Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

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https://www.cisco.com/c/en/us/products/servers-unified-computing/HX-c-series-rack-servers/datasheet-listing.html

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OVERVIEW

Cisco HyperFlex™ Systems unlock the full potential of hyperconvergence. The systems are based on an end-to-end software-defined infrastructure, combining software-defined computing in the form of Cisco Unified Computing System (Cisco UCS) servers; software-defined storage with' the powerful Cisco HX Data Platform and software-defined networking with the Cisco UCS fabric that will integrate smoothly with Cisco Application Centric Infrastructure (Cisco ACI™). Together with a single point of connectivity and hardware management, these technologies deliver a preintegrated and adaptable cluster that is ready to provide a unified pool of resources to power applications as your business needs dictate.

The HyperFlex HX225C M6S All Flash and Hybrid Server Nodes extends the capabilities of Cisco's HyperFlex portfolio in a 1U form factor with the addition of the AMD CPUs, 16 DIMM slots per CPU for 3200-MHz DDR4 DIMMs with DIMM capacity points up to 128 GB. The maximum memory capacity for 2 CPUs is 4 TB (for 32 x 128 GB DDR4 DIMMs).

There are several front drive and rear riser configurations:

Drives

There are two server nodes to choose from:

- **HXAF225C-M6S (All Flash)** (see *Figure 1 on page 6*):
    - Up to 10 front SFF SAS/SATA SSDs and NVMe caching drive.
- **HX225C-M6S (Hybrid)** (see *Figure 1 on page 6*):
    - Up to 10 front SFF SAS/SATA HDDs and SSDs.

Rear PCIe Risers

- One to three half-height PCIe risers, or
- One to two full-height PCIe risers

Drive Controller

The server provides an internal slot for one of the following:

- Cisco 12G SAS pass-through HBA to control SAS/SATA drives

> **NOTE:** PCIe drives are controlled directly from the CPUs.

The HyperFlex HX225C M6S All Flash and Hybrid Server Nodes has a single 1 GbE management port. A modular LAN on motherboard (mLOM) module provides up to two 100 GbE ports. A connector on the front of the chassis provides KVM functionality.

Deployment Options

Starting with HyperFlex 5.0(2a) the following 2 deployment options are supported:

- **HX Data Center with Fabric Interconnect** - This deployment option connects the server to Cisco Fabric Interconnect. The installation for this type of deployment can be done using the standalone installer or from the Intersight.

- **HX Data Center without Fabric Interconnect** - This deployment option allows server nodes to be directly connected to existing switches. The installation for this type of deployment can be done from the Intersight only.

See *Figure 1 on page 6* for front and rear views of the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes.

Figure 1   Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

HXAF225C-M6S (All Flash)

10 front drives are SAS/SATA SDDs and NVMe (up to 2 NVMe front drives) drives

Front View (see *Figure 2 on page 7* for details)

HX225C-M6S (Hybrid)

10 front drives are SAS/SATA HDDS and SDDs

Front View (see *Figure 3 on page 8* for details)

Rear View (one half-height riser version) (see *Figure 4 on page 10* for details)

Rear View (three half-height riser version) (see *Figure 5 on page 11* for details)

Rear View (two full-height riser version) (see *Figure 6 on page 12* for details)

DETAILED VIEWS

Chassis Front View - HXAF225C-M6S (All Flash)

Figure 2 shows the front view of the Cisco HyperFlex HXAF225C-M6S (All Flash) server node.

Figure 2   **Chassis Front View**
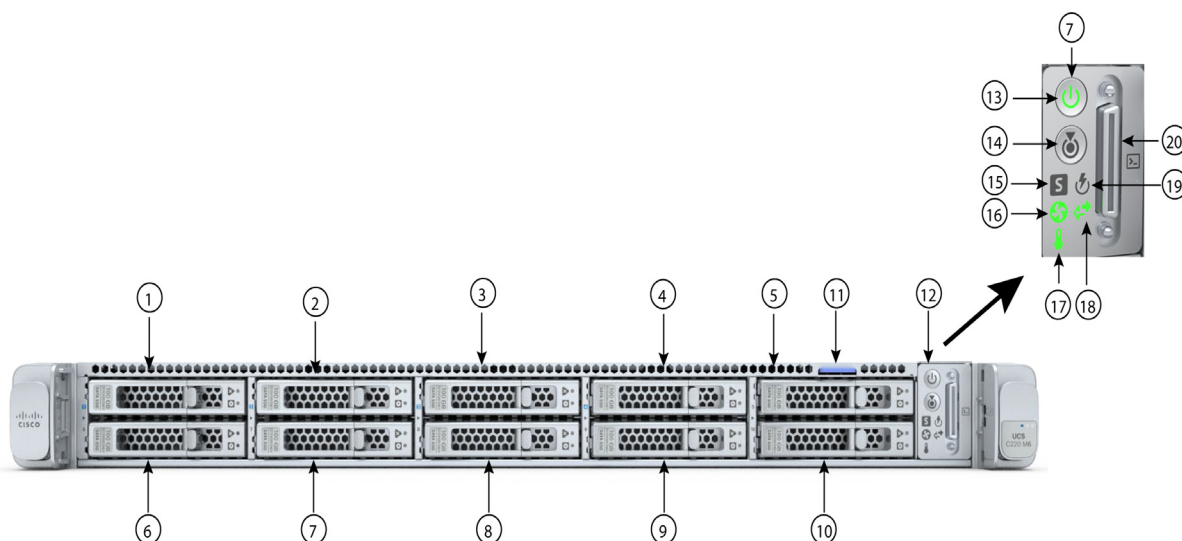
1 - 4	Drive bays 1 – 4 support SAS/SATA solid state drives (SSDs) or NVMe PCIe drives.[1]	15	System status LED
5 - 10	Drive bays 5 - 10 support SAS/SATA solid state drives (SSDs) only	16	Fan status LED
11	Asset tag location	17	Temperature status LED
12	Control panel	18	Network link activity LED
13	Power button/power status LED	19	Power supply status LED
14	Unit Identification button/LED	20	KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector)

Notes:

   1. If NVMe drives are selected, you must also select 2 CPUs.

Chassis Front View - HX225C-M6S (Hybrid)

Figure 3 shows the front view of the Cisco HyperFlex HX225C-M6S (Hybrid) server node.

Figure 3   Chassis Front View
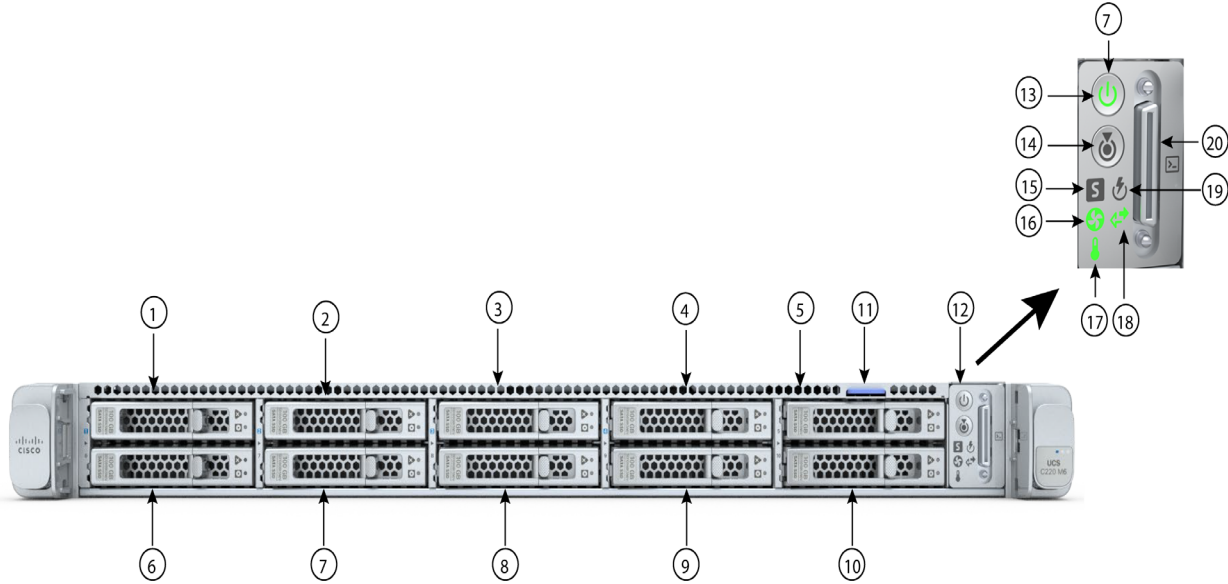
1 - 4	Drive bays 1 – 4 support SAS/SATA hard drives and solid state drives (SSDs)	15	System status LED
5 - 10	Drive bays 5 - 10 support SAS/SATA hard drives (HDDs) only	16	Fan status LED
11	Asset tag location	17	Temperature status LED
12	Control panel	18	Network link activity LED
13	Power button/power status LED	19	Power supply status LED
14	Unit Identification button/LED	20	KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector)

Detailed Chassis Rear Views

Figure 4 shows the details of the rear panel for the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes with one rear half-height PCIe riser.

Figure 5 shows the details of the rear panel for the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes with three rear half-height PCIe risers.

Figure 6 shows the details of the rear panel for the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes with two rear full-height PCIe risers.

One Half-Height Riser

> **NOTE:** By default, 1-CPU server comes with only one half-height riser 1 installed. 2-CPU servers support all three half-height risers.

Figure 4   Chassis Rear View (one half-height, 3/4 length PCIe riser)
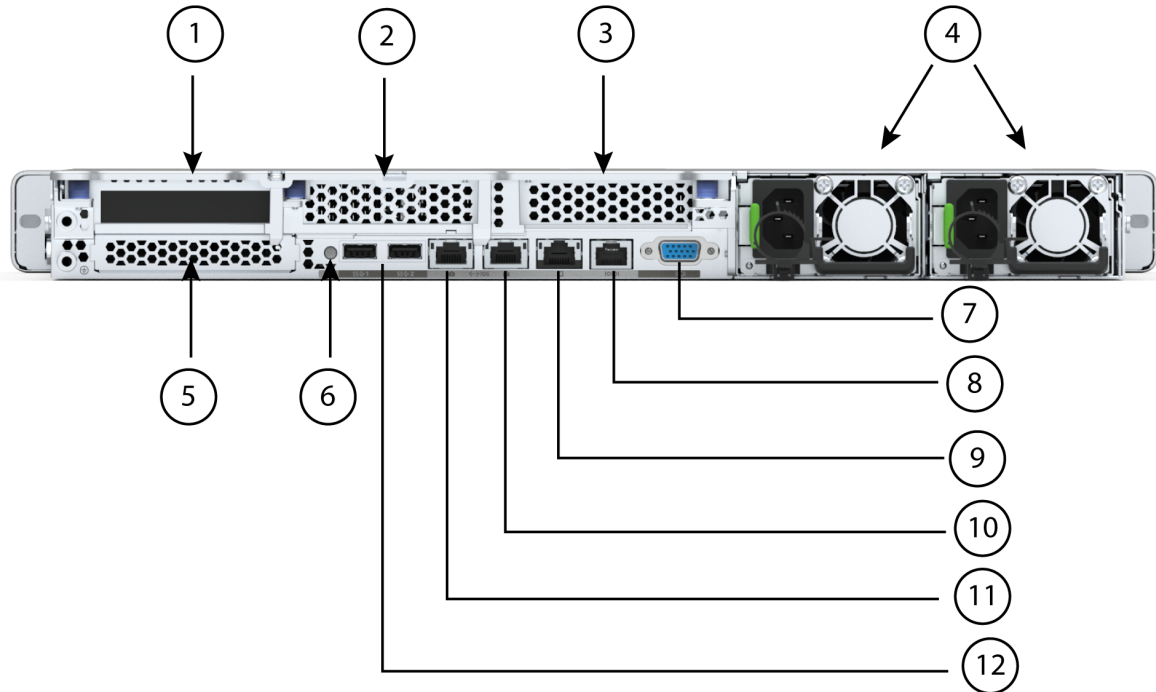
1	Riser 1 (CPU1 control) ■ Supports one PCIe slot ■ Slot 1 is half-height, 3/4 length, x16	7	VGA display port (DB15 connector)
2	Riser 2 blanking panel	8	COM port (RJ45 connector)
3	Riser 3 blanking panel	9	1 GbE dedicated Ethernet management port
4	Power supplies (two, redundant as 1+1)	10 - 11	Dual 1/10 GbE Ethernet ports (LAN1, LAN2) LAN1 is left connector, LAN2 is right connector
5	Modular LAN on motherboard (mLOM)	12	USB 3.0 ports (two)
6	System ID pushbutton/LED	-	-

Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

Three Half-Height Risers

> **NOTE:** Only 2-CPU server support all three half-height risers.

Figure 5 **Chassis Rear View (three half-height, 3/4 length PCIe risers)**
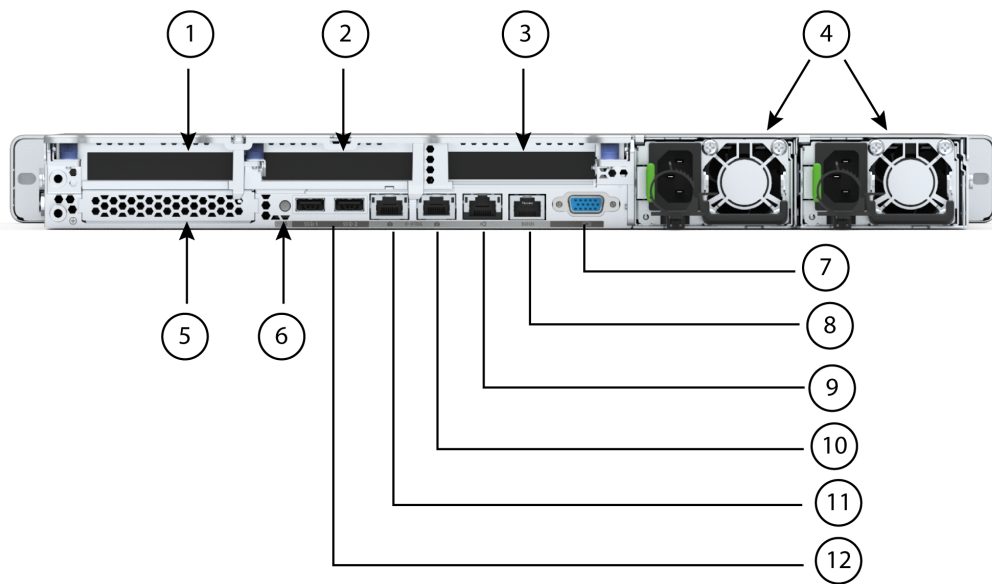
1	Riser 1 (CPU1 control) ■ Supports one PCIe slot (slot 1) ■ Slot 1 is half-height, 3/4 length, x16	7	VGA display port (DB15 connector)
2	Riser 2 (CPU1 control) ■ Supports one PCIe slot (slot 2) ■ Slot 2 is half-height, 3/4 length, x16	8	COM port (RJ45 connector)
3	Riser 3 (CPU2 control) ■ Supports one PCIe slot (slot 3) ■ Slot 3 is half-height, 3/4 length, x16	9	1 GbE dedicated Ethernet management port
4	Power supplies (two, redundant as 1+1)	10 - 11	Dual 1/10 GbE Ethernet ports (LAN1, LAN2) LAN1 is left connector, LAN2 is right connector
5	Modular LAN on motherboard (mLOM)	12	USB 3.0 ports (two)
6	System ID pushbutton/LED	-	-

Two Full-Height Risers

> **NOTE:** 1-CPU server support only full-height riser 1 while 2-CPU server support both full-height risers.

