate with one, two, or three DIMMs installed.
 - If a channel has only one DIMM, populate slot 1 first (the blue slot).
- When both CPUs are installed, populate the DIMM slots of each CPU identically.
 - Fill bank 1 blue slots in the channels first: A1, E1, B1, F1, C1, G1, D1, H1
 - Fill bank 2 black slots in the channels second: A2, E2, B2, F2, C2, G2, D2, H2
 - Fill bank 3 black slots in the channels third: A3, E3, B3, F3, C3, G3, D3, H3
- Any DIMM installed in a DIMM socket for which the CPU is absent is not recognized.
- Observe the DIMM rules shown in [Table 35](#)

Table 35 DIMM Rules for C240 M3 Servers

DIMM Parameter	DIMMs in the Same Channel	DIMM in the Same Bank ¹
<u>DIMM Capacity</u>		
RDIMM = 4, 8, or 16 GB	DIMMs in the same channel (for example, A1, A2, A3) can have different capacities.	For best performance, DIMMs in the same bank (for example, A1, B1, C1, D1) should have the same capacity.
LRDIMM = 32 GB	You cannot mix 32 GB LRDIMMs with any RDIMM or UDIMM	You cannot mix 32 GB LRDIMMs with any RDIMM or UDIMM
UDIMM = 4 GB	You cannot mix 4 GB UDIMMs with any RDIMM or LRDIMM	You cannot mix 4 GB UDIMMs with any RDIMM or LRDIMM
<u>DIMM Speed</u>		
1866-, 1600-, or 1333-MHz ²	DIMMs will run at the lowest speed of the DIMMs/CPU installed	DIMMs will run at the lowest speed of the DIMMs/CPU installed
<u>DIMM Type</u>		
RDIMMs, LRDIMMs, or UDIMMs	You cannot mix DIMM types in a channel	You cannot mix DIMM types in a bank
DIMMs per Channel (DPC)	1 DPC or 2 DPC	3 DPC
	See Table 5 on page 20 for valid LRDIMM and RDIMM 1 DPC and 2 DPC memory configurations	See Table 5 on page 20 for valid LRDIMM and RDIMM 3 DPC configurations
	UDIMMs run at 1066 MHz at 1.35 V and 1333 MHz at 1.5 V	3 DPC is not supported for UDIMMs

Notes . . .

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

DIMM Population Order

Populate the DIMMs for a CPU according to [Table 36](#).

Table 36 DIMM Population Order per CPU

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

Notes . . .

1. Not recommended (for performance reasons)

Recommended Memory Configuration

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

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

Many memory configurations are possible. For best results, follow [Table 37](#) when populating DIMMs.

Table 37 Recommended Memory Configurations¹

Total System Memory Size	CPU 1 DIMMs			CPU 2 DIMMs			DIMM Max Speed (MHz)	Total DIMMs
	Blue Slots Bank 1 (A1,B1, C1,D1)	Black Slots Bank 2 (A2,B2, C2,D2)	Black Slots Bank 3 (A3,B3, C3,D3)	Blue Slots Bank 1 (E1,F1, G1,H1)	Black Slots Bank 2 (E2,F2, G2,H2)	Black Slots Bank 3 (E3,F3, G3,H3)		
32 GB	4x4 GB	—	—	4x4 GB	—	—	1600	8
	2x8 GB	—	—	2x8 GB	—	—	1600	4
64 GB	4x4 GB	4x4 GB	—	4x4 GB	4x4 GB	—	1600	16
	4x8 GB	—	—	4x8 GB	—	—	1600	8
96 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	4x4 GB	1066	24
	4x8 GB	2x8 GB	—	4x8 GB	2x8 GB	—	1600	12
	3x16 GB	—	—	3x16 GB	—	—	1600	6
	4x8 GB	4x4 GB	—	4x8 GB	4x4 GB	—	1600	16
128 GB	4x8 GB	4x8 GB	—	4x8 GB	4x8 GB	—	1600	16
	4x16 GB	—	—	4x16 GB	—	—	1600	8
192 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	4x8 GB	1333	24
	4x16 GB	2x16 GB	—	4x16 GB	2x16 GB	—	1600	12
	4x16 GB	4x8 GB	—	4x16 GB	4x8 GB	—	1600	16

Table 37 Recommended Memory Configurations¹ (continued)

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

Notes . . .

