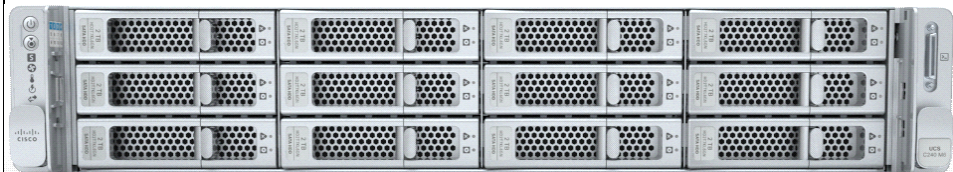# Cisco HyperFlex HX240C M6 LFF Server Node

A printed version of this document is only a copy and not necessarily the latest version. Refer to the following link for the latest released version:

https://www.cisco.com/c/en/us/products/hyperconverged-infrastructure/hyperflex-hx-series/datasheet-listing.html

CONTENTS

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 Cisco HyperFlex HX240C M6 LFF extends the capabilities of Cisco's HyperFlex portfolio in a 2U form factor with the addition of the 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake), 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 listed here:

- 4 TB (32 x 128 GB DDR4 DIMMs), or
- 10 TB (16 x 128 GB DDR4 DIMMs and 16 x 512 GB Intel® Optane™ Persistent Memory Modules (PMem)).

The server accommodates up to 12 front facing SAS-only LFF drives, up to 4 mid-plane SAS-only LFF drives, and up to 2 rear-facing SFF drives. The server also provides a riser slot for a SAS HBA. The chassis is equipped with six fans and two power supplies.

The HX240C M6 LFF Server Node includes a dedicated modular LAN on motherboard (mLOM) slot for installation of a Cisco Virtual Interface Card (VIC) or third-party network interface card (NIC) without consuming a PCI slot, in addition to 2 x 10 Intel x550 10Gbase-T embedded (on the motherboard) LOM ports.

Figure 1 Cisco HyperFlex HX240C M6 LFF Server Node (12 front LFF drives, 4 mid-plane LFF drives, 2 rear SFF drives)

Front View (with bezel)
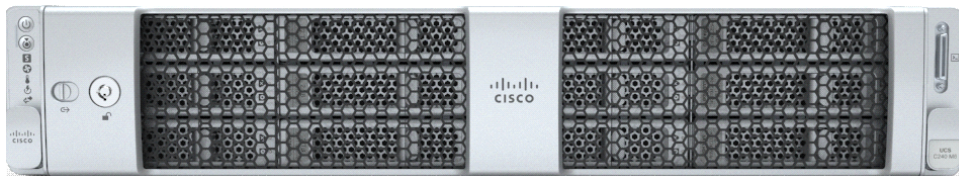
Front View (no bezel)

Rear View

DETAILED VIEWS

Chassis Front View

Figure 2 shows the 12-drive Cisco HyperFlex HX240C M6 LFF Server Node. This server supports 12 3.5-inch (LFF) SAS-only front drives, optionally four 3.5-inch SAS-only drives in the midplane drive cage, and optionally two 2.5-inch (SFF) rear drives in risers.

Figure 2   Chassis Front View
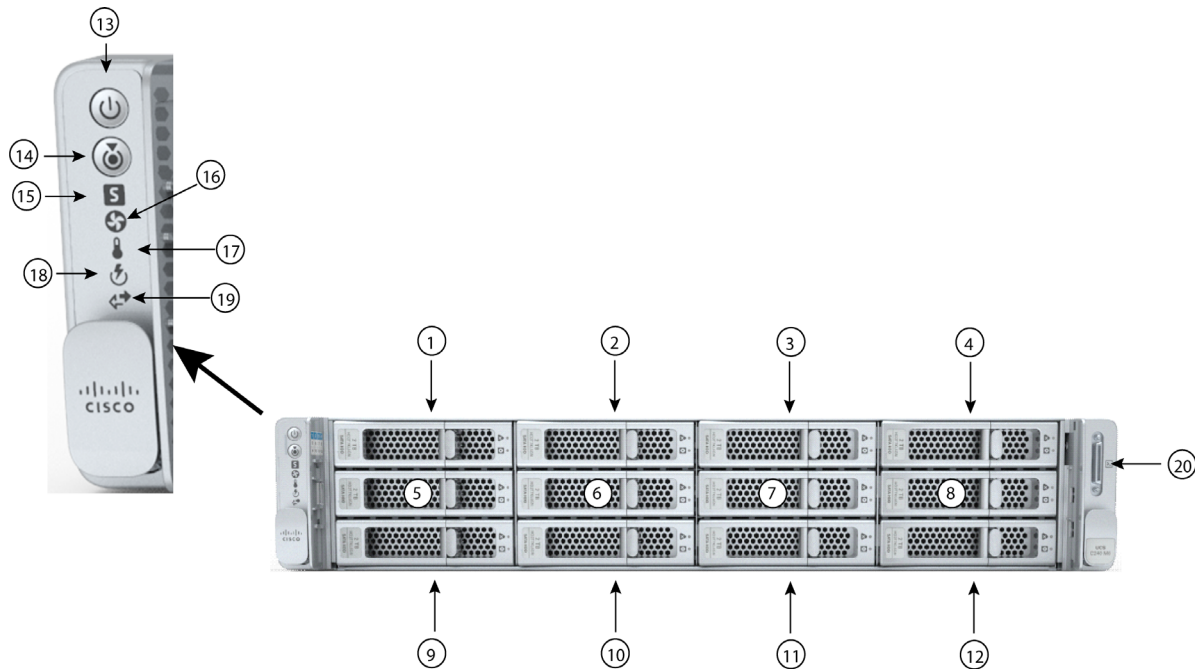
1 - 12	Drive bays 1–12 support 3.5-inch SAS-only hard disk drives (HDDs).	17	Temperature status LED
13	Power button/Power status LED	18	Power supply status LED
14	Unit Identification button/LED	19	Network link activity LED
15	System status LED	20	KVM connector (used with KVM cable that provides two USB 2.0 connectors, one VGA connector, and one serial connector)
16	Fan status LED	-	-

For more information about the KVM cable connection, see *KVM CABLE, page 51*.

Chassis Rear View

Figure 3 shows the external features of the rear panel.

Figure 3   Chassis Rear View

1	There is one Riser 1 option:
	
	Riser 1B (CPU1 control)
	
	■ Slot 1 is reserved for a drive controller
	
	■ Supports two drives
	
	   • Slot 2 (drive bay 102), x4
	
	   • Slot 3 (drive bay 101), x4
	
	See *SPARE PARTS, page 58* for details.
		7	COM port (RJ45 connector)

2	Riser 2A (CPU2 control) Supports three PCIe slots: ■ Slot 4 is full-height, 3/4 length, x8 ■ Slot 5 is full-height, full-length, x16 ■ Slot 6 is full-height, full length, x8	8	1 GbE dedicated Ethernet management port
3	There is one Riser 3 option: Riser 3B (CPU2 control) ■ Not Supported See *SPARE PARTS, page 58* for details.	9 -10	Dual 1/10 GbE Ethernet ports (LAN1, LAN2) LAN1 is left connector, LAN2 is right connector
4	Modular LAN-on-motherboard (mLOM) card slot (x16)	11	USB 3.0 ports (two)
5	System ID pushbutton/LED	12	Power supplies (two)
6	VGA display port (DB15 connector)	-	-

BASE SERVER NODE 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 9*.

Table 1   Capabilities and Features

Capability/Feature	Description
Chassis	Two rack unit (2RU) chassis
CPU	One or two Intel® Xeon® Ice Lake® processor family CPUs[1]
Chipset	Intel® C621A series chipset
Memory	32 slots for registered DIMMs (RDIMMs) or load-reduced DIMMs (LRDIMMs) and support for Intel® Optane™ Persistent Memory Modules (PMEMs)
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 ■ DDR2/3 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) ■ 2300 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) 6.2 standard.
Fans	■ Six hot-swappable fans for front-to-rear cooling
Expansion slots	■ Riser 1B (1 PCIe slot reserved for a drive controller and 2 HDD slots) ■ Riser 2A (3 PCIe slots) For more details on riser 1, riser 2, and riser 3, see *Riser Card Configuration and Options, page 56*.

Capability/Feature	Description

Internal storage devices	Drive storage:
	
	■ Up to 12 LFF 3.5 inch, front-facing SAS-only Large Form Factor (LFF) hard drives (HDDs)
	
	  • Six to twelve SAS/SATA HDD (for capacity)
	
	■ Up to 4 LFF 3.5 inch, mid-plane SAS-only Large Form Factor (LFF) hard drives (HDDs) (optional)
	
	■ Up to 2 SFF 2.5-inch, rear-facing SAS/SATA/NVMe drives
	
	  • One NVMe SSD or 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 two SATA M.2 SSDs. Mixing different capacity SATA M.2 SSDs is not supported.

I/O Interfaces	■ Rear panel
	
	  • One 1Gbase-T RJ-45 management port
	
	  • Two 10Gbase-T LOM ports
	
	  • 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)

Storage controllers	12G SAS HBA plugs into slot 1 (bottom slot) of riser 1B.
	
	■ Cisco M6 12G SAS HBA
	
	  • No RAID support
	
	  • JBOD/Pass-through Mode support
	
	  • Supports up to 32 SAS/SATA internal drives
	
	  • Plugs into slot 1 of riser 1B

Modular LAN on Motherboard (mLOM) slot	The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards: ■ Cisco Virtual Interface Cards
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, the 1GE/10GE LOM ports, or a Cisco virtual interface card (VIC). CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.
Intersight	Intersight provides server management capabilities

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.

CONFIGURING the SERVER

Follow these steps to configure the Cisco HyperFlex HX240C M6 LFF Server Node:

STEP 1   VERIFY SERVER SKU

Table 2   PID of Major Line Bundle (MLB)

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

Select one server product ID (PID) from *Table 3*.