Figure 6   Chassis Rear View (two full-height, 3/4-length PCIe risers)
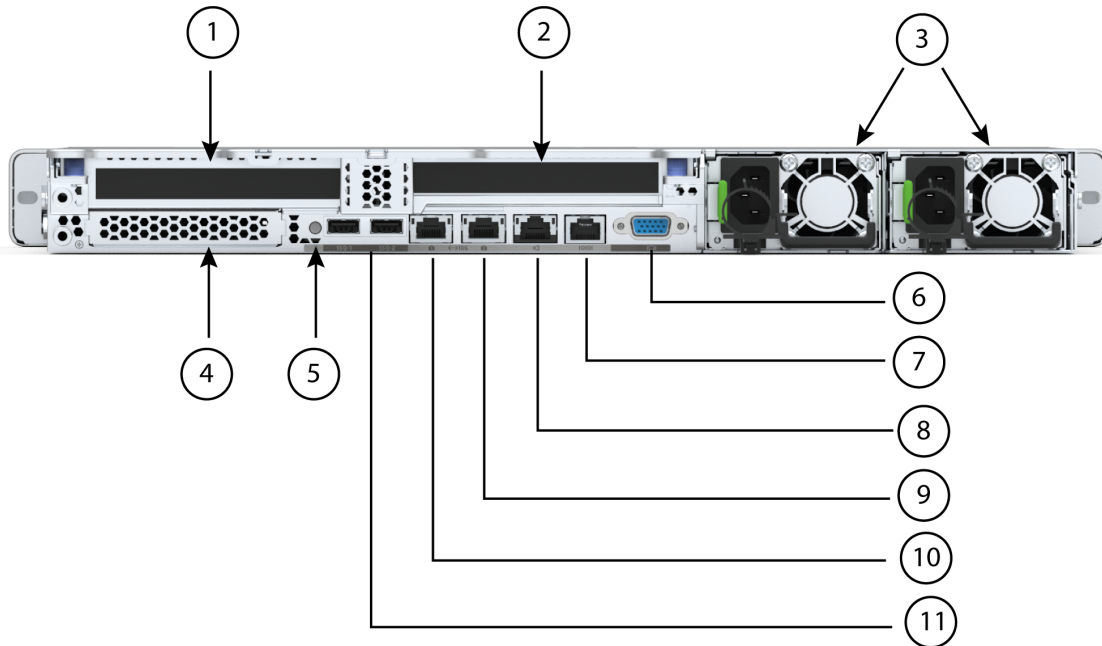
1	Riser 1 (CPU1 control) ■ Plugs into riser 1 motherboard connector ■ Full-height, 3/4 length, x16	6	VGA display port (DB15 connector)
2	Riser 2 (CPU2 control) ■ Plugs into riser 3 motherboard connector ■ Full-height, 3/4 length, x16	7	COM port (RJ45 connector)
3	Power supplies (two, redundant as 1+1)	8	1 GbE dedicated Ethernet management port
4	Modular LAN on motherboard (mLOM)	9 -10	Dual 1/10 GbE Ethernet ports (LAN1, LAN2) LAN1 is left connector, LAN2 is right connector
5	System ID pushbutton/LED	11	USB 3.0 ports (two)

Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

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 17*.

Table 1   Capabilities and Features

Capability/Feature	Description
Chassis	One rack unit (1RU) chassis
CPU	One or two AMD® Rome®, Milan®, and Milan-X® family CPUs[1]
Memory	32 slots for registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs)
Multi-bit Error Protection	This server supports multi-bit error protection.
Video	The Cisco Integrated Management Controller (CIMC) provides video using the Matrox G200e video/graphics controller: ■ Integrated 2D graphics core with hardware acceleration ■ Embedded DDR memory interface supports up to 512 MB of addressable memory (8 MB is allocated by default to video memory) ■ Supports display resolutions up to 1920 x 1200 16bpp @ 60Hz ■ High-speed integrated 24-bit RAMDAC ■ Single lane PCI-Express host interface running at Gen 1 speed
Power subsystem	Up to two of the following hot-swappable power supplies: ■ 1050 W (AC) ■ 1050 W (DC) ■ 1600 W (AC) One power supply is mandatory; one more can be added for 1 + 1 redundancy.
Front Panel	A front panel controller provides status indications and control buttons
ACPI	This server supports the advanced configuration and power interface (ACPI) Rome - ACPI version 6.2 Milan - ACPI version 6.3
Fans	Eight hot-swappable fans for front-to-rear cooling
Infiniband	The InfiniBand architecture is supported by the PCI slots.

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description

Expansion slots	Three half-height riser slots
	
	■ Riser 1 (controlled by CPU 1):
	  • One x16 PCIe Gen4 Slot, (Cisco VIC), half-height, 3/4 length
	■ Riser 2 (controlled by CPU 1):
	  • One x16 PCIe Gen4 Slot, half-height, 3/4 length
	■ Riser 3 (controlled by CPU 1):
	  • One x16 PCIe Gen4 Slot, (Cisco VIC), half-height, 3/4 length
	
	Two full-height riser slots
	
	■ Riser 1 (controlled by CPU 1):
	  • One x16 PCIe Gen4 Slot, (Cisco VIC), full-height, 3/4 length
	■ Riser 2[2] (controlled by CPU 1):
	  • One x16 PCIe Gen4 Slot, (Cisco VIC), full-height, 3/4 length

Interfaces	■ Rear panel
	  • One 1Gbase-T RJ-45 management port
	  • 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
	  • 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	Drive storage: Drives are installed into front-panel drive bays, which provide hot-swappable access for SAS/SATA or NVMe drives. The server is orderable in two different versions: **HXAF225C-M6S (All Flash):** ■ Up to 10 SFF SAS/SATA/NVMe solid state drives (SSDs). 10 Drives are used as below: • Six to eight SAS/SATA SSD (for capacity) • One NVMe SSD **or** one SAS/SATA SSD (for caching) • One SAS/SATA SSD (system drive for HXDP operations) **HX225C-M6S (Hybrid):** ■ Up to 10 SFF SAS/SATA hard drives (HDDs) **and** SAS/SATA solid state drives (SSDs). 10 Drives are used as below: • Six to eight SAS HDD for capacity) • One SAS/SATA SSD (for caching) • One SAS/SATA SSD (system drive for HXDP operations) Other storage: ■ A mini-storage module connector on the motherboard supports a boot-optimized RAID controller carrier that holds up to two SATA M.2 SSDs. Mixing different capacity SATA M.2 SSDs is not supported. ■ 8GB FlexMMC utility storage for staging of firmware and other user data
Integrated management processor	Baseboard Management Controller (BMC) running Cisco Integrated Management Controller (CIMC) firmware. Depending on your CIMC settings, the CIMC can be accessed through the 1GE dedicated management port or a Cisco virtual interface card (VIC). CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.
Storage controllers	Cisco 12G SAS HBA plugs into a dedicated slot. Only one of these at a time can be used at a time. ■ Cisco 12G SAS HBA • No RAID support • JBOD/Pass-through Mode support • Supports up to 10 SAS/SATA internal drives Plugs into drive backplane
Modular LAN on Motherboard (mLOM)	The dedicated mLOM lot on the motherboard can flexibly accommodate the following cards: ■ Cisco Virtual Interface Cards
Intersight	Intersight provides server management capabilities

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
CIMC	Cisco Integrated Management Controller 4.2(1) or later

Notes:

1. If NVMe drives are selected, you must also select 2 CPUs.
2. There are three PCIe riser connectors on the motherboard: they are labeled Riser 1, Riser 2, and Riser 3. If the server is configured with three half-height risers, Riser 1 plugs into Riser 1 connector, Riser 2 plugs into Riser 2 connector, and Riser 3 plugs into Riser 3 connector. If the server is configured with two full-height connectors, Riser 1 plugs into Riser 1 connector and Riser 2 plugs into Riser 3 connector. See *Risers, page 67* for more details.

CONFIGURING the SERVER

Follow these steps to configure the Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes:

STEP 1   VERIFY SERVER SKU

Table 2   PID of Major Line Bundle (MLB)

Product ID (PID)	Description
HX-M6-MLB	HX/HXAF M6 MLB This major line bundle (MLB) consists of the HyperFlex All Flash and Hybrid Server Nodes, with Intersight and HXDP software spare PIDs.

Select one of the product ID (PID) of the server as shown in *Table 3*.

Table 3   PID of the HyperFlex HX225C M6S All Flash and Hybrid Base Server Nodes

Product ID (PID)	Description
HXAF225C-M6S[1]	Cisco HyperFlex HX225 M6 All Flash server node is up to 10 SFF front drives and with no CPU, memory, SSDs, PCIe cards, or power supply.
HX225C-M6S[1]	Cisco HyperFlex HX225 M6 Hybrid server node is up to 10 SFF front drives and with no CPU, memory, HDDs, PCIe cards, or power supply.

Notes:

1. This product may not be purchased outside of the approved bundles (must be ordered under the MLB)

The Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes does not include power supply, CPU, DIMM memory, hard disk drives (HDDs), solid-state drives (SSDs), NVMe drives, riser 1, riser 2, riser 3, tool-less rail kit, or option cards.

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

STEP 2 SELECT DEPLOYMENT MODE (OPTIONAL)

Starting with HyperFlex 5.0(2a), the following 2 deployment options are supported

Select deployment mode

The available deployment modes are listed in *Table 4*

Table 4 Deployment Modes

Product ID (PID)	Description
HX-DC-FI	Deployment mode Selection PID to use Hyperflex with FI
HX-DC-NO-FI	Deployment mode Selection PID to use Hyperflex without FI

■ **HX Data Center with Fabric Interconnect** - This deployment option connects the server to Cisco Fabric Interconnect. The installation for this type of deployment can be done using the standalone installer or from the Intersight. This deployment mode has been supported since launch of HyperFlex.

■ **HX Data Center without Fabric Interconnect** - This deployment option allows server nodes to be directly connected to existing switches. The installation for this type of deployment can be done from the Intersight only.

Note the following apply:

— No support for SED drives

— No hyper-V support

— No support for PMem

— No support for Additional PCIe Cisco VIC

— No support for stretch cluster

— No support for Application acceleration engine

Selecting this option will hence grey out the unsupported options during ordering

NOTE:

■ If no selection is done, the deployment mode is assumed to be DC with FI

STEP 3 SELECT RISERS

The riser PIDs are listed in *Table 5*. Full-height risers cannot be mixed with half-height risers.

Table 5   PIDs of the Risers and Riser Blanks

Product ID (PID)	Description
Included by default (no PID)	Half-height riser 1 (controlled by CPU1) ■ Riser 1: One x16 PCIe Gen4 riser, supports Cisco VIC, half-height, 3/4 length
UCSC-R2R3-C220M6	Kit containing two half-height risers (risers 2 and 3): ■ Riser 2: One x16 PCIe Gen4 riser, half-height, 3/4 length ■ Riser 3: One x16 PCIe Gen4 riser, supports Cisco VIC, half-height, 3/4 length
HX-GPURKIT-C220	Kit containing a GPU mounting bracket and the following risers (risers 1 and 2): ■ Riser 1: One x16 PCIe Gen4 riser, supports Cisco VIC, full-height, 3/4 length ■ Riser 2: One x16 PCIe Gen4 riser, supports Cisco VIC, full-height, 3/4 length
UCSC-FBRS-C220 M6	Riser 2 and Riser 3 blank panels

■ If you do not order any risers, the system defaults to automatically include the one half-height riser shown in the table.

■ If you order PID UCSC-R2R3-C220M6, the system includes three half-height risers (riser 1, riser 2, and riser 3).

■ If you order PID HX-GPURKIT-C220, the system includes two full-height risers (riser 1 and riser 2)

Approved Configurations

(1) **Half-height riser 1 only (controlled from CPU1). This is the default and is automatically included.**

(2) **Half-height risers 1, 2, and 3 only. All risers are controlled from CPU1.**

(3) **Full-height risers 1 and 2 only (controlled from CPU1).**

STEP 4 SELECT CPU(s)

The standard CPU features are:

■ AMD® Rome®, Milan®, and Milan-X® family CPUs

■ CPU-to-CPU communication using Infinity Fabric Interconnect

■ Cache size of up to 768 MB

■ Up to 64 cores

Select CPUs

The available CPUs are listed in *Table 6*

Table 6 Available CPUs

Product ID (PID)[1]	Clock Freq (GHz)	Power (W)	L3 Cache Size (MB)	Cores	Highest DDR4 DIMM Clock Support (MHz)[2]
Milan Processors					
HX-CPU-A7763	2.45	280	256	64	3200
HX-CPU-A7713	2.00	225	256	64	3200
HX-CPU-A7713P	2.00	225	256	64	3200
HX-CPU-A7663	2.00	225	256	56	3200
HX-CPU-A7643	2.30	225	256	48	3200
HX-CPU-A7543	2.80	225	256	32	3200
HX-CPU-A7543P	2.80	225	256	32	3200
HX-CPU-A7513	2.60	200	128	32	3200
HX-CPU-A75F3	2.95	280	256	32	3200
HX-CPU-A7413	2.65	180	128	24	3200
HX-CPU-A7453	2.75	180	64	28	3200
HX-CPU-A7443	2.85	200	128	24	3200
HX-CPU-A7443P	2.85	200	128	24	3200
HX-CPU-A74F3	3.20	240	256	24	3200
HX-CPU-A7343	3.20	190	128	16	3200
HX-CPU-A7313	3.00	155	128	16	3200
HX-CPU-A7313P	3.00	155	128	16	3200
HX-CPU-A73F3	3.50	240	256	16	3200
HX-CPU-A72F3	3.70	180	256	8	3200
Milan-X Processors					
HX-CPU-A7773X	2.20	280	768	64	3200
HX-CPU-A7573X	2.80	280	768	32	3200
HX-CPU-A7473X	2.80	240	768	24	3200
HX-CPU-A7373X	3.05	240	768	16	3200

Table 6   Available CPUs

Product ID (PID)[1]	Clock Freq (GHz)	Power (W)	L3 Cache Size (MB)	Cores	Highest DDR4 DIMM Clock Support (MHz)[2]
Rome Processors					
HX-CPU-A7662	2.00	225	256	64	3200
HX-CPU-A7532	2.40	200	256	32	3200
HX-CPU-A7502P	2.50	180	128	32	3200
HX-CPU-A7352	2.30	155	128	24	3200
HX-CPU-A7302	3.00	155	128	16	3200
HX-CPU-A7282	2.80	120	64	16	3200
HX-CPU-A7272	2.90	120	64	12	3200
HX-CPU-A7262	3.20	155	128	8	3200
HX-CPU-A7252	3.10	120	64	8	3200
HX-CPU-A7232P	3.10	120	32	8	3200

Notes:

1. Any CPU PID ending in "P" cannot be used in a 2-CPU system. They can only be used in a 1-CPU system.
2. If higher or lower speed DIMMs are selected than what is shown in *Table 7 on page 23* for a given CPU speed, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.

Approved Configurations

(1) One-CPU Configuration:

■ Choose one CPU from any one of the rows of *Table 6 Available CPUs, page 21*

(2) Two-CPU Configuration:

■ Choose two identical CPUs from any one of the rows of *Table 6 Available CPUs, page 21*

NOTE:

■ You cannot have two CPUs ending in a "P" suffix in a two-CPU configuration.

■ If you configure a server with one CPU with a "P" suffix, you cannot later upgrade to a 2-CPU system with two of these CPUs.

Caveats

■ The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:

— *STEP 5 SELECT MEMORY, page 23*
— *STEP 6 SELECT DRIVE CONTROLLERS, page 28*
— *STEP 7 SELECT DRIVES, page 29*
— *STEP 8 SELECT HYPERFLEX CONNECTIVITY MODE, page 33*

STEP 5 SELECT MEMORY

The available memory main characteristics for the Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes are as follows:

- Clock speed: 3200 MHz
- Ranks per DIMM: 1, 2, 4, or 8
- Operational voltage: 1.2 V
- Registered ECC DDR4 DIMMS (RDIMMs) or Load-reduced DIMMs (LRDIMMs).

Memory is organized with eight memory channels per CPU, with one or two DIMMs per channel (DPC).

Select DIMMs

The supported memory DIMMs are listed in *Table 7*.

Table 7 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
3200-MHz DIMMs			
HX-MR-X16G1RW	16 GB RDIMM SRx4 3200 (8Gb)	1.2 V	1
HX-MR-X32G1RW	32GB RDIMM SRx4 3200 (16Gb)	1.2 V	1
HX-MR-X32G2RW	32 GB RDIMM DRx4 3200 (8Gb)	1.2 V	2
HX-MR-X64G2RW	64 GB RDIMM DRx4 3200 (16Gb)	1.2 V	2
HX-ML-128G4RW	128 GB LRDIMM QRx4 3200 (16Gb) (non-3DS)	1.2 V	4
DIMM Blank[1]			
UCS-DIMM-BLK	UCS DIMM Blank		

Notes:

1. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.