1. Rows marked in yellow indicate best performance.

Supported DIMM Populations

The supported DIMM populations are listed in [Table 38](#).

Table 38 Supported DIMM Configurations

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

Table 38 Supported DIMM Configurations (*continued*)

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

Low-Voltage DIMM Considerations

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

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

RAID Details

The available RAID configurations are shown in this section.

(1) 1-CPU Configurations

- For a 24-drive backplane system, select one of the following:

- One internal drive RAID controller from [Table 8 on page 24](#)
- One external drive RAID controller from [Table 8 on page 24](#)

You may also select an appropriate optional RAID configuration listed in [Table 8 on page 24](#).

- For a 16-drive backplane system, select one of the following:

- One embedded RAID option from [Table 6 on page 23](#)
- One internal drive RAID controller from [Table 8 on page 24](#)
- One external drive RAID controller from [Table 8 on page 24](#)

You may also select an appropriate optional RAID configuration listed in [Table 8 on page 24](#).



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

(2) 2-CPU Configurations

- For a 24-drive backplane system, select one of the following:

- One mezzanine RAID controller from [Table 7 on page 23](#)
- One internal drive RAID controller from [Table 8 on page 24](#)
- One external drive RAID controller from [Table 8 on page 24](#)
- One mezzanine RAID controller from [Table 7 on page 23](#) and one external PCIe RAID controller from [Table 8 on page 24](#)
- One internal drive RAID controller from [Table 8 on page 24](#) and one external PCIe RAID controller from [Table 8 on page 24](#)

You may also select an appropriate optional RAID configuration listed in [Table 8 on page 24](#).

- For a 16-drive backplane system, select one of the following:

- An embedded RAID option from [Table 6 on page 23](#)
- One mezzanine RAID controller from [Table 7 on page 23](#)
- One internal drive RAID controller from [Table 8 on page 24](#)

- Two internal drive RAID controllers from [Table 8 on page 24](#)
- One external drive RAID controller from [Table 8 on page 24](#)
- One mezzanine RAID controller from [Table 7 on page 23](#) and one external PCIe RAID controller from [Table 7 on page 23](#)
- One internal drive RAID controller from [Table 7 on page 23](#) and one external drive PCIe RAID controller from [Table 7 on page 23](#)

You may also select an appropriate optional RAID configuration listed in [Table 8 on page 24](#).