Table 3   PID of the HX240C M6 LFF Base Server Node

Product ID (PID)	Description
HX240C-M6L[1]	Cisco HyperFlex HX240 M6 LFF server has Large form-factor (LFF) drives, with 12-drive backplane. ■ Front-loading drive bays 1—12 support 3.5-inch SAS-only LFF HDDs. ■ Optionally, four 3.5" midplane SAS-only LFF HDDs. ■ Optionally, rear-loading drive bays support two 2.5 inch SAS/SATA/NVMe drives.

Notes:

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

The Cisco HyperFlex HX240C M6 LFF Server Node Does not include power supply, CPU, memory (DIMMs or PMEMs), hard disk drives (HDDs), solid-state drives (SSDs), boot drives, SD cards, risers, tool-less rail kit, or PCIe cards.

NOTE:

■ Refer to Cisco HyperFlex Drive Compatibility document for future expansion and drive compatibility within the same node and HX cluster.

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

STEP 2   SELECT RISER CARDS (REQUIRED)

The optional riser cards are listed in *Table 4*. Riser card 1A/1B is on the left when viewed from the back of the server and Riser 2A is in the middle.

Table 4   Riser PIDs

Product ID (PID)	Description
UCSC-RIS1B-240M6	C240 M6 Riser1B (controlled with CPU1) ■ Slot 1 is reserved for a drive controller ■ Supports two drives: slot 2 (drive bay 102) and slot 3 (drive bay 101):
UCSC-RIS2A-240M6 (default riser)	C240 M6 Riser2A (controlled with CPU2) Supports three PCIe slots: ■ Slot 4 is full-height, 3/4 length, x8 ■ Slot 5 is full-height, full-length, x16 ■ Slot 6 is full-height, full length, x8

NOTE:
If there is any PCIe slot that does not have a card installed, you must order a blanking panel for that slot (UCSC-FBRS2-C240M6= for riser 2 or UCSC-FBRS3-C240M6= for riser 3).

For additional details, see *SPARE PARTS, page 58*.

STEP 3 SELECT CPU(s)

The standard CPU features are:

■ 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)

■ Intel® C621A series chipset

■ Cache size of up to 60 MB

■ Up to 40 cores

Select CPUs

The available CPUs are listed in *Table 5*

Table 5 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI[1] Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)[2]	PMem Support
8000 Series Processors							
HX-CPU-I8380	2.3	270	60	40	3 at 11.2	3200	Yes
HX-CPU-I8368	2.4	270	57	38	3 at 11.2	3200	Yes
HX-CPU-I8362	2.8	265	48	32	3 at 11.2	3200	Yes
HX-CPU-I8360Y	2.4	250	54	36	3 at 11.2	3200	Yes
HX-CPU-I8358P	2.6	240	48	32	3 at 11.2	3200	Yes
HX-CPU-I8358	2.6	250	48	32	3 at 11.2	3200	Yes
HX-CPU-I8352Y	2.2	205	48	32	3 at 11.2	3200	Yes
HX-CPU-I8352V	2.1	195	54	36	3 at 11.2	2933	Yes
HX-CPU-I8352M	2.3	185	48	32	3 at 11.2	2933	Yes
HX-CPU-I8352S	2.2	205	48	32	3 at 11.2	3200	Yes
HX-CPU-I8351N[3]	2.4	225	54	36	0	2933	Yes
6000 Series Processors							
HX-CPU-I6354	3.0	205	39	18	3 at 11.2	3200	Yes
HX-CPU-I6348	2.6	235	42	28	3 at 11.2	3200	Yes
HX-CPU-I6346	3.1	205	36	16	3 at 11.2	3200	Yes
HX-CPU-I6342	2.8	230	36	24	3 at 11.2	3200	Yes
HX-CPU-I6338N	2.2	185	48	32	3 at 11.2	2666	Yes
HX-CPU-I6338T	2.1	165	36	24	3 at 11.2	3200	Yes
HX-CPU-I6338	2.0	205	48	32	3 at 11.2	3200	Yes
HX-CPU-I6336Y	2.4	185	36	24	3 at 11.2	3200	Yes
HX-CPU-I6334	3.6	165	18	8	3 at 11.2	3200	Yes
HX-CPU-I6330N	2.2	165	42	28	3 at 11.2	2666	Yes
HX-CPU-I6330	2.0	205	42	28	3 at 11.2	2933	Yes

Table 5   Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI[1] Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)[2]	PMem Support
HX-CPU-I6326	2.9	185	24	16	3 at 11.2	3200	Yes
HX-CPU-I6314U[4]	2.3	205	48	32	0	3200	Yes
HX-CPU-I6312U[5]	2.4	185	36	24	0	3200	Yes
5000 Series Processors							
HX-CPU-I5320T	2.3	150	30	20	3 at 11.2	2933	Yes
HX-CPU-I5320	2.2	185	39	26	3 at 11.2	2933	Yes
HX-CPU-I5318N	2.1	150	36	24	3 at 11.2	2666	Yes
HX-CPU-I5318S	2.1	165	36	24	3 at 11.2	2933	Yes
HX-CPU-I5318Y	2.1	165	36	24	3 at 11.2	2933	Yes
HX-CPU-I5317	3.0	150	18	12	3 at 11.2	2933	Yes
HX-CPU-I5315Y	3.2	140	12	8	3 at 11.2	2933	Yes
4000 Series Processors							
HX-CPU-I4316	2.3	150	30	20	2 at 10.4	2666	No
HX-CPU-I4314	2.4	135	24	16	2 at 10.4	2666	Yes
HX-CPU-I4310T	2.3	105	15	10	2 at 10.4	2666	No
HX-CPU-I4310	2.1	120	18	12	2 at 10.4	2666	No
HX-CPU-I4309Y	2.8	105	12	8	2 at 10.4	2666	No

Notes:

1. UPI = Ultra Path Interconnect.
2. If higher or lower speed DIMMs are selected than what is shown in *Table 7 on page 17* for a given CPU speed, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.
3. The maximum number of HX-CPU-I8351N CPUs is one
4. The maximum number of HX-CPU-I6314U CPUs is one
5. The maximum number of HX-CPU-I6312U CPUs is one

CAUTION: For systems configured with 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake), operating above 25º C [77º F], a fan fault or executing workloads with extensive use of heavy instructions sets such as Intel® Advanced Vector Extensions 512 (Intel® AVX-512), may assert thermal and/or performance faults with an associated event recorded in the System Event Log (SEL).

Table 6 CPU Suffixes

CPU Suffix	Description	Features
N	Networking Optimized	Optimized for use in networking applications like L3 forwarding, 5G UPF, OVS DPDK, VPP FIB router, VPP IPsec, web server/NGINX, vEPC, vBNG, and vCMTS. SKUs have higher base frequency with lower TDPs to enable best performance/Watt
P	Cloud Optimized	SKU specifically designed for cloud IaaS environments to deliver higher frequencies at constrained TDPs
V	Cloud Optimized	SKUs specifically designed for cloud environments to deliver high rack density and maximize VM/cores per TCO$
T	High T case	SKUs designed for Network Environment-Building System (NEBS) environments
U	1-socket Optimized	Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity available from a single processor
S	Max SGX enclave size	Supports Max SGX enclave size (512GB) to enhance and protect the most sensitive portions of a workload or service
M	Media and AI optimized	Media, AI and HPC Segment Optimized for lower TDP & higher frequencies delivering better perf/w
Y	Speed Select – Performance Profile	Intel® Speed Select Technology provides the ability to set a guaranteed base frequency for a specific number of cores, and assign this performance profile to a specific application/workload to guarantee performance requirements. It also provides the ability to configure settings during runtime and provide additional frequency profile configuration opportunities.

Approved Configurations

(1) DIMM only configurations:

■ Select one or two identical CPUs listed in *Table 5 Available CPUs, page 12*

(2) DIMM/PMEM Mixed Configurations:

■ You must select two identical CPUs listed in *Table 5 Available CPUs, page 12*

(3) Configurations with NVMe PCIe drives:

■ You must select two identical CPUs listed in *Table 5 Available CPUs, page 12*

(4) One-CPU Configuration

■ Choose one CPU from any one of the rows of *Table 5 Available CPUs, page 12*

■ HX DC supports single socket for 12 core and above

(5) Two-CPU Configuration

■ Choose two identical CPUs from any one of the rows of *Table 5 Available CPUs, page 12*

> **NOTE:**
>
> ■ You cannot have two I8351N or two I6314U or I6312U CPUs in a two-CPU configuration.
>
> ■ If you configure a server with one I8351N CPU or one I6314U CPU or one I6312U CPU 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 4 SELECT MEMORY, page 16*

— *STEP 5 SELECT DRIVE CONTROLLERS, page 21*

— *STEP 6 SELECT DRIVES, page 22*

— *STEP 7 SELECT OPTION CARD(s), page 24*

STEP 4   SELECT MEMORY

The available memory main characteristics for the HX240C M6 LFF is 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), Load-reduced DIMMs (LRDIMMs), or Intel® Optane™ Persistent Memory Modules (PMEMs).

Memory is organized with eight memory channels per CPU, with up to two DIMMs per channel, as shown in *Figure 4*.