Figure 7 is the supported 8-channel configuration, with one or two DPC.

Figure 7   8-Channel Memory Organization

2 DIMM Per Channel (DPC) Configuration
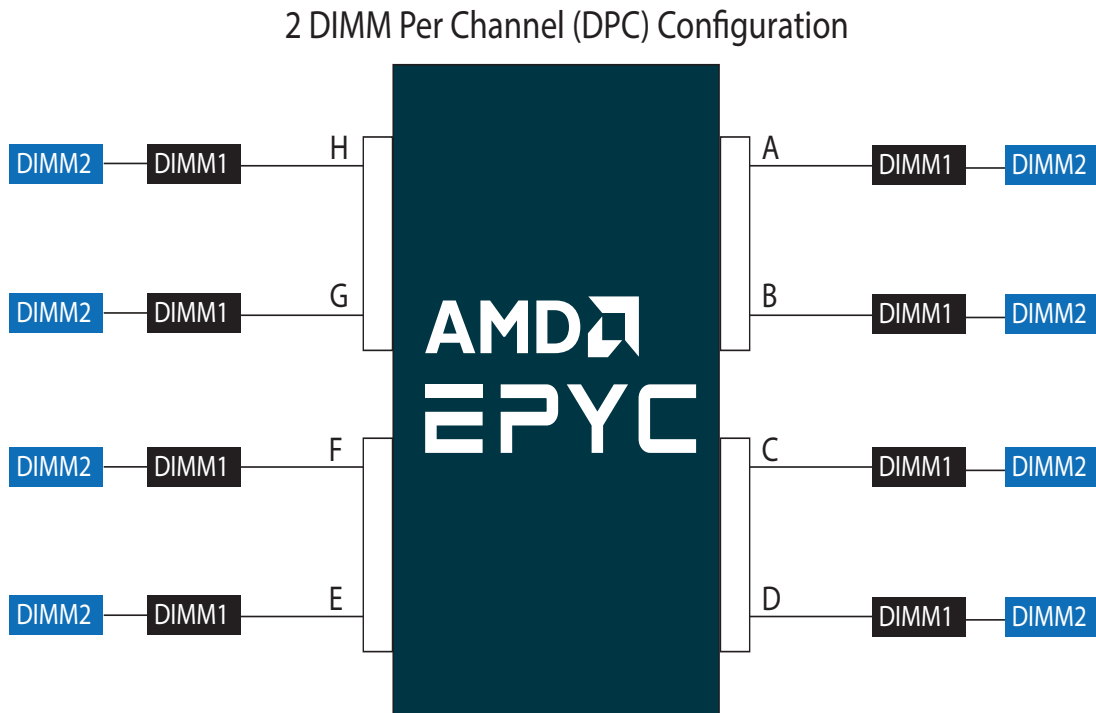
Note: Blue DIMM sockets are farthest from CPU and black DIMM sockets are closest to CPU

Approved Configurations

(1) One CPU (CPU1) population

- Select 4, 6, 8, 10, 12, 14, or 16 DIMMs for the 1 CPU system.

- 4 DIMMs configuration is only allowed, if eight channels cannot be populated, and only with processors that have 128MB L3 cache or less.

The DIMMs will be placed by the factory as shown in the following table.

Total DIMM number per system	CPU 1 DIMM Placement in Channels (for identically ranked DIMMs)
4	(C2, D2); (G2, H2)
6	(C2, D2); (G2, H2); (A2, E2)
8	(C2, D2); (G2, H2); (A2, E2); (B2, F2)
10	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1)
12	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1)
14	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1)
16	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1); (A1, H1)

(2) Two CPU (CPU1 and CPU2) population

- Select 8,12,16,20,24,28,32 DIMMs for the 2 CPUs system.

- 8 DIMMs for 2 CPUs system configuration is only allowed if the 16 channels cannot be populated, and only with processors that have 128MB L3 cache or less.

The DIMMs will be placed by the factory as shown in the following tables.

Total DIMM number per system	CPU 1 DIMM Placement in Channels (for identically ranked DIMMs)	CPU 2 DIMM Placement in Channels (for identically ranked DIMMs)
8	(C2, D2); (G2, H2)	(C2, D2); (G2, H2)
12	(C2, D2); (G2, H2); (A2, E2)	(C2, D2); (G2, H2); (A2, E2)
16	(C2, D2); (G2, H2); (A2, E2); (B2, F2)	(C2, D2); (G2, H2); (A2, E2); (B2, F2)
20	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1)	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1)
24	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1)	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1)
28	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1)	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1)
32	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1); (A1, H1)	(C2, D2); (G2, H2); (A2, E2); (B2, F2); (D1, E1); (B1, G1); (C1, F1); (A1, H1)

> **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.

Table 8 on page 26 and *Table 9 on page 26* give the maximum DRAM speeds for various DIMM populations.

Table 8   Memory Speed for 1 DIMM Per Channel (1 DPC)

DIMM Type	DIMM Population	Maximum DRAM Frequency (MHz)
	DIMM0	
RDIMM	One rank	3200
	Two ranks	3200
LRDIMM	Four ranks	3200

Table 9   Memory Speed for 2 DIMMs Per Channel (2DPC)

DIMM Type	DIMM Population		Maximum DRAM Frequency (MHz)
	DIMM0	DIMM1	
RDIMM	One rank	One rank	2933
	One rank	Two rank	2933
	Two rank	Two rank	2933
LRDIMM	Four ranks	Four ranks	2933

DIMM Rules

- DIMM Mixing:
    - Mixing different types of DIMM (RDIMM with LRDIMM) is not supported within a server.
    - Mixing RDIMM with RDIMM types is allowed if they are mixed in same quantities, in a balanced configuration.
    - Mixing 32GB, and 64GB RDIMMs is supported. It is recommended to populate all the memory slots when mixing memory.
    - 128GB LRDIMMs cannot be mixed with other RDIMMs.
- General Population Order Guidelines
    - For best performance, populate all eight memory channels for each CPU socket, with every channel having the same capacity.
    - Populate open channels before populating two DIMMs on a given channel.
    - In 2 DPC configurations where only one DIMM is populated on a channel, populate the DIMM socket physically farthest away from the processor.
    - Balance memory capacity per channel pair on a given CPU.
    - Balance memory capacity per CPU socket in a two-socket system.
    - DIMMs within the same channel must be of the same base DIMM module type (all RDIMM, LRDIMM).
    - DIMMs within the same channel must be of the same base DIMM module type (all RDIMM, or LRDIMM)
    - All memory channels operate at the same frequency. The system will use the highest common supported frequency when populated with different speed DIMMs. The highest common supported speed is the rated speed of the slowest DIMM in the system while also applying the population speed limits for the configuration (1 of 1, 1 of 2, 2 of 2).

STEP   6   SELECT DRIVE CONTROLLERS

The following list summarizes how drives are controlled on the server:

- SAS/SATA drives are controlled through Cisco 12G SAS HBAs
- NVMe PCIe drives are controlled directly from the CPUs

Cisco 12G SAS HBA

The Cisco 12G SAS HBA supports up to 10 SAS or SATA drives operating at 3 Gbs, 6 Gbs, and 12Gbs. It supports JBOD or pass-through mode (not RAID) and plugs directly into a dedicated slot.

Select RAID Controller Options

Select the following:

- One Cisco 12G SAS HBA (see *Table 10*)

Table 10 Hardware Controller Options

Product ID (PID)	PID Description
Controllers for Internal Drives	
Note that if a Cisco 12G SAS HBA is selected, it is factory-installed in the drive backplane connector.	
HX-SAS-220M6	Cisco 12G SAS HBA ■ Supports up to 10 internal SAS HDDs and SAS/SATA SSDs ■ Supports JBOD or pass-through mode

Approved Configurations

- The Cisco 12G SAS HBA supports up to 10 internal drives with JBOD support.

STEP 7   SELECT DRIVES

The standard disk drive features are:

■   2.5-inch small form factor

■   Hot-pluggable

■   Drives come mounted in sleds

Select Drives - HXAF225C-M6S (All Flash)

Data Center Deployment Mode

NOTE: Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support **SED** drives. Refers to *STEP 2* for the details.

The available drives are listed in *Table 11*.

Table 11 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-SD960G6S1X-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	960 GB
HX-SD19T6S1X-EV	1.9TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	1.9 TB
HX-SD38T6S1X-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	3.8 TB
HX-SD76T6S1X-EV	7.6TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	7.6 TB
Front Cache Drive			
HX-NVMEXPB-I375	375GB 2.5in Intel Optane NVMe Extreme Performance SSD	NVMe	375 GB
HX-SD800GK3X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	800 GB
Front System Drive			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2	SATA	240 GB
HX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller		
NOTE: Cisco uses solid state drives (SSDs) from a number of vendors. All solid state drives (SSDs) are subject to physical write limits and have varying maximum usage limitation specifications set by the manufacturer. Cisco will not replace any solid state drives (SSDs) that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco.			

Approved Configurations

■ Six to eight capacity drives

> **NOTE:**
>
> ■ For cluster scale related information please see the product **release notes**

■ One cache drive

> **NOTE:**
>
> ■ When configuring front facing drives with NVMe drives, you must order an NVMe cable (PID = CBL-FNVME-220M6) along with the drives.

■ One system drive
■ One boot drive

> **NOTE:**
>
> ■ Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
>
> ■ It is recommended that M.2 SATA SSDs be used as boot-only devices.
>
> ■ The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
>
> ■ The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
>
> ■ CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
>
> ■ The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
>
> ■ Hot-plug replacement is not supported. The server must be powered off.
>
> ■ The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
>
> ■ See *Figure 13 on page 66* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

Select Drives - HX225C-M6S (Hybrid)

> **Data Center Deployment Mode**
> NOTE: Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support **SED** drives. Refers to *STEP 2* for the details.

The available drives are listed in *Table 12*.

Table 12 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-HD12TB10K12N	1.2TB 12G SAS 10K RPM SFF HDD	SAS	1.2 TB
HX-HD18TB10K4KN	1.8TB 12G SAS 10K RPM SFF HDD (4K)	SAS	1.8 TB
HX-HD24TB10K4KN	2.4TB 12G SAS 10K RPM SFF HDD (4K)	SAS	2.4 TB
Front Cache Drive			
HX-SD480G63X-EP	480GB 2.5in Enterprise Performance 6G SATA SSD(3X endurance)	SATA	480 GB
HX-SD800GK3X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	800 GB
Front System Drive			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2	SATA	240 GB
HX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller		
NOTE: Cisco uses solid state drives (SSDs) from a number of vendors. All solid state drives (SSDs) are subject to physical write limits and have varying maximum usage limitation specifications set by the manufacturer. Cisco will not replace any solid state drives (SSDs) that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco.			

Approved Configurations

■ Six to eight capacity drives

> **NOTE:**
>
> ■ For cluster scale related information please see the product **release notes**

■ One cache drive

■ One system drive

■ One boot drive

> **NOTE:**
>
> ■ Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
>
> ■ It is recommended that M.2 SATA SSDs be used as boot-only devices.
>
> ■ The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
>
> ■ The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
>
> ■ CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
>
> ■ The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
>
> ■ Hot-plug replacement is not supported. The server must be powered off.
>
> ■ The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
>
> ■ See *Figure 13 on page 66* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

STEP 8   SELECT HYPERFLEX CONNECTIVITY MODE

Starting with HyperFlex 5.0(2a), the following two Connectivity options are supported

Select Connectivity mode

The available connectivity modes are listed in *Table 13*

Table 13 Connectivity Modes

Product ID (PID)	Description
HX-VIC-MODE	Hyperflex VIC Connectivity Mode
HX-NIC-MODE[1]	Hyperflex NIC Connectivity Mode

Notes:

1. Selection of Deployment Mode Option (HX-DC-NO-FI) is required for the NIC Connectivity Mode. Minimum 4 NIC Ports required, If NIC mode is selected and Double-Wide GPU is selected from **R2 Slot5 x16**, then must select quad port PID from **R2 Slot 4 x8 PCIe NIC** option and cannot make selection from **R2 Slot 6 x8 PCIe NIC Option.**

Table 14 Available Cards for the Connectivity Modes

Product ID (PID)	Description
HyperFlex VIC Connectivity Mode	
HX-M-V25-04	Cisco UCS VIC 1467 quad port 10/25G SFP28 mLOM
HX-M-V100-04	Cisco UCS VIC 1477 dual port 40/100G QSFP28 mLOM
HyperFlex NIC Connectivity Mode	
R2 Slot 4 x8 PCIe NIC	
HX-PCIE-ID10GF	Intel X710 dual-port 10G SFP+
HX-PCIE-IQ10GF	Intel X710 quad-port 10G SFP+ NIC
HX-P-I8D25GF	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC
R2 Slot 6 x8 PCIe NIC	
HX-PCIE-ID10GF	Intel X710 dual-port 10G SFP+
HX-PCIE-IQ10GF	Intel X710 quad-port 10G SFP+ NIC
HX-P-I8D25GF	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC

STEP 9   SELECT OPTION CARD(s)

For up-to-date server compatibility, please check the Hardware and Software compatibility list (HCL) at https://ucshcltool.cloudapps.cisco.com/public/.

The standard card offerings are:

- Modular LAN on Motherboard (mLOM)
- Virtual Interface Cards (VICs)
- Network Interface Cards (NICs)

Select Option Cards

The available option cards are listed in *Table 15*.

> **Data Center Deployment Mode**
>
> NOTE:
>
> - Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support HX-PCIE-C25Q-04. Refer to *STEP 2* for the details.
> - HX-M-V100-04 require HXDP 5.0(2a) or higher for data center deployment mode without fabric interconnect (DC-no-FI).

Table 15 Available PCIe Option Cards

Product ID (PID)	PID Description	Location	Card Size[1]
Virtual Interface Card (VICs)			
HX-PCIE-C100-04	Cisco UCS VIC 1495 Dual Port 40/100G QSFP28 CNA PCIe	Riser 1, 2, or 3	HHHL, SS
HX-PCIE-C25Q-04	Cisco UCS VIC 1455 Quad Port 10/25G SFP28 PCIe	Riser 1, 2, or 3	HHHL, SS
Network Interface Cards (NICs)			
1 Gb NICs			
HX-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	Riser 1, 2, or 3	HHHL, SS
10 Gb NICs			
HX-PCIE-ID10GF	Intel X710-DA2 Dual Port 10Gb SFP+ NIC	Riser 1, 2, or 3	HHHL, SS
HX-PCIE-IQ10GF	Intel X710 Quad Port 10G SFP+ NIC	Riser 1, 2, or 3	HHHL, SS
HX-P-ID10GC	Cisco-Intel X710T2LG 2x10 GbE RJ45 PCIe NIC	Riser 1, 2, or 3	HHHL, SS
25 Gb NICs			
HX-P-I8D25GF	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC	Riser 1, 2, or 3	HHHL, SS
HX-P-I8Q25GF[2]	Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC	Riser 1 or 2	FHHL, SS

Notes:

1. HHHL = half-height, half-length; FHHL = full-height, half-length; SS = single-slot; DS = double-slot.
2. If HX-P-I8Q25GF selected then HX-GPURKIT-C220 PID must be selected

Approved Configurations

■ You can select up to three of the PCIe option cards for a three-riser system (Riser 1, Riser 2, and Riser 3 installed).

Caveats

■ Two plug-in PCIe VIC cards can be installed in 2-CPU systems, using risers 1 and 2. In addition, you can order an mLOM VIC card, which is installed in the mLOM slot at the rear of the chassis and thus have three VIC cards in operation at the same time. See *Table 15 on page 34* for the selection of plug-in and mLOM VIC cards. See also *Table 1 on page 13*.

