



Cisco UCS C220 M5 Rack Server (Small Form Factor Disk Drive Model)

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OVERVIEW

The UCS C220 M5 SFF server extends the capabilities of Cisco's Unified Computing System portfolio in a 1U form factor with the addition of the Intel® Xeon® Processor Scalable Family, 24 DIMM slots for 2666MHz DIMMs and up to 128GB capacities, two 2 PCI Express (PCIe) 3.0 slots, and up to 10 SAS/SATA hard disk drives (HDDs) or solid state drives (SSDs). The C220 M5 SFF server also includes one dedicated internal slot for a 12G SAS storage controller card.

The C220 M5 server includes a dedicated internal modular LAN on motherboard (mLOM) slot for installation of a Cisco Virtual Interface Card (VIC) or third-party network interface card (NIC) without consuming a PCI slot in addition to 2 x 10 GbE Intel x550 embedded (on the motherboard) LOM ports.

The Cisco UCS C220 M5 server can be used standalone, or as part of the Cisco Unified Computing System, which unifies computing, networking, management, virtualization, and storage access into a single integrated architecture enabling end-to-end server visibility, management, and control in both bare metal and virtualized environments.

Figure 1 Cisco UCS C220 M5 SFF Rack Server

Front View



Rear View

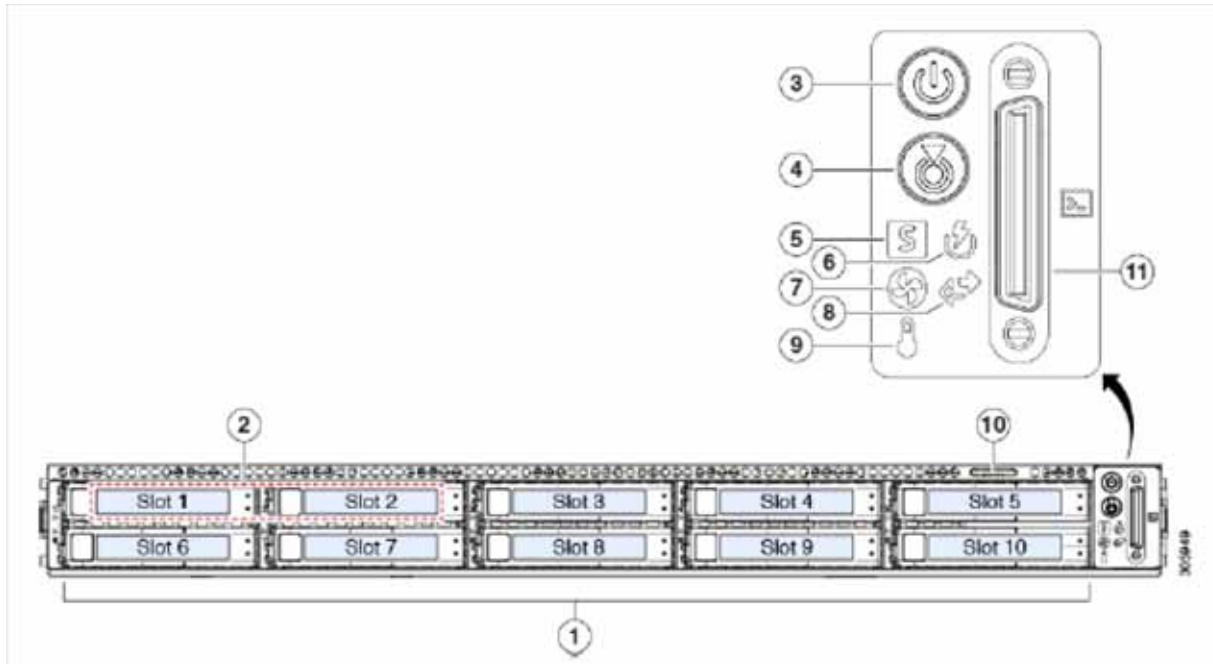


DETAILED VIEWS

Chassis Front View

Figure 2 shows the front view of the Cisco UCS C220 M5 SFF Rack Server. Figure 2

Chassis Front View



1	Drive bays 1 - 10 support SAS/SATA hard drives and solid state drives (SSDs).	7	Fan status LED
2	UCSC-220-M5S version: Drive bays 1 and 2 support SFF NVMe PCIe SSDs. UCSC-220-M5N version: Drive bays 1 - 10 support SFF NVMe PCIe SSDs ¹	8	Network link activity LED
3	Power button/Power status LED	9	Temperature status LED
4	Unit identification button/LED	10	Pull-out asset tag
5	System status LED	11	KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector)
6	Power supply status LED		

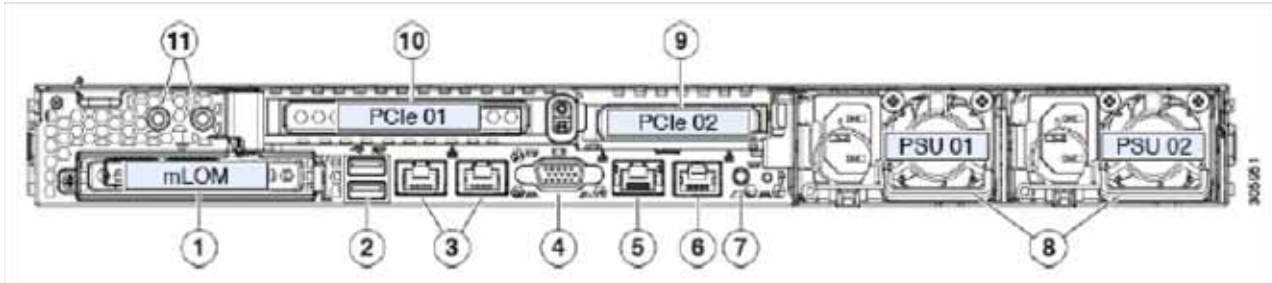
Notes . . .

1. Available at the end of CY 2017

Chassis Rear View

Figure 3 shows the external features of the rear panel. (Identical for all server versions)

Figure 3 Chassis Rear View



1	Modular LAN-on-motherboard (mLOM) card bay (x16)	7	Rear unit identification button/LED
2	USB 3.0 ports (two)	8	Power supplies (two, redundant as 1+1)
3	Dual 10-Gb Ethernet ports (LAN1 and LAN2). LAN1 is left connector and LAN2 is right connector	9	PCIe riser 2 (slot 2) (half-height, x16); includes PCIe cable connectors for 2 SFF NVMe SSDs (x8)
4	VGA video port (DB-15)	10	PCIe riser 1 (slot 1) (full-height, x16)
5	1-Gb Ethernet dedicated management port	11	Power supplies (up to two, redundant as 1+1)
6	Serial port (RJ-45 connector)		

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	One rack unit (1RU) chassis
CPU	One or two Intel® Xeon® Processor Scalable Family CPUs
Chipset	Intel® C620 series chipset
Memory	24 slots for registered DIMMs (RDIMMs), load-reduced DIMMs (LRDIMMs), or through silicon via (TSV) DIMMs
Multi-bit Error Protection	This server supports multi-bit error protection.
Video	The Cisco Integrated Management Controller (CIMC) provides video using the ASPEED Pilot 4 video/graphics controller: <ul style="list-style-type: none"> ■ Integrated 2D graphics core with hardware acceleration ■ DDR4 memory interface supports up to 16 MB directly accessible from host and entire DDR memory indirectly accessible from host processor. ■ Supports all display resolutions up to 1920 x 1200 x 32bpp resolution at 60Hz ■ High speed Integrated 24-bit RAMDAC ■ Single lane PCI-Express host interface ■ eSPI processor to BMC support
SATA Interposer Board	An optional SATA interposer board for up to eight SATA-only drives.
Power subsystem	Up to two of the following hot-swappable power supplies: <ul style="list-style-type: none"> ■ 770 W (AC) ■ 1050 W (AC) ■ 1050 W (DC) <p>One power supply is mandatory; one more can be added for 1 + 1 redundancy.</p>
WoL	The Intel x550 10G Base-T Ethernet LAN ports support the wake-on-LAN (WoL) standard.
Front Panel	A front panel controller provides status indications and control buttons
ACPI	This server supports the advanced configuration and power interface (ACPI) 4.0 standard.
Fans	Chassis: <ul style="list-style-type: none"> ■ Seven hot-swappable fans for front-to-rear cooling
Infiniband	The InfiniBand architecture is supported by the PCIe slots.

Table 1 Capabilities and Features *(continued)*


Capability/Feature	Description
Expansion slots	<ul style="list-style-type: none"> ■ Riser 1 (controlled by CPU 1): <ul style="list-style-type: none"> • One full-height profile, 3/4-length slot with x24 connector and x16 lane. Contains a socket for a micro-SD card. ■ Riser 2 (controlled by CPU 2): <ul style="list-style-type: none"> • One half-height profile, half-length slot with x24 connector and x16 lane. Supports NCSI. Includes a PCIe cable connector for two SFF NVMe SSDs (x8) ■ Dedicated RAID controller slot (see Figure 7 on page 67) <ul style="list-style-type: none"> • An internal slot is reserved for use by the Cisco 12G SAS RAID controller or the Cisco 12G SAS HBA.
I/O Interfaces	<ul style="list-style-type: none"> ■ Rear panel <ul style="list-style-type: none"> • One 1-Gbps RJ-45 management port (Marvell 88E6176) • Two 10GBase-T LOM ports (Intel X550 controller embedded on the motherboard) • One RS-232 serial port (RJ45 connector) • One DB15 VGA connector • Two USB 3.0 port connectors • One flexible modular LAN on motherboard (mLOM) slot that can accommodate various interface cards ■ Front panel <ul style="list-style-type: none"> • One KVM console connector (supplies two USB 2.0 connectors, one VGA DB15 video connector, and one serial port (RS232) RJ45 connector)

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Internal storage devices	<p>Drives are installed into front-panel drive bays that provide hot-swappable access for SAS/SATA drives. The server is orderable in two different versions:</p> <ul style="list-style-type: none"> ■ UCSC-C220-M5S: <ul style="list-style-type: none"> • Up to 10 SFF SAS/SATA hard drives (HDDs) or SAS/SATA solid state drives (SSDs). • Optionally, up to two SFF NVMe PCIe SSDs (replacing SAS/SATA drives). These drives must be placed in front drive bays 1 and 2 only and are connected from Riser 2. ■ UCSC-C220-M5SN¹: <ul style="list-style-type: none"> • Up to 10 SFF NVMe PCIe SSDs. The drives in slots 1 and 2 are connected from Riser 2 and the drives in slots 3 through 10 are connected from the PCIe switch card plugged into the internal HBA slot. ■ One internal USB 3.0 port on the motherboard that you can use with an optional 16 GB USB thumb drive for additional storage. ■ A mini-storage module connector on the motherboard supports either: <ul style="list-style-type: none"> • An SD card module with two SD card slots. Mixing different capacity SD cards is not supported. • An M.2 module with two SATA M.2 SSD slots. Mixing different capacity M.2 modules is not supported. ■ One socket for a micro-SD card on PCIe Riser 1. The micro-SD card serves as a dedicated local resource for utilities such as HUU. Images can be pulled from a file share (NFS/CIFS) and uploaded to the cards for future use.
Integrated management processor	<p>Baseboard Management Controller (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> <p>CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.</p>
UCSM	<p>Unified Computing System Manager (UCSM) runs in the Fabric Interconnect and automatically discovers and provisions some of the server components.</p>

1. Available at the end of CY 2017

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Storage controller	<ul style="list-style-type: none"> ■ Embedded RAID (software RAID) <ul style="list-style-type: none"> • Supports up to four SATA-only drives • Requires a SATA interposer board ■ Cisco 12G SAS RAID controller card with internal SAS connectivity. <ul style="list-style-type: none"> • Supports up to 10 internal SAS/SATA drives • Plugs into the dedicated RAID controller slot • Supports RAID 0, 1, 5, 6, 10, 50, and 60 ■ Cisco 12G SAS HBA (JBOD/Pass-through Mode) <ul style="list-style-type: none"> • Supports up to 10 SAS/SATA internal drives • Plugs into the dedicated RAID controller slot
Modular LAN on Motherboard (mLOM) slot	<p>The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards:</p> <ul style="list-style-type: none"> ■ Cisco Virtual Interface Cards ■ Quad Port Intel i350 1GbE RJ45 Network Interface Card (NIC) <hr/> <p> NOTE: The four Intel i350 ports are provided on an optional card that plugs into the mLOM slot, and are separate from the two embedded (on the motherboard) LAN ports</p> <hr/>
UCSM	<p>Unified Computing System Manager (UCSM) runs in the Fabric Interconnect and automatically discovers and provisions some of the server components.</p>

CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS C220 M5 SFF Rack Server:

- *STEP 1 VERIFY SERVER SKU, page 12*
- *STEP 2 SELECT LOCKING SECURITY BEZEL (OPTIONAL), page 13*
- *STEP 3 SELECT CPU(s), page 14*
- *STEP 4 SELECT MEMORY, page 17*
- *STEP 5 SELECT RAID CONTROLLERS, page 22*
- *STEP 6 SELECT HARD DISK DRIVES (HDDs) or SOLID STATE DRIVES (SSDs), page 29*
- *STEP 7 SELECT PCIe OPTION CARD(s), page 34*
- *STEP 8 ORDER POWER SUPPLY, page 44*
- *STEP 9 SELECT AC POWER CORD(s), page 45*
- *STEP 10 SELECT BOOT DRIVE*
-
- *STEP 11 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM, page 48*
- *STEP 12 SELECT NIC MODE (OPTIONAL), page 49*
- *STEP 13 ORDER SECURITY DEVICES (OPTIONAL), page 50*
- *STEP 14 ORDER CISCO SD CARD MODULE (OPTIONAL), page 52*
- *STEP 15 ORDER M.2 SATA SSD (OPTIONAL), page 53*
- *STEP 16 ORDER INTERNAL MICRO-SD CARD MODULE (OPTIONAL), page 54*
- *STEP 17 ORDER OPTIONAL USB 3.0 DRIVE, page 55*
- *STEP 18 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 56*
- *STEP 19 SELECT OPERATING SYSTEM MEDIA KIT, page 59*
- *STEP 20 SELECT SERVICE and SUPPORT LEVEL, page 60*
- *OPTIONAL STEP - ORDER RACK(s), page 65*
- *OPTIONAL STEP - ORDER PDU, page 66*

STEP 1 VERIFY SERVER SKU

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

Table 2 PID of the C220 M5 High-Density SFF Rack Base Server

Product ID (PID)	Description
UCSC-C220-M5S	UCS C220 M5 10 SFF front drives with no CPU, memory, HDD, PCIe cards, or power supply
UCSC-C220-M5SN	UCS C220 M5 10 SFF front drives (NVMe only) with no CPU, memory, HDD, PCIe cards, or power supply

The Cisco UCS C220 M5 SFF server:

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



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

STEP 2 SELECT LOCKING SECURITY BEZEL (OPTIONAL)

An optional locking bezel can be mounted to the front of the chassis to prevent unauthorized access to the drives.