Figure 4   HX240C M6 LFF Memory Organization

8 memory channels per CPU,
up to 2 DIMMs per channel
32 DIMMS total (16 per CPU)
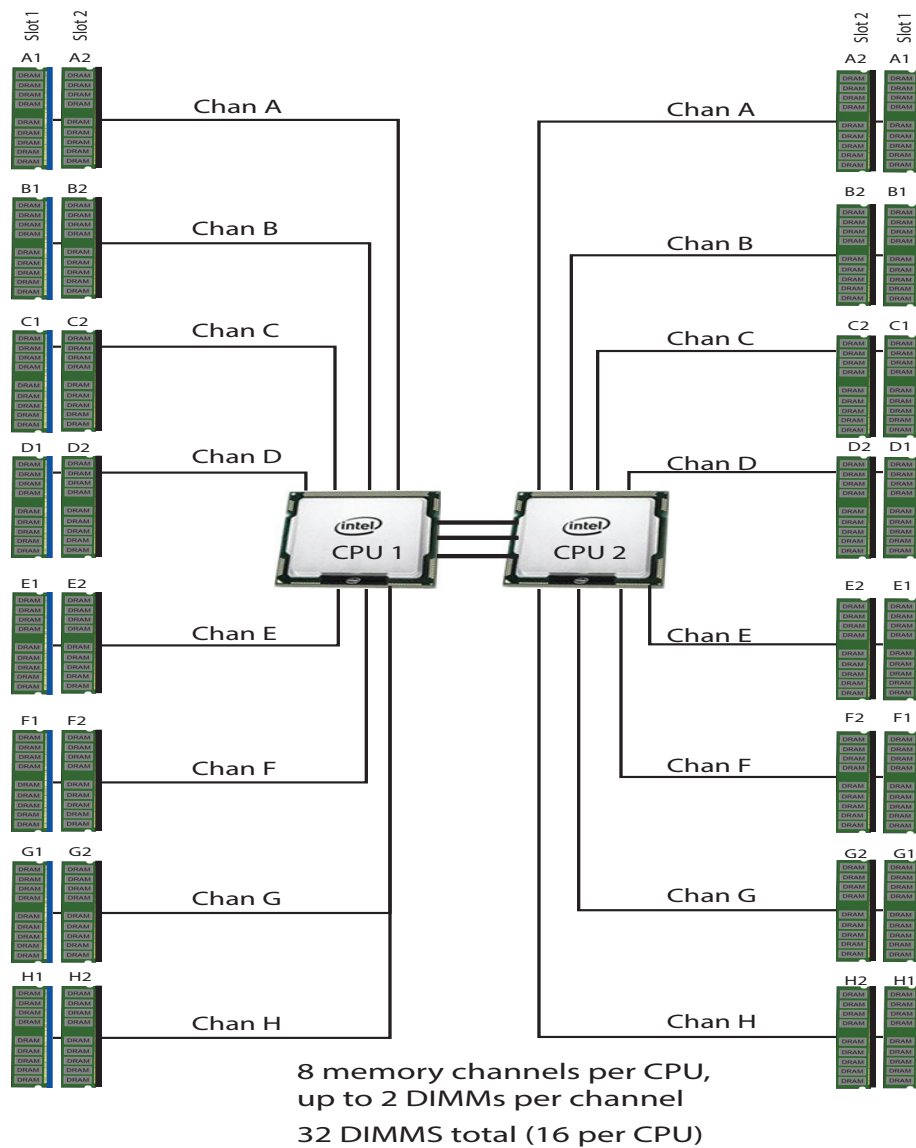
DIMMs and PMEMs

The supported memory DIMMs, PMEMs and Memory Mode are listed in *Table 7*.

Table 7   Available DDR4 DIMMs and PMEMs

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	32 GB 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
Intel® Optane™ Persistent Memory (PMEM)			
HX-MP-128GS-B0	Intel® Optane™ Persistent Memory, 128GB, 3200 MHz		
HX-MP-256GS-B0	Intel® Optane™ Persistent Memory, 256 GB, 3200 MHz		
HX-MP-512GS-B0	Intel® Optane™ Persistent Memory, 512 GB, 3200 MHz		
DIMM Blank[1]			
UCS-DIMM-BLK	UCS DIMM Blank		
Intel® Optane™ Persistent Memory (PMEM) Operational Modes			
HX-DCPMM-AD[2]	Intel Optane DC Persistent Memory Operational Mode - App Di		
HX-DCPMM-MM[3]	Intel Optane DC Persistent Memory Operational Mode - Memory		

Notes:

1. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.
2. **App Direct Mode**: PMem operates as a solid-state disk storage device. Data is saved and is non-volatile. Both PMem and DIMM capacities count towards the CPU capacity limit.
3. **Memory Mode:**

    • Please note that DCPMM - Memory mode configuration is on compliance hold review. Please contact: **hxdcpmm_compliancehold@cisco.com**

    • Please use the **HX M6 Memory Guide** to determine the correct DRAM:DCPMM ratio

> **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.
>
> ■ The selected DIMMs must be all of same type and number of DIMMs must be equal for both CPUs
>
> ■ HyperFlex Data Platform reserves memory for each controller VM. Refer to the <**Install Guide**> for reservation details.
>
> ■ The memory mirroring feature is not supported with HyperFlex nodes.

Memory Configurations, Features, and Modes

System speed is dependent on the CPU DIMM speed support. Refer to *Available CPUs, page 12* for DIMM speeds.

■ The server supports the following memory reliability, availability, and serviceability (RAS) BIOS options (only one option can be chosen):

— Adaptive Double Device Data Correction (ADDDC) (default)

— Maximum performance

■ For best performance, observe the following:

— When one DIMM is used, it must be populated in DIMM slot 1 (farthest away from the CPU) of a given channel.

— When single- or dual-rank DIMMs are populated in two DIMMs per channel (2DPC) configurations, always populate the higher number rank DIMM first (starting from the farthest slot). For a 2DPC example, first populate with dual-rank DIMMs in DIMM slot 1. Then populate single-rank DIMMs in DIMM 2 slot.

■ DIMMs for CPU 1 and CPU 2 (when populated) must always be configured identically.

■ Cisco memory from previous generation servers (DDR3 and DDR4) is not compatible with the server.

■ Memory can be configured in any number of DIMMs as pairs, although for optimal performance, see the following document

HX M6 Memory Guide

Approved Configurations

(1) 1-CPU configuration:

- Select from 1 to 16 DIMMs

  − 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed

  − 3, 5, 7, 9, 10, 11, 13, 14, 15 DIMMs not allowed

  − DIMMs for both CPUs must be configured identically.

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

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

(2) 2-CPU configuration:

- Select from 1 to 16 DIMMs per CPU

  − 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed

  − 3, 5, 7, 9, 10, 11, 13, 14, 15 DIMMs not allowed

  − DIMMs for both CPUs must be configured identically.

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

#DIMMs	CPU 1 DIMM Placement in Channels (for identically ranked DIMMs)	CPU 2 DIMM Placement in Channels (for identically ranked DIMMs)
1	(A1)	(A1)
2	(A1, E1)	(A1, E1)
4	(A1, C1); (E1, G1)	(A1, C1); (E1, G1)
6	(A1, C1); (D1, E1); (G1, H1)	(A1, C1); (D1, E1); (G1, H1)
8	(A1, C1); (D1, E1); (G1, H1); (B1, F1)	(A1, C1); (D1, E1); (G1, H1); (B1, F1)
12	(A1, C1); (D1, E1); (G1, H1); (A2, C2); (D2, E2); (G2, H2)	(A1, C1); (D1, E1); (G1, H1); (A2, C2); (D2, E2); (G2, H2)
16	(A1, B1); (C1, D1); (E1, F1); (G1, H1); (A2, B2); (C2, D2); (E2, F2); (G2, H2)	(A1, B1); (C1, D1); (E1, F1); (G1, H1); (A2, B2); (C2, D2); (E2, F2); (G2, H2)

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   3200-MHz DIMM Memory Speeds with Different Intel® Xeon® Ice Lake® Processors

DIMM and CPU Frequencies (MHz)	DPC	LRDIMM (4Rx4)- 128 GB (MHz)	LRDIMM (4Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 32 GB (MHz)	RDIMM (1Rx4) - 16 GB (MHz)
		1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
DIMM = 3200 CPU = 3200	1DPC	3200	3200	3200	3200	3200
	2DPC	3200	3200	3200	3200	3200
DIMM = 3200 CPU = 2933	1DPC	2933	2933	2933	2933	2933
	2DPC	2933	2933	2933	2933	2933
DIMM = 3200 CPU = 2666	1DPC	2666	2666	2666	2666	2666
	2DPC	2666	2666	2666	2666	2666

DIMM Rules

- Allowed DIMM count for 1 CPU:
    - Minimum DIMM count = 1; Maximum DIMM count = 16
    - 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed
    - 3, 5, 7. 9, 10, 11, 13, 14, or 15 DIMMs not allowed.
- Allowed DIMM count for 2 CPUs
    - Minimum DIMM count = 2; Maximum DIMM count = 32
    - 2, 4, 8, 12, 16, 24, or 32 DIMMs allowed
    - 6, 10, 14, 18, 20, 22, 26, 28, or 30 DIMMs not allowed.
- DIMM Mixing:
    - Mixing different types of DIMM (RDIMM with any type of LRDIMM or 3DS LRDIMM with non-3DS 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 16 GB, 32 GB, and 64 GB RDIMMs is supported.

NOTE:
- DIMM mixing is not allowed when PMem are installed; in these cases, all DIMMs must be the same type and size.
- See the detailed mixing DIMM configurations at the following link
    HX M6 Memory Guide

STEP 5   SELECT DRIVE CONTROLLERS

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

■ SAS/SATA drives are controlled through a Cisco 12G SAS pass-through HBA

■ PCIe NVMe drives are controlled directly from the CPUs

Cisco M6 12G SAS HBA

This HBA supports up to 32 SAS or SATA drives. It supports JBOD or pass-through mode (not RAID) and plugs into slot 1 of riser 1B.