■ 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 HyperFlex HX225C M6S All Flash and Hybrid Server Nodes, 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 10 ORDER OPTIONAL PCIe OPTION CARD ACCESSORIES

- These optics and cables have been tested for compatibility and are approved for use with Ethernet Network Adapter (as of the time of this publication). For the latest update, check the and consult Cisco Compatibility Matrix at https://tmgmatrix.cisco.com.

- For list of supported optics and cables for VIC 1455, VIC 1467, VIC 1495 and VIC 1477, refer to the VIC 1300 and VIC 1400 series data sheets at the following links:

    — https://www.cisco.com/c/en/us/products/servers-unified-computing/HX-b-series-blade-servers/datasheet-listing.html

    — https://www.cisco.com/c/en/us/products/collateral/interfaces-modules/unified-computing-system-adapters/datasheet-c78-741130.html

    — https://www.cisco.com/c/en/us/products/interfaces-modules/HX-virtual-interface-card-1387/index.html

    — https://www.cisco.com/c/en/us/products/collateral/interfaces-modules/unified-computing-system-adapters/datasheet-c78-734727.html

Select

- NIC Interoperability with Cisco Cables/Optics (*Table 16 on page 36* through *Table 17 on page 37*).
- NIC Interoperability with Intel Cables/Optics (*Table 18 on page 38*).

Table 16 10G NIC Interoperability with Cisco Cables/Optics

Cisco Product ID (PID)	HX- PCIE-ID10GF	HX- PCIE-IQ10GF	HX- P-ID10GC
Cisco Direct Attach Cables (DAC)			
SFP-H10GB-CU1M	✓	✓	
SFP-H10GB-CU3M	✓	✓	
SFP-H10GB-CU5M	✓	✓	
SFP-H10GB-ACU7M	✓	✓	
SFP-H10GB-ACU10M	✓	✓	
SFP-10G-AOC1M	✓	✓	
SFP-10G-AOC2M	✓	✓	
SFP-10G-AOC3M	✓	✓	
SFP-10G-AOC5M	✓	✓	
SFP-10G-AOC7M	✓	✓	
SFP-10G-AOC10M	✓	✓	
UTP/RJ45			✓
Cisco Optical Transceivers			
SFP-10G-SR	✓	✓	
SFP-10G-SR-S	✓	✓	

Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

Table 16 10G NIC Interoperability with Cisco Cables/Optics *(continued)*

Cisco Product ID (PID)	HX- PCIE-ID10GF	HX- PCIE-IQ10GF	HX- P-ID10GC
SFP-10G-LR	✓	✓	
SFP-10G-LR-S	✓	✓	
GLC-SX-MMD	✓	✓	

Table 17 25G NIC Interoperability with Cisco Cables/Optics

Cisco Product ID (PID)	HX-P-I8Q25GF	HX-P-I8D25GF
Cisco Direct Attach Cables (DAC)		
SFP-H10GB-CU1M	✓	✓
SFP-H10GB-CU3M	✓	✓
SFP-H10GB-CU4M		
SFP-H10GB-CU5M	✓	✓
SFP-H10GB-ACU7M		
SFP-H10GB-ACU10M		
SFP-10G-AOC7M	✓	✓
SFP-10G-AOC10M		
SFP-25G-AOC10M	✓	✓
SFP-25G-AOC5M		
SFP-25G-AOC7M		
QSFP-4SFP25G-CU2M	✓	✓
SFP-H25G-CU1M	✓	✓
SFP-H25G-CU2M	✓	✓
SFP-H25G-CU2.5M		
SFP-H25G-CU3M	✓	✓
SFP-H25G-CU4M		
SFP-H25G-CU5M	✓	✓
Cisco Optical Transceivers		
SFP-10G-SR	✓	✓
SFP-10G-SR-S	✓	✓
SFP-10G-LR	✓	✓
SFP-25G-SR-S	✓	✓
SFP-10/25G-LR-S	✓	✓
SFP-10/25G-CSR-S	✓	✓

Table 18 NIC Interoperability with Intel Cables/Optics

Intel Product ID (PID)	HX-PCIE-ID10GF	HX-PCIE-IQ10GF
Intel Direct Attach Cables (DACs)		
XDACBL1M	✓	✓
XDACBL3M	✓	✓
XDACBL5M	✓	✓
Intel Optical Transceivers		
E10GSFPSR	✓	✓
E10GSFPLR	✓	✓

The information in the preceding tables was compiled from testing conducted by Cisco Transceiver Module Group (TMG) and vendors. The latest compatibility with optical modules and DACs can be found at https://tmgmatrix.cisco.com/.

Refer to the these links for additional connectivity options.

Intel:	Marvell/Qlogic:	Mellanox:
Product Guide	41000 series Interoperability Matrix	Firmware Release Notes
Speed White Paper	45000 series Interoperability Matrix	

STEP 11   ORDER GPU CARDS (OPTIONAL)

Select GPU Options

The available GPU PCIe options are listed in *Table 19*.

Table 19 Available PCIe GPU Cards[1]

Product ID (PID)	PID Description	Card Size	Maximum cards Per node
HX-GPU-T4-16	NVIDIA T4 PCIE 75W 16GB	HHHL, single-wide	3

Notes:

1. Refer to
   https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c220m6/install/c220m6.h
   tml for more details.

> **NOTE:**
>
> ■ All GPU cards must be procured from Cisco as there is a unique SBIOS ID required by CIMC and UCSM.

Caveats

■ GPUs cannot be mixed.

■ For the maximum of 3x T4 GPUs, the 3x half slot riser should be selected.-

■ A GPU can be installed in either full-height PCIe riser 1 or 2 (or both) **or** can be installed in three half-height riser 1, 2, or 3.

STEP 12 ORDER POWER SUPPLY

Power supplies share a common electrical and physical design that allows for hot-plug and tool-less installation into M6 HX-series servers. Each power supply is certified for high-efficiency operation and offers multiple power output options. This allows users to "right-size" based on server configuration, which improves power efficiency, lowers overall energy costs and avoids stranded capacity in the data center. 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

WARNING:

■ Starting 1st January 2024, only Titanium rated PSUs are allowed to be shipped to European Union (EU), European Economic Area (EEA), United Kingdom (UK), Switzerland and other countries that adopted Lot 9 Regulation.

■ DC PSUs are not impacted by Lot 9 Regulation and are EU/UK Lot 9 compliant

Table 20   Power Supply

Product ID (PID)	PID Description
PSU (Input High Line 210VAC)	
HX-PSU1-1050W	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC	Cisco UCS 1050W -48V DC Power Supply for Rack Server Requires power cord CAB-48DC-40A-8AWG
HX-PSU1-1600W	UCS 1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSU1-1200W	1200W Titanium power supply for C-Series Servers
PSU (Input Low Line 110VAC)	
HX-PSU1-1050W	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC	Cisco UCS 1050W -48V DC Power Supply for Rack Server Requires power cord CAB-48DC-40A-8AWG
HX-PSU1-1200W	1200W Titanium power supply for C-Series Servers

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

STEP 13 SELECT INPUT POWER CORD(s)

Using *Table 21* , 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 21 Available Power Cords

Product ID (PID)	PID Description	Images
NO-POWER-CORD	ECO friendly green option, no power cable will be shipped	Not applicable
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	
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 21 Available Power Cords
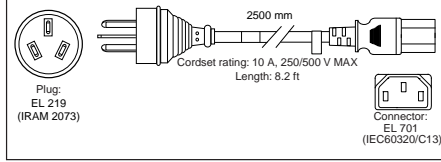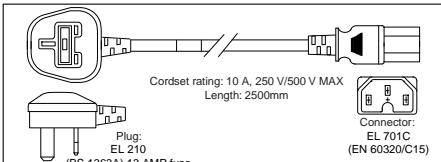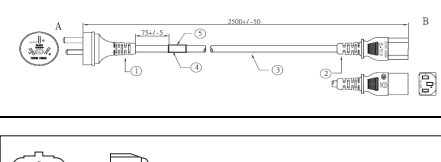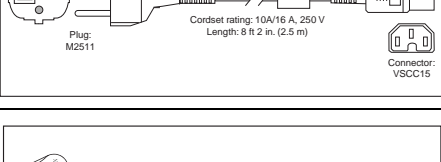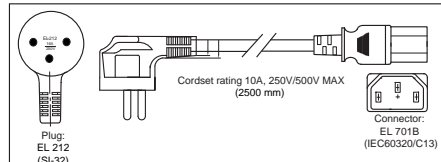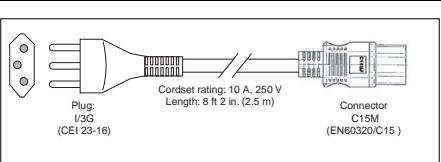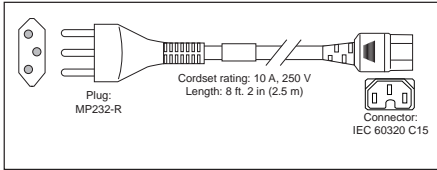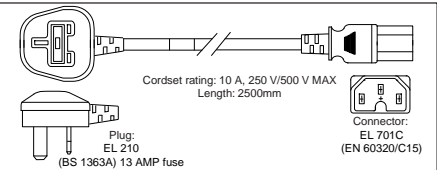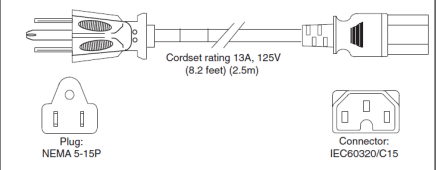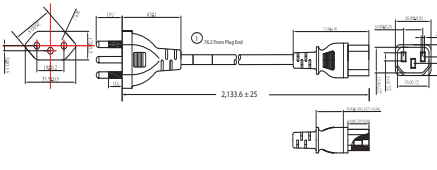
Product ID (PID)	PID Description	Images
CAB-250V-10A-AR	Power Cord, 250V, 10A, Argentina	
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	
CAB-250V-10A-ID	Power Cord, 250V, 10A, India	
CAB-C13-C14-3M-IN	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India	Image not available
CAB-C13-C14-IN	Power Cord Jumper,C13-C14 Connectors,1.4 Meter Length, India	Image not available
CAB-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	

Table 21 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK	
CAB-9K12A-NA[1]	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	
CAB-250V-10A-BR	Power Cord - 250V, 10A - Brazil	
CAB-C13-C14-2M-JP	Power Cord C13-C14, 2M/6.5ft Japan PSE mark	Image not available
CAB-9K10A-KOR[1]	Power Cord, 125VAC 13A KSC8305 Plug, Korea	Image not available
CAB-ACTW	AC Power Cord (Taiwan), C13, EL 302, 2.3M	Image not available
CAB-JPN-3PIN	Japan, 90-125VAC 12A NEMA 5-15 Plug, 2.4m	Image not available
CAB-48DC-40A-INT	C-Series -48VDC PSU PWR Cord, 3.5M, 3 Wire, 8AWG, 40A (INT)	Image not available
CAB-48DC-40A-AS	C-Series -48VDC PSU PWR Cord, 3.5M, 3Wire, 8AWG, 40A (AS/NZ)	Image not available

Notes:

1. This power cord is rated to 125V and only supported for PSU rated at 1050W or less

STEP 14 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 22*.

Table 22 Tool-less Rail Kit Options

Product ID (PID)	PID Description
HX-RAIL-M6	Ball Bearing Rail Kit for C220 and C240 M6 rack servers

NOTE: Cisco recommends a minimum quantity of 1 Rail Kit.

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 23* to order a cable management arm.

Table 23 Cable Management Arm

Product ID (PID)	PID Description
HX-CMA-C220M6	Reversible CMA for C220 M6 ball bearing rail kit

For more information about the tool-less rail kit and cable management arm, see the Cisco M5 Installation and Service Guide at this URL:

https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c220m6/install/c220m6.html

NOTE: If you plan to rackmount your HyperFlex HX225C M6S All Flash and Hybrid Server Nodes, you must order a tool-less rail kit. The same rail kits and CMAs are used for M5 and M6 servers.

STEP 15 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 24*.

Table 24 Security Devices

Product ID (PID)	PID Description
HX-TPM2-002B-C	Trusted Platform Module2.0 UCS servers (FIPS 140-2 Compliant)
HX-INT-SW02	C220 and C240 M6 Chassis Intrusion Switch
UCSX-TPM-OPT-OUT	OPT OUT, TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified[1]

Notes:

1. Please note that Microsoft certification requires a TPM 2.0 for bare-metal or guest VM deployments. Opt-out of the TPM 2.0 voids the Microsoft certification

NOTE:

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

- 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 16 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 25*.

Table 25 Locking Bezel Options for HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

Product ID (PID)	Description
HXAF220C-BZL-M5S	HXAF220C M5 Security Bezel
HX220C-BZL-M5	HX220C M5 Security Bezel

STEP   17   SELECT HOST OPERATING SYSTEM

Select Microsoft Windows operating system as desired from *Table 26*

> **NOTE:**
>
> ■ **VMware ESXi Hypervisor** - We no longer ship VMWare ESXi from the factory. Refer to this link for the further details.
> https://www.cisco.com/c/en/us/td/docs/hyperconverged_systems/HyperFlex_HX_DataPlatformSoftware/BroadcomAgreementNotice/b-broadcom-terminated-vmware-embedded-agreement.html
>
> ■ **Microsoft operating system** - Optional guest OS licenses that may be purchased to run on top of the hypervisor.

Table 26 Host Operation System

Product ID (PID)	PID Description
Operating system	
Microsoft Options	
HX-MSWS-22-ST16C	Windows Server 2022 Standard (16 Cores/2 VMs)
HX-MSWS-22-DC16C	Windows Server 2022 Data Center (16 Cores/Unlimited VMs)

STEP 18 SELECT HYPERFLEX DATA PLATFORM (HXDP) SOFTWARE

HyperFlex Data Platform Edition & Subscription Period options are available as follows.

Product ID (PID)	
HXDP-SW	Cisco HyperFlex Data Platform Software

Select as desired option from *Table 27*

Table 27 HX Data Platform Software

Product ID (PID)	PID Description
Cisco HyperFlex Data Platform Software	
HXDP-DC-AD	HyperFlex Data Platform Data center Advantage (1 to 5) Yr
HXDP-DC-PR	HyperFlex Data Platform Data center Premier (1 to 5) Yr
Cisco HyperFlex Data Platform Software - SLR	
HXDP-DC-AD-SLR	HyperFlex Data Platform Data center Advantage SLR (1 to 5) Yr
HXDP-DC-PR-SLR	HyperFlex Data Platform Data center Premier SLR (1 to 5) Yr
Cisco HyperFlex Data Platform Software Support	
SVS-DCM-SUPT-BAS	Basic Support for DCM
SVS-SSTCS-DCMGMT	Solution Support for DC Mgmnt
SVS-L1DCS-HXDP	CXL1 for HXDP
SVS-L2DCS-HXDP	CXL2 for HXDP

STEP 19 CISCO INTERSIGHT

Cisco Intersight™ is a Software-as-a-Service (SaaS) hybrid cloud operations platform which delivers intelligent automation, observability, and optimization to customers for traditional and cloud-native applications and infrastructure.

Product ID (PID)	
DC-MGT-SAAS	Cisco Intersight SaaS

Select as desired option from *Table 28*.

Table 28 Cisco Intersight

Product ID (PID)	PID Description
Cisco Intersight - SaaS	
DC-MGT-SAAS-EST-C	Cisco Intersight SaaS - Essentials (1 to 5) Yr
DC-MGT-SAAS-AD-C	Cisco Intersight SaaS - Advantage (new) (1 to 5) Yr
DC-MGT-SAAS-PR-C	Cisco Intersight SaaS - Premier (1 to 5) Yr
Cisco Intersight - Connected Virtual Appliance	
DC-MGT-ONPREM-EST	Cisco Intersight Connected Virtual Appliance - Essentials (1 to 5) Yr
DC-MGT-VAPP-AD	Cisco Intersight Connected Virtual Appliance - Advantage (1 to 5) Yr
DC-MGT-VAPP-PR	Cisco Intersight Connected Virtual Appliance - Premier (1 to 5) Yr
Cisco Intersight - Private Virtual Appliance	
DC-MGT-PVAPP-EST	Cisco Intersight Private Virtual Appliance - Essentials (1 to 5) Yr
DC-MGT-PVAPP-AD	Cisco Intersight Private Virtual Appliance - Advantage (1 to 5) Yr
DC-MGT-PVAPP-PR	Cisco Intersight Private Virtual Appliance - Premier (1 to 5) Yr
Cisco Intersight Support	
SVS-DCM-SUPT-BAS	Basic Support for DCM
SVS-SSTCS-DCMGMT	Solution Support for DC Mgmnt
SVS-L1DCS-INTER	CXL1 for INTERSIGHT
SVS-L2DCS-INTER	CXL2 for INTERSIGHT

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) 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 Cisco UCS

For support of the entire Unified Computing System, Cisco offers the Cisco Smart Net Total Care (SNTC) 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 29*.