Select the locking bezel from [Table 3](#).

Table 3 Locking Bezel Option

Product ID (PID)	Description
UCSC-BZL-C220M5	C220 M5 Security Bezel

STEP 3 SELECT CPU(s)

The standard CPU features are:

- Intel® Xeon® Processor Scalable Family CPUs
- Intel C620 series chipset
- Cache size of up to 38.5 MB

Select CPUs

The available CPUs are listed in [Table 4](#).

Table 4 Available Intel CPUs

Product ID (PID)	Intel Number ¹	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ² Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz) ³
Intel® Xeon® Processor Scalable Family CPUs							
UCS-CPU-8180M	8180M	2.5	205	38.50	28	3 x 10.4	2666
UCS-CPU-6142M	6142M	2.6	150	22.00	16	3 x 10.4	2666
UCS-CPU-6134M	6134M	3.2	130	24.75	8	3 x 10.4	2666
UCS-CPU-8176M	8176M	2.1	165	38.50	28	3 x 10.4	2666
UCS-CPU-8170M	8170M	2.1	165	35.75	26	3 x 10.4	2666
UCS-CPU-8160M	8160M	2.1	150	33.00	24	3 x 10.4	2666
UCS-CPU-6140M	6140M	2.3	140	24.75	18	3 x 10.4	2666
UCS-CPU-8180	8180	2.5	205	38.50	28	3 x 10.4	2666
UCS-CPU-8176	8176	2.1	165	38.50	28	3 x 10.4	2666
UCS-CPU-8170	8170	2.1	165	35.75	26	3 x 10.4	2666
UCS-CPU-8168	8168	2.7	205	33.00	24	3 x 10.4	2666
UCS-CPU-8164	8164	2.0	150	35.75	26	3 x 10.4	2666
UCS-CPU-8160	8160	2.1	150	33.00	24	3 x 10.4	2666
UCS-CPU-8158	8158	3.0	150	24.75	12	3 x 10.4	2666
UCS-CPU-8156	8156	3.6	105	16.50	4	3 x 10.4	2666
UCS-CPU-8153	8153	2.0	125	22.00	16	3 x 10.4	2666
UCS-CPU-6154	6154	3.0	200	24.75	18	3 x 10.4	2666
UCS-CPU-6152	6152	2.1	140	30.25	22	3 x 10.4	2666
UCS-CPU-6150	6150	2.7	165	24.75	18	3 x 10.4	2666
UCS-CPU-6148	6148	2.4	150	27.50	20	3 x 10.4	2666
UCS-CPU-6142	6142	2.6	150	22.00	16	3 x 10.4	2666
UCS-CPU-6140	6140	2.3	140	24.75	18	3 x 10.4	2666
UCS-CPU-6138	6138	2.0	125	27.50	20	3 x 10.4	2666
UCS-CPU-6136	6136	3.0	150	24.75	12	3 x 10.4	2666
UCS-CPU-6134	6134	3.2	130	24.75	8	3 X 10.4	2666

Table 4 Available Intel CPUs

Product ID (PID)	Intel Number ¹	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ² Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz) ³
Intel® Xeon® Processor Scalable Family CPUs							
UCS-CPU-6132	6132	2.6	140	19.25	14	3 x 10.4	2666
UCS-CPU-6130	6130	2.1	125	22.00	16	3 x 10.4	2666
UCS-CPU-6128	6128	3.4	115	19.25	6	3 x 10.4	2666
UCS-CPU-6126	6126	2.6	125	19.25	12	3 x 10.4	2666
UCS-CPU-5122	5122	3.6	105	16.50	4	2 x 10.4	2400
UCS-CPU-5120	5120	2.2	105	19.25	14	2 x 10.4	2400
UCS-CPU-5118	5118	2.3	105	16.50	12	2 x 10.4	2400
UCS-CPU-5115	5115	2.4	85	13.75	10	2 x 10.4	2400
UCS-CPU-4116	4116	2.1	85	16.50	12	2 x 9.6	2400
UCS-CPU-4114	4114	2.2	85	13.75	10	2 x 9.6	2400
UCS-CPU-4112	4112	2.6	85	8.25	4	2 x 9.6	2400
UCS-CPU-4110	4110	2.1	85	11.00	8	2 x 9.6	2400
UCS-CPU-4108	4108	1.8	85	11.00	8	2 x 9.6	2400
UCS-CPU-3106	3106	1.7	85	11.00	8	2 x 9.6	2133
UCS-CPU-3104	3104	1.7	85	8.25	6	2 x 9.6	2133

1. Only CPU PIDs ending in "M" support 1.5 TB/socket of memory, per Intel CPU spec. All other CPU PIDs support 768 GB/socket memory.
2. UPI = Ultra Path Interconnect. 2-socket servers support only 2 UPI performance, even if the CPU supports 3 UPI.
3. If higher or lower speed DIMMs are selected than what is shown in the table for a given CPU, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.

Approved Configurations

(1) 1-CPU configurations:

- Select any one CPU listed in [Table 4 on page 14](#).

(2) 2-CPU Configurations:

- Select two identical CPUs from any one of the rows of [Table 4 on page 14](#).

Caveats

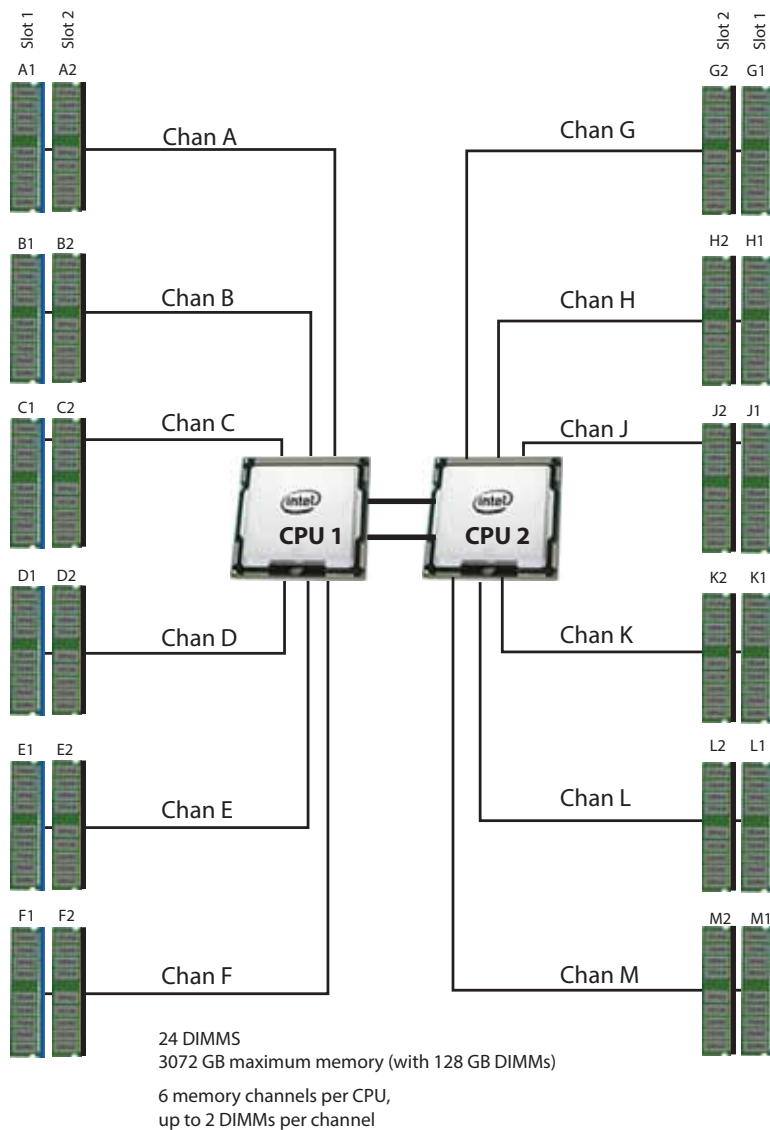
- You can select either one processor or two identical processors.
- The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:
 - [STEP 4 SELECT MEMORY, page 17](#) (memory mirroring section)
 - [Table 8 on page 26](#) (RAID support table)
 - [STEP 6 SELECT HARD DISK DRIVES \(HDDs\) or SOLID STATE DRIVES \(SSDs\), page 29](#)
 - [STEP 5 SELECT RAID CONTROLLERS, page 22](#)
 - [STEP 7 SELECT PCIe OPTION CARD\(s\), page 34](#)
 - [ORDER GPU CARDS \(OPTIONAL\), page 43](#)

STEP 4 SELECT MEMORY

The standard memory features are:

- DIMMs
 - Clock speed: 2666 MHz
 - Ranks per DIMM: 1, 2, 4, or 8
 - Operational voltage: 1.2 V
 - Registered ECC DDR4 DIMMs (RDIMMs), load-reduced DIMMs (LRDIMMs), or through-silicon via (TSV) DIMMs
- Memory is organized with six memory channels per CPU, with up to two DIMMs per channel, as shown in [Figure 5](#).

Figure 5 C220 M5 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 5](#).



NOTE: When memory mirroring is enabled, the memory subsystem simultaneously writes identical data to two DIMMs. If a memory read from the primary DIMM returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the data from the secondary DIMM in the mirrored pair. 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 DIMMs provides data.

Table 5 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
UCS-MR-128G8RS-H	128 GB DDR4-2666-MHz TSV-RDIMM/PC4-23100/8R/x4	1.2 V	8
UCS-MR-X64G4RS-H	64 GB DDR4-2666-MHz TSV-RDIMM/PC4-23100/4R/x4	1.2 V	4
UCS-ML-X64G4RS-H	64 GB DDR4-2666-MHz LRDIMM/PC4-23100/4R/x4	1.2 V	4
UCS-ML-X32G2RS-H	32GB DDR4-2666-MHz LRDIMM/PC4-23100/2R/x4	1.2 V	2
UCS-MR-X32G2RS-H	32 GB DDR4-2666-MHz RDIMM/PC4-23100/2R/x4	1.2 V	2
UCS-MR-X16G1RS-H	16 GB DDR4-2666-MHz RDIMM/PC4-23100/1R/x4	1.2 V	1
UCS-MR-X16G2RS-H	16 GB DDR4-2666-MHz RDIMM/PC4-23100/2R/x4	1.2 V	2
UCS-MR-X8G1RS-H	8 GB DDR4-2666-MHz RDIMM/PC4-23100/1R/x4	1.2 V	1
Memory Mirroring Option			
N01-MMIRROR	Memory mirroring option		

Approved Configurations

(1) 1-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs.

(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 identical ranked DIMMs)	
	Blue Slots	Black Slots
2	(A1, D1)	—
4	(A1,B1); (D1,E1)	—
6	(A1,B1); (C1,D1); (E1, F1)	—
8	(A1,B1); (C1,D1); (E1, F1)	(A2,D2)
12	(A1,B1); (C1,D1); (E1, F1)	(A2,B2); (C2,D2); (E2, F2)

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 5 on page 18](#).

(3) 2-CPU configuration without memory mirroring:

- Select from 1 to 12 DIMMs per CPU.

(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 identical ranked DIMMs)		CPU 2 DIMM Placement in Channels (for identical ranked DIMMs)	
	Blue Slots	Black Slots	Blue Slots	Black Slots
2	(A1, D1)	—	(G1, K1)	—
4	(A1,B1); (D1,E1)	—	(G1,H1); (K1,L1)	—
6	(A1,B1); (C1,D1); (E1, F1)	—	(G1,H1); (J1,K1); (L1, M1)	—
8	(A1,B1); (C1,D1); (E1, F1)	(A2,D2)	(G1,H1); (J1,K1); (L1, M1)	(G2,K2)
12	(A1,B1); (C1,D1); (E1, F1)	(A2,B2); (C2,D2); (E2, F2)	(G1,H1); (J1,K1); (L1, M1)	(G2,H2); (J2,K2); (L2,M2)

- Select the memory mirroring option (N01-MMIRROR) as shown in [Table 5 on page 18](#).



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.

STEP 5 SELECT RAID CONTROLLERS

RAID Controller Options (internal HDD/SSD support)

Embedded Software RAID

The default RAID configuration is embedded software RAID, which supports only SATA HDDs and enterprise value SSDs (RAID 0, 1, 10). A maximum of 8 SATA drives are supported with embedded software RAID. Embedded RAID requires a SATA interposer board.



NOTE: The embedded software RAID is limited to Windows and Linux operating systems only. There is no VMWare support for operating systems only. There is no VMware support for embedded software RAID.

Cisco 12G SAS RAID Controller

You can choose a Cisco 12G SAS RAID controller, which plugs into a dedicated RAID controller card slot. This RAID controller includes a 2 GB cache and supports RAID 0, 1, 5, 6, 10, 50 and 60.



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

- Embedded RAID = 8
 - Cisco 12G SAS Modular RAID controller = 64
-

Cisco 12G SAS HBA (internal HDD/SSD/JBOD support)

You can choose a SAS HBA for JBOD or Pass-through mode support:

- The Cisco 12G SAS HBA plugs into a dedicated RAID controller slot.

RAID Volumes and Groups

When creating each RAID volume, follow these guidelines:

- Use the same capacity for each drive in each RAID volume
- For embedded software RAID:

- Use only SATA HDDs
 - Embedded software RAID has two ports and each port can control 4 drives, for 8 drives total.
 - Each set of 4 SATA HDDs for a port must be in separate RAID volumes.
 - You cannot mix drives across ports to create a RAID volume.
 - For more details, see [Embedded SATA RAID: Two SATA Controllers, page 77](#).
- For the Cisco 12G SAS RAID controller upgrade:
- Use either all SAS HDDs, or all SAS SSDs, or all SATA SSDs in each RAID volume

Select Controller Options

Select one of the following:

- Embedded software RAID (this is the default if no other selection is made), or
- One Cisco 12G SAS RAID controller or Cisco 12G SAS HBA (see [Table 7 on page 24](#))



NOTE: The UCSC-C220-M5SN does not support embedded RAID.