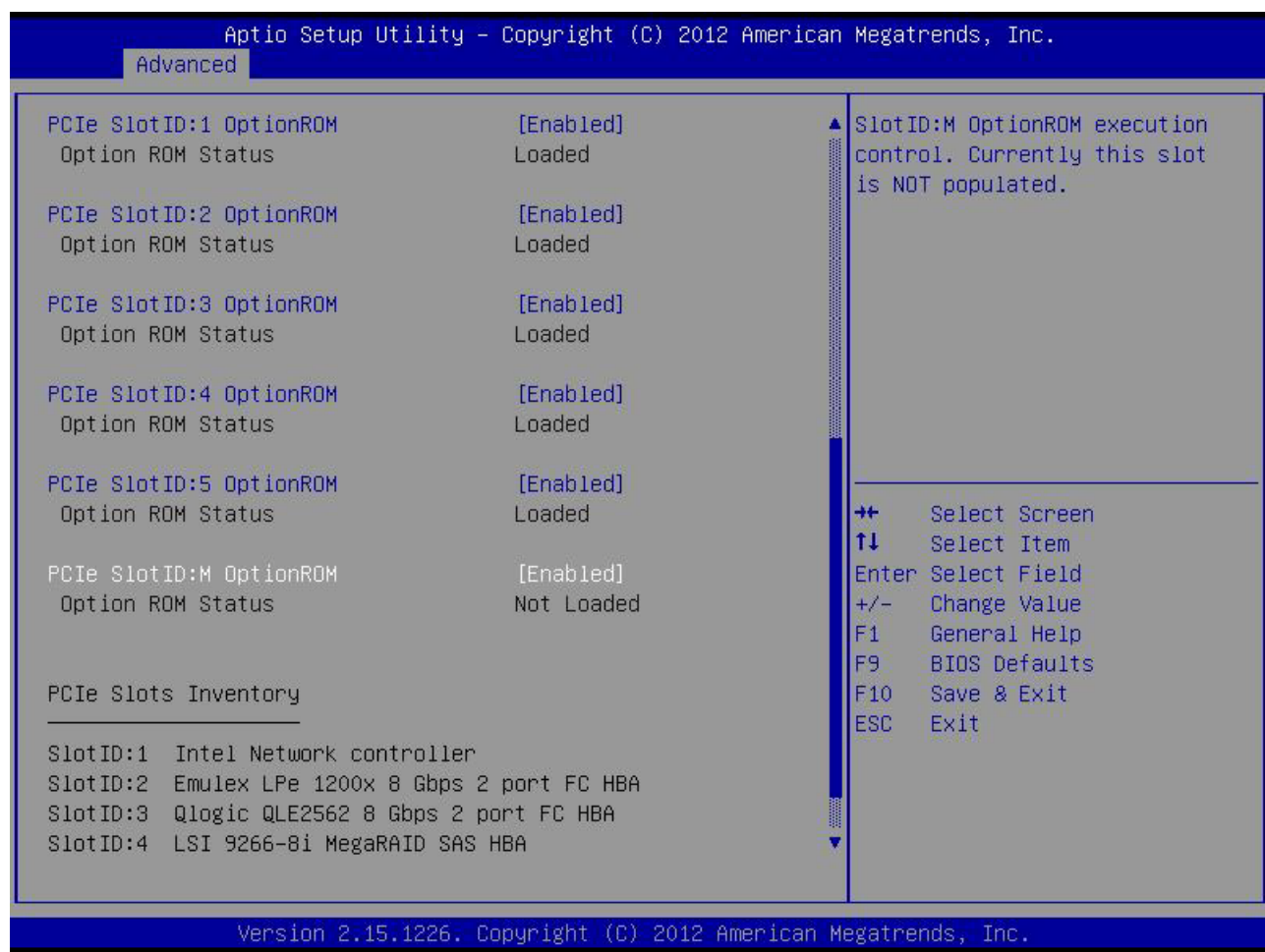


NOTE: In 2-CPU 24 HDD backplane configurations, PCIe slot 4 is the default slot supported for an internal drive RAID controller. In 2-CPU 16 HDD backplane configurations, PCIe slots 4 and 3 are the default slots supported for internal drive RAID controllers. The remaining slots can be used for one external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

RAID Option ROM (OPROM) Settings

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

Figure 9 Example BIOS Screen for OPROM

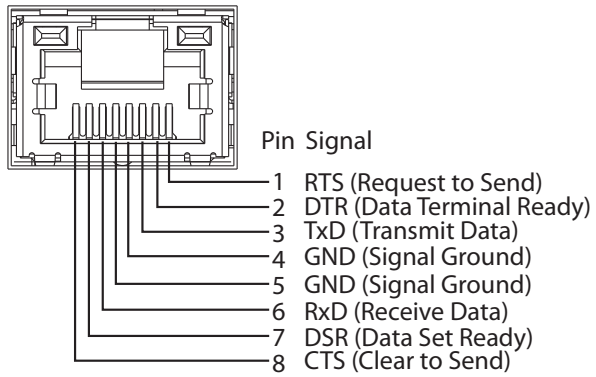


Serial Port Details

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

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

Serial Port (RJ-45 Female Connector)



Upgrade and Servicing-Related Parts

This section lists the upgrade and servicing-related parts you may need during the life of your server. Some of these parts are configured with every server, and some may be ordered when needed or may be ordered and kept on hand as spares for future use. See [Table 39](#).