Table 29 Cisco SNTC for UCS Service (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-HXAF225C	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-HXAF225C	UCSD8	Yes	UC SUPP DR 24X7X2OS*
CON-C2PL-HXAF225C	C2PL	Yes	LL 24X7X2OS**
CON-OSP-HXAF225C	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-HXAF225C	UCSD7	Yes	UCS DR 24X7X4OS*

Table 29 Cisco SNTC for UCS Service (PID HXAF225C-M6S) *(continued)*

Service SKU	Service Level GSP	On Site?	Description
CON-C4PL-HXAF225C	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-HXAF225C	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-HXAF225C	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-HXAF225C	UCSD6	Yes	UC SUPP DR 8X5X4OS*
CON-SNCO-HXAF225C	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-HXAF225C	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-HXAF225C	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-HXAF225C	S2P	No	SNTC 24X7X2
CON-S2PL- HXAF225C	S2PL	No	LL 24X7X2**
CON-SNTP-HXAF225C	SNTP	No	SNTC 24X7X4
CON-SNTPL-HXAF225C	SNTPL	No	LL 24X7X4**
CON-SNTE-HXAF225C	SNTE	No	SNTC 8X5X4
CON-SNC-HXAF225C	SNC	No	SNTC 8x7xNCD
CON-SNT-HXAF225C	SNT	No	SNTC 8X5XNBD
CON-SW-HXAF225C	SW	No	SNTC NO RMA
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-OSP-HX225CM5)			
*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			

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 30*.

Table 30 SNTC for UCS Onsite Troubleshooting Service (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-HXAF225C	OSPT	Yes	24X7X4OS Trblshtg
CON-OSPTD-HXAF225C	OSPTD	Yes	24X7X4OS TrblshtgDR*
CON-OSPTL-HXAF225C	OSPTL	Yes	24X7X4OS TrblshtgLL**
CON-OPTLD-HXAF225C	OPTLD	Yes	24X7X4OS TrblshtgLLD***
*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 (SSTP) 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 31*.

Table 31 Solution Support for UCS Service (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-HXAF225C	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-HXAF225C	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-HXAF225C	SSC4S	Yes	SOLN SUPP 8X5X4OS
CON-SSCS-HXAF225C	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-HXAF225C	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-HXAF225C	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-HXAF225C	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-HXAF225C	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-HXAF225C	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-HXAF225C	SSSNC	No	SOLN SUPP NCD
CON-SSSNT-HXAF225C	SSSNT	No	SOLN SUPP 8X5XNBD
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-SSC4P-HX225CM5)			
*Includes Drive Retention (see below for full description)			

Solution Support for Service Providers

You can choose a desired service listed in *Table 32*.

Table 32 Solution Support for UCS Service (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
SP-SSC2P-HXAF225C	SPSSC2P	Yes	SP SOLN SUPP 24X7X2OS
SP-SSC4P-HXAF225C	SPSSC4P	Yes	SP SOLN SUPP 24X7X4OS
SP-SSC4S-HXAF225C	SPSSC4S	Yes	SP SOLN SUPP 8X5X4OS
SP-SSCS-HXAF225C	SPSSCS	Yes	SP SOLN SUPP 8X5XNBDOS
SP-SSS2P-HXAF225C	SPSSS2P	Yes	SP SOLN SUPP 24X7X2
SP-SSS4P-HXAF225C	SPSSS4P	Yes	SP SOLN SUPP 24X7X4
SP-SSSNE-HXAF225C	SPSSSNE	No	SP SOLN SUPP 8X5X4
SP-SSSNT-HXAF225C	SPSSSNT	No	SP SOLN SUPP 8X5XNBD
SP-SSSPB-HXAF225C	SPSSSPB	No	SP SOLN SUPP NO HW RPL
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-SPSSC4P-HX225CM5)			

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 33*.

Table 33 SNTC for UCS Hardware Only Service (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-HXAF225C	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-HXAF225C	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-HXAF225C	UCW7L	Yes	LL UCS 24X7X4OS**
CON-UWD7L-HXAF225C	UWD7L	Yes	LL UCS DR 24X7X4OS***
CON-UCW5-HXAF225C	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-HXAF225C	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-UCW7-HX225CM5)			
*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			

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 34*.

Table 34 PSS for UCS (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-HXAF225C	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-HXAF225C	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-HXAF225C	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-HXAF225C	PSJ6	Yes	UCS PSS 8X5X4 OS
CON-PSJD6-HXAF225C	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-HXAF225C	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-HXAF225C	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-HXAF225C	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-HXAF225C	PSJ1	No	UCS SUPP PSS 8X5XNBD
*Includes Drive Retention (see below for full description)			

Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

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 35*.

Table 35 PSS for UCS Hardware Only (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-PSW7-HXAF225C	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-HXAF225C	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-HXAF225C	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-HXAF225C	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-HXAF225C	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-HXAF225C	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-HXAF225C	PSW2	No	UCS W PL PSS 8X5X4
*Includes Drive Retention (see below for full description)			

Distributor Support Service (DSS)

You can choose a desired service listed in *Table 36*.

Table 36 PSS for UCS Hardware Only (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-DSCO-HXAF225C	DSCO	Yes	DSS CORE 24X7X2OS
CON-DSO-HXAF225C	DSO	Yes	DSS CORE 24X7X4
CON-DSNO-HXAF225C	DSNO	Yes	DSS CORE 8X5XNBDOS
CON-DSCC-HXAF225C	DSCC	No	DSS CORE 24X7X2
CON-DCP-HXAF225C	DCP	No	DSS CORE 24X7X4
CON-DSE-HXAF225C	DSE	No	DSS CORE 8X5X4
CON-DSN-HXAF225C	DSN	No	DSS CORE 8X5XNBD
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-DSO-HX225CM5)			

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 37*.

.

Table 37 Combined Support Service for UCS (PID HXAF225C-M6S)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-HXAF225C	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-HXAF225C	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-HXAF225C	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-HXAF225C	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-HXAF225C	NCF2	No	CMB SVC 24X7X2
CON-NCFP-HXAF225C	NCFP	No	CMB SVC 24X7X4
CON-NCFE-HXAF225C	NCFE	No	CMB SVC 8X5X4
CON-NCFT-HXAF225C	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-HXAF225C	NCFW	No	CMB SVC SW
Note: For PID HX225C-M6S, select Service SKU with HX225CM5 suffix (Example: CON-NCF4P-HX225CM5)			

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

SUPPLEMENTAL MATERIAL
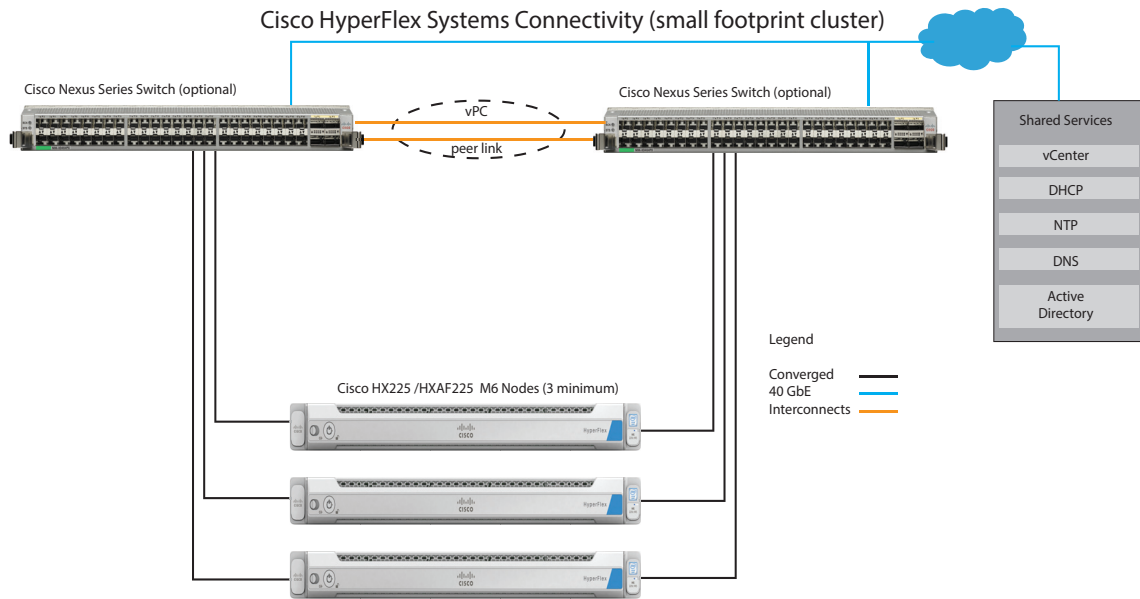
Hyperconverged Systems

Cisco HyperFlex Systems let you unlock the full potential of hyperconvergence and adapt IT to the needs of your workloads. The systems use an end-to-end software-defined infrastructure approach, combining software-defined computing in the form of Cisco HyperFlex HX-Series nodes; software-defined storage with the powerful Cisco HX Data Platform; and software-defined networking with the Cisco UCS fabric that will integrate smoothly with Cisco Application Centric Infrastructure (Cisco ACI). Together with a single point of connectivity and management, these technologies deliver a preintegrated and adaptable cluster with a unified pool of resources that you can quickly deploy, adapt, scale, and manage to efficiently power your applications and your business.

Figure 8 & *Figure 9* show a small footprint cluster.

Figure 8   Small Footprint Cluster Using HX225 M6 All Flash/Hybrid Server Nodes With Data Center Fabric Interconnect Deployment Mode.
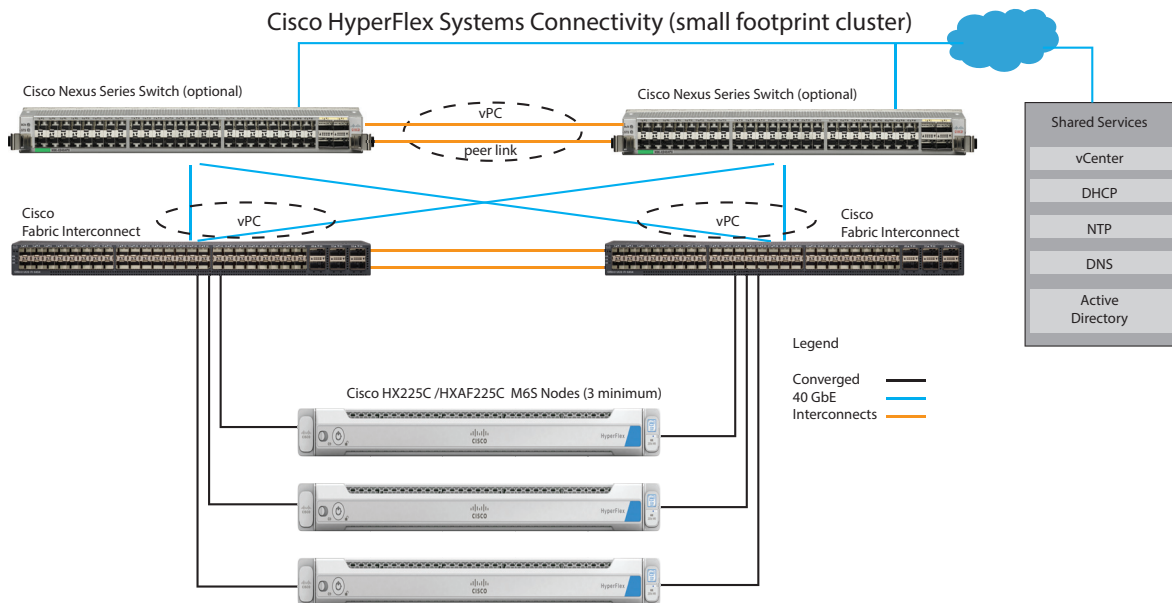
Figure 9   **Small Footprint Cluster Using HX225 M6 All Flash/Hybrid Server Nodes Data Center Without Fabric Interconnect Deployment Mode.**

Cisco HyperFlex Systems Connectivity (small footprint cluster)

Cisco Nexus Series Switch (optional)

Cisco Nexus Series Switch (optional)

vPC

peer link

Shared Services

vCenter

DHCP

NTP

DNS

Active Directory

Legend

Converged

40 GbE

Interconnects

Cisco HX225 /HXAF225 M6 Nodes (3 minimum)

         Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes

NIC Based 10 or 25 Gigabit Ethernet Dual Switch Topology (quad port)

Dual switch configuration provides a slightly more complex topology with full redundancy that protects against: switch failure, link failure, and port failure. It requires two switches that may be standalone or stacked, and four 10/25GE ports, one 1GE port for CIMC management, and 1 x quad port NIC per server. Trunk ports are the only supported network port configuration. refer **10/25 Gigabit Ethernet Switch Configuration Guidelines** for more information.

> **To deploy this topology, select connectivity mode from *Table 13*.**

Figure 10   Physical cabling for the Quad Port NIC Based 10/25GE Dual Switch Topology.

3 or greater Node Edge/DC-no-FI – Dual 10/25GE

Dual 10/25GE ToR Switches
(standlone or stacked)

Intel X710 quad-port 10G / Cisco-Intel E810XXVDA4L 4x25/10G
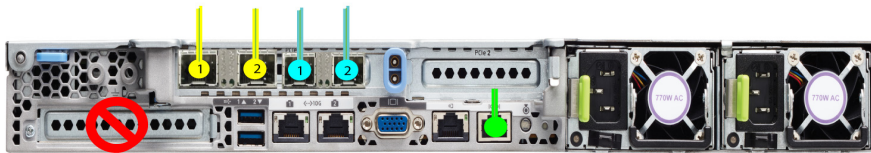
x3 or x4 for edge
x3 and up to 12 for DC-no-FI

Legend
HX/ESXi Managment
HX storage data
CIMC port

NIC Based 10 or 25 Gigabit Ethernet Dual Switch Topology (dual port)

Dual switch configuration provides a slightly more complex topology with full redundancy that protects against: switch failure, link failure, and port failure. It requires two switches that may be standalone or stacked, and four 10/25GE ports, one 1GE port for CIMC management, and 2 x dual port NIC per server. Trunk ports are the only supported network port configuration. refer **10/25 Gigabit Ethernet Switch Configuration Guidelines** for more information.

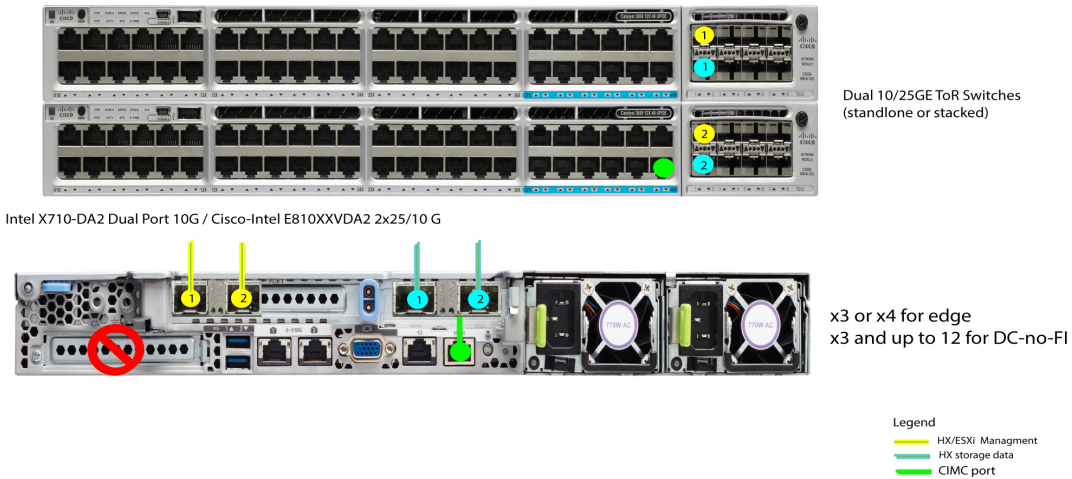**To deploy this topology, select connectivity mode from *Table 13*.**

Figure 11   Physical cabling for the Dual Port NIC Based 10/25GE Dual Switch Topology.