For the Cisco 12G SAS RAID controller, select an appropriate optional RAID configuration listed in [Table 7 on page 24](#)

[Table 7](#) shows the product ID for the C220 M5 server entry-level RAID solution. This RAID option is accomplished with embedded software that supports a limited number of drives, operating systems, and virtualized environments. For a more comprehensive enterprise RAID solution, choose the Cisco 12G SAS RAID controller listed in [Table 7](#).

Table 7 Hardware Controller Options

Product ID (PID)	PID Description
Controllers for Internal Drives	
<p>Note that if the following Cisco 12G SAS RAID controller or Cisco 12G SAS HBA controller is selected, it is factory-installed in the dedicated internal slot.</p>	
UCSC-RAID-M5	<p>Cisco 12G SAS RAID Controller with 2GB FBWC</p> <ul style="list-style-type: none"> ■ Supports up to 10 internal SAS HDDs and SAS/SATA SSDs ■ Supports RAID 0, 1, 5, 6, 10, 50, and 60 ■ For all self-encrypting drives (SED), standalone Management (CIMC/UCSM) is supported for configuring and managing local keys. For now, SED drives are managed with local key management only. Third-party key management will be supported (KMIP compliant).
UCSC-SAS-M5	<p>Cisco 12 G SAS HBA</p> <ul style="list-style-type: none"> ■ Supports up to 10 internal SAS HDDs and SAS/SATA SSDs ■ Supports JBOD mode only (no RAID functionality. Ideal for SDS (Software Defined Storage) applications. It is also ideal for environments demanding the highest IOPs (for external SSD attach), where a RAID controller can be an I/O bottleneck. ■ No SED drive support

Table 7 Hardware Controller Options (*continued*)

Product ID (PID)	PID Description
RAID Configuration Options (not available for Cisco 12G SAS HBA or embedded software RAID)	
R2XX-SRAID0	Enable Single Disk Raid 0 Setting
R2XX-RAID0	Factory preconfigured RAID striping option Enable RAID 0 Setting. Requires a minimum of one hard drive.
R2XX-RAID1	Factory preconfigured RAID mirroring option Enable RAID 1 Setting. Requires exactly two drives with the same size, speed, capacity.
R2XX-RAID5	Factory preconfigured RAID option Enable RAID 5 Setting. Requires a minimum of three drives of the same size, speed, capacity.
R2XX-RAID6	Factory preconfigured RAID option Enable RAID 6 Setting. Requires a minimum of four drives of the same size, speed, capacity.
R2XX-RAID10	Factory preconfigured RAID option Enable RAID 10 Setting. Requires a even number of drives (minimum of four drives) of the same size, speed, capacity.



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

Approved Configurations

- The embedded software RAID default supports up to 8 internal SATA HDDs with RAID 0, 1, 10 support.
- The Cisco 12G SAS RAID controller upgrade option supports up to 10 internal drives with up to RAID 0, 1, 10, 5, 6, 50, 60 support.
- The Cisco 12G SAS HBA upgrade option supports up to 10 internal drives with JBOD support.
See [Table 8](#) for a summary of the supported controller configuration options.

Table 8 Supported Controller Configurations for C220 M5 SFF Server

Server Model	# of CPUs	Embedded RAID	Cisco 12G SAS RAID Controller or Cisco 12G SAS HBA (only one can be installed at a time)		Max # Drives Supported	RAID Support	Internal Drive Types Allowed
			Cisco 12G SAS RAID Controller	Cisco 12G SAS HBA			
C220 M5 SFF 10 Drives	1	Enabled	Not allowed	Not allowed	8 internal SATA only	0, 1, 10 (SATA only)	SATA HDDs/Enterprise Value SSDs
C220 M5 SFF 10 Drives	1	Not allowed	Installed in a dedicated slot	Installed in a dedicated slot	10 internal	0, 1, 10, 5, 6, 50, 60, JBOD (12G SAS RAID), JBOD (SAS HBA)	SAS HDDs, SAS/SATA SSDs (NVMe requires 2 CPUs)
Only one of the above can be installed at a time							
C220 M5 SFF 10 Drives	2	Enabled	Not allowed	Not allowed	8 internal SATA only	0, 1, 10 (SATA only)	SATA HDDs/Enterprise Value SSDs
C220 M5 SFF 10 Drives	2	Not allowed	Installed in a dedicated slot	Installed in a dedicated slot	10 internal	0, 1, 10, 5, 6, 50, 60, JBOD (12G SAS RAID), JBOD (SAS HBA)	SAS HDDs, SAS/SATA SSDs, SFF NVMe
Only one of the above can be installed at a time							



NOTE: There is no RAID support for NVMe. In an embedded RAID configuration, only only embedded software RAID (0, 1, 10) is supported. AHCI mode is not supported.

STEP 6 SELECT DRIVES

The standard disk drive features are:

- 2.5-inch small form factor
- Hot-pluggable
- Drives come mounted in sleds

Select Drives

The available drives are listed in [Table 9](#).

Table 9 Available Hot-Pluggable Sled-Mounted Drives
(UCSC-C220-M5S (10-drive system) and UCSC-C220-M5SN (10-drive NVMe only system))

Product ID (PID)	PID Description	Drive Type	Capacity
HDDs (15K RPM)			
UCS-HD300G15K12N	300 GB 12G SAS 15K RPM SFF HDD	SAS	300 GB
UCS-HD600G15K12N	600 GB 12G SAS 15K RPM SFF HDD	SAS	600 GB
UCS-HD900G15K12N	900 GB 12G SAS 15K RPM SFF HDD	SAS	900 GB
HDDs (10K RPM)			
UCS-HD300G10K12N	300 GB 12G SAS 10K RPM SFF HDD	SAS	300 GB
UCS-HD600G10K12N	600 GB 12G SAS 10K RPM SFF HDD	SAS	600 GB
UCS-HD12TB10K12N	1.2 TB 12G SAS 10K RPM SFF HDD	SAS	1.2 TB
UCS-HD18TB10K4KN ¹	1.8 TB 12G SAS 10K RPM SFF HDD (4K)	SAS	1.8 TB
HDDs (7.2K RPM)			
UCS-HD1T7K12N	1 TB 12G SAS 7.2K RPM SFF HDD	SAS	1 TB
UCS-HD2T7K12N	2 TB 12G SAS 7.2K RPM SFF HDD	SAS	2 TB
UCS-HD1T7K6GAN	1 TB 6G SATA 7.2K RPM SFF HDD	SAS	1 TB
SAS/SATA SSDs²			
Enterprise Performance SSDs (High endurance, supports up to 10X or 3X DWPD (drive writes per day))³			
UCS-SD400G12TX-EP	400 GB 2.5 inch Enterprise performance 12G SAS SSD (10X DWPD)	SAS	400 GB
UCS-SD800G12TX-EP	800 GB 2.5 inch Enterprise performance 12G SAS SSD (10X DWPD)	SAS	800 GB
UCS-SD16TB12TX-EP	1.6TB 2.5 inch Enterprise performance 12G SAS SSD(10X DWPD)	SAS	1.6 TB

Table 9 Available Hot-Pluggable Sled-Mounted Drives (*continued*)
(UCSC-C220-M5S (10-drive system) and UCSC-C220-M5SN (10-drive NVMe only system))

Product ID (PID)	PID Description	Drive Type	Capacity
UCS-SD400G123X-EP	400 GB 2.5 inch Enterprise performance 12G SAS SSD(3X DWPD)	SAS	400 GB
UCS-SD800G123X-EP	800 GB 2.5 inch Enterprise performance 12G SAS SSD(3X DWPD)	SAS	800 GB
UCS-SD16T123X-EP	1.6 TB 2.5 inch Enterprise performance 12G SAS SSD(3X DWPD)	SAS	1.6 TB
UCS-SD32T123X-EP	3.2 TB 2.5 inch Enterprise performance 12G SAS SSD(3X endurance)	SAS	3.2 TB
Enterprise Value SSDs (Low endurance, supports up to 1X DWPD (drive writes per day))⁴			
UCS-SD120GM1X-EV	120 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	120 GB
UCS-SD150G61X-EV	150 GB 2.5 inch Enterprise Value 6G SATA SSD (Intel 3520)	SATA	150 GB
UCS-SD240G61X-EV	240 GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung 863A)	SATA	240 GB
UCS-SD240GM1X-EV	240 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	240 GB
UCS-SD480G61X-EV	480 GB 2.5 inch Enterprise Value 6G SATA SSD (Intel 3520)	SATA	480 GB
UCS-SD480GM1X-EV	480 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	480 GB
UCS-SD480G121X-EV	480 GB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PM4)	SAS	480 GB
UCS-SD960G61X-EV	960 GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung 863A)	SATA	960 GB
UCS-SD960GM1X-EV	960 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	960 GB
UCS-SD960G121X-EV	960 GB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PM4)	SAS	960 GB
UCS-SD16T61X-EV	1.6 TB 2.5 inch Enterprise Value 6G SATA SSD (Intel 3520)	SATA	1.6 TB
UCS-SD16TM1X-EV	1.6 TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	1.6 TB
UCS-SD19T61X-EV	1.9 TB 2.5 inch Enterprise Value 6G SATA SSD (Samsung 863A)	SATA	1.9 TB
UCS-SD19TM1X-EV	1.9 TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	1.9 TB
UCS-SD19TB121X-EV	1.9 TB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PM4)	SAS	1.9 TB
UCS-SD38T61X-EV	3.8 TB 2.5 inch Enterprise Value 6G SATA SSD (Samsung 863A)	SATA	3.8 TB
UCS-SD38TM1X-EV	3.8 TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	3.8 TB
UCS-SD38TB121X-EV	3.8 TB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PM4)	SAS	3.8 TB
UCS-SD76TM1X-EV	7.6 TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100 ECO)	SATA	7.6 TB
Self-Encrypted Drives (SED)⁵			
UCS-HD600G15NK9	600 GB 12G SAS 15K RPM SFF HDD (SED)	SAS	600 GB
UCS-HD12T10NK9	1.2 TB 12G SAS 10K RPM SFF HDD (SED)	SAS	1.2 TB
UCS-HD300G10NK9	300 GB 12G SAS 10K RPM SFF HDD (SED)	SAS	300 GB
UCS-SD400GBENK9	400 GB Enterprise performance SAS SSD (10X FWPD, SED)	SAS	400 GB

Table 9 Available Hot-Pluggable Sled-Mounted Drives (*continued*)
(UCSC-C220-M5S (10-drive system) and UCSC-C220-M5SN (10-drive NVMe only system))

Product ID (PID)	PID Description	Drive Type	Capacity
UCS-SD800GBENK9	800 GB Enterprise performance SAS SSD (10X FWPD, SED)	SAS	800 GB
UCS-SD16TBENK9	1.6 TB Enterprise performance SAS SSD (10XFWPD, SED)	SAS	1.6 TB
PCIe/NVMe SFF (2.5-inch) drives²			
UCSC-NVMEHW-H800	U.2 800 GB HGST SN200 NVMe High Perf. High Endurance (HGST)	NVMe	800 GB
UCSC-NVMEHW-H1600	U.2 1.6 TB HGST SN200 NVMe High Perf. High Endurance (HGST)	NVMe	1.6 TB
UCSC-NVMEHW-H3200	U.2 3.2 TB HGST SN200 NVMe High Perf. High Endurance (HGST)	NVMe	3.2 TB
UCSC-NVMEHW-H6400	U.2 6.4TB HGST SN200 NVMe High Perf. High Endurance (HGST)	NVMe	6.4 TB
UCSC-NVMEHW-H7680	U.2 7.7 TB HGST SN200 NVMe High Perf. Value Endurance (HGST)	NVMe	7.7 TB

Notes . . .

1. Operating Systems supported on 4k sector size drives are as follows:

- Windows: Win2012 and Win2012R2
- Linux: RHEL 6.5/6.6/6.7/7.0/7.2/SLES 11 SP3 and SLES 12
- **ESXi/VMware does not support 4k format drives; supports only 512e format drives**

UEFI Mode must be used when booting from 4K sector size drives, legacy mode is not supported.

Ensure that 4K sector size and 512e byte sector size drives are not mixed in the same RAID volume.

2. Two CPUs must be installed in order to include any number of SFF NVMe PCIe SSDs. If you choose one or two SFF PCIe SSD or SFF NVMe drives, drive slots 1 and 2 at the front of the chassis are reserved for these drives (see [Figure 2 on page 4](#) for drive slot numbering)
3. Targeted for write centric IO applications. Supports endurance of 10 or 3 DWPD (drive writes per day). Target applications are caching, online transaction processing (OLTP), data warehousing, and virtual desktop infrastructure (VDI).
4. Targeted for read centric IO applications. Supports endurance of 1 DWPD (drive write per day). Target applications are boot, streaming media, and collaboration.

Caveats

- You can choose only SATA HDDs when using embedded software RAID. The UCSC-C220-M5SN does not support embedded RAID.
- SFF NVMe drives are connected directly to the CPU, not managed by the RAID controller.
- You can mix HDDs and SSDs as long as you keep all HDDs in their own RAID volume and all SSDs in their own RAID volume.
- You can mix SAS HDDs and SAS/SATA SSDs when using the Cisco 12G SAS RAID Controller or Cisco 12G SAS HBA.
- If you order any SFF NVMe drives, you must also order two CPUs.
- SFF NVMe drives are bootable in UEFI mode only.
- NVMe HHHL drives are not bootable.
- SED drives can be mixed with the non-SED drives in [Table 9 on page 29](#).