Select Drive Controller Options

Select the following:

■ Cisco 12G M6 SAS HBA (see *Table 9*)

Table 9   Hardware Controller Options

Product ID (PID)	PID Description
Controllers for Internal Drives	
Note that if the following Cisco 12G SAS RAID controller or Cisco 12G SAS HBA is selected, it is factory-installed in slot 1 of riser 1B	
HX-SAS-M6HD	Cisco M6 12G SAS HBA (32 drives) ■ Supports up to 32 internal SAS HDDs and SAS/SATA SSDs ■ Supports JBOD or pass-through mode

Approved Configurations

The HX240C M6 LFF Server Node can be ordered with up to 12 front LFF drives (SAS-only), up to 4 midplane LFF drives (SAS-only), and up to 2 rear SFF drives (SAS/SATA/NVMe)

■ There is no RAID support for NVMe drives.

■ The Cisco M6 12G SAS HBA supports up to 32 internal drives with JBOD support.

STEP 6   SELECT DRIVES

The standard disk drive features are:

- ■ 3.5-inch large form factor (front and mid-plane drives)
- ■ 2.5-inch small form factor (rear drives)
- ■ Hot-pluggable
- ■ Drives come mounted in sleds

Select Drives

The available drives are listed in *Table 10*

Table 10 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-HD6T7KL4KN	6TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	6 TB
HX-HD8T7K4KAN	8TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	8 TB
HX-HD12T7KL4KN	12TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	12 TB
Mid Plane Capacity Drive			
HX-HD6T7KL4KM	6TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	6 TB
HX-HD8T7K4KAM	8TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	8 TB
HX-HD12T7KL4KM	12TB 12G SAS 7.2K RPM LFF HDD (4K)	SAS	12 TB
Rear Cache Drive			
HX-SD32TK3X-EP	3.2TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	3.2 TB
Rear System Drive			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
Boot Drive			
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 twelve capacity drives and four optional mid plane capacity drives

> **NOTE:**
>
> ■ A minimum of 3 capacity drives is supported for HX Edge configuration.
>
> ■ For cluster scale related information please see the product **release notes.**

■ One rear cache drive

■ One rear system drive

■ 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.
>
> ■ CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
>
> ■ 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
>
> ■ 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 8 on page 52* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

Caveats

■ A midplane kit (PID UCSC-MPSTOM6L-KIT) is required.

■ A midplane kit (PID UCSC-MPSTOM6L-KIT) is included even if midplane drives are not ordered. Note that if a double-wide GPU is selected, a midplane kit and midplane drives cannot be installed.

STEP 7   SELECT OPTION CARD(s)

The standard PCIe 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 11*.

Table 11 Available PCIe Option Cards

Product ID (PID)	PID Description	Location	Card Size[1]
Modular LAN on Motherboard (mLOM)[2]			
HX-M-V25-04	Cisco UCS VIC 1467 quad port 10/25G SFP28 mLOM	mLOM	HHHL, SS
HX-M-V100-04	Cisco UCS VIC 1477 dual port 40/100G QSFP28 mLOM	mLOM	HHHL, SS
Virtual Interface Card (VICs)			
HX-PCIE-C100-04	Cisco UCS VIC 1495 dual port 40/100G QSFP28 CNA PCIe	Riser 2 only	HHHL, SS
HX-PCIE-C25Q-04	Cisco UCS VIC 1455 quad port 10/25G SFP28 PCIe	Riser 2 only	HHHL, SS
Network Interface Cards (NICs)			
1 Gb NICs			
HX-PCIE-IRJ45	Intel i350 quad-port 1G copper PCIe	Riser 2 only	HHHL, SS
10 Gb NICs			
HX-PCIE-ID10GF	Intel X710-DA2 Dual Port 10Gb SFP+ NIC	Riser 2 only	HHHL, SS
HX-PCIE-IQ10GF	Intel X710 quad-port 10G SFP+ NIC	Riser 2 only	HHHL, SS
HX-P-ID10GC	Cisco-Intel X710T2LG 2x10 GbE RJ45 PCIe NIC	Riser 2 only	HHHL, SS
25 Gb NICs			
HX-P-I8D25GF	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC	Riser 2 only	HHHL, SS
HX-P-I8Q25GF	Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC	Riser 2 only	FHHL, SS
HX PCIe Accel Engine[3,4]			
HX-PCIE-OFFLOAD-1	Application Acceleration Engine	Riser 2 only	HHHL, SS

Notes:

1. HHHL = half-height, half-length; FHHL = full-height, half-length; SS = single-slot; DS = double-slot

2. The mLOM card does not plug into any of the riser 1 or riser 2 card slots; instead, it plugs into a connector inside the chassis

3. • Every node in an HX cluster must use HX-PCIE-OFFLOAD-1 card

   • Optional card offloads the compression functionality to HW acceleration card.HX-PCIE-OFFLOAD-1 uses a more computationally intensive compression algorithm. This results in lower storage space and frees up CPU cycle.

   • HXDP Enterprise licenses are required.

   • HX-PCIE-OFFLOAD-1 works with all HXDP features, including Stretched Cluster, SED drives and more

Cisco HyperFlex HX240c M6 Server Node (Large Form Factor Disk Drive Model)

4. Please note that, HX-PCIE-OFFLOAD-1 is on Compliance Hold Review, for details contact:
   hx-order-compliance-hold@cisco.com

NOTE: Use of 10GE PCI card is not allowed with 6300 Series FI.

Caveats

- For 1-CPU systems:

    — One PCIe slot (slot 1) is available for a 1-CPU system. However, it is reserved for the drive controller SAS HBA only.

- For 2-CPU systems:

    — The following PCIe slots are available:

        • One on PCIe riser 1B (slots 1, reserved for drive controller),

        • Three on PCIe riser 2A (PCIe slots 4, 5, and 6), and

    — One plug-in PCIe VIC card can be installed in dual CPU systems, using slot 5. In addition, you can order an mLOM VIC card, which is installed in the mLOM slot inside the chassis and thus have two VIC cards in operation at the same time. See *Table 11 on page 24* for the selection of plug-in and mLOM VIC cards. See also *Table 1 on page 6* and *SPARE PARTS, page 58* for the PCIe slot physical descriptions.

    — The server supports up to one PCIe Cisco VICs plus an MLOM VIC

        However, single wire management is supported on only one VIC at a time. If multiple VICs are installed on a server, only one slot has NCSI enabled at a time and for single wire management, priority goes to the MLOM slot, then slot 5 for NCSI management traffic. When multiple cards are installed, connect the single wire management cables in the priority order mentioned above.

- 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 HX240c M6 LFF server, but are not sold on the Cisco price list, check the Hardware Compatibility List at this link:

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

STEP 8 ORDER OPTIONAL PCIE OPTION CARD ACCESSORIES

■ For list of supported optics and cables for VIC 1455, VIC 1495, VIC 1467 and 1477, refer to the 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

Select

■ NIC Interoperability with Cisco Cables/Optics (*Table 12* & *Table 13 on page 27*).

■ NIC Interoperability with Intel Cables/Optics (*Table 14 on page 28*).

Table 12 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	✓	✓	
SFP-10G-LR	✓	✓	
SFP-10G-LR-S	✓	✓	
GLC-SX-MMD	✓	✓	

Table 13 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-H25G-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 14 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 9   ORDER GPU CARDS (OPTIONAL)

Select GPU Options

The available GPU PCIe options and their riser slot compatibilities are listed in *Table 15*.

Table 15 Available PCIe GPU Cards[1]

GPU Product ID (PID)	PID Description	Card Size	Max GPU per Node	Riser Slot Compatibility	
				Riser 1B[2]	Riser 2 (Gen 4)
HX-GPU-A10	TESLA A10, PASSIVE, 150W, 24GB	Single-wide	2	N/A	Slot 5&6

Notes:

1. Refer to
https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c240m6/install/c240m6.html for more details.
2. Riser 1B does not accept GPUs

> **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.

STEP 10 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 offer multiple power output options. This allows users to "right-size" based on server configuration, which improves power efficiency, lower overall energy costs and avoid 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 16   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	1050W -48V DC Power Supply for Rack Server
HX-PSU1-1600W	1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSU1-2300W[1]	2300W AC Power Supply for Rack Servers Titanium
PSU (Input Low Line 110VAC)	
HX-PSU1-1050W	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC	1050W -48V DC Power Supply for Rack Server
HX-PSU1-2300W	2300W AC Power Supply for Rack Servers Titanium
HX-PSU1-1050ELV	1050W AC PSU Enhanced Low Line (Not EU/UK Lot 9 Compliant)

Notes:

1. The 2300 W power supply uses a different power connector that the rest of the power supplies, so you must use different power cables to connect it. See *Table 17 on page 31* and *Table 18 on page 34*.

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

STEP 11 SELECT INPUT POWER CORD(s)

Using *Table 17* and *Table 18*, 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.

> **NOTE:** *Table 17* lists the power cords for servers that use power supplies less than 2300 W. *Table 18* lists the power cords for servers that use 2300 W power supplies. Note that the power cords for 2300 W power supplies use a C19 connector so they only fit the 2300 W power supply connector.