3 or greater Node Edge/DC-no-FI – Dual 10/25GE

Dual 10/25GE ToR Switches (standlone or stacked)

Intel X710-DA2 Dual Port 10G / Cisco-Intel E810XXVDA2 2x25/10 G

x3 or x4 for edge
x3 and up to 12 for DC-no-FI
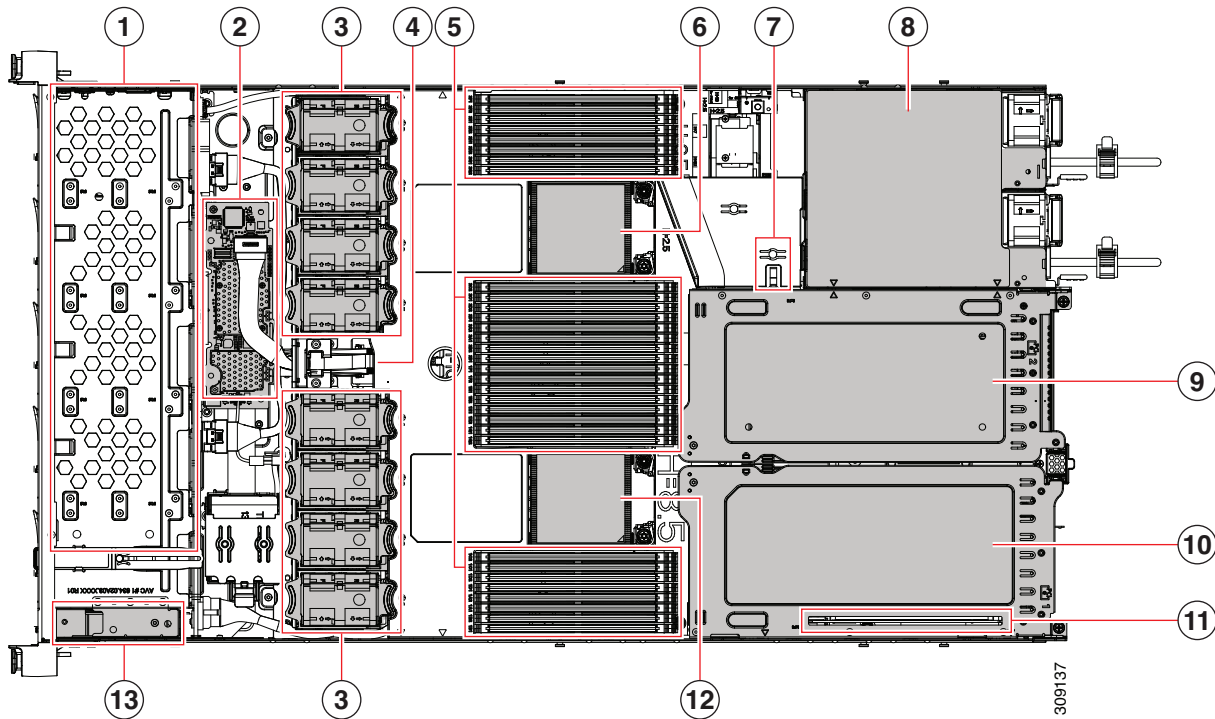
Legend
— HX/ESXi Managment
— HX storage data
— CIMC port

Chassis

Internal views of the HX225C M6S All Flash and Hybrid chassis with the top cover removed are shown in *Figure 12* and *Figure 13 on page 66*.
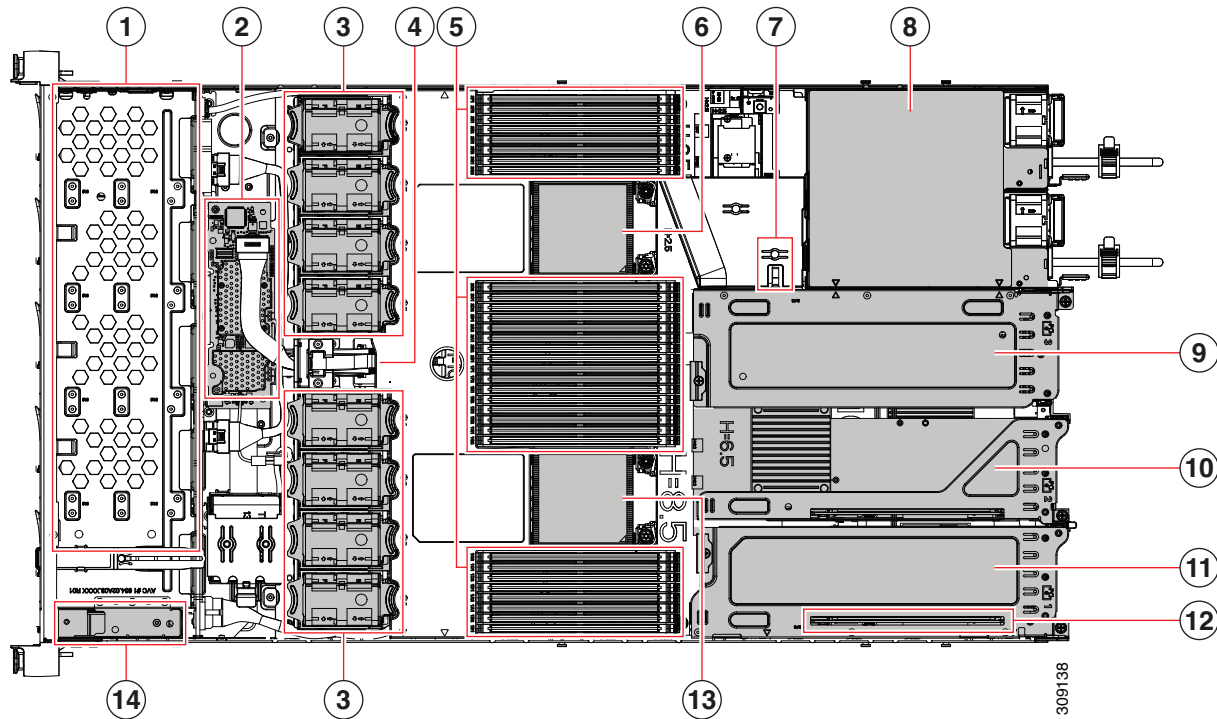
Figure 12   HyperFlex HX225C M6S All Flash and Hybrid With Top Cover Off (full-height, full-width PCIe cards)

1	Front-loading drive bays	2	M6 modular RAID card
3	Cooling fan modules (eight) Each fan is hot-swappable	4	Supercap module mounting bracket
5	DIMM sockets on motherboard, 32 total, 16 per CPU CPUs are arranged in groups of eight sockets above the top CPU and below the bottom CPU, and 16 sockets between the CPUs.	6	Motherboard CPU2 socket
7	M.2 module connector, supporting a boot-optimized RAID controller with connectors for up to two SATA M.2 SSDs.	8	Two power supplies
9	PCIe riser 2 Accepts 1 full height, full width PCIe riser card	10	PCIe riser 1 Accepts 1 full height, full width PCIe riser card
11	Modular LOM (mLOM) card bay on chassis floor(x16 PCIe lane) Connector shown, but the card bay sits below PCIe riser slot 1.	12	Motherboard CPU1 socket

13	Front Panel Controller board	-	

Figure 13   HyperFlex HX225C M6S All Flash and Hybrid With Top Cover Off (full-height, half-width PCIe cards)

1	Front-loading drive bays	2	M6 modular RAID card
3	Cooling fan modules (eight) Each fan is hot-swappable	4	Supercap module mounting bracket
5	DIMM sockets on motherboard, 32 total, 16 per CPU CPUs are arranged in groups of eight sockets above the top CPU and below the bottom CPU, and 16 sockets between the CPUs.	6	Motherboard CPU2 socket
7	M.2 module connector, supporting a boot-optimized RAID controller with connectors for up to two SATA M.2 SSDs.	8	Two power supplies
9	PCIe riser 3 Accepts 1 half height, half width PCIe riser card	10	PCIe riser 2 Accepts 1 half height, half width PCIe riser card
11	PCIe riser slot 1 Accepts 1 half height, half width PCIe riser card	12	Modular LOM (mLOM) card bay on chassis floor(x16 PCIe lane) Connector shown, but the card bay sits below PCIe riser slot 1.
13	Motherboard CPU1 socket	14	Front Panel Controller board

Risers

Figure 14 shows the locations of the PCIe riser connectors on the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes motherboard. The allowed configurations are:

■   Half-height risers in riser 1, 2, and 3 connectors (see *Figure 15*), or

■   Full-height risers in riser 1 and 3 connectors (see *Figure 16*).

Figure 14   HyperFlex HX225C M6S All Flash and Hybrid Server Nodes Riser Connector Locations
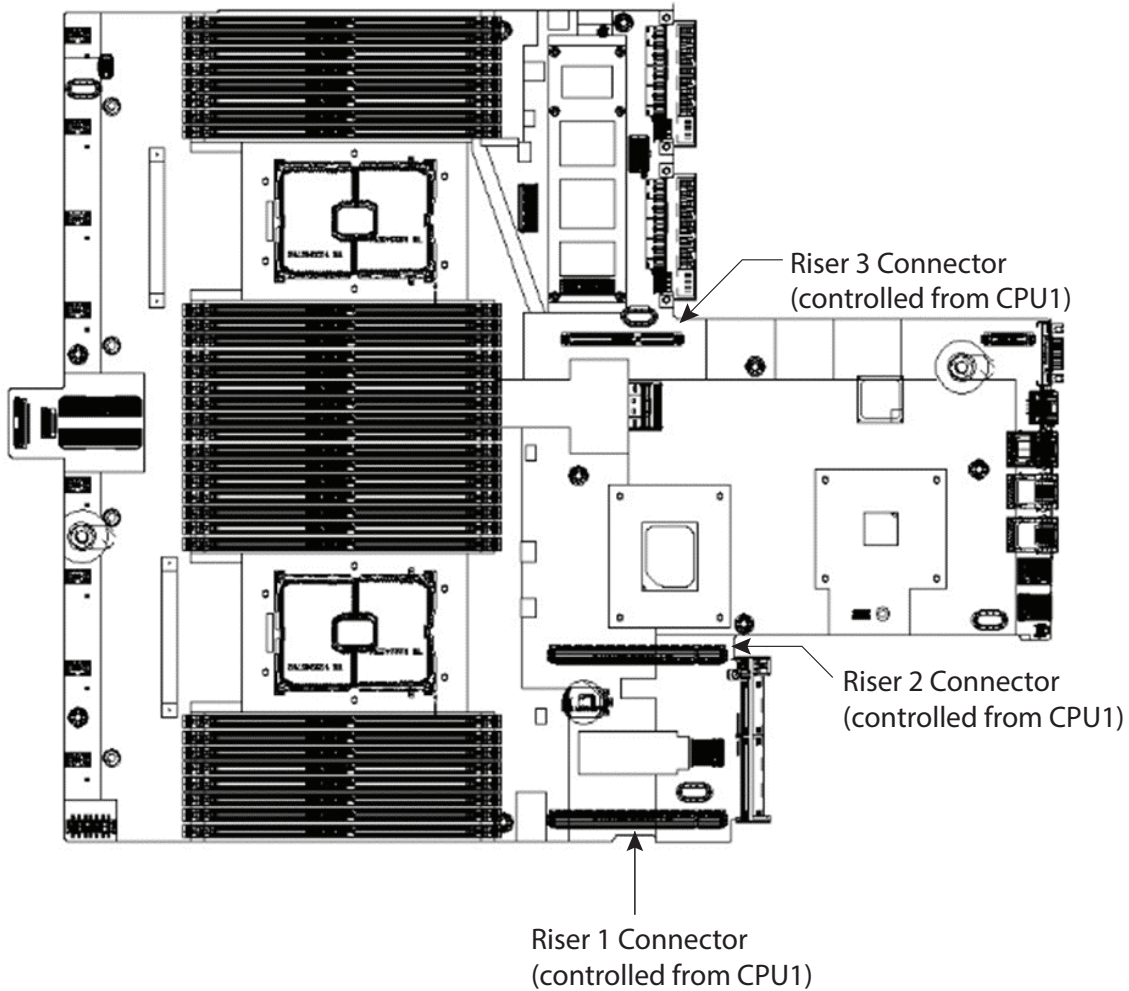
C225 M6 SFF Motherboard

Figure 15 shows three half-height risers plugged into their respective connectors.

Figure 15   HyperFlex HX225C M6S All Flash and Hybrid Server Nodes With Three Half-Height Risers Plugged In

C225 M6 SFF Motherboard

Riser 3 Connector

Half-Height Riser 3

Half-Height Riser 2

Half-Height Riser 1

Riser 1 Connector
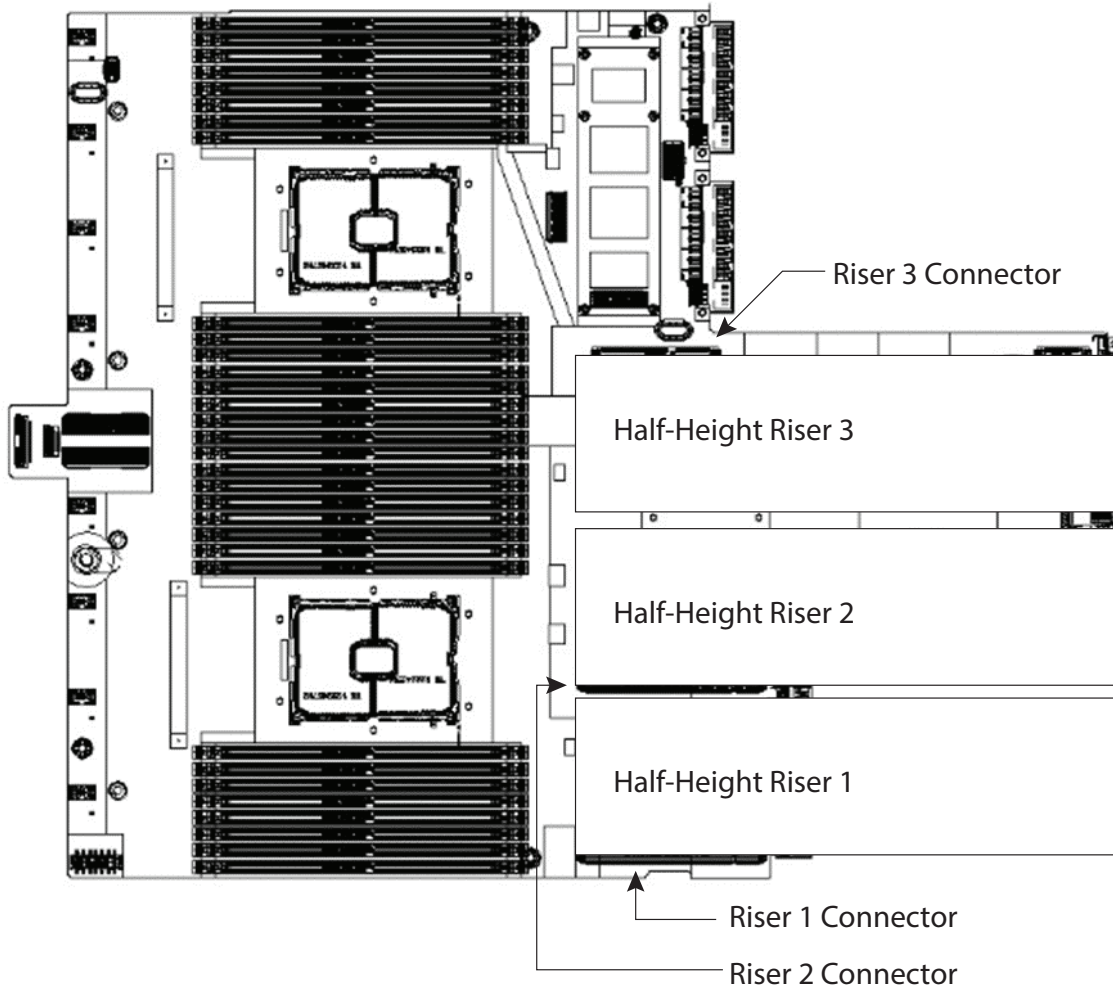
Riser 2 Connector

*Figure 16* shows two full-height risers plugged in. Note that riser 1 is plugged into the riser 1 connector and riser 2 is plugged into the riser 3 connector. Riser 2 connector is not used.