STEP 7 SELECT PCIe OPTION CARD(s)

The standard PCIe card offerings are:

- Modular LAN on Motherboard (mLOM)
- Virtual Interface Cards (VICs)
- Network Interface Cards (NICs)
- Converged Network Adapters (CNAs)
- 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
Modular LAN on Motherboard (mLOM)²		
UCSC-MLOM-C40Q-03	Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM	N/A
UCSC-MLOM-IRJ45	Intel i350 quad-port 1G copper MLOM	N/A
Virtual Interface Cards (VICs)		
UCSC-PCIE-C40Q-03	Cisco VIC 1385 Dual Port 40Gb QSFP+ CNA w/RDMA	Half
Network Interface Cards (NICs)		
1 Gb NICs		
UCSC-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	Half
10 Gb NICs		
N2XX-AIPCI01	Intel X520 Dual Port 10Gb SFP+ Adapter	Half
UCSC-PCIE-ID10GC	Intel X550-T2 dual-port 10GBase-T NIC	Half
UCSC-PCIE-ID10GF	Intel X710-DA2 dual-port 10G SFP+ NIC	Half
UCSC-PCIE-IQ10GF	Intel X710 quad-port 10G SFP+ NIC	Full
25 Gb NIC		
UCSC-PCIE-ID40GF	Intel XL710 dual-port 40G QSFP+	Half

Table 11 Available PCIe Option Cards (*continued*)

Product ID (PID)	PID Description	Card Height
Host Bus Adapters (HBAs)		
UCS-PCIE-QD16GF	Qlogic QLE2692 dual-port 16G Fibre Channel HBA	Half
UCS-PCIE-BD16GF	Emulex LPe31000 dual-port 16G Fibre Channel	Half
UCSC-PCIE-QD32GF	Qlogic QLE2742 dual-port 32G FC HBA	Half
UCSC-PCIE-BS32GF	Emulex LPe32000-M2 single-port 32G HBA Emulex	Half
UCSC-PCIE-BD32GF	LPe32002-M2 dual-port 32G HBA	Half
UCS NVMe/PCie Add in Cards		
UCSC-NVME-H32003	Cisco HHL AIC 1.6TB HGST SN260 NVMe Extreme Performance High Endurance	Half
UCSC-NVME-H32003	Cisco HHL AIC 3.2TB HGST SN260 NVMe Extreme Performance High Endurance	Half
UCSC-NVME-H64003	Cisco HHL AIC 6.4TB HGST SN260 NVMe Extreme Performance High Endurance	Half
UCSC-NVME-H38401	Cisco HHL AIC 3.8TB HGST SN260 NVMe Extreme Performance High Endurance	Half
UCSC-NVME-H76801	Cisco HHL AIC 7.7TB HGST SN260 NVMe Extreme Performance Value Endurance	Half

Approved Configurations

(1) 1-CPU Systems

- You can select up to one PCIe option card (slot 1 for 1-CPU systems) listed in [Table 11](#).

(2) 2-CPU Systems

- You can select up to two PCIe option cards (slots 1 and 2 for 2-CPU systems) listed in [Table 11](#).

Caveats

- For 1-CPU systems:
 - Only the full-height PCIe slot on riser 1 (slot 1) is supported
 - Only a single plug-in PCIe VIC card is supported and must be installed in slot 1 (the full-height slot). However, in addition to the one PCIe VIC card, you can also choose to install an mLOM VIC card.

- For 2-CPU systems:
 - Both PCIe slots (slots 1 and 2) are supported
 - Two plug-in PCIe VIC cards can be installed in 2-CPU systems, using slots 1 and 2. In addition, you can order an mLOM VIC card, which is installed in the mLOM slot inside the chassis and thus have three VIC cards in operation at the same time. See [Table 11 on page 34](#) for the selection of plug-in and mLOM VIC cards. See also [Table 1 on page 7](#).

- 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 C220 M5 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 8 ORDER POWER SUPPLY

The C220 M5 server requires at least one power supply. A lightly loaded server may require one or two 770 W power supplies. A fully loaded server might need to be powered with two larger capacity power supplies. Use the power calculator at the following link to determine the needed power based on the options chosen (CPUs, drives, memory, and so on):

<http://ucspowercalc.cisco.com>

Table 16 Power Supply

Product ID (PID)	PID Description
UCSC-PSU1-770W	770W power supply for C-Series Servers
UCSC-PSU1-1050W	1050W AC power supply for C-Series servers
UCSC-PSUV2-1050DC	1050W DC power supply for C-Series servers



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

STEP 9 SELECT AC POWER CORD(S)

Using [Table 17](#), 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.

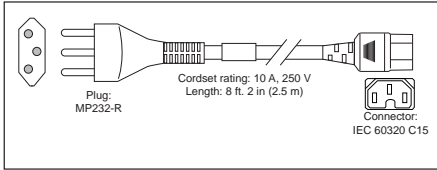
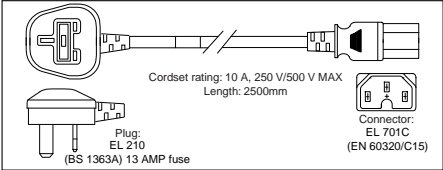
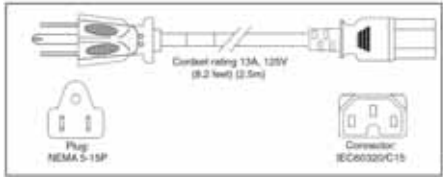
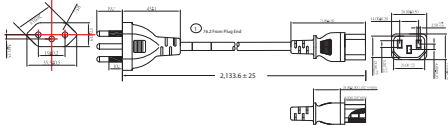
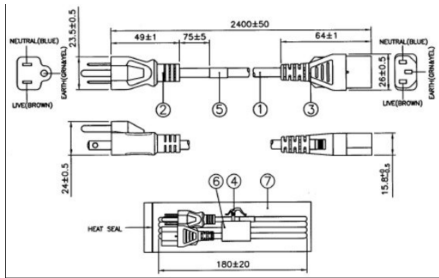
Table 17 Available Power Cords

Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A	<p>Figure 1-3 CAB-48DC-40A-8AWG, DC Power Cord (3.5 m)</p>
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 17 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-250V-10A-AR	Power Cord, 250V, 10A, Argentina	
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	
CAB-250V-10A-ID	Power Cord, SFS, 250V, 10A, India	
CAB-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	

Table 17 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	 <p>Cordset rating: 10 A, 250 V Length: 8 ft. 2 in (2.5 m) Plug: MP232-R 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 Plug: EL 210 (BS 1363A) 13 AMP fuse 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 feet) (2.5m) Plug: NEMA 5-15P Connector: IEC 60320/C15</p>
CAB-250V-10A-BR	Power Cord - 250V, 10A - Brazil	 <p>2.133 m ± 25</p>
CAB-JPN-3PIN	Power Cord 3PIN, Japan	 <p>NEUTRAL (BLUE) LIVE (BROWN) GND (GREEN/YELLOW) NEUTRAL (BLUE) LIVE (BROWN) GND (GREEN/YELLOW) HEAT SEAL 180±20</p>
CAB-C13-C14-2M-JP	Power Cord C13-C14, 2M/6.5ft Japan PSE mark	Image not available
CAB-C19-C20-3M-JP	Power Cord C19-C20, 3M/10ft Japan PSE mark	Image not available

STEP 10 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM

Select a Tool-less Rail Kit

Select a tool-less rail kit from [Table 18](#).

Table 18 Tool-less Rail Kit Options

Product ID (PID)	PID Description
UCSC-RAILF-M4	Friction Rail Kit for C220 M4 and M5 Servers
UCSC-RAILB-M4	Ball Bearing Rail Kit for C220 and C240 M4/M5 Rack Servers

Select an 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 19](#) to order a cable management arm.

Table 19 Cable Management Arm

Product ID (PID)	PID Description
UCSC-CMAF-M4	Reversible CMA for C220 M4 and M5 friction rail kit

For more information about the tool-less rail kit and cable management arm, see the *Cisco UCS C220 M4 Installation and Service Guide* at this URL:

http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M4/install/C220M4.html



NOTE: If you plan to rackmount your UCS C220 M5 server, you must order one of the tool-less rail kits. The same rail kits and CMA's are used for M4 and M5 servers.

STEP 11 SELECT MANAGEMENT CONFIGURATION (OPTIONAL)

By default, the C220 M5 server NIC mode is configured to be Shared LOM Extended. This NIC mode allows any LOM port or adapter card port to be used to access the Cisco Integrated Management Controller (CIMC). The Cisco VIC card must be installed in a slot with NCSI support.

To change the default NIC mode to Dedicated, select the UCSC-DLOM-01 PID shown in [Table 20](#). In Dedicated NIC mode, the CIMC can be accessed only through the dedicated management port. See [Chassis Rear View, page 5](#) for the location of the management port.

To change the default NIC mode to Cisco Card Mode, select the UCSC-CCARD-01 PID shown in [Table 20](#). In this mode, you can assign an IP address to the CIMC using DHCP and from there you can fully automate your deployment.

For more details on all the NIC mode settings, see

http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/sw/gui/config/guide/2-0/b_Cisco_UCS_C-series_GUI_Configuration_Guide_201.pdf

Table 20 Management Configuration Ordering Information

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

STEP 12 SELECT SERVER BOOT MODE (OPTIONAL)

By default, the C220 M5 server will ship with UEFI as the default boot mode. To have a server shipped with the Legacy BIOS mode (which was standard on M4 and previous generation servers), select the Legacy BIOS PID

Table 26 Server Boot Mode Ordering Information

Product ID (PID)	PID Description
UCSC-LBIOS-01	Legacy Boot Mode BIOS setting for C-Series Servers

STEP 13 ORDER SECURITY DEVICES (OPTIONAL)

A 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.

A chassis intrusion switch gives a notification of any unauthorized mechanical access into the server.

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

Table 22 Security Devices

Product ID (PID)	PID Description
UCSX-TPM2-001	Trusted Platform Module 1.2 SPI-based for UCS Servers
UCSX-TPM2-002	Trusted Platform Module 2.0 for UCS servers
UCSC-INT-SW01 ¹	C220 M5 and C240 M5 Chassis Intrusion Switch

1. Available later in CY2017.



NOTE: The TPM module used in this system conforms to TPM v1.2 and 2.0, as defined by the Trusted Computing Group (TCG). It is also SPI-based.



NOTE: TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced, upgraded, or moved to another server. If a server with a TPM is returned, the replacement server must be ordered with a new TPM.

STEP 14 ORDER CISCO SD CARD MODULE (OPTIONAL)

Order SD cards. See [Figure 8 on page 81](#) for the location of the SD cards. There are two locations, SD1 and SD2.

Table 24 Secure Digital (SD) Card (blank)

Product ID (PID)	PID Description
UCS-SD-128G	128 GB SD Card for UCS Servers
UCS-SD-64G-S	64 GB SD Card for UCS Servers
UCS-SD-32G-S	32 GB SD Card for UCS Servers

Caveats

- Install either one or two SD cards
- Do not mix SD card sizes
- You cannot mix SD cards with an internal M.2 SATA SSD (see [ORDER M.2 SATA SSD \(OPTIONAL\), page 67](#)).

STEP 15 ORDER M.2 SATA SSD (OPTIONAL)

Order one or two matching capacity M.2 SATA SSDs as desired.

Table 27 M.2 SATA SSDs

Product ID (PID)	PID Description
UCS-M2-240GB	240 GB M.2 SATA SSD
UCS-M2-960GB	960 GB M.2 SATA SSD

Caveats

- Install either one or two M.2 SATA SSDs.
- You cannot mix M.2 SATA SSDs with SD cards (see [ORDER CISCO SD CARD MODULE \(OPTIONAL\), page 52](#)).

STEP 16 ORDER INTERNAL MICRO-SD CARD MODULE (OPTIONAL)

Order a 32 GB micro-SD card.

The micro-SD card serves as a dedicated local resource for utilities such as HUU. Images can be pulled from a fileshare (NFS/CIFS) and uploaded to the cards for future use.

Table 28 32 GB Secure Digital (SD) Card (blank)

Product ID (PID)	PID Description
UCS-MSD-32G	32GB Micro-SD Card for UCS servers

Caveats

- The micro-SD card mounts internally on riser 1.

STEP 17 ORDER OPTIONAL USB 3.0 DRIVE

You can order one optional USB 3.0 drive. The USB drive ordering information is listed in [Table 29](#).

Table 29 USB 3.0 Drive

Product ID (PID)	PID Description
UCS-USBFLSHB-16GB	UCS Servers 16 GB Flash USB Drive

See [Figure 7 on page 67](#) for the location of the USB connector

STEP 18 SELECT OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

For more details on supported operating systems and software for this server, see the Hardware & Software Compatibility List (HCL).

* NOTE: PIDs tagged with an asterisk (*) are Resell of an OEM Vendor's Support. They are required to be added to the associated Product License PID.