Table 17 Available Power Cords (for server PSUs less than 2300 W)
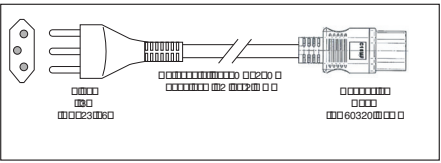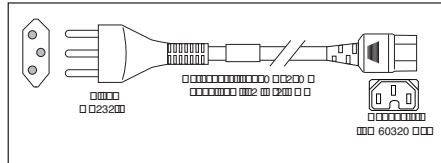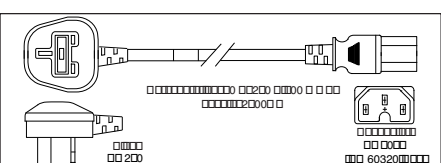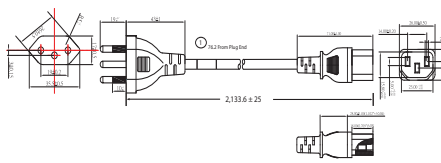
Product ID (PID)	PID Description	Images
NO-POWER-CORD	ECO friendly green option, no power cable will be shipped	
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A	
CAB-N5K6A-NA	Power 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	

Table 17 Available Power Cords (for server PSUs less than 2300 W)

Product ID (PID)	PID Description	Images
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/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	
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	

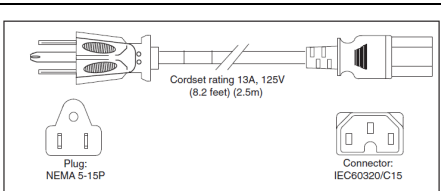**Table 17 Available Power Cords (for server PSUs less than 2300 W)**

Product ID (PID)	PID Description	Images
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[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

Table 18 Available Power Cords (for servers with 2300 W PSUs)

Product ID (PID)	PID Description	Images
CAB-C19-CBN	Cabinet Jumper Power Cord, 250 VAC 16A, C20-C19 Connectors	Not applicable
CAB-S132-C19-ISRL	S132 to IEC-C19 14ft Israeli	Image not available
CAB-IR2073-C19-AR	IRSM 2073 to IEC-C19 14ft Argen	Image not available
CAB-BS1363-C19-UK	BS-1363 to IEC-C19 14ft UK	Image not available
CAB-SABS-C19-IND	SABS 164-1 to IEC-C19 India	Image not available
CAB-C2316-C19-IT	CEI 23-16 to IEC-C19 14ft Italy	Image not available
CAB-L520P-C19-US	NEMA L5-20 to IEC-C19 6ft US	Image not available
CAB-US515P-C19-US	NEMA 5-15 to IEC-C19 13ft US	Image not available
CAB-US520-C19-US	NEMA 5-20 to IEC-C19 14ft US	Image not available
CAB-US620P-C19-US	NEMA 6-20 to IEC-C19 13ft US	Image not available

STEP 12 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM

Select a Tool-less Rail Kit

Select a tool-less rail kit (or no rail kit) from *Table 19*.

Table 19 Tool-less Rail Kit Options

Product ID (PID)	PID Description
HX-RAIL-M6	Ball Bearing Rail Kit for C220 & C240 M6 rack servers
HX-RAIL-NONE	No rail kit option

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 20* to order a cable management arm.

Table 20 Cable Management Arm

Product ID (PID)	PID Description
HX-CMA-C240M6	Reversible CMA for C240 M6 ball bearing rail kit

For more information about the tool-less rail kit and cable management arm, see the Cisco 240 M6 server Installation and Service Guide at this URL:

https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c240m6/install/c240m6.html

NOTE: If you plan to rackmount your HyperFlex HX240 M6 LFF server, you must order a tool-less rail kit. The same rail kits and CMAs are used for M5 and M6 servers.

STEP 13 ORDER SECURITY DEVICES (OPTIONAL)

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

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

The security device ordering information is listed in *Table 21*.

Table 21 Security Devices

Product ID (PID)	PID Description
HX-TPM-002C	TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers
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 14 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 22*.

Table 22 Locking Bezel Option

Product ID (PID)	Description
HX240C-BZL-M5S	HX240C M5 Security Bezel

STEP 15   SELECT HOST OPERATING SYSTEM

Select Microsoft Windows operating system as desired from *Table 23*

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 23 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 16 SELECT HYPERFLEX DATA PLATFORM (HXDP) SOFTWARE

HyperFlex Data Platform Edition & Subscription Period options are available as follows. Select as desired from *Table 24*

Table 24 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 Mgmt
SVS-L1DCS-HXDP	CXL1 for HXDP
SVS-L2DCS-HXDP	CXL2 for HXDP

STEP   17   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. Select as desired from *Table 25*.

Table 25 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 Mgmt
SVS-L1DCS-INTER	CXL1 for INTERSIGHT
SVS-L2DCS-INTER	CXL2 for INTERSIGHT

STEP 18 SELECT INSTALLATION SERVICE

Customers can purchase Cisco Advanced Services (AS). Select as desired from *Table 26*.

Table 26 Installation services

Product ID (PID)	PID Description
Cisco Advanced Services	
ASF-ULT2-HPF-QSS	Quick Start Services - 1 Week
ASF-ULT2-HPF-ADS	Accelerated Deployment Services - 2 Weeks
AS-DCN-CNSLT	Advanced Services Consulting

STEP 19 SELECT SERVICE and SUPPORT LEVEL

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

HyperFlex Warranty, No Contract

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

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

Smart Net Total Care (SNTC)

For support of the entire HyperFlex System, Cisco offers the Cisco Smart Net Total Care 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 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 27*.

Table 27 SNTC Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-HX240CML	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-HX240CML	UCSD8	Yes	UC SUPP DR
CON-C2PL-HX240CML	C2PL	Yes	LL 24X7X2OS**
CON-OSP-HX240CML	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-HX240CML	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-HX240CML	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-HX240CML	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-HX240CML	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-HX240CML	UCSD6	Yes	UC SUPP DR 8X5X4OS*

CONFIGURING the SERVER

Table 27 SNTC Service (PID HX240CML)

CON-SNCO-HX240CML	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-HX240CML	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-HX240CML	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-HX240CML	S2P	No	SNTC 24X7X2
CON-S2PL-HX240CML	S2PL	No	LL 24X7X2**
CON-SNTP-HX240CML	SNTP	No	SNTC 24X7X4
CON-SNTPL-HX240CML	SNTPL	No	LL 24X7X4**
CON-SNTE-HX240CML	SNTE	No	SNTC 8X5X4
CON-SNC-HX240CML	SNC	No	SNTC 8x7xNCD
CON-SNT-HX240CML	SNT	No	SNTC 8X5XNBD
CON-SW-HX240CML	SW	No	SNTC NO RMA
*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 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 HyperFlex System 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 28*.

Table 28 SNTC Onsite Troubleshooting Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-HX240CML	OSPT	Yes	24X7X4OS Trblshtg
CON-OSPTD-HX240CML	OSPTD	Yes	24X7X4OS TrblshtgDR*
CON-OSPTL-HX240CML	OSPTL	Yes	24X7X4OS TrblshtgLL**
CON-OPTLD-HX240CML	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			

Cisco HyperFlex HX240c M6 Server Node (Large Form Factor Disk Drive Model)   43

Solution Support (SSPT)

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 29*.

Table 29 Solution Support Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-HX240CML	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-HX240CML	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-HX240CML	SSC4S	Yes	SOLN SUPP 8X5X4OS
CON-SSCS-HX240CML	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-HX240CML	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-HX240CML	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-HX240CML	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-HX240CML	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-HX240CML	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-HX240CML	SSSNC	No	SOLN SUPP NCD
CON-SSSNT-HX240CML	SSSNT	No	SOLN SUPP 8X5XNBD
*Includes Drive Retention (see below for full description)			

Solution Support for Service Providers

You can choose a desired service listed in *Table 30*.

Table 30 Solution Support for Service Providers Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
SP-SSC2P-HX240CML	SPSSC2P	Yes	SP SOLN SUPP

Table 30 Solution Support for Service Providers Service (PID HX240CML)

SP-SSC4P-HX240CML	SPSSC4P	Yes	SP SOLN SUPP
SP-SSC4S-HX240CML	SPSSC4S	Yes	SP SOLN SUPP
SP-SSCS-HX240CML	SPSSCS	Yes	SP SOLN SUPP
SP-SSS2P-HX240CML	SPSSS2P	Yes	SP SOLN SUPP 24X7X2
SP-SSS4P-HX240CML	SPSSS4P	Yes	SP SOLN SUPP 24X7X4
SP-SSSNE-HX240CML	SPSSSNE	No	SP SOLN SUPP 8X5X4
SP-SSSNT-HX240CML	SPSSSNT	No	SP SOLN SUPP
SP-SSSPB-HX240CML	SPSSSPB	No	SP SOLN SUPP NO HW

Smart Net Total Care Hardware Only Service

For faster parts replacement than is provided with the standard Cisco HyperFlex warranty, Cisco offers the Cisco Smart Net Total Care 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 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 31*.

Table 31 SNTC Hardware Only Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-HX240CML	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-HX240CML	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-HX240CML	UCW7L	Yes	LL UCS 24X7X4OS**
CON-UWD7L-HX240CML	UWD7L	Yes	LL UCS DR 24X7X4OS***
CON-UCW5-HX240CML	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-HX240CML	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*
*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

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 Support Options include:

- Partner Support Service for HyperFlex
- Partner Support Service for HyperFlex Hardware Only

PSS 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 32*.

Table 32 PSS Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-HX240CML	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-HX240CML	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-HX240CML	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-HX240CML	PSJ6	Yes	UCS PSS 8X5X4 OS
CON-PSJD6-HX240CML	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-HX240CML	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-HX240CML	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-HX240CML	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-HX240CML	PSJ1	No	UCS SUPP PSS 8X5XNBD
*Includes Drive Retention (see below for full description)			

PSS Hardware Only

PSS 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 33*.

Table 33 PSS Hardware Only Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description

Table 33 PSS Hardware Only Service (PID HX240CML)

CON-PSW7-HX240CML	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-HX240CML	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-HX240CML	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-HX240CML	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-HX240CML	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-HX240CML	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-HX240CML	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 34*.

Table 34 DSS Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-DSCO-HX240CML	DSCO	Yes	DSS CORE 24X7X2OS
CON-DSO-HX240CML	DSO	Yes	DSS CORE 24X7X4
CON-DSNO-HX240CML	DSNO	Yes	DSS CORE 8X5XNBDOS
CON-DSCC-HX240CML	DSCC	No	DSS CORE 24X7X2
CON-DCP-HX240CML	DCP	No	DSS CORE 24X7X4
CON-DSE-HX240CML	DSE	No	DSS CORE 8X5X4
CON-DSN-HX240CML	DSN	No	DSS CORE 8X5XNBD

Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SNTC services 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 HyperFlex System, the more important the technology becomes to your business. These services allow you to:

■ Optimize the uptime, performance, and efficiency of your HyperFlex system

■ 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 HyperFlex 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 35*.