Figure 16   HyperFlex HX225C M6S All Flash and Hybrid Server Nodes With Two Full-Height Risers Plugged In

C225 M6 SFF Motherboard

Riser 3 Connector

Full-Height Riser 2

FullHeight Riser 1

Riser 1 Connector
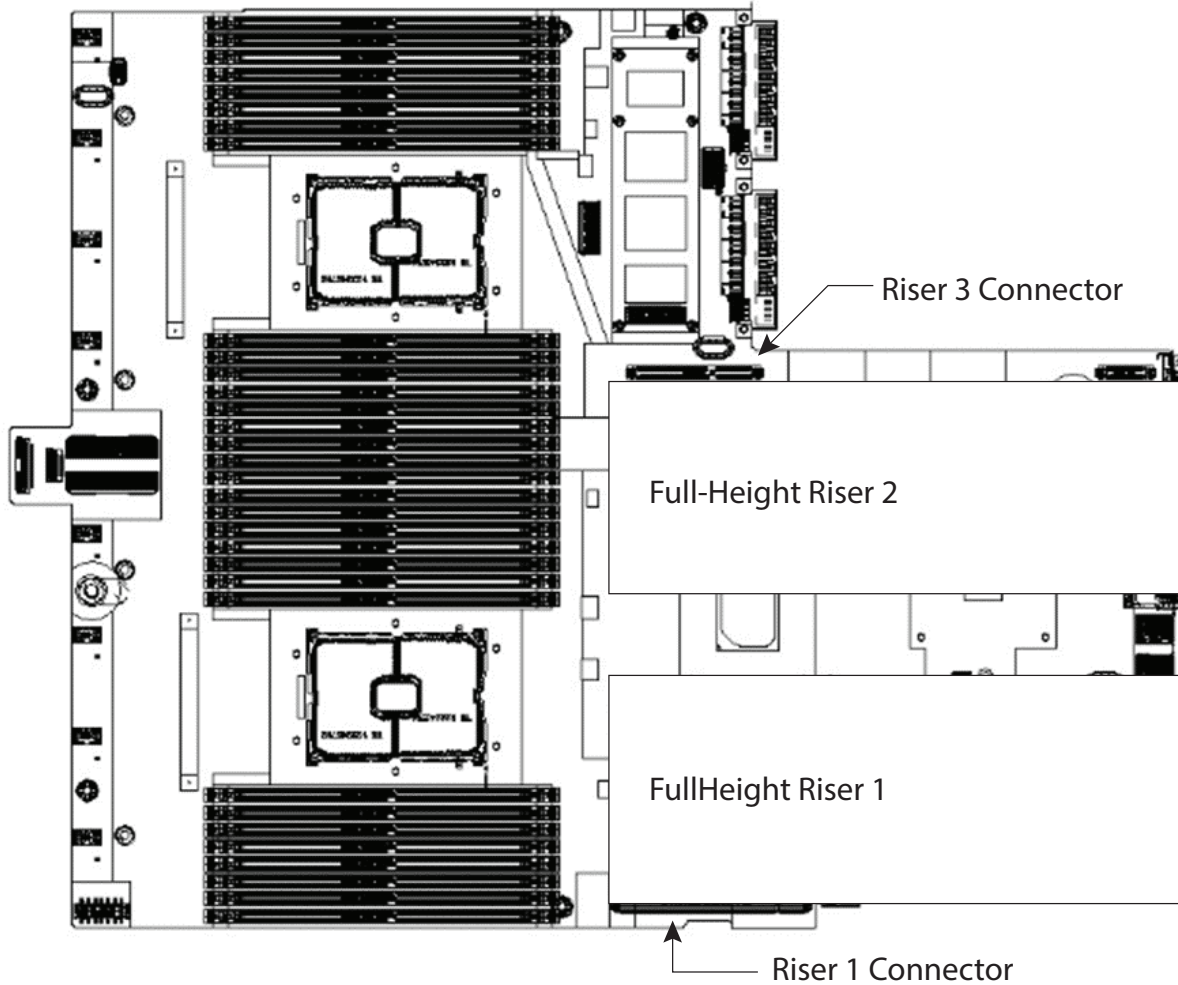
Memory Support for AMD Rome and Milan CPUs

Each CPU has 16 DIMM sockets and supports a maximum memory capacity of 2 GB using 16 x 128 GB DRAMs.

The CPUs support the DRAMS shown in *Table 38*.

Table 38 Supported DRAMs

DRAM Type	Ranks	Capacity
RDIMM	1 (SR)	16 GB or 32 GB
RDIMM	2 (DR)	32 GB or 64 GB
LRDIMM	4 (QR)	128 GB (non-3DS)

Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in *Figure 17*.

Figure 17   Serial Port (Female RJ-45 Connector) Pinout

Serial Port (RJ-45 Female Connector)

Pin	Signal
1	RTS (Request to Send)
2	DTR (Data Terminal Ready)
3	TxD (Transmit Data)
4	GND (Signal Ground)
5	GND (Signal Ground)
6	RxD (Receive Data)
7	DSR (Data Set Ready)
8	CTS (Clear to Send)

Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes
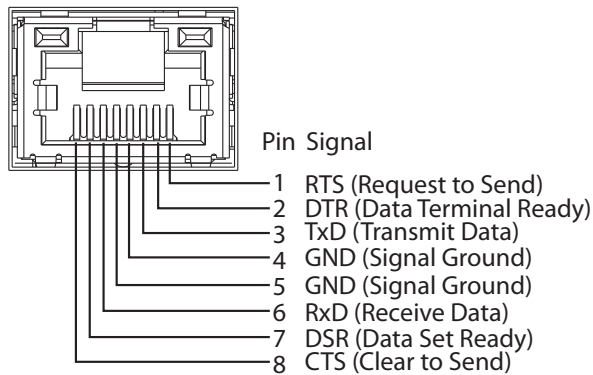
KVM Cable

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 39*.

Table 39 KVM Cable

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

Figure 18   KVM Cable
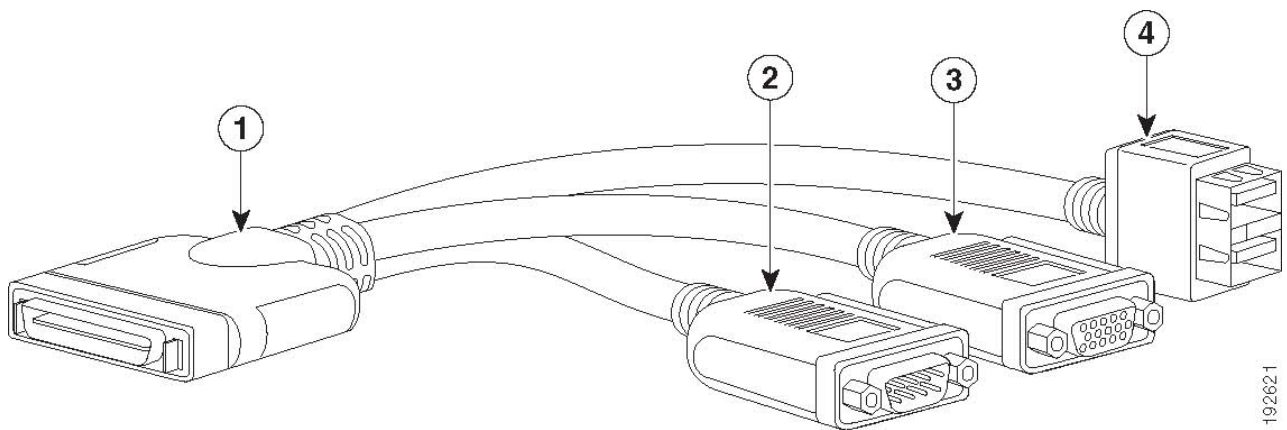
1	Connector (to server front panel)	3	VGA connector (for a monitor)
2	DB-9 serial connector	4	Two-port USB connector (for a mouse and keyboard)

SPARE PARTS

This section lists the upgrade and service-related parts for the HyperFlex HX225C M6S All Flash and Hybrid Server Nodes. Some of these parts are configured with every server.

> **NOTE:** Some spare parts you order may also require accessories for full functionality. For example, drives or RAID controllers may need accompanying cables. CPUs may need heatsinks, thermal paste, and installation tools. The spares and their accessory parts are listed in *Table 40*.

Table 40 Spare Parts

Product ID (PID)	PID Description
KVM Cable	
N20-BKVM=	KVM local IO cable for UCS servers console port
Risers	
UCSC-R2R3-C220M6=	Kit containing two half-height risers (risers 2 and 3):
HX-GPURKIT-C220=	Kit containing a GPU mounting bracket and the following risers (risers 1 and 2)
UCSC-FBRS-C220 M6=	Riser 2 and Riser 3 blank panels
CPUs **Note:** When ordering spare CPUs, check the **CPU Accessories** section of this table for additional parts you may need.	
HX-CPU-A7773X=	AMD 2.20GHz 7773X 280W 64C/768MB Cache DDR4 3200MHz
HX-CPU-A7763=	AMD 2.5GHz 7763 280W 64C/256MB Cache DDR4 3200MHz
HX-CPU-A7713P=	AMD 2.0GHz 7713P 225W 64C/256MB Cache DDR4 3200MHz
HX-CPU-A7713=	AMD 2.0GHz 7713 225W 64C/256MB Cache DDR4 3200MHz
HX-CPU-A7663=	AMD 2.0GHz 7663 225W 56C/256MB Cache DDR4 3200MHz
HX-CPU-A7662=	AMD 2.0GHz 7662 225W 64C/256MB Cache DDR4 3200MHz
HX-CPU-A7643=	AMD 2.3GHz 7643 225W 48C/256MB Cache DDR4 3200MHz
HX-CPU-A75F3=	AMD 2.95GHz 75F3 280W 32C/256MB Cache DDR4 3200MHz
HX-CPU-A7573X=	AMD 2.80GHz 7573X 280W 32C/768MB Cache DDR4 3200MHz
HX-CPU-A7543P=	AMD 2.7GHz 7543P 225W 32C/256MB Cache DDR4 3200MHz
HX-CPU-A7543=	AMD 2.7GHz 7543 225W 32C/256MB Cache DDR4 3200MHz
HX-CPU-A7532=	AMD 2.4GHz 7532 200W 32C/256MB Cache DDR4 3200MHz
HX-CPU-A7513=	AMD 2.6GHz 7513 200W 32C/128MB Cache DDR4 3200MHz
HX-CPU-A7502P=	AMD 2.5GHz 7502P 180W 32C/128MB Cache DDR4 3200MHz
HX-CPU-A74F3=	AMD 3.2GHz 74F3 240W 24C/256MB Cache DDR4 3200MHz
HX-CPU-A7473X=	AMD 2.80GHz 7473X 240W 24C/768MB Cache DDR4 3200MHz
HX-CPU-A7453=	AMD 2.75GHz 7453 180W 28C/64MB Cache DDR4 3200MHz
HX-CPU-A7443P=	AMD 2.85GHz 7443P 200W 24C/128MB Cache DDR4 3200MHz

Table 40 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-CPU-A7443=	AMD 2.8GHz 7443 200W 24C/128MB Cache DDR4 3200MHz
HX-CPU-A7413=	AMD 2.6GHz 7413 180W 24C/128MB Cache DDR4 3200MHz
HX-CPU-A73F3=	AMD 3.5GHz 73F3 240W 16C/256MB Cache DDR4 3200MHz
HX-CPU-A7373X=	AMD 3.05GHz 7373X 240W 16C/768MB Cache DDR4 3200MHz
HX-CPU-A7352=	AMD 2.3GHz 7352 155W 24C/128MB Cache DDR4 3200MHz
HX-CPU-A7343=	AMD 3.2GHz 7343 190W 16C/128MB Cache DDR4 3200MHz
HX-CPU-A7313P=	AMD 3.0GHz 7313P 155W 16C/128MB Cache DDR4 3200MHz
HX-CPU-A7313=	AMD 2.9GHz 7313 155W 16C/128MB Cache DDR4 3200MHz
HX-CPU-A7302=	AMD 3.0GHz 7302 155W 16C/128MB Cache DDR4 3200MHz
HX-CPU-A72F3=	AMD 3.7GHz 72F3 180W 8C/256MB Cache DDR4 3200MHz
HX-CPU-A7282=	AMD 2.8GHz 7282 120W 16C/64MB Cache DDR4 3200MHz
HX-CPU-A7272=	AMD 2.9GHz 7272 120W 12C/64MB Cache DDR4 3200MHz
HX-CPU-A7262=	AMD 3.2GHz 7262 155W 8C/128MB Cache DDR4 3200MHz
HX-CPU-A7252=	AMD 3.1GHz 7252 120W 8C/64MB Cache DDR4 3200MHz
HX-CPU-A7232P=	AMD 3.1GHz 7232P 120W 8C/32MB Cache DDR4 3200MHz
CPU Accessories	
HX-HSHP-225M6=	Heatsink 1U SFF M6 PCIe SKU
HX-CPU-TIM=	Single CPU thermal interface material syringe for M5 server HS seal[1]
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit (when replacing a CPU)[2]
HX-CPUAT=	CPU Assembly Tool for M5 Servers
HX-M5-CPU-CAR=	UCS M5 CPU Carrier
Memory	
HX-MR-X16G1RW=	16 GB RDIMM SRx4 3200 (8Gb)
HX-MR-X32G1RW =	32GB RDIMM SRx4 3200 (16Gb)
HX-MR-X32G2RW=	32 GB RDIMM DRx4 3200 (8Gb)
HX-MR-X64G2RW=	64 GB RDIMM DRx4 3200 (16Gb)
HX-ML-128G4RW=	128 GB LRDIMM QRx4 3200 (16Gb)
HX-DIMM-BLK=	UCS DIMM Blanking Panel - C480M5
Drives	
HXAF225-M6S (All Flash)	
Front Capacity Drive	
HX-SD960G6S1X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD19T6S1X-EV=	1.9TB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD38T6S1X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD76T6S1X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD
Front Cache Drive	
HX-NVMEXPB-I375=	375GB 2.5in Intel Optane NVMe Extreme Performance SSD
HX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
Front System Drive	

Table 40 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	
HX-M2-240GB=	240GB SATA M.2
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
HX225-M6S (Hybrid)	
Front Capacity Drive	
HX-HD12TB10K12N=	1.2TB 12G SAS 10K RPM SFF HDD
HX-HD18TB10K4KN=	1.8TB 12G SAS 10K RPM SFF HDD (4K)
HX-HD24TB10K4KN=	2.4TB 12G SAS 10K RPM SFF HDD (4K)
Front Cache Drive	
HX-SD480G63X-EP=	480GB 2.5in Enterprise Performance 6G SATA SSD(3X endurance)
HX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
Front System Drive	
HX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	
HX-M2-240GB=	240GB SATA M.2
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
Drive Blanking Panel	
HX-BBLKD-S2=	C-Series M5 SFF drive blanking panel
RAID Controllers **Note:** When ordering additional RAID controllers, you may need to order a cable to connect from the RAID controller to the motherboard. See the **RAID Controller Cables** section in this table.	
HX-SAS-220M6=	Cisco 12G SAS Tri Mode HBA up to 16 drvs 1U w/1U Brkt (PR)
HX-M2-HWRAID=	Cisco Boot optimized M.2 RAID controller (holds up to two M.2 SATA SSDs)
RAID Controller Cables	
CBL-SAS-C225M6= **Note:** Order this cable if you are adding a SAS Controller HX-SAS-220M6	CABLE, MB to SAS/RAID controller and HDD BKPLN
Low Profile Bracket	
UCSC-LP-C25-1485=	Low profile bracket for VIC
UCSC-LP-C40-1485=	Low profile bracket for VIC1495
Supercap	
HX-SCAP-M6=	M6 SuperCap
CBL-SCAP-C220M6=	C220M6 1U Super Cap cable
PCIe Cards	