Table 36 Software (for 2-CPU servers)

Product ID (PID)	PID Description
Cisco One	
C1F2PUCSK9	Cisco ONE Foundation Perpetual UCS
C1A1PUCSK9	Cisco ONE Enterprise Cloud Perpetual UCS
C1UCS-OPT-OUT	Cisco One Data Center Compute Opt Out Option
Energy Management (JouleX)	
CEM-DC-ENERGY	Cisco Energy Management(JouleX) DataCenter License 1 Device
CEM-DC-3Y*	Cisco Energy Management-3 Yr for One DC physical end-device
CEM-DC-PER	Perpetual License Key for Cisco Energy Management for DC
UCS Director	
CUIC-PHY-SERV-BM-U	Cisco UCS Director Resource Lic - 1 Phy Sevr node bare metal
CUIC-PHY-SERV-U	Cisco UCS Director Resource Lic - One physical Server node
CUIC-TERM	Acceptance of Cisco UCS Director License Terms
UCS Performance Manager	
UCS-PM-IE	UCS Performance Manager
UCS-PM-EE	UCS Performance Manager Express
EVAL-UCS-PM-IE	UCS Performance Manager - 90 days evaluation
EVAL-UCS-PM-EE	UCS Performance Manager Express - 90 days evaluation
Nexus 1000V for Hyper-V and vSphere	
N1K-VSG-UCS-BUN	Nexus 1000V Adv Edition for vSphere Paper License Qty 1
IMC Supervisor	
CIMC-SUP-BASE-K9	IMC Supervisor One-time Site Installation License
CIMC-SUP-B01	IMC Supervisor-Branch Mgt SW for C-Series & E-Series upto 100 Svrs
CIMC-SUP-B02	IMC Supervisor- Branch Mgt SW for C & E-Series up to 250 Svrs
CIMC-SUP-B10	IMC Supervisor- Branch Mgt SW for C & E-Series up to 1K Svrs
CIMC-SUP-B25	IMC Supervisor Branch Mgt SW for C & E-Series 25 Svrs
CIMC-SUP-A01	IMC Supervisor Adv-Branch Mgt SW for C & E-Series 100 Svrs
CIMC-SUP-A02	IMC Supervisor Adv-Branch Mgt SW for C & E-Series 250 Svrs
CIMC-SUP-A10	IMC Supervisor Adv-Branch Mgt SW for C & E-Series 1000 Svrs
CIMC-SUP-A25	IMC Supervisor Adv-Branch Mgt SW for C & E-Series 250 Svrs
CIMC-SUP-TERM	Acceptance of Cisco IMC Supervisor License Terms
UCS Multi-Domain Manager	
UCS-MDMGR-1S	UCS Central Per Server License NOTE: IF you must order quantity greater than 1 of UCS-MDMGR-1S, you need to reference the UCS Central Per Server Data Sheet to order the standalone PIDs: UCS-MDMGR-LIC= or UCS-MDMGR-1DMN=

Table 30 Software (for 2-CPU servers) (continued)

PID	Description	Product ID (PID)
VMware vCenter		
VMW-VCS-STD-1A		VMware vCenter 6 Server Standard, 1 yr support required
VMW-VCS-STD-3A		VMware vCenter 6 Server Standard, 3 yr support required
VMW-VCS-STD-5A		VMware vCenter 6 Server Standard, 5 yr support required
VMW-VCS-FND-1A		VMware vCenter 6 Server Foundation (3 Host), 1 yr supp reqd
VMW-VCS-FND-3A		VMware vCenter 6 Server Foundation (3 Host), 3 yr supp reqd
VMW-VCS-FND-5A		VMware vCenter 6 Server Foundation (3 Host), 5 yr supp reqd
Microsoft Windows Server		
MSWS-12R2-DC2S		Windows Server 2012 R2 Datacenter (2 CPU/Unlimited VMs)
MSWS-12R2-DC2S-NS		Windows Server 2012 R2 Datacen (2 CPU/Unlim VM) No Cisco Svc
MSWS-12R2-ST2S		Windows Server 2012 R2 Standard (2 CPU/2 VMs)
MSWS-12R2-ST2S-NS		Windows Server 2012 R2 Standard (2 CPU/2 VMs) No Cisco SVC
MSWS-12R2-ST2S-RM		Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12R2-DC2S-RM		Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media
MSWS-16-ST16C		Windows Server 2016 Standard (16 Cores/2 VMs)
MSWS-16-ST24C		Windows Server 2016 Standard (24 Cores/2 VMs)
MSWS-16-ST16C-NS		Windows Server 2016 Standard (16 Cores/2 VMs) - No Cisco SVC
MSWS-16-ST24C-NS		Windows Server 2016 Standard (24 Cores/2 VMs) - No Cisco SVC
MSWS-16-DC16C		Windows Server 2016 Data Center (16 Cores/Unlimited VMs)
MSWS-16-DC24C		Windows Server 2016 Data Center (24 Cores/Unlimited VMs)
MSWS-16-DC16C-NS		Windows Server 2016 DC (16 Cores/Unlim VMs) - No Cisco SVC
MSWS-16-DC24C-NS		Windows Server 2016 DC (24 Cores/Unlim VMs) - No Cisco SVC
MSWS-16-STA2C		Windows Server 2016 Standard - Additional 2 Cores
MSWS-16-STA4C		Windows Server 2016 Standard - Additional 4 Cores
MSWS-16-STA16C		Windows Server 2016 Standard - Additional 16 Cores
MSWS-16-STA2C-NS		Windows Server 2016 Stan - Additional 2 Cores - No Cisco SVC
MSWS-16-STA4C-NS		Windows Server 2016 Stan - Additional 4 Cores - No Cisco SVC
MSWS-16-STA16C-NS		Windows Server 2016 Stan - Additional 16 Cores - No Cisco SVC
MSWS-16-DCA2C		Windows Server 2016 Data Center - Additional 2 Cores
MSWS-16-DCA4C		Windows Server 2016 Data Center - Additional 4 Cores
MSWS-16-DCA16C		Windows Server 2016 Data Center - Additional 16 Cores
MSWS-16-DCA2C-NS		Windows Server 2016 DC - Additional 2 Cores - No Cisco SVC
MSWS-16-DCA4C-NS		Windows Server 2016 DC - Additional 4 Cores - No Cisco SVC
MSWS-16-DCA16C-NS		Windows Server 2016 DC - Additional 16 Cores - No Cisco SVC

Table 30 Software (for 2-CPU servers) (continued)

Red Hat	
RHEL-2S2V-1A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 1-Yr Support Req
RHEL-2S2V-3A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req
RHEL-2S-HA-1A	RHEL High Availability (1-2 CPU); 1-Yr Support Reqd
RHEL-2S-HA-3A	RHEL High Availability (1-2 CPU); 3-Yr Support Reqd
RHEL-2S-RS-1A	RHEL Resilent Storage (1-2 CPU); 1-Yr Support Reqd
RHEL-2S-RS-3A	RHEL Resilent Storage (1-2 CPU); 3-Yr Support Reqd
RHEL-2S-SFS-1A	RHEL Scalable File System (1-2 CPU); 1-Yr Support Reqd
RHEL-2S-SFS-3A	RHEL Scalable File System (1-2 CPU); 3-Yr Support Reqd
RHEL-2S2V-1S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 1-Yr SnS
RHEL-2S2V-1YR*	Red Hat Enterprise Linux (1-2 CPU,1-2 VN);Premium 24x7 - 1Yr
RHEL-2S2V-3S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 3-Yr SnS
RHEL-2S2V-3YR*	Red Hat Enterprise Linux (1-2 CPU,1-2 VN);Premium 24x7 - 3Yr
RHEL-2S-HA-1S	RHEL High Availability (1-2 CPU); Premium 1-yr SnS
RHEL-2S-HA-1YR*	RHEL High Availability (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-HA-3S	RHEL High Availability (1-2 CPU); Premium 3-yr SnS
RHEL-2S-HA-3YR*	RHEL High Availability (1-2 CPU); Premium 24x7 - 3 Year
RHEL-2S-RS-1S	RHEL Resilent Storage (1-2 CPU); Premium 1-yr SnS
RHEL-2S-RS-1YR*	RHEL Resilent Storage (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-RS-3S	RHEL Resilent Storage (1-2 CPU); Premium 3-yr SnS
RHEL-2S-RS-3YR*	RHEL Resilent Storage (1-2 CPU); Premium 24x7 - 3 Year
RHEL-2S-SFS-1S	RHEL Scalable File System (1-2 CPU); Premium 1-yr SnS
RHEL-2S-SFS-1YR*	RHEL Scalable File System (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-SFS-3S	RHEL Scalable File System (1-2 CPU); Premium 3-yr SnS
RHEL-2S-SFS-3YR*	RHEL Scalable File System (1-2 CPU); Premium 24x7 - 3 Year
Red Hat SAP	
RHEL-SAPH-PR-1YR	RHEL for SAP Applications - Premium - RH SnS 1 Yr - 2 Socket
RHEL-SAPH-PR-3YR	RHEL for SAP Applications - Premium - RH SnS 3 Yr - 2 Socket
RHEL-SAPH-ST-1YR	RHEL for SAP Applications - Standard - RH SnS 1 Yr -2 Socket
RHEL-SAPH-ST-3YR	RHEL for SAP Applications - Standard - RH SnS 3 Yr -2 Socket
RHEL-SAP-2S2V-1S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 1-Yr SnS
RHEL-SAP-2S2V-1YR*	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Premium 24x7 - 1-Yr
RHEL-SAP-2S2V-3S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 3-Yr SnS
RHEL-SAP-2S2V-3YR*	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Premium 24x7 - 3-Yr
RHEL-SAPH-2S2V-1S	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Prem 1-Yr SnS
RHEL-SAPH-2S2V-1YR*	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Premium 24x7 - 1-Yr
RHEL-SAPH-2S2V-3S	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Prem 3-Yr SnS

RHEL-SAPH-2S2V-3YR*	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Premium 24x7 - 3-Yr
RHEL-SAPHHAS2S-1S	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 1Yr SnS Reqd
RHEL-SAPHHAS2S-1YR*	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 5x9 1Yr SnS
RHEL-SAPHHAS2S-3S	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 3Yr SnS Reqd
RHEL-SAPHHAS2S-3YR*	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 5x9 3Yr SnS
RHEL-SAPHHAP2S-1S	RHEL for SAP Hana,HA,SmartM (1-2 CPU &VN); Prem 1Yr SnS Reqd
RHEL-SAPHHAP2S-1YR*	RHEL for SAP Hana,HA,SmartM(1-2 CPU/VN); Prem 24x7 1Yr SnS
RHEL-SAPHHAP2S-3S	RHEL for SAP Hana,HA,SmartM (1-2 CPU &VN); Prem 3Yr SnS Reqd
RHEL-SAPHHAP2S-3YR*	RHEL for SAP Hana,HA,SmartM(1-2 CPU/VN); Prem 24x7 3Yr SnS
VMware	
VMW-VSP-STD-1A	VMware vSphere 6 Standard (1 CPU), 1-yr, Support Required
VMW-VSP-STD-3A	VMware vSphere 6 Standard (1 CPU), 3-yr, Support Required
VMW-VSP-STD-5A	VMware vSphere 6 Standard (1 CPU), 5-yr, Support Required
VMW-VSP-EPL-3A	VMware vSphere 6 Ent Plus (1 CPU), 3-yr, Support Required
VMW-VSP-EPL-1A	VMware vSphere 6 Ent Plus (1 CPU), 1-yr, Support Required
VMW-VSP-EPL-5A	VMware vSphere 6 Ent Plus (1 CPU), 5-yr, Support Required
SLES SAP	
SLES-SAP-2S2V-1A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 1-Yr Support Reqd
SLES-SAP-2SUV-1A	SLES for SAP Apps (1-2 CPU, Unl VM); 1-Yr Support Reqd
SLES-SAP-2S2V-3A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 3-Yr Support Reqd
SLES-SAP-2SUV-3A	SLES for SAP Apps (1-2 CPU, Unl VM); 3-Yr Support Reqd
SLES-SAP-2S2V-5A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 5-Yr Support Reqd
SLES-SAP-2SUV-5A	SLES for SAP Apps (1-2 CPU, Unl VM); 5-Yr Support Reqd
SLES-SAP-2S2V-1S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 1-Yr SnS
SLES-SAP-2S2V-1YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 1 Year
SLES-SAP-2SUV-1S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 1-Yr SnS
SLES-SAP-2SUV-1YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 1 Year
SLES-SAP-2S2V-3S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS
SLES-SAP-2S2V-3YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 3 Year
SLES-SAP-2SUV-3S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 3-Yr SnS
SLES-SAP-2SUV-3YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 3 Year
SLES-SAP-2S2V-5S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS
SLES-SAP-2S2V-5YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 5 Year
SLES-SAP-2SUV-5S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 5-Yr SnS
SLES-SAP-2SUV-5YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 5 Year
SUSE	
SLES-2S2V-1A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 1-Yr Support Req
SLES-2SUV-1A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 1-Yr Support Req
SLES-2S2V-3A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req
SLES-2SUV-3A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 3-Yr Support Req
SLES-2S2V-5A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req
SLES-2SUV-5A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 5-Yr Support Req

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SLES-2S2V-1S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS
SLES-2S2V-1YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 1 Year
SLES-2SUV-1S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 1-Yr SnS
SLES-2SUV-1YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 1 Year
SLES-2S2V-3S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS
SLES-2S2V-3YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 3 Year
SLES-2SUV-3S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 3-Yr SnS
SLES-2SUV-3YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 3 Year
SLES-2S2V-5S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS
SLES-2S2V-5YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 5 Year
SLES-2SUV-5S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 5-Yr SnS
SLES-2SUV-5YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 5 Year
SLES-2S-HA-1S	SUSE Linux High Availability Ext (1-2 CPU); 1yr SnS
SLES-2S-HA-1YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-HA-3S	SUSE Linux High Availability Ext (1-2 CPU); 3yr SnS
SLES-2S-HA-3YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 3 Year
SLES-2S-HA-5S	SUSE Linux High Availability Ext (1-2 CPU); 5yr SnS
SLES-2S-HA-5YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-GC-1S	SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Sns
SLES-2S-GC-1YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-GC-3S	SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr SnS
SLES-2S-GC-3YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 3 Year
SLES-2S-GC-5S	SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr SnS
SLES-2S-GC-5YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 5 Year
SLES-2S-LP-1S	SUSE Linux Live Patching Add-on (1-2 CPU); 1yr SnS Required
SLES-2S-LP-1YR*	SUSE Linux Live Patching Add-on (1-2 CPU); Inherited SnS 1 Yr
SLES-2S-LP-3S	SUSE Linux Live Patching Add-on (1-2 CPU); 3yr SnS Required
SLES-2S-LP-3YR*	SUSE Linux Live Patching Add-on (1-2 CPU); Inherited SnS 3 Yr

StorMagic

UCS-STORM-2TB-1S	StorMagic SvSAN Software License - 2TB - 1 Year SnS
UCS-STORM-2TB-1YR*	StorMagic SvSAN - Platinum Support - 2TB - 1 Year
UCS-STORM-2TB-3S	StorMagic SvSAN Software License - 2TB - 3 Year SnS
UCS-STORM-2TB-3YR*	StorMagic SvSAN - Platinum Support - 2TB - 3 Year
UCS-STORM-2TB-5S	StorMagic SvSAN Software License - 2TB - 5 Year SnS
UCS-STORM-2TB-5YR*	StorMagic SvSAN - Platinum Support - 2TB - 5 Year
UCS-STORM-6TB-1S	StorMagic SvSAN Software License - 6TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-6TB-1YR*	StorMagic SvSAN - Platinum Support - 6TB - 1 Year
UCS-STORM-6TB-3S	StorMagic SvSAN Software License - 6TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-6TB-3YR*	StorMagic SvSAN - Platinum Support - 6TB - 3 Year
UCS-STORM-6TB-5S	StorMagic SvSAN Software License - 6TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-6TB-5YR*	StorMagic SvSAN - Platinum Support - 6TB - 5 Year
UCS-STORM-12TB-1S	StorMagic SvSAN Software License - 12TB, 1Node; 1Yr SnS Reqd
UCS-STORM-12TB-1Y*	StorMagic SvSAN - Platinum Support - 12TB - 1 Year
UCS-STORM-12TB-3S	StorMagic SvSAN Software License - 12TB, 1Node; 3Yr SnS Reqd
UCS-STORM-12TB-3Y*	StorMagic SvSAN - Platinum Support - 12TB - 3 Year
UCS-STORM-12TB-5S	StorMagic SvSAN Software License - 12TB, 1Node; 5Yr SnS Reqd
UCS-STORM-12TB-5Y*	StorMagic SvSAN - Platinum Support - 12TB - 5 Year
UCS-STORM-UTB-1S	StorMagic SvSAN Software License - Unlimited TB - 1 Yr SnS
UCS-STORM-UTB-1YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 1 Year
UCS-STORM-UTB-3S	StorMagic SvSAN Software License - Unlimited TB - 3 Yr SnS
UCS-STORM-UTB-3YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 3 Year
UCS-STORM-UTB-5S	StorMagic SvSAN Software License - Unlimited TB - 5 Yr SnS
UCS-STORM-UTB-5YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 5 Year
UCS-STORM-2TA-1S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-2TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 1 Year
UCS-STORM-2TA-3S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-2TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 3 Year
UCS-STORM-2TA-5S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-2TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 5 Year
UCS-STORM-6TA-1S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-6TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 1 Year
UCS-STORM-6TA-3S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-6TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 3 Year
UCS-STORM-6TA-5S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 5Yr SnS Reqd

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UCS-STORM-6TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 5 Year
UCS-STORM-12TA-1S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-12TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 1 Year
UCS-STORM-12TA-3S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-12TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 3 Year
UCS-STORM-12TA-5S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-12TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 5 Year
UCS-STORM-UTA-1S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 1Yr SnS Reqd
UCS-STORM-UTA-1Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 1 Yr
UCS-STORM-UTA-3S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 3Yr SnS Reqd
UCS-STORM-UTA-3Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 3 Yr
UCS-STORM-UTA-5S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 5Yr SnS Reqd
UCS-STORM-UTA-5Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 5 Yr

STEP 19 SELECT OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in [Table 37](#).