Table 39 Upgrade and Servicing-related Parts for UCS C240 M3 SFF Server

Spare Product ID (PID)	Description
N20-BBLKD=	2.5-inch HDD Blanking Panel ¹
UCSC-CABLE2=	Set of four spare SAS/SATA cables for C240 M3 SFF (2.5-in) containing a 16-drive backplane (with no backplane expander). Note that four cables are required to connect up to 16 drives via two LSI SAS MegaRAID 9271-8i or 9271CV-8i cards.
UCSC-CABLE6=	Set of two spare SAS/SATA cables for a C240 M3 SFF (2.5-in) containing a 24-drive backplane with SAS expander. Note that a maximum of two cables are required to connect up to 24 drives via one LSI SAS MegaRAID 9271-8i or 9271CV-8i card.
UCSC-PCIF-01H=	PCIe Low Profile blanking panel for UCS C-Series Server
UCSC-PCIF-01F=	PCIe Full Height blanking panel for UCS C-Series Server
UCSC-HS-C240M3=	Heat Sink for UCS C240 M3 Rack Server ¹
UCSC-AIRBAF-C240=	Air Baffle Replacement Kit for C240 M3 Server ¹
N20-MBLIBATT=	Replacement Lithium Battery for Server Motherboard (CR2032) ¹
UCS-RAID-BBU=	Battery Back-Up for 9266 ²
UCS-RAID-CV-SC=	LSI CacheVault Power Module for 9266CV-8i, 9271CV-8i, 9285CV-8e and 9286CV-8e ³
UCSC-PSU-BLKP=	Power supply blanking panel/filler for C-Series Servers
UCSC-RAIL-2UB=	Ball bearing rail kit for C240 rack servers
UCSC-CMA2B	Reversible cable management arm for C240 ball bearing rail kit
UCSC-RAIL-2U=	Friction Rail Kit for C240, C260 rack servers
UCSC-CMA2=	Reversible Cable Management Arm for C240 & C260 friction rail kit
UCSC-RAIL-2U-I=	Inner rail spare for C240 and C260 friction rail kit ⁴
UCSC-SD-16G-C240=	16GB SD Card for C240 Servers ⁵
UCS-SD-16G=	Blank SD Card for UCS servers ⁶
UCS-USBFLSH-S-4GB=	4GB SLC Flash USB Drive (shorter) for all servers except C260
N20-BKVM=	KVM local IO cable for UCS servers console port ⁷
UCS-CPU-EP-PNP=	Pick n place CPU tools for M3/EP 10/8/6/4/2 core CPUs (Green) ⁸

Table 39 Upgrade and Servicing-related Parts for UCS C240 M3 SFF Server

Spare Product ID (PID)	Description
UCS-CPU-EP2-PNP=	Pick n place CPU tools for M3/EP v2 12 core CPUs (Purple) ⁹
UCS-CPU-GREASE2=	Thermal grease-for 2 CPUs-only for C220/C240-Red tip syringe ⁸
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit (when replacing a CPU) ⁸

Notes . . .

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

Drive Blanking Panels

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

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

See the following link:

http://www.cisco.com/en/US/docs/unified_computing/ucs/hw/CPU/IVB/install/IVB-B.html

Adding an Additional CPU (with CPU heat sink)

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

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864

Motherboard Lithium Battery

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

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1307315

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

The Pick n Place tool set includes two tools:

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

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

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864



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

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

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

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864



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

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

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

CAUTION:



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

Air Baffle Replacement Kit

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

CPU Heat Sink Cleaning Kit

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

http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C240/install/replace.html#wp1233864



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

RACKS

The Cisco R42610 rack (see [Figure 11](#)) 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 40](#).

Table 40 Cisco R42610 Rack Specifications

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



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

Figure 11 Cisco R42610 Rack



Front view - door closed



Front view - door open



Front view - door removed

PDU

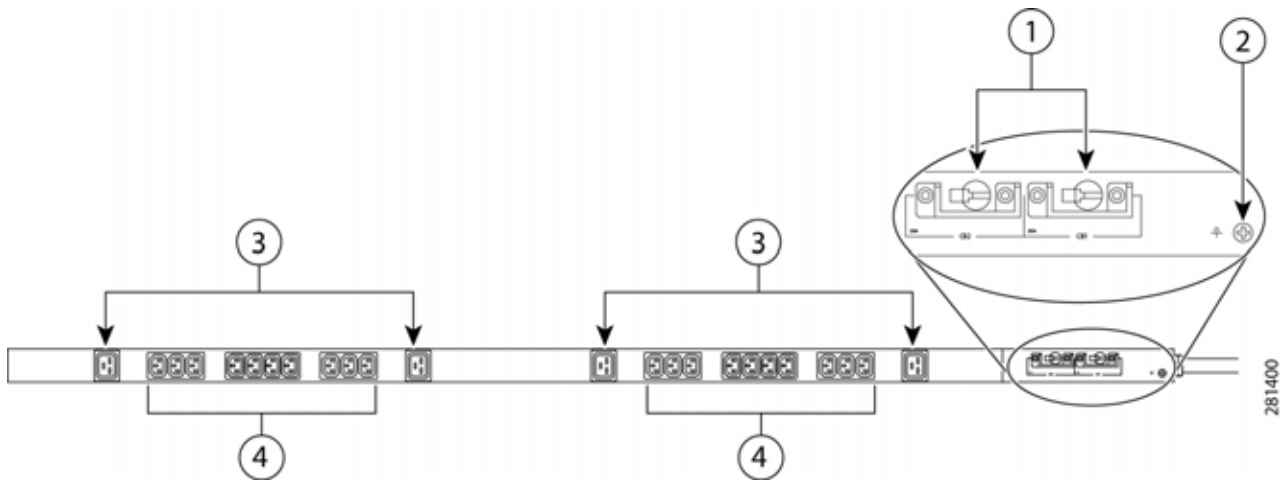
Cisco RP Series Power Distribution Units (PDUs) offer power distribution with branch circuit protection.