Table 35 Combined Support Service (PID HX240CML)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-HX240CML	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-HX240CML	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-HX240CML	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-HX240CML	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-HX240CML	NCF2	No	CMB SVC 24X7X2
CON-NCFP-HX240CML	NCFP	No	CMB SVC 24X7X4
CON-NCFE-HX240CML	NCFE	No	CMB SVC 8X5X4
CON-NCFT-HX240CML	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-HX240CML	NCFW	No	CMB SVC SW

Drive Retention Service

With the Cisco 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

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 5 show a small footprint cluster.

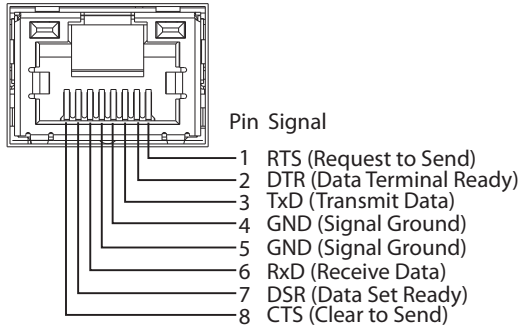**Figure 5   Small Footprint Cluster Using HX240 M6 LFF Server Node**

Cisco HyperFlex HX240c M6 Server Node (Large Form Factor Disk Drive Model)
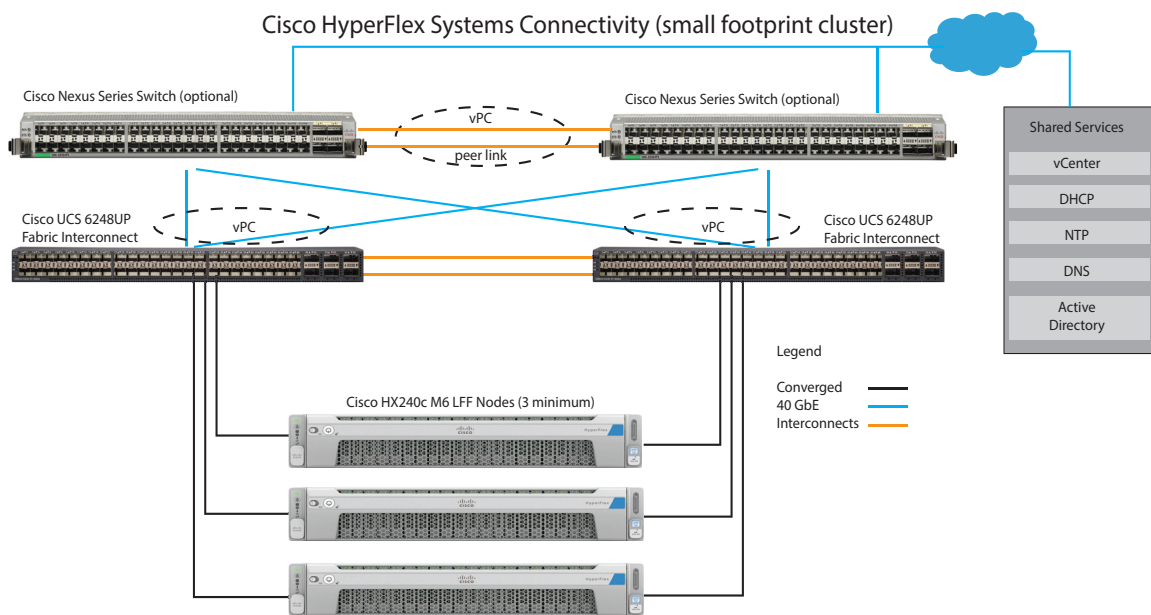
Serial Port Details

The pinout details of the RJ-45 serial port connector are shown in *Figure 6*.

Figure 6   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)

KVM CABLE

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

The KVM cable ordering information is listed in *Table 36*.

Table 36 KVM Cable

Product ID (PID)	PID Description
N20-BKVM	KVM local IO cable for UCS servers console port

Figure 7   KVM Cable
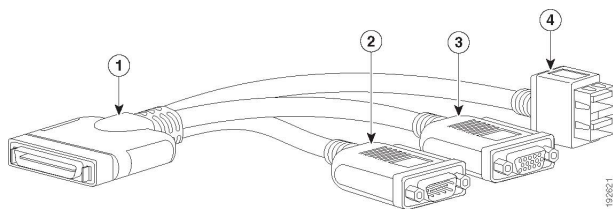
1	Connector (to server front panel)	3	VGA connector (for a monitor)
2	DB-9 serial connector	4	Two-port USB 2.0 connector (for a mouse and keyboard)

Chassis

An internal view of the HX240C M6 LFF chassis with the top cover removed is shown in *Figure 8*.

Figure 8   HX240C M6 LFF Server Node With Top Cover Off

1	Front-loading drive bays.	2	Cooling fan modules (six, hot-swappable)
3	DIMM sockets on motherboard (16 per CPU) An air baffle rests on top of the DIMMs and CPUs when the server is operating. The air baffle is not displayed in this illustration.	4	CPU sockets CPU 2 is at the top and CPU 1 is at the bottom.
5	PCIe riser 3B is not supported	6	PCIe riser 2 (PCIe slots 4, 5, 6 numbered from bottom to top), with the following options: ■ 2A (Default Option)—Slot 4 (x24 mechanical, x8 electrical) supports full height, ¾ length card; Slot 5 (x24 mechanical, x16 electrical) supports full height, full length GPU card; Slot 6 (x24 mechanical, x8 electrical) supports full height, full length card.

| 7 | PCIe riser 1 (PCIe slot 1, 2, 3 numbered bottom to top), with the following options:

■ 1B (Storage Option)—Slot 1 is reserved for drive controller; Slot 2 (x4 electrical), supports 2.5-inch SFF universal HDD; Slot 3 (x4 electrical), supports 2.5-inch SFF universal HDD | - | |