Table 37 OS Media

Product ID (PID)	PID Description
MSWS-12R2-ST2S-RM	Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12R2-DC2S-RM	Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media
MSWS-16-ST16C-RM	Windows Server 2016 Stan (16 Cores/2 VMs) - Recovery Media
MSWS-16-ST24C-RM	Windows Server 2016 Stan (24 Cores/2 VMs) - Recovery Media
MSWS-16-DC16C-RM	Windows Server 2016 DC (16 Cores/Unlim VMs) - Recovery Media
MSWS-16-DC24C-RM	Windows Server 2016 DC (24 Cores/Unlim VMs) - Recovery Media

STEP 20 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.

Smart Net Total Care (SNTC) for UCS

For support of the entire Unified Computing System, Cisco offers the Cisco Smart Net Total Care 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 systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco Smart Net Total Care 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. For more information please refer to the following url: <http://www.cisco.com/c/en/us/services/technical/smart-net-total-care.html?stickynav=1>

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

Table 32 Cisco SNTC for UCS Service (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-C220M5SX	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-C220M5SX	UCSD8	Yes	UC SUPP DR 24X7X2OS*
CON-C2PL-C220M5SX	C2PL	Yes	LL 24X7X2OS**
CON-OSP-C220M5SX	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-C220M5SX	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-C220M5SX	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-C220M5SX	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-C220M5SX	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-C220M5SX	UCSD6	Yes	UC SUPP DR 8X5X4OS*

CONFIGURING the SERVER

CON-SNCO-C220M5SX	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-C220M5SX	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-C220M5SX	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-C220M5SX	S2P	No	SNTC 24X7X2
CON-S2PL-C220M5SX	S2PL	No	LL 24X7X2**
CON-SNTP-C220M5SX	SNTP	No	SNTC 24X7X4
CON-SNTPL-C220M5SX	SNTPL	No	LL 24X7X4**
CON-SNTE-C220M5SX	SNTE	No	SNTC 8X5X4
CON-SNC-C220M5SX	SNC	No	SNTC 8x7xNCD****
CON-SNT-C220M5SX	SNT	No	SNTC 8X5XNBD
CON-SW-C220M5SX	SW	No	SNTC NO RMA

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-PREM-C220M5SN)

*Includes Drive Retention (see below for full description)

**Includes Local Language Support (see below for full description) – Only available in China and Japan

***Includes Local Language Support and Drive Retention – Only available in China and Japan

****Available in China Only

Smart Net Total Care for Cisco UCS Onsite Troubleshooting Service

An enhanced offer over traditional Smart Net Total Care which provides onsite troubleshooting expertise to aid in the diagnostics and isolation of hardware issue within our customers' Cisco Unified Computing System (UCS) environment. It is delivered by a Cisco Certified field engineer (FE) in collaboration with remote TAC engineer and Virtual Internetworking Support Engineer (VISE). You can choose a desired service listed in [Table 33](#).

Table 33 SNTC for Cisco UCS Onsite Troubleshooting Service (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-C220M5SX	OSPT	Yes	24X7X40S Trblshtg
CON-OSPTD-C220M5SX	OSPTD	Yes	24X7X40S TrblshtgDR*
CON-OSPTL-C220M5SX	OSPTL	Yes	24X7X40S TrblshtgLL**
CON-OPTLD-C220M5SX	OPTLD	Yes	24X7X40S TrblshtgLLD***

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-OSPT-C220M5SN)

*Includes Drive Retention (see below for full description)

**Includes Local Language Support (see below for full description) – Only available in China and Japan

***Includes Local Language Support and Drive Retention – Only available in China and Japan

Solution Support for UCS

Solution Support includes both Cisco product support and solution-level support, resolving complex issues

in multivendor environments, on average, 43% more quickly than product support alone. Solution Support is a critical element in data center administration, to help rapidly resolve any issue encountered, while maintaining performance, reliability, and return on investment.

This service centralizes support across your multivendor Cisco environment for both our products and solution partner products you've deployed in your ecosystem. Whether there is an issue with a Cisco or solution partner product, just call us. Our experts are the primary point of contact and own the case from first call to resolution. For more information please refer to the following url:

<http://www.cisco.com/c/en/us/services/technical/solution-support.html?stickynav=1>

You can choose a desired service listed in [Table 34](#).

Table 34 Solution Support for UCS Service (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-C220M5SX	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-C220M5SX	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-C220M5SX	SSC4S	Yes	SOLN SUPP 8X5X4OS
CON-SSCS-C220M5SX	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-C220M5SX	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-C220M5SX	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-C220M5SX	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-C220M5SX	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-C220M5SX	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-C220M5SX	SSSNC	No	SOLN SUPP NCD**
CON-SSSNT-C220M5SX	SSSNT	No	SOLN SUPP 8X5XNBD

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-SSC2P-C220M5SN)

*Includes Drive Retention (see below for description)

**Available in China only

Smart Net Total Care for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Smart Net Total Care for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. Smart Net Total Care 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 desired service listed in [Table 35](#).

Table 35 SNTC for UCS Hardware Only Service (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-C220M5SX	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-C220M5SX	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-C220M5SX	UCW7L	Yes	LL UCS 24X7X4OS**

CONFIGURING the SERVER

CON-UWD7L-C220M5SX	UWD7L	Yes	LL UCS DR 24X7X4OS***
CON-UCW5-C220M5SX	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-C220M5SX	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*
Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-UCW7-C220M5SN)			
*Includes Drive Retention (see below for description)			
**Includes Local Language Support (see below for full description) – Only available in China and Japan			
***Includes Local Language Support and Drive Retention – Only available in China and Japan			

Partner Support Service for UCS

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

PSS 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.

The two Partner Unified Computing Support Options include:

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

PSS for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support. You can choose a desired service listed in [Table 36](#).

Table 36 PSS for UCS (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-C220M5SX	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-C220M5SX	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-C220M5SX	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-C220M5SX	PSJ6	Yes	UCS PSS 8X5X4 OS
CON-PSJD6-C220M5SX	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-C220M5SX	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-C220M5SX	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-C220M5SX	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-C220M5SX	PSJ1	No	UCS SUPP PSS 8X5XNBD

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-PSJ1-C220M5SN)

*Includes Drive Retention (see below for description)

PSS for UCS Hardware Only

PSS for UCS Hardware Only provides customers with replacement parts in as little as two hours and provides remote access any time to Partner Support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in [Table 37](#).

Table 37 PSS for UCS Hardware Only (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-PSW7-C220M5SX	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-C220M5SX	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-C220M5SX	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-C220M5SX	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-C220M5SX	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-C220M5SX	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-C220M5SX	PSW2	No	UCS W PL PSS 8X5X4

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-PSW2-C220M5SN)

*Includes Drive Retention (see below for description)

Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SNTC 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 desired service listed in [Table 38](#).

Table 38 Combined Support Service for UCS (PID UCSC-C220-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-C220M5SX	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-C220M5SX	NCF4P	Yes	CMB SVC 24X7X4OS

CONFIGURING the SERVER

CON-NCF4S-C220M5SX	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-C220M5SX	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-C220M5SX	NCF2	No	CMB SVC 24X7X2
CON-NCFP-C220M5SX	NCFP	No	CMB SVC 24X7X4
CON-NCFE-C220M5SX	NCFE	No	CMB SVC 8X5X4
CON-NCFT-C220M5SX	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-C220M5SX	NCFW	No	CMB SVC SW

Note: For PID UCSC-C220-M5SN, select Service SKU with C220M5SN suffix (Example: CON-NCF2P-C220M5SN)

UCS Drive Retention Service

With the Cisco Unified Computing Drive Retention Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The Drive Retention 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 the above tables (where available)



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

Local Language Technical Support for UCS

Where available, and subject to an additional fee, local language support for calls on all assigned severity levels may be available for specific product(s) – see tables above.

For a complete listing of available services for Cisco Unified Computing System, see the following URL: http://www.cisco.com/en/US/products/ps10312/serv_group_home.html

OPTIONAL STEP - ORDER RACK(S)

The optional R42612 rack is available from Cisco for the C-Series servers, including the C220 M5 SFF server. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in [Table 38](#). Racks are shipped separately from the C220 M5 SFF server.

Table 38 Racks and Rack Options

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

For more information about the R42612 rack, see [RACKS, page 84](#).

OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers, including the C220 M5 server. This PDU is available in a zero rack unit (RU) style or horizontal PDU style (see [Table 39](#)). For more information about the PDU, see [PDUs, page 86](#).

Table 39 Available PDUs

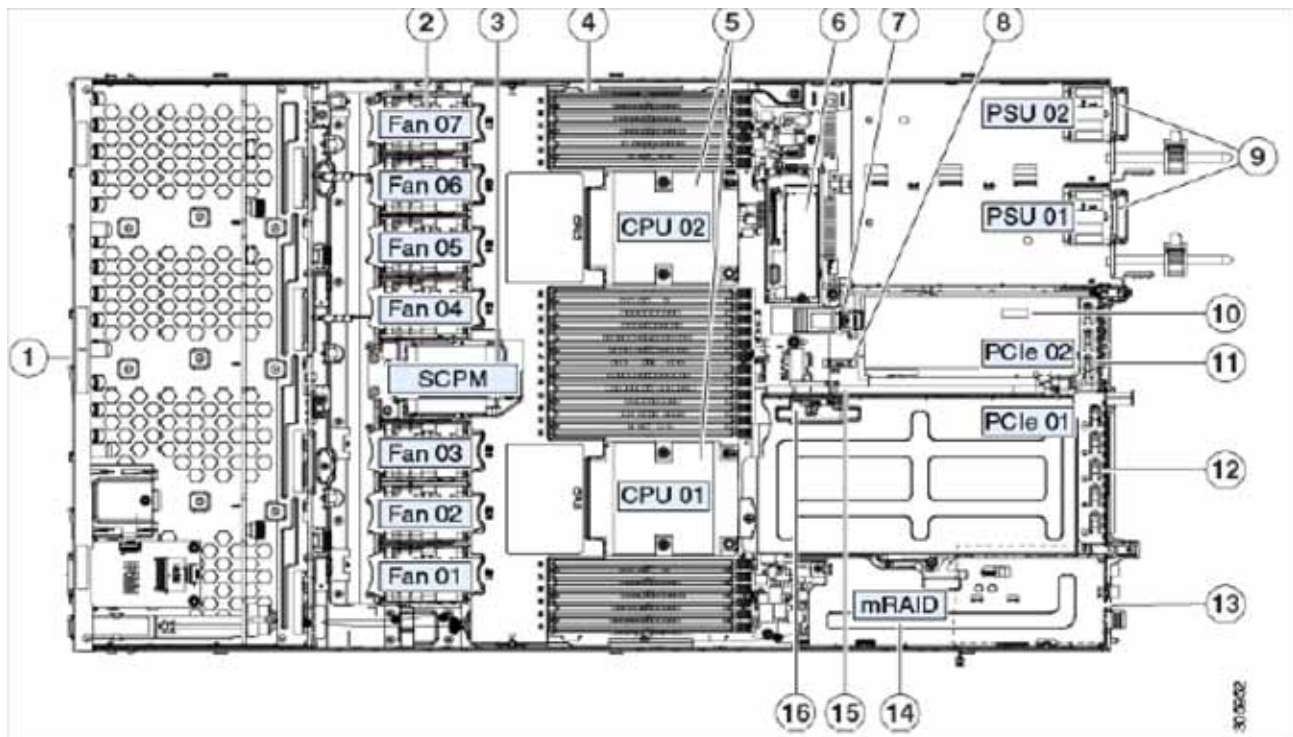
Product ID (PID)	Description	Plug	Country
Zero-RU PDUs			
RP208-30M1P-6-36	30 A, single-phase, vertical-mount PDU with 6 C19 and 36 C13 connectors	L6-30P	North America
RP208-30M3P-6-30	30 A, three-phase, vertical-mount PDU with 6 C19 and 30 C13 connectors	L15-30P	North America
RP208-60M3P-12-9	60 A,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

SUPPLEMENTAL MATERIAL

CHASSIS

An internal view of the C220 M5 chassis with the top cover removed is shown in [Figure 7](#).