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 12](#)).

Figure 12 Zero Rack Unit PDU (PID = RP208-30-2P-U-2)



1	Breakers	3	C19 plugs
2	Ground connection	4	C13 plugs

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

KVM CABLE

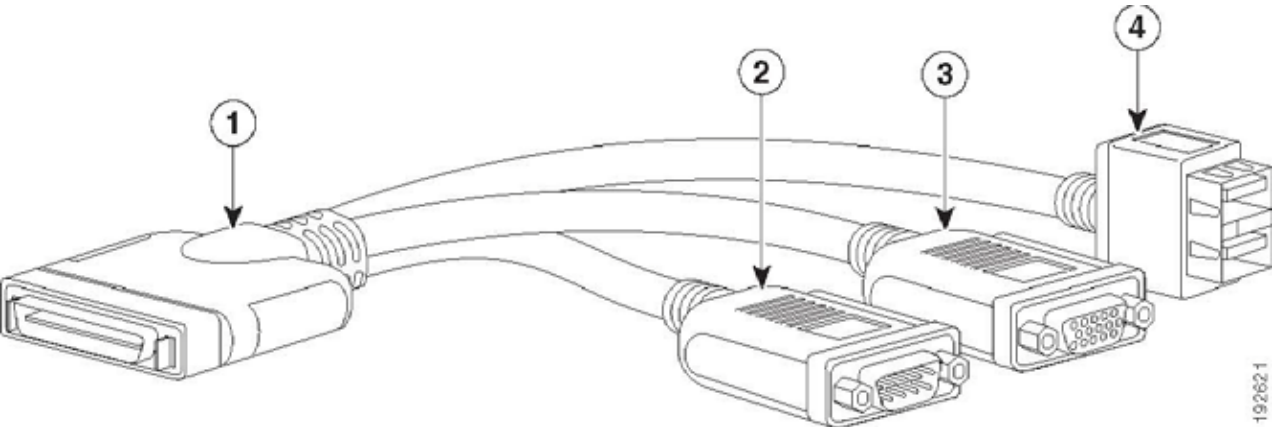
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB 2.0 ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 41](#).