Risers

Figure 9 shows the locations of the PCIe riser connectors on the HX240C M6 LFF motherboard.
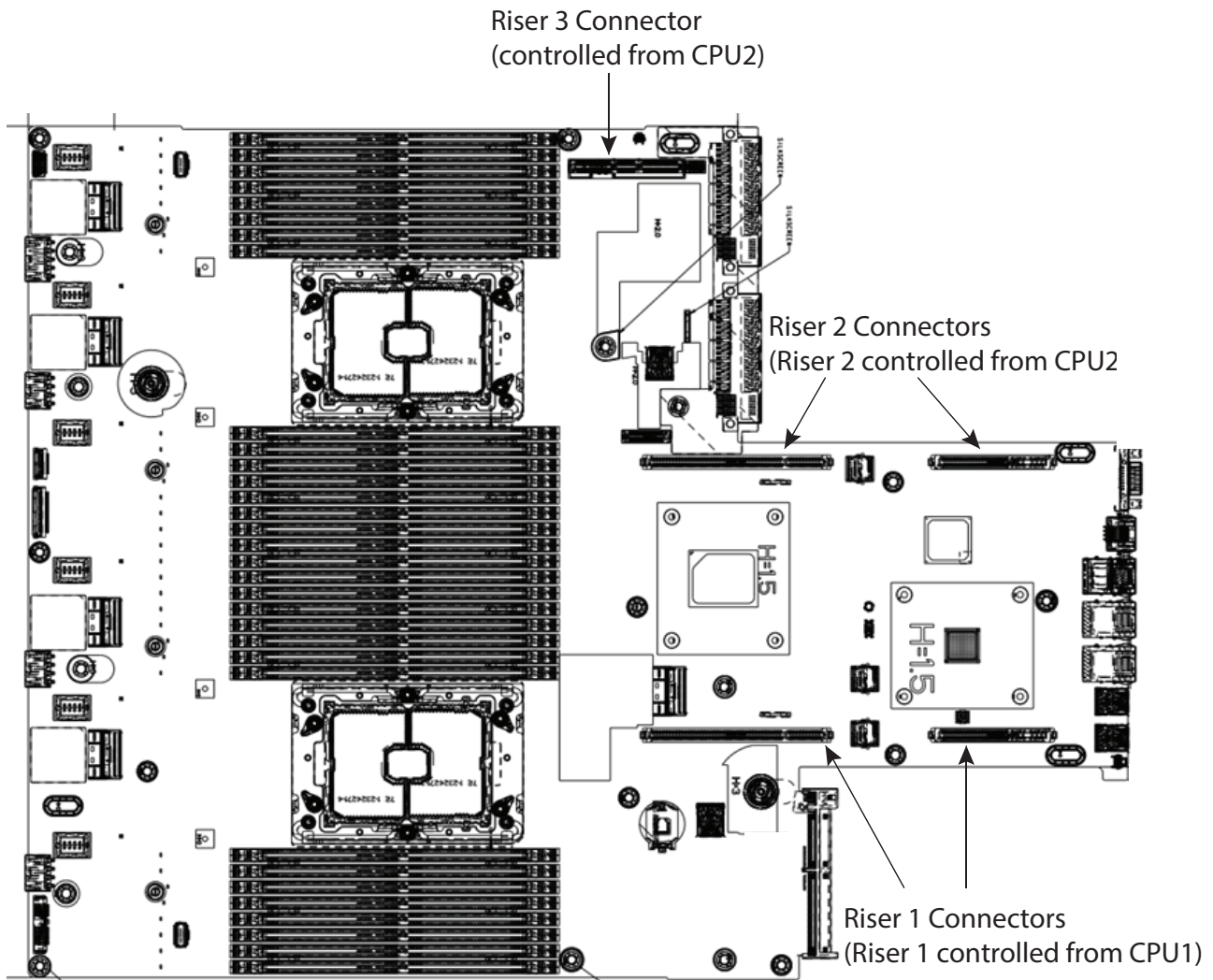
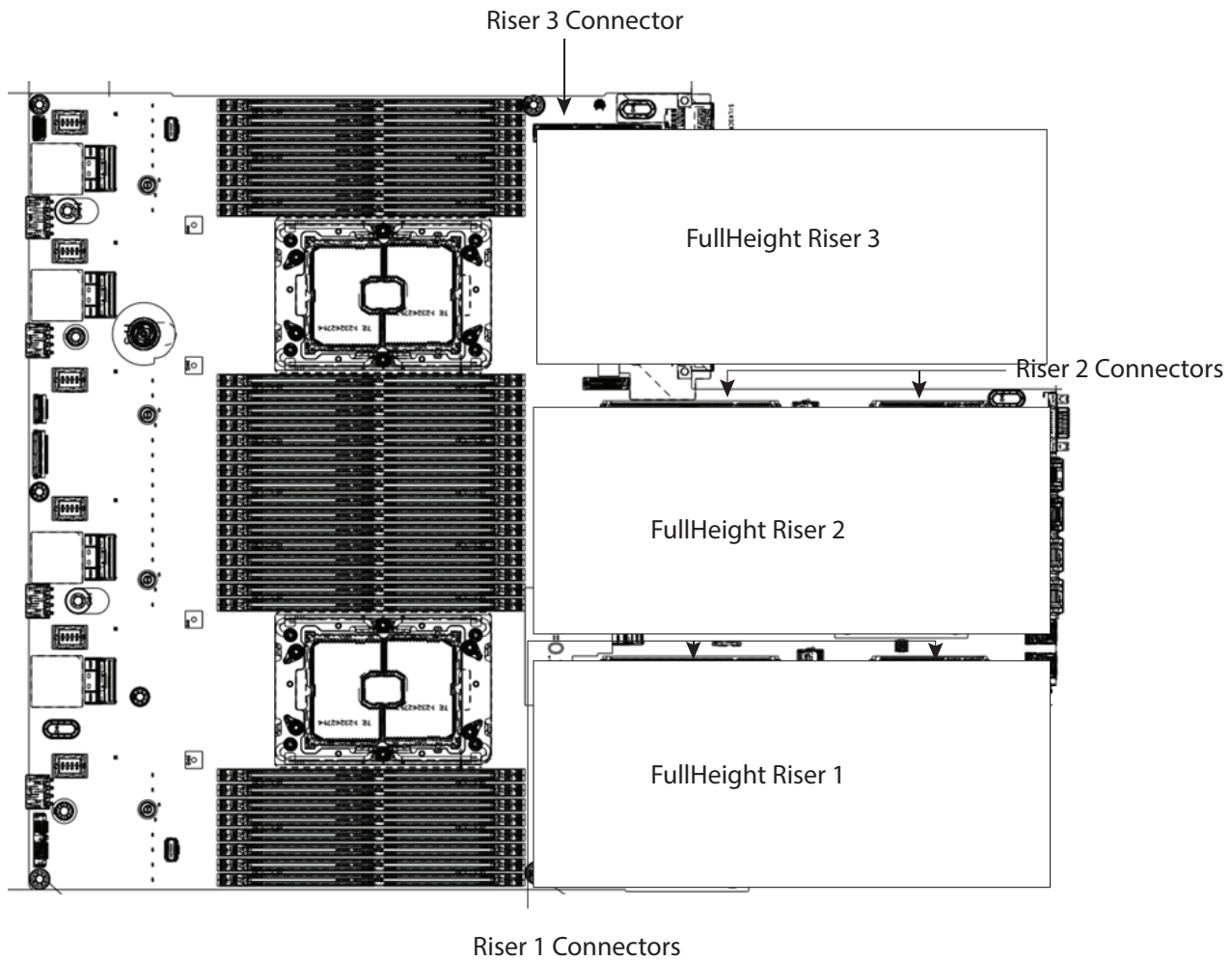**Figure 9   HX240C M6 LFF Riser Connector Locations**

Riser 3 Connector
(controlled from CPU2)

Riser 2 Connectors
(Riser 2 controlled from CPU2

Riser 1 Connectors
(Riser 1 controlled from CPU1)

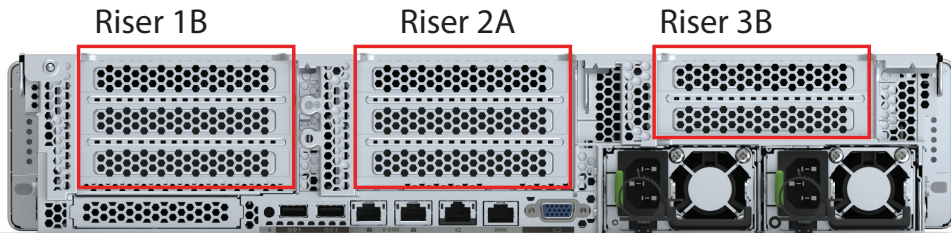*Figure 10* shows the locations of the PCIe riser connectors on the HX240C M6 LFF motherboard.

Figure 10   HX240C M6 LFF Riser Connector Locations

Riser Card Configuration and Options

The riser card locations are shown in *Figure 11*. Only risers 1B and 2A are supported and 3B is not supported
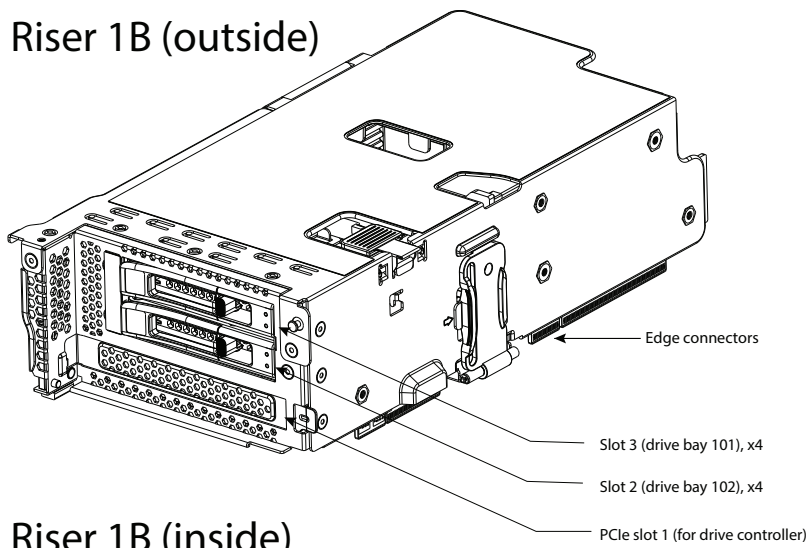
Figure 11   Riser Card Locations
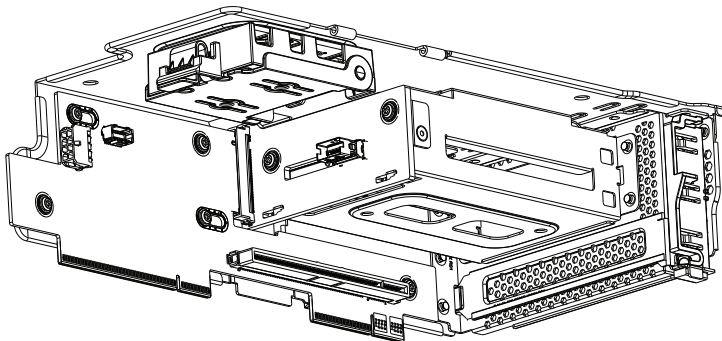

Riser 1B

Riser 1B mechanical information is shown in *Figure 12*.

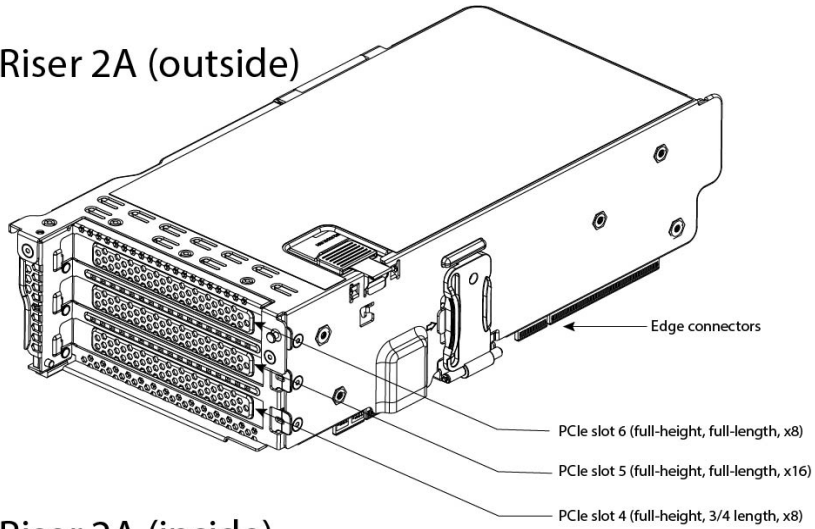**Figure 12   Riser Card 1B**

PCIe Riser 1B (outside)

Edge connectors

Slot 3 (drive bay 101), x4

Slot 2 (drive bay 102), x4

PCIe slot 1 (for drive controller)

PCIe Riser 1B (inside)

Riser 2A

Riser 2A mechanical information is shown in *Figure 13*.