Figure 7 C220 M5 SFF With Top Cover Off



1	<p>For UCSC-220-M5S: Drive bays 1-10 support SAS/SATA drives and drive bays 1 and 2 also support SFF NVMe PCIe SSDs.</p> <p>For UCSC-220-M5N: Drive bays 1-10 support SFF NVMe PCIe SSDs (only)</p>	9	Power supplies (Hot-swappable when redundant as 1+1)
2	Cooling fan modules (seven)	10	Trusted platform module (TPM) socket on motherboard (not visible in this view)
3	Supercap Power Module (RAID backup) mounting bracket	11	PCIe slot 2 (half-height, x16); includes PCIe cable connector for SFF NVMe SSDs (x8)
4	DIMM sockets on motherboard (up to 12 per CPU; total 24)	12	PCIe slot 1 (full-height, x16); includes socket for Micro-SD card
5	CPUs and heatsinks (up to two)	13	Modular LOM (mLOM) card bay on chassis floor (x16) (not visible in this view)

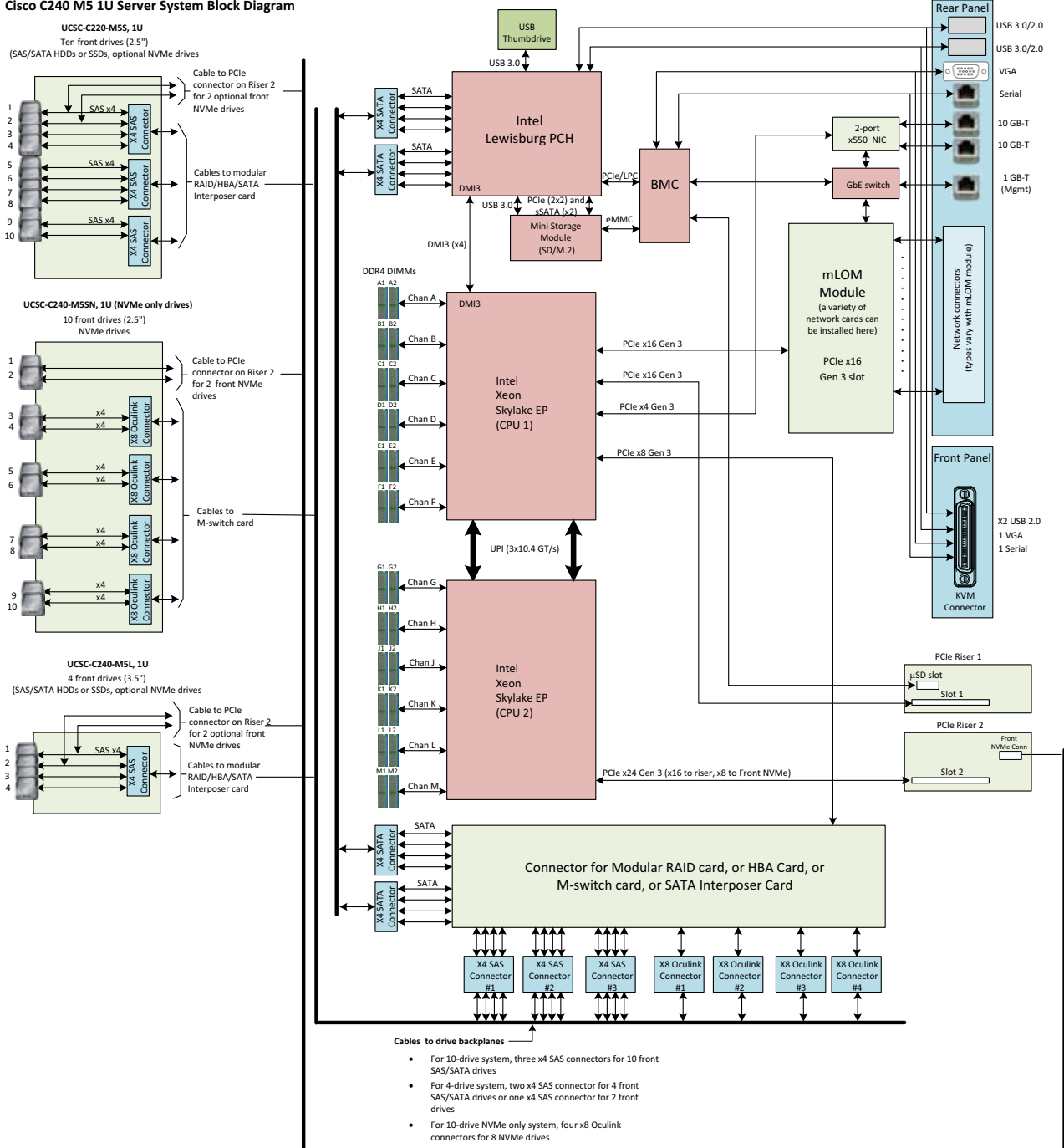
SUPPLEMENTAL MATERIAL

6	Mini storage module connector Supports either an SD card module with two SD cards or an M.2 module with two PCIe/SATA M.2 SSD slots	14	RAID (mRAID) riser, can optionally be a riser that supports either: <ul style="list-style-type: none"> ■ Hardware RAID controller card ■ Interposer card for embedded SATA RAID ■ PCIe switch card for SFF NVMe drives in slots 3 through 10 (for UCSC-220-M5N)
7	Internal USB 3.0 port on motherboard	15	PCIe cable connectors for front-panel NVMe SSDs on PCIe riser 2
8	RTC battery vertical socket on motherboard	16	Micro-SD card socket on PCIe riser 1

Block Diagram

Figure 8 C220 M5 SFF Block Diagram

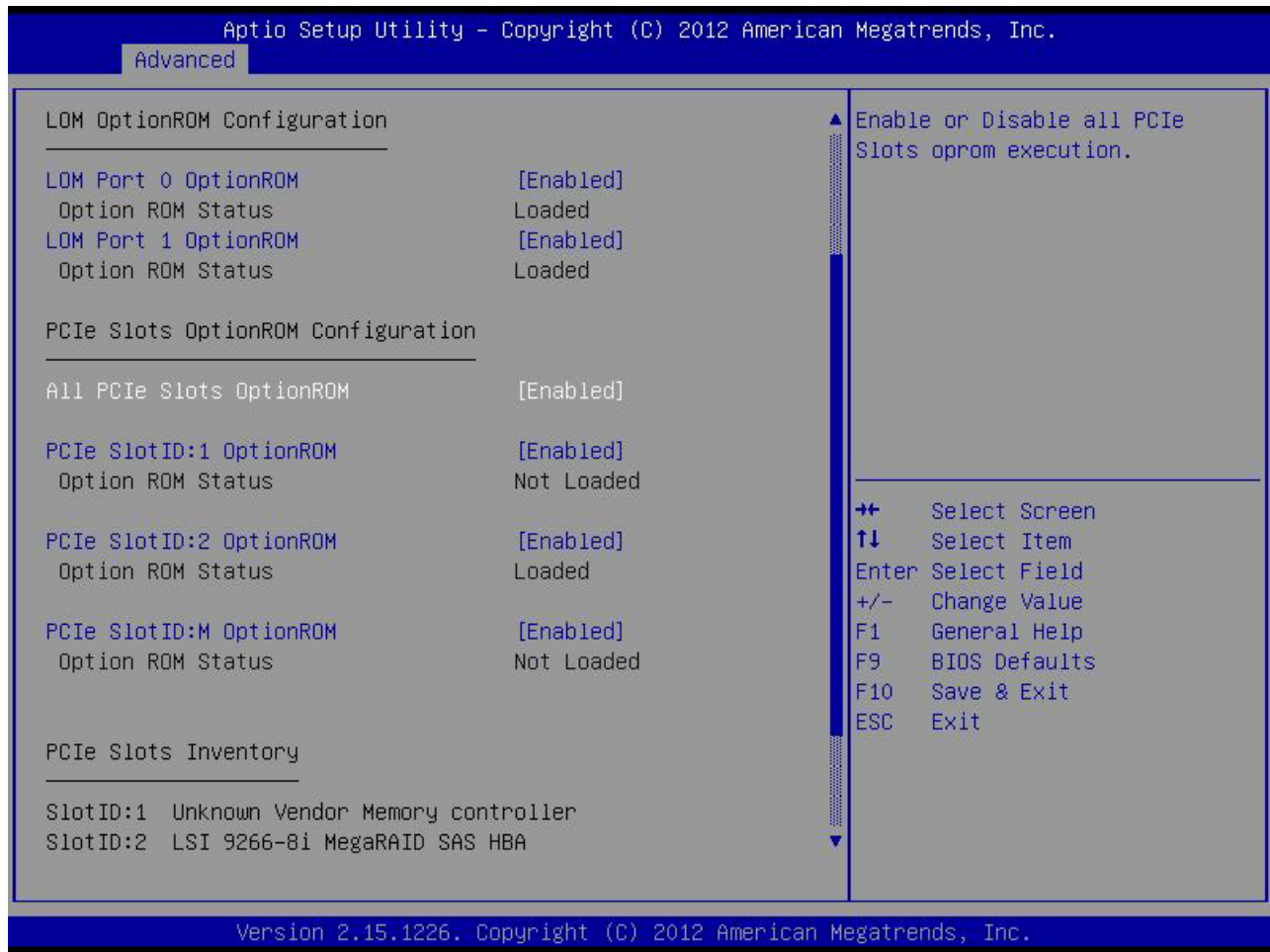
Cisco UCS C240 M5 1U Server System Block Diagram



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 10*.

Figure 10 Example BIOS Screen for OPROM



To Create a RAID Group

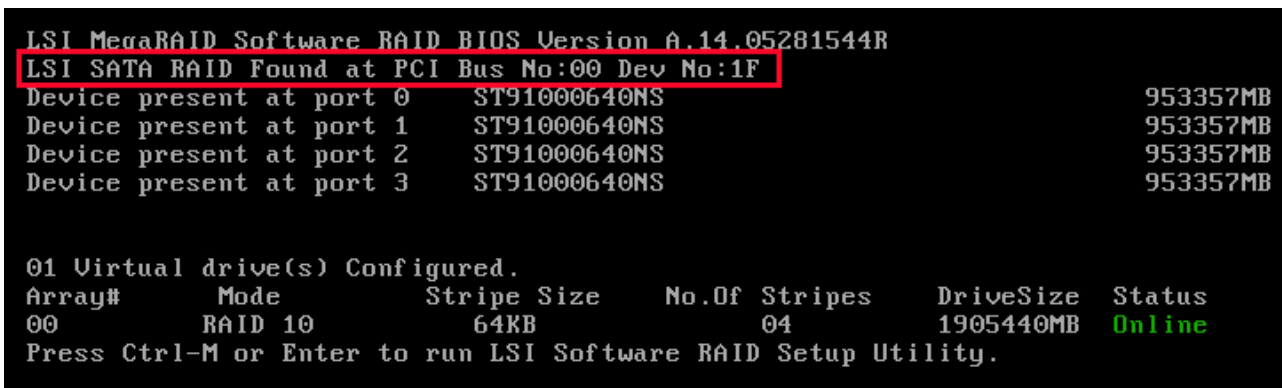
(1) While the server is booting, wait for the prompt and press function key F2 as shown in [Figure 12](#).

Figure 12 Function Key F2 Prompt



In a few seconds, you will see the screen that allows you to set up a RAID group for the primary SATA controller (see [Figure 13](#)).

Figure 13 Screen to Configure Primary SATA RAID Group



(2) Press Ctrl+M to start the RAID group creation process for the primary SATA controller (for drives 1-4, as shown in [Figure 11 on page 77](#)). Or, do nothing and wait for the next screen, which allows you to create a RAID group for the secondary SATA (sSATA) controller see [Figure 14](#).

Figure 14 Screen to Configure Secondary SATA (sSATA) RAID Group

```

Device present at port 3      ST91000640NS      953357MB

01 Virtual drive(s) Configured.
Array#      Mode      Stripe Size      No.Of Stripes      DriveSize      Status
00          RAID 10      64KB             04                 1905440MB     Online
Press Ctrl-M or Enter to run LSI Software RAID Setup Utility.

LSI MegaRAID Software RAID BIOS Version A.14.05281544R
LSI sSATA RAID Found at PCI Bus No:00 Dev No:11
Device present at port 0      INTEL SSDSC2BA200G3      190270MB
Device present at port 1      INTEL SSDSC2BA200G3      190270MB
Device present at port 2      INTEL SSDSC2BB120G4      113961MB
Device present at port 3      Micron_P400e-MTFDDAK100MAR      94884MB

04 Virtual drive(s) Configured.
Array#      Mode      Stripe Size      No.Of Stripes      DriveSize      Status
00          RAID 0      64KB             01                 189781MB     Online
01          RAID 0      64KB             01                 189781MB     Online
02          RAID 0      64KB             01                 113487MB     Online
03          RAID 0      64KB             01                 94413MB      Online
Press Ctrl-M or Enter to run LSI Software RAID Setup Utility.

```

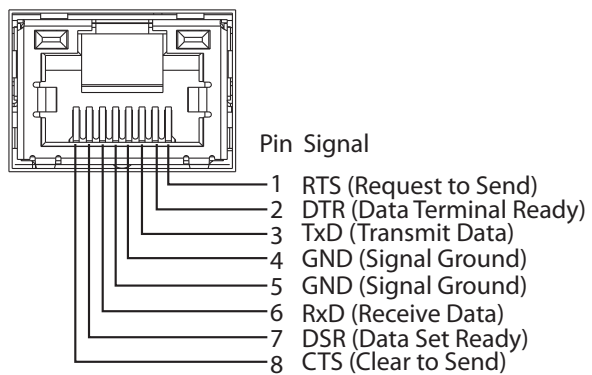
(3) Press Ctrl+M to start the RAID group creation process for the secondary SATA (sSATA) controller (for drives 5-8, as shown in [Figure 11 on page 77](#)).

Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in *Figure 15*.