Table 40 Spare Parts *(continued)*

Product ID (PID)	PID Description
Virtual Inter=face Card (VICs)	
HX-PCIE-C100-04=	Cisco UCS VIC 1495 Dual Port 40/100G QSFP28 CNA PCIe
HX-PCIE-C25Q-04=	Cisco UCS VIC 1455 Quad Port 10/25G SFP28 PCIe
Network Interface Cards (NICs)	
1 Gb NICs	
HX-PCIE-IRJ45=	Intel i350 Quad Port 1Gb Adapter
10 Gb NICs	
HX-PCIE-ID10GF=	Intel X710-DA2 Dual Port 10Gb SFP+ NIC
HX-PCIE-IQ10GF=	Intel X710 Quad Port 10G SFP+ NIC
HX-P-ID10GC=	Cisco-Intel X710T2LG 2x10 GbE RJ45 PCIe NIC
25 Gb NICs	
HX-P-I8D25GF=	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC
HX-P-I8Q25GF[2]=	Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC
Power Supplies	
PSU (Input High Line 210VAC)	
HX-PSU1-1050W=	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC=	Cisco UCS 1050W -48V DC Power Supply for Rack Server Requires power cord CAB-48DC-40A-8AWG
HX-PSU1-1600W=	UCS 1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSU1-1200W=	1200W Titanium power supply for C-Series Servers
PSU (Input Low Line 110VAC)	
HX-PSU1-1050W=	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC=	Cisco UCS 1050W -48V DC Power Supply for Rack Server Requires power cord CAB-48DC-40A-8AWG
HX-PSU1-1200W=	1200W Titanium power supply for C-Series Servers
Power Supply Blanking Panel	
UCS-PSU-M5BLK=	Power Supply Blanking Panel for M5 servers
Power Cables	
CAB-48DC-40A-8AWG=	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A
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,IEC6 0320/C13, 3.0M
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, 250V, 10A, India

Table 40 Spare Parts *(continued)*

Product ID (PID)	PID Description
CAB-C13-C14-3M-IN=	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India
CAB-C13-C14-IN=	Power Cord Jumper,C13-C14 Connectors,1.4 Meter Length, India
CAB-250V-10A-IS=	Power Cord, SFS, 250V, 10A, Israel
CAB-9K10A-IT=	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy
CAB-9K10A-SW=	Power Cord, 250VAC 10A MP232 Plug, Switzerland
CAB-9K10A-UK=	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK
CAB-9K12A-NA[3]=	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America
CAB-250V-10A-BR=	Power Cord - 250V, 10A - Brazil
CAB-C13-C14-2M-JP=	Power Cord C13-C14, 2M/6.5ft Japan PSE mark
CAB-9K10A-KOR[1]=	Power Cord, 125VAC 13A KSC8305 Plug, Korea
CAB-ACTW=	AC Power Cord (Taiwan), C13, EL 302, 2.3M
CAB-JPN-3PIN=	Japan, 90-125VAC 12A NEMA 5-15 Plug, 2.4m
CAB-48DC-40A-INT=	C-Series -48VDC PSU PWR Cord, 3.5M, 3 Wire, 8AWG, 40A (INT)
CAB-48DC-40A-AS=	C-Series -48VDC PSU PWR Cord, 3.5M, 3Wire, 8AWG, 40A (AS/NZ)
Rail Kit and CMA	
HX-RAIL-M6=	Ball Bearing Rail Kit for C220 & C240 M6 rack servers
HX-CMA-C220M6=	Reversible CMA for C220 M6 ball bearing rail kit
HX-RAIL-NONE=	NO RAIL KIT OPTION
TPM	
UCSX-TPM2-002B-C=	Trusted Platform Module 2.0 for UCS servers
HX-INT-SW02=	Chassis Intrusion Switch
Bezel	
HXAF240C-BZL-M5SX=	HXAF240C M5 Security Bezel
HX240C-BZL-M5S=	HX240C M5 Security Bezel

Notes:

1. This part is included with the purchase of option or spare CPU or CPU processor kits.
2. If HX-P-I8Q25GFselected then HX-GPURKIT-C220 PID must be selected
3. This power cord is rated to 125V and only supported for PSU rated at 1050W or less

Please refer to "Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes Installation and Service Guide" for installation procedures. See this link:
https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c225m6/install/c225m6.html

REPLACING CPUs and HEATSINKS

> **NOTE:** Before servicing any CPU, do the following:
>
> - Decommission and power off the server.
> - Slide the Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes out from the rack.
> - Remove the top cover.

> **CAUTION:**
>
> - CPUs and their sockets are fragile and must be handled with extreme care to avoid damaging pins. The CPUs must be installed with heatsinks and thermal interface material to ensure cooling. Failure to install a CPU correctly might result in damage to the server.
> - Always shut down the server before removing it from the chassis, as described in the procedures. Failure to shut down the server before removal results in the corresponding RAID supercap cache being discarded and other data might be lost.

To replace an <u>existing CPU</u>, follow these steps:

(1) Have the following tools and materials available for the procedure:

- T-20 Torx driver—Supplied with replacement CPU.
- Thermal interface material (TIM)—Syringe supplied with replacement CPU.

(2) Order the appropriate replacement CPU from *Table 6 on page 21*

(3) Carefully remove and replace the CPU and heatsink in accordance with the instructions found in "Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes Installation and Service Guide," found at:

   https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c225m6/install/c225m6.html

To add a <u>new CPU</u>, follow these steps:

(1) Have the following tools and materials available for the procedure:

- T-30 Torx driver—Supplied with new CPU.
- Thermal interface material (TIM)—Syringe supplied with replacement CPU.

(2) Order the appropriate new CPU from *Table 6 on page 21*

(3) Order one heat sink for each new CPU. Order PID HX-HSHP-225M6 unless you have installed a double-wide or A10 GPU. In that case, order PID HX-HSLP-225M6.

(4) Carefully install the CPU and heatsink in accordance with the instructions found in "Cisco UCS C220 M6 Server Installation and Service Guide.

UPGRADING or REPLACING MEMORY

> **NOTE:** Before servicing any DIMM, do the following:
> - Decommission and power off the server.
> - Remove the top cover from the server
> - Slide the server out the front of the chassis.

To add or replace DIMMs, follow these steps:

Step 1 Open both DIMM connector latches.

Step 2 Press evenly on both ends of the DIMM until it clicks into place in its slot

Note: Ensure that the notch in the DIMM aligns with the slot. If the notch is misaligned, it is possible to damage the DIMM, the slot, or both.

Step 3 Press the DIMM connector latches inward slightly to seat them fully.

Step 4 Populate all slots with a DIMM or DIMM blank. A slot cannot be empty.

Figure 19 Replacing Memory
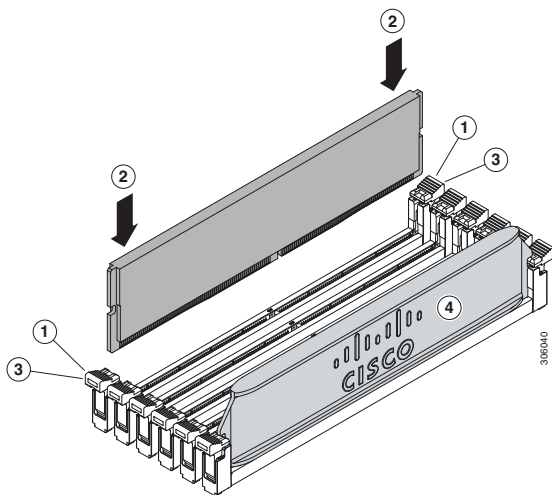
For additional details on replacing or upgrading DIMMs, see **"Cisco UCS C240 M6 Server Installation and Service Guide**," found at these links:

https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c225m6/install/c225m6.html

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 41 HyperFlex HX225C M6S All Flash and Hybrid Server Nodes Dimensions and Weight

Parameter	Value
Height	1.70 in. (4.3 cm)
Width (Not including slam latches)	16.9 in. (42.9 cm)
Width (including slam latches)	18.9 in. (48.0 cm)
Depth	30 in. (76.2 cm)
Front Clearance	3 in. (76 mm)
Side Clearance	1 in. (25 mm)
Rear Clearance	6 in. (152 mm)
Weight	
Weight with following options and no rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 1600 W power supply	22.32 lbs (10.1 kg)
Weight with following options and including rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 1600 W power supply	32.38 lbs (14.7 kg)
Weight with following options and no rail kit: 10 HDDs, 2 CPUs, 32 DIMMs, and 2 1600 W power supplies	32.38 lbs (14.7 kg)
Weight with following options and including rail kit: 10 HDDs, 2 CPUs, 32 DIMMs, and 2 1600 W power supplies	42.43 lbs (19.3 kg)

Power Specifications

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

■ 1050 W (AC) power supply (see *Table 42*).

■ 1050 W V2 (DC) power supply (see *Table 43*)

■ 1600 W (AC) power supply (see *Table 44*)

Table 42 HyperFlex HX225C M6S All Flash and Hybrid Power Specifications (1050 W AC power supply)

Parameter	Specification			
Input Connector	IEC320 C14			
Input Voltage Range (V rms)	100 to 240			
Maximum Allowable Input Voltage Range (V rms)	90 to 264			
Frequency Range (Hz)	50 to 60			
Maximum Allowable Frequency Range (Hz)	47 to 63			
Maximum Rated Output (W)[1]	800		1050	
Maximum Rated Standby Output (W)	36			
Nominal Input Voltage (V rms)	100	120	208	230
Nominal Input Current (A rms)	9.2	7.6	5.8	5.2
Maximum Input at Nominal Input Voltage (W)	889	889	1167	1154
Maximum Input at Nominal Input Voltage (VA)	916	916	1203	1190
Minimum Rated Efficiency (%)[2]	90	90	90	91
Minimum Rated Power Factor[2]	0.97	0.97	0.97	0.97
Maximum Inrush Current (A peak)	15			
Maximum Inrush Current (ms)	0.2			
Minimum Ride-Through Time (ms)[3]	12			

Notes:

1. Maximum rated output is limited to 800W when operating at low-line input voltage (100-127V)
2. This is the minimum rating required to achieve 80 PLUS Platinum certification, see test reports published at http://www.80plus.org/ for certified values
3. Time output voltage remains within regulation limits at 100% load, during input voltage dropout

Table 43 HyperFlex HX225C M6S All Flash and Hybrid Power Specifications (1050 W V2 DC power supply)

Parameter	Specification
Input Connector	Molex 42820
Input Voltage Range (V rms)	-48
Maximum Allowable Input Voltage Range (V rms)	-40 to -72
Frequency Range (Hz)	NA
Maximum Allowable Frequency Range (Hz)	NA
Maximum Rated Output (W)	1050
Maximum Rated Standby Output (W)	36
Nominal Input Voltage (V rms)	-48
Nominal Input Current (A rms)	24
Maximum Input at Nominal Input Voltage (W)	1154
Maximum Input at Nominal Input Voltage (VA)	1154
Minimum Rated Efficiency (%)[1]	91
Minimum Rated Power Factor[1]	NA
Maximum Inrush Current (A peak)	15
Maximum Inrush Current (ms)	0.2
Minimum Ride-Through Time (ms)[2]	5

Notes:

1. This is the minimum rating required to achieve 80 PLUS Platinum certification, see test reports published at http://www.80plus.org/ for certified values
2. Time output voltage remains within regulation limits at 100% load, during input voltage dropout

Table 44 HyperFlex HX225C M6S All Flash and Hybrid 1600 W (AC) Power Supply Specifications

Parameter	Specification			
Input Connector	IEC320 C14			
Input Voltage Range (V rms)	200 to 240			
Maximum Allowable Input Voltage Range (V rms)	180 to 264			
Frequency Range (Hz)	50 to 60			
Maximum Allowable Frequency Range (Hz)	47 to 63			
Maximum Rated Output (W)[1]	1600			
Maximum Rated Standby Output (W)	36			
Nominal Input Voltage (V rms)	100	120	208	230
Nominal Input Current (A rms)	NA	NA	8.8	7.9
Maximum Input at Nominal Input Voltage (W)	NA	NA	1778	1758
Maximum Input at Nominal Input Voltage (VA)	NA	NA	1833	1813
Minimum Rated Efficiency (%)[2]	NA	NA	90	91
Minimum Rated Power Factor[2]	NA	NA	0.97	0.97
Maximum Inrush Current (A peak)	30			
Maximum Inrush Current (ms)	0.2			
Minimum Ride-Through Time (ms)[3]	12			

Notes:

1. Maximum rated output is limited to 800W when operating at low-line input voltage (100-127V)
2. This is the minimum rating required to achieve 80 PLUS Platinum certification, see test reports published at http://www.80plus.org/ for certified values
3. Time output voltage remains within regulation limits at 100% load, during input voltage dropout

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

http://ucspowercalc.cisco.com

Environmental Specifications

The environmental specifications for the C225 M6 server are listed in *Table 45*.

Table 45 M6 Environmental Specifications

Parameter	Minimum
Operating Temperature	Dry bulb temperature of 10°C to 35°C (50°F to 95°F)
	Maximum temperature change of 20°C (36°F) per hour
	(a temperature change within a specified period of time and not a rate of change)
	Humidity condition: Uncontrolled, not to exceed 50% RH starting condition
	Derate the maximum temperature by 1°C (33.8°F) per every 305 meters of altitude above 900m
Extended Operating Temperature	5°C to 40°C (41°F to 104°F) with no direct sunlight
	Humidity condition: Uncontrolled, not to exceed 50% RH starting condition
	Derate the maximum temperature by 1°C (33.8°F) per every 305 meters of altitude above 900m
Non-Operating Temperature	Dry bulb temperature of -40°C to 65°C (-40°F to 149°F)
Operating Relative Humidity	10% to 90% and 28°C (82.4°F) maximum dew-point temperature, non-condensing environment
	Minimum to be higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity
	Maximum to be 24°C (75.2°F) dew point or 90% relative humidity
Non-Operating Relative Humidity	5% to 93% relative humidity, non-condensing, with a maximum wet bulb temperature of 28°C across the 20°C to 40°C dry bulb range.
Maximum Operating Duration	Unlimited
Operating Altitude	A maximum elevation of 3050 meters (10,006 ft)
Non-Operating Altitude	An elevation of 0 to 12,000 meters (39,370 ft)
Sound Power level, Measure A-weighted per ISO7779 LWAd (Bels) Operation at 23°C (73°F)	5.5
Sound Pressure level, Measure A-weighted per ISO7779 LpAm (dBA) Operation at 23°C (73°F)	40

Extended Operating Temperature Hardware Configuration Limits

Table 46   Cisco HyperFlex HX225C M6S All Flash and Hybrid Server Nodes Extended Operating Temperature Hardware Configuration Limits

Platform[1]	ASHRAE A3 (5ºC to 40ºC)[2]	ASHRAE A4 (5ºC to 45ºC)[3]
Processors:	155W+	155W+ and 105W+ (4 or 6 Cores)
Memory:	LRDIMMs	LRDIMMs
Storage:	M.2 SATA SSDs NVMe SSDs	M.2 SATA SSDs NVMe SSDs
Peripherals:	PCIe NVMe SSDs GPUs	MRAID PCIe NVMe SSDs GPUs mLOMs VICs NICs HBAs

Notes:

1. Two PSUs are required and PSU failure is not supported
2. Non-Cisco UCS qualified peripherals and/or peripherals that consume more than 25W are not supported
3. High power or maximum power fan control policy must be applied

Compliance Requirements

The regulatory compliance requirements for servers are listed in *Table 47*.

Table 47 UCS HX-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