Table 41 KVM Cable

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

Figure 13 KVM Cable

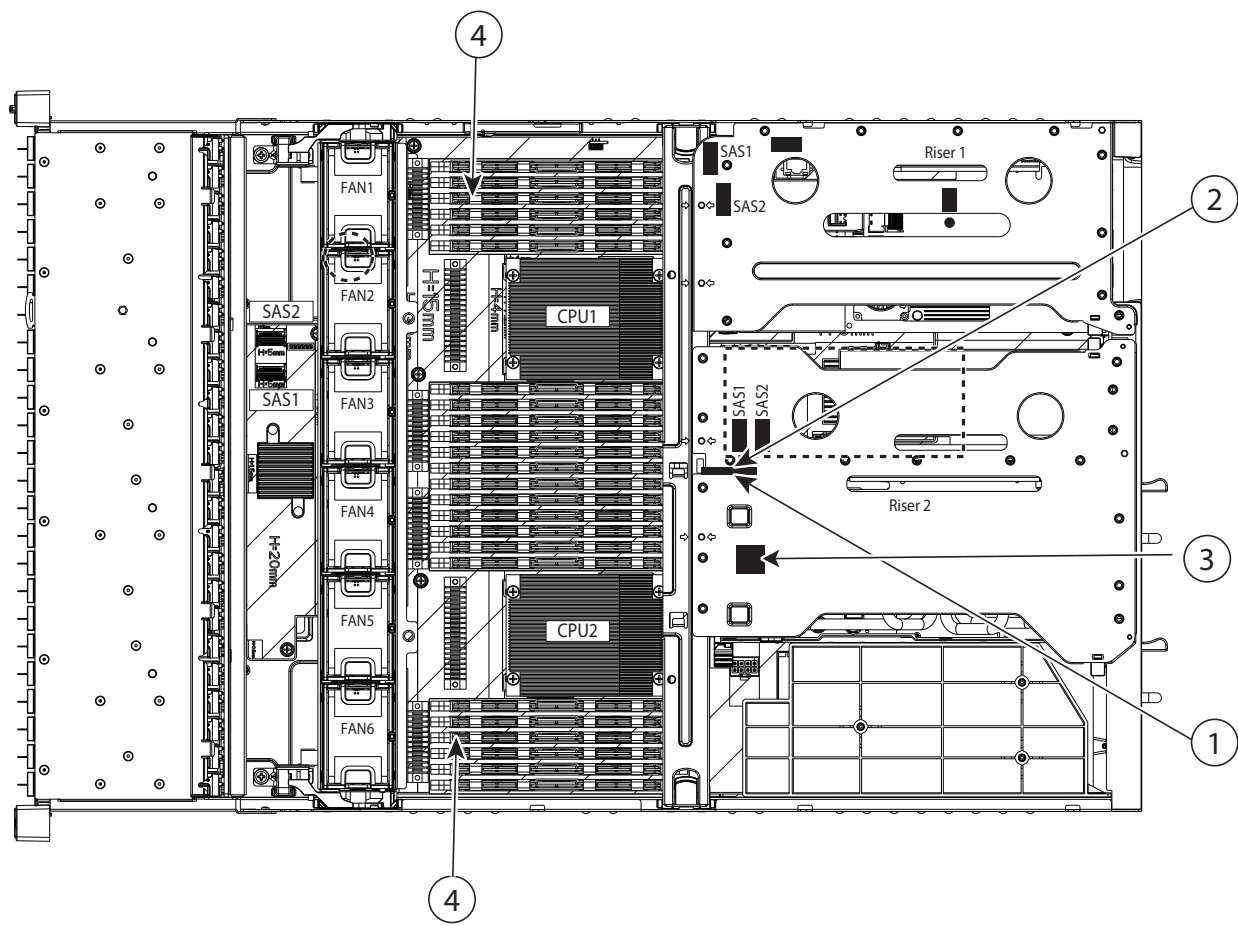


1	Connector (to server front panel)	3	VGA connector (for a monitor)
2	DB-9 serial connector	4	Two-port USB 2.0 connector (for a mouse and keyboard)

Motherboard USB and SD Ports, and RAID Card Backup Locations

The C240 M3 SFF motherboard has a general-purpose USB socket and two SD sockets, as shown in [Figure 14](#). The mounting locations for RAID card backup are also shown

Figure 14 Motherboard USB and SD Ports and RAID Backup Location



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

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 42 UCS C240 M3 Dimensions and Weight

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

Notes . . .

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

Power Specifications

The server is available with three types of power supplies:

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

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

- 650 W (AC) power supply (see [Table 43](#)).
- 1200 W (AC) power supply (see [Table 44](#)).
- 930 W (DC) power supply (see [Table 45](#)).

Table 43 UCS C240 M3 SFF Power Specifications 650 W AC power supply)

Description	Specification
AC input voltage range	90 to 264 VAC (self-ranging, 180 to 264 VAC nominal)
AC input frequency	Range: 47 to 63 Hz (single phase, 50 to 60Hz nominal)
Maximum AC inrush current	11 A
Maximum AC input current	7.6 A peak at 100 VAC 3.65 A peak at 208 VAC
Maximum output power for each power supply	650 W
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC
Power supply efficiency	CSCI Platinum



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

Table 44 UCS C240 M3 SFF Power Specifications 1200 W AC power supply)

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



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

Table 45 UCS C240 M3 SFF Power Specifications 930 W DC power supply)

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

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

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

Environmental Specifications

The power specifications for the C240 M3 server are listed in [Table 46](#).

Table 46 UCS C240 M3 Environmental Specifications

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

Compliance Requirements

The regulatory compliance requirements for C-Series servers are listed in [Table 47](#).

Table 47 UCS C-Series Regulatory Compliance Requirements

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



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