Figure 15 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 44](#). Drive Blanking Panels

Table 44 Upgrade and Servicing-related Parts for UCS C220 M5 SFF Server

Spare Product ID (PID)	Description
UCSC-HS-C220M5=	Heat sink for UCS C220 M5 rack servers 150W CPUs & below
UCSC-HS2-C220M5=	Heat sink for UCS C220 M5 rack servers CPUs above 150W
UCS-CPUAT=	CPU Assembly Tool for M5 Servers
UCS-CPU-TIM=	CPU thermal interface material syringe for M5 server HS seal
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit For Replacement of CPU
UCS-M5-CPU-CAR=	UCS M5 CPU Carrier
CBL-NVME-C220FF=	C220 M5L/M5S PCIe SSD cable (1) for SFF & LFF chassis
UCSC-SATA-KIT-M5=	C220 M5 (2) SATA/SW RAID cables, 1U riser & interposer, for up to 8-drives
UCSC-SATAIN-220M5=	C220 M5 (8-drive) SATA Interposer board
CBL-SC-MR12GM5=	Super Cap cable for UCSC-RAID-M5 for C220 M5 Servers
UCSC-XRAIDR-220M5=	Riser to support SATA, MRAID for C220 M5 servers
UCSC-BBLKD-S2=	C-Series M5 SFF drive blanking panel ¹
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-MLOM-BLK=	MLOM Blanking Panel
UCSC-RAILF-M4=	Friction Rail Kit for C220 M4 rack servers
UCSC-CMAF-M4=	Reversible CMA for C220 M4 friction & ball bearing rail kits
UCSC-RAILB-M4=	Ball Bearing Rail Kit for C220 M4 and C240 M4 rack servers
UCSC-BZL-C220M5=	C220 M5 Security Bezel
UCSC-FAN-C220M5=	C220 M5 Fan Module (one)
N20-BKVM=	KVM cable for Server console port
UCSC-PSU-BLKP1U=	Power Supply Blanking Panel for C220 M4 servers
UCS-MSTOR-SD= UCS-	Mini Storage Carrier for SD (holds up to 2)
MSTOR-M2=	Mini Storage Carrier for M.2 SATA/NVME (holds up to 2)

RACKS

The Cisco R42612 rack (see [Figure 16 on page 85](#)) is certified for Cisco UCS installation at customer sites and is suitable for the following equipment:

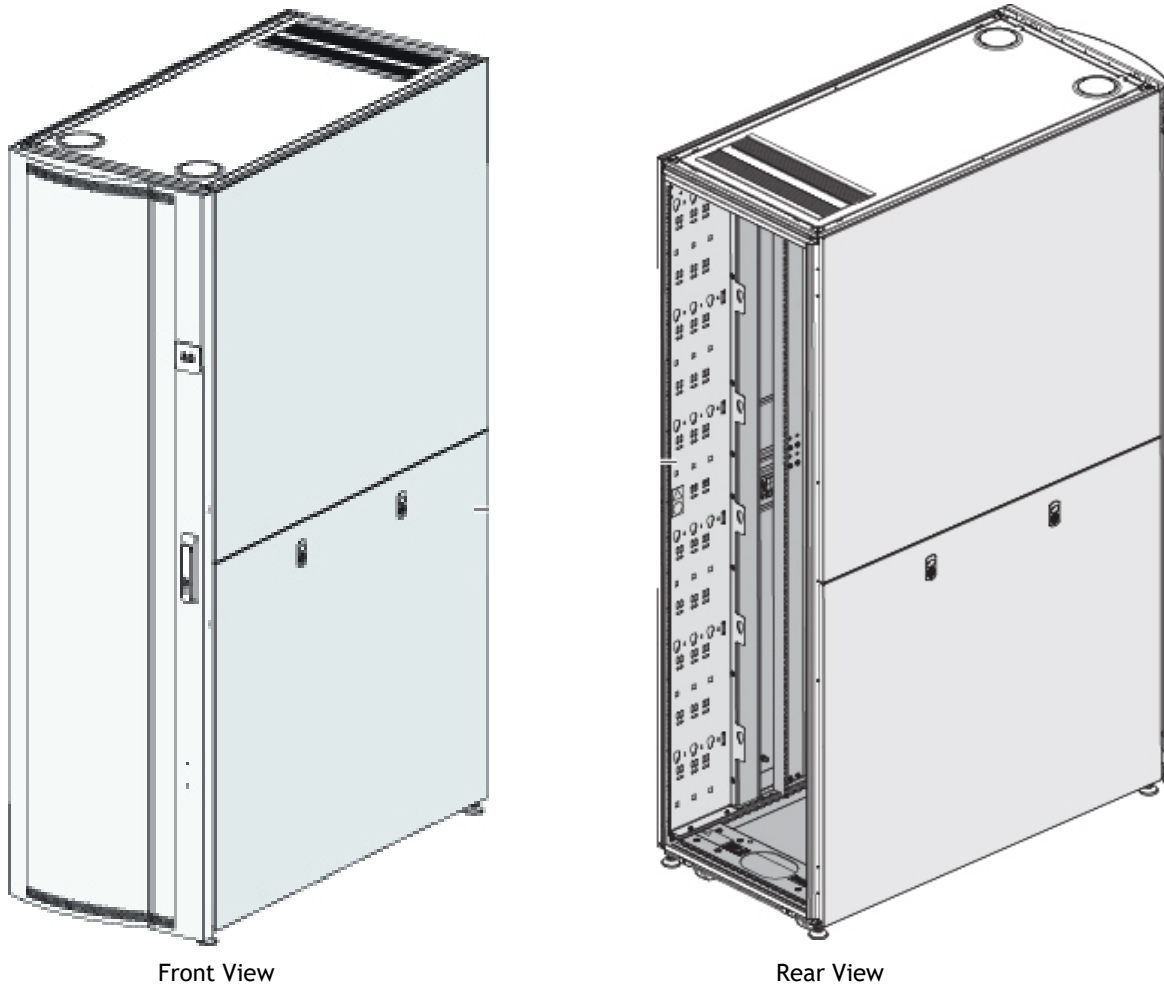
- Cisco UCS B-Series servers and fabric interconnects
- Cisco UCS C-Series and select Nexus switches

The rack is compatible with hardware designed for EIA-standard 19-inch racks. Rack specifications are listed in [Table 45](#).

Table 45 R42612 Specifications

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

Figure 16 Cisco R42612 Rack



PDU

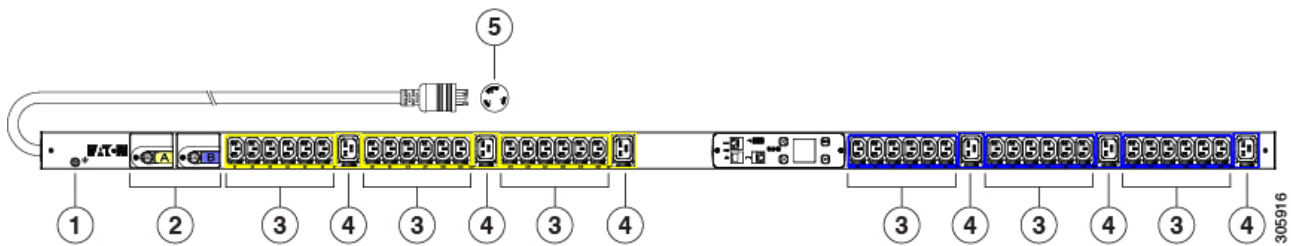
Cisco RP Series Power Distribution Units (PDUs) offer power distribution with branch circuit protection.

Cisco RP Series PDU models distribute power to up to 42 outlets. The architecture organizes power distribution, simplifies cable management, and enables you to move, add, and change rack equipment without an electrician.

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

The C-series severs accept the zero-rack-unit (ORU) or horizontal PDU. See [Figure 17](#) for one example of a zero rack unit PDU.

Figure 17 RP208-30M1P-6-36 PDU



- 1 = Ground
- 2 = 20 A circuit breakers
- 3 = IEC 60320 C13 outlets
- 4 = EC 60320 C19 outlets
- 5 = NEMA L6-30P plug

KVM CABLE

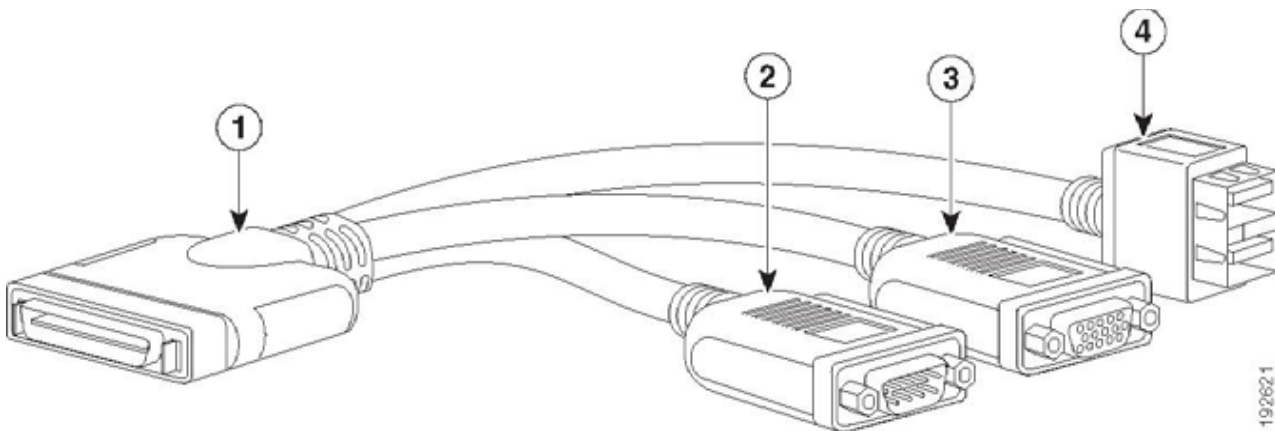
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 46](#).

Table 46 KVM Cable

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

Figure 18 KVM Cable



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

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 48 UCS C220 M5 Dimensions and Weight

Parameter	Value
Height	1.7 in. (4.32 cm)
Width	16.89 in. (43.0 cm) including handles: 18.98 in. (48.2 cm)
Depth	29.8 in. (75.6 cm) including handles: 30.98 in. (78.7 cm)
Front Clearance	3 in. (76 mm)
Side Clearance	1 in. (25 mm)
Rear Clearance	6 in. (152 mm)
Weight	
Maximum (8 HDDs, 2 CPUs, 16 DIMMs, two power supplies)	37.5 lbs (17.0 kg)
Minimum (1 HDD, 1 CPU, 1 DIMM, one power supply)	29.0 lbs (13.2 kg)
Bare (0 HDD, 0 CPU, 0 DIMM, one power supply)	26.7 lbs (12.1 kg)

Power Specifications

The server is available with the following types of power supplies:

- 770 W (AC)
- 1050 W (AC)
- 1050 W (DC)
-

The general power specifications for the C220 M5 SFF server are listed as follows:

- 770 W (AC) power supply (see [Table 49](#)).
- 1050 W (AC) power supply (see [Table 50](#)).
- 1050 W V2 (DC) power supply (see [Table 51 on page 93](#))
-

Table 49 UCS C220 M5 SFF Power Specifications (770 W AC power supply)

Description	Specification
AC input voltage range	100 - 240 VAC (nominal input voltage range) 90 - 264 VAC (min/max input voltage range)
AC input frequency	50 to 60 Hz nominal (range: 47 to 63 Hz), single phase
Maximum AC input current	9.5 Amps maximum at 100 VAC 4.5 Amps maximum at 208 VAC
Maximum Input VA	950 VA at 100 VAC
Maximum output power for each power supply	Over the 90-264 VAC input range, the maximum rated output power is 770 watts
Maximum AC inrush current	15 A Peak at +35 degree C, 208V (Charging current for EMI-X capacitors is not considered to be inrush current)
Maximum hold up time	Greater than 12 ms, with 2,200 uF of load capacitance
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Power supply efficiency	Climate Savers Platinum Efficiency (80Plus Platinum Certified)
Form factor	RSP2
Input connector	IEC60320 C14 type connector

Table 50 UCS C220 M5 1050 W (AC) Power Supply Specifications

Description	Specification
Class	RSP2
AC input voltage	200 to 240 VAC nominal (Range: 180 to 264 VAC)
AC input frequency	50 to 60 Hz nominal (Range: 47 to 63 Hz)
Maximum AC input current	8.5 A at 200 VAC
Maximum output power for each power supply	1050 W on main power 30 W on standby power
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC
Rated output load	Main power: 116.6 DC Amps Standby power: 2.5 DC Amps

Table 51 UCS C220 M5 1050 W (DC) Power Supply Specifications

Description	Specification
DC Input voltage range	Nominal range: -48 to -60 VDC nominal (maximum range: -40 to -72 VDC)
Maximum DC input current	32 A at -40 VDC
Maximum input W	1234 W
Maximum output power per PSU	1050 W on 12 VDC main power 36 W on 12 VDC standby power
Maximum inrush current	15 A at -72 VDC
Maximum hold-up time	5 ms at 100% load (1050 W main and 36 W standby)
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Greater than or equal to 92% at 50% load
Form factor	RSP2
Input connector	3 wire Connector (Molex MINIFIT SR. R/A)

Table 52 UCS C220 M5 SFF Power Specifications (1600 W AC power supply)

Description	Specification
AC input voltage	Voltage Range 180 - 264 VAC
AC input frequency	50 to 60 Hz nominal (range: 47 to 63 Hz)
Max AC Input current	< 9.5 A maximum at 200 VAC
Maximum Input VA	1600 VA @200 VAC
Maximum output power per power supply	In the 180-265 VAC range the maximum rated output power is 1600 W, not including the standby 12V power.
Maximum inrush current	< 30A Peak at +35 degrees C (charging current for EMI-X capacitors is not considered to be inrush current)
Maximum hold up time	Greater than 12 ms with 2,200 uF of load capacitance
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Climate Savers Platinum Efficiency (80Plus Platinum Certified)
Form Factor	RSP2
Input connector	IEC60320 C14 type connector

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

<http://ucspowercalc.cisco.com>

Environmental Specifications

The power specifications for the C220 M5 server are listed in [Table 53](#).

Table 53 UCS C220 M5 SFF Environmental Specifications

Parameter	Minimum
Temperature operating	41 to 95° F (5 to 35° C) derate the maximum temperature by 1° C per every 1000 ft. (305 m) of altitude above sea level
Temperature nonoperating	-40 to 149° F (-40 to 65° C)
Humidity (RH) operating	10 to 90%, non-condensing at 82° F (28° C)
Humidity (RH) nonoperating	5 to 93% at 82° F (28° C)
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)	5.4
Sound Pressure level, Measure A-weighted per ISO7779 LpAm (dBA) Operation at 73° F (23° C)	37

Compliance Requirements

The regulatory compliance requirements for C-Series servers are listed in [Table 54](#).

Table 54 UCS C-Series Regulatory Compliance Requirements

Parameter	Description
Regulatory Compliance	Products should comply with CE Markings per directives 2014/30/EU and 2014/35/EU
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 CISPR32 Class A CISPR32 Class A EN55032 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN32 Class A CNS13438 Class A
EMC - Immunity	EN55024 CISPR24 EN300386 KN35



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