Figure 13   Riser Card 2A

PCIe Riser 2A (outside)

Edge connectors

PCIe slot 6 (full-height, full-length, x8)

PCIe slot 5 (full-height, full-length, x16)

PCIe slot 4 (full-height, 3/4 length, x8)

PCIe Riser 2A (inside)
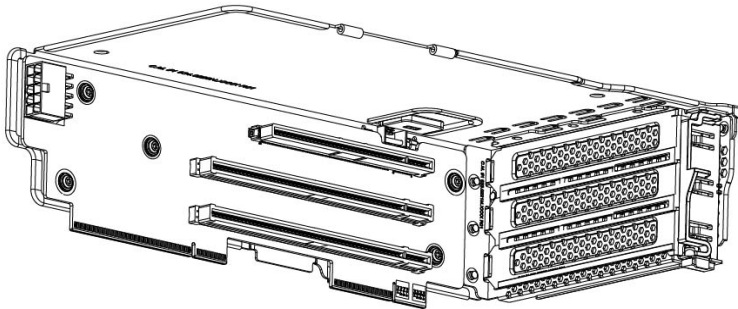
SPARE PARTS

This section lists the upgrade and service-related parts for the UCS C220 M6 server. 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 drive controllers may need accompanying cables. CPUs may need heatsinks, thermal paste, and installation tools. The spares and their accessory parts are listed in *Table 37*.

Table 37 Spare Parts

Product ID (PID)	PID Description
KVM Cable	
N20-BKVM=	KVM local IO cable for UCS servers console port
Risers	
UCSC-RIS1B-240M6=	C240 M6 Riser1B; 2xHDD/SSD; StBkt; (CPU1)
UCSC-RIS2A-240M6=	C240 M6 Riser2A; (x8;x16;x8);StBkt; (CPU2)
UCSC-FBRS2-C240M6=	C240M6 2U Riser2 Filler Blank
UCSC-FBRS3-C240M6=	C240M6 2U Riser3 Filler Blank
CPUs	
Note: If you are ordering a second CPU, see the **CPU Accessories** section in this table for additional parts you may need to order for the second CPU.	
8000 Series Processors	
HX-CPU-I8380=	Intel 8380 2.3GHz/270W 40C/60MB DDR4 3200MHz
HX-CPU-I8368=	Intel 8368 2.4GHz/270W 38C/57MB DDR4 3200MHz
HX-CPU-I8362=	Intel 8362 2.8GHz/265W 32C/48MB DDR4 3200MHz-
HX-CPU-I8360Y=	Intel 8360Y 2.4GHz/250W 36C/54MB DDR4 3200MHz
HX-CPU-I8358P=	Intel 8358P 2.6GHz/240W 32C/48MB DDR4 3200MHz
HX-CPU-I8358=	Intel 8358 2.6GHz/250W 32C/48MB DDR4 3200MHz
HX-CPU-I8352Y=	Intel 8352Y 2.2GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I8352V=	Intel 8352V 2.1GHz/195W 36C/54MB DDR4 2933MHz
HX-CPU-I8352M=	Intel 8352M 2.3GHz/185W 32C/48MB DDR4 3200MHz
HX-CPU-I8352S=	Intel 8352S 2.2GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I8351N=	Intel 8351N 2.4GHz/225W 36C/54MB DDR4 2933MHz
6000 Series Processors	
HX-CPU-I6354=	Intel 6354 3.0GHz/205W 18C/39MB DDR4 3200MHz

Table 37 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-CPU-I6348=	Intel 6348 2.6GHz/235W 28C/42MB DDR4 3200MHz
HX-CPU-I6346=	Intel 6346 3.1GHz/205W 16C/36MB DDR4 3200MHz
HX-CPU-I6342=	Intel 6342 2.8GHz/230W 24C/36MB DDR4 3200MHz
HX-CPU-I6338N=	Intel 6338T 2.1GHz/165W 24C/36MB DDR4 3200MHz
HX-CPU-I6338T=	Intel 6338N 2.2GHz/185W 32C/48MB DDR4 2667MHz
HX-CPU-I6338=	Intel 6338 2.0GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I6336Y=	Intel 6336Y 2.4GHz/185W 24C/36MB DDR4 3200MHz
HX-CPU-I6334=	Intel 6334 3.6GHz/165W 8C/18MB DDR4 3200MHz
HX-CPU-I6330N=	Intel 6330N 2.2GHz/165W 28C/42MB DDR4 2667MHz
HX-CPU-I6330=	Intel 6330 2.0GHz/205W 28C/42MB DDR4 2933MHz
HX-CPU-I6326=	Intel 6326 2.9GHz/185W 16C/24MB DDR4 3200MHz
HX-CPU-I6314U=	Intel 6314U 2.3GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I6312U=	Intel 6312U 2.4GHz/185W 24C/36MB DDR4 3200MHz
5000 Series Processors	
HX-CPU-I5320T=	Intel 5320T 2.3GHz/150W 20C/30MB DDR4 2933MHz
HX-CPU-I5320=	Intel 5320 2.2GHz/185W 26C/39MB DDR4 2933MHz
HX-CPU-I5318N=	Intel 5318Y 2.1GHz/165W 24C/36MB DDR4 2933MHz
HX-CPU-I5318S=	Intel 5318S 2.1GHz/165W 24C/36MB DDR4 2933MHz
HX-CPU-I5318Y=	Intel 5318N 2.1GHz/150W 24C/36MB DDR4 2667MHz
HX-CPU-I5317=	Intel 5317 3.0GHz/150W 12C/18MB DDR4 2933MHz
HX-CPU-I5315Y=	Intel 5315Y 3.2GHz/140W 8C/12MB DDR4 2933MHz
4000 Series Processors	
HX-CPU-I4316=	Intel 4316 2.3GHz/150W 20C/30MB DDR4 2667MHz
HX-CPU-I4314=	Intel 4314 2.4GHz/135W 16C/24MB DDR4 2667MHz
HX-CPU-I4310T=	Intel 4310T 2.3GHz/105W 10C/15MB DDR4 2667MHz
HX-CPU-I4310=	Intel 4310 2.1GHz/120W 12C/18MB DDR4 2667MHz
HX-CPU-I4309Y=	Intel 4309Y 2.8GHz/105W 8C/12MB DDR4 2667MHz
CPU Accessories	
UCSC-HSLP-M6=	Heatsink for 1U/2U LFF/SFF GPU SKU
UCS-CPU-TIM=	Single CPU thermal interface material syringe for M5 server HS seal[1]
UCS-M6-CPU-CAR=	Spare CPU Carrier for M6
UCSX-HSCK=	UCS CPU/Heatsink Cleaning Kit, for up to 4 CPU/heatsink sets

Table 37 Spare Parts *(continued)*

Product ID (PID)	PID Description
UCS-CPUAT=	CPU Assembly Tool for Servers
UCSC-FAN-C240M6=	C240M6 2U Fan
3200-MHz DIMMs	
HX-MR-X16G1RW=	16 GB RDIMM SRx4 3200 (8Gb)
HX-MR-X32G1RW=	32 GB 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)
Intel® Optane™ Persistent Memory (PMEM)	
HX-MP-128GS-B0=	Intel® Optane™ Persistent Memory, 128GB, 3200 MHz
HX-MP-256GS-B0=	Intel® Optane™ Persistent Memory, 256 GB, 3200 MHz
HX-MP-512GS-B0=	Intel® Optane™ Persistent Memory, 512 GB, 3200 MHz
DIMM Blank	
UCS-DIMM-BLK=	UCS DIMM Blank
Drives **Note:** When ordering additional SAS/SATA or NVMe front or rear drives, you may need to order a cable to connect from the drive to the motherboard. See the **Drive Cables** section in this table.	
Front Capacity Drive	
HX-HD6T7KL4KN=	6TB 12G SAS 7.2K RPM LFF HDD (4K)
HX-HD8T7K4KAN=	8TB 12G SAS 7.2K RPM LFF HDD (4K)
HX-HD12T7KL4KN=	12TB 12G SAS 7.2K RPM LFF HDD (4K)
Mid Plane Drive	
HX-HD6T7KL4KM=	6TB 12G SAS 7.2K RPM LFF HDD (4K)
HX-HD8T7K4KAM=	8TB 12G SAS 7.2K RPM LFF HDD (4K)
HX-HD12T7KL4KM=	12TB 12G SAS 7.2K RPM LFF HDD (4K)
Rear Cache Drive	
HX-SD32TK3X-EP=	3.2TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
Rear System Drive	
HX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	
HX-M2-240GB=	240GB SATA M.2

Table 37 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
Extender Board	
UCSC-M2EXT-240M6=[2]	C240M6 2U M.2 Extender board
Drive Cables	
UCSC-MPSTOM6L-KIT=	C240M6L MID PLANE KIT 4x 3.5" HDD
CBL-R3BS3-C240M6L=	CBL C240 M6L ZB, Raid to Rear BP (R1,R3)
Drive Blanking Panel	
UCSC-BBLKD-L2	C-Series M5 LFF drive blanking panel
Drive Controllers	
HX-SAS-M6HD	Cisco M6 12G SAS HBA (32 drives)
Low Profile Bracket	
UCSC-LP-C25-1485=	Low profile bracket for VIC
UCSC-LP-C40-1485 =	Low profile bracket for VIC1495
Modular LAN on Motherboard (mLOM)	
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
Virtual Interface 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 1G copper PCIe
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-M5D25GF=	Mellanox MCX512A-ACAT dual port 10/25G SFP28 NIC
HX-P-I8Q25GF=	Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC

Table 37 Spare Parts *(continued)*

Product ID (PID)	PID Description
GPU PCIe Cards	
Note: If you are adding a GPU, you may need to add cables for the GPU. You may also need to order special heatsinks and air baffle. See the GPU accessories section of this table.	
HX-GPU-A10	TESLA A10, PASSIVE, 150W, 24GB
GPU Accessories/Cable	
UCS-P100CBL-240M5= **Note:** Order this cable if you are adding an A100	C240M5 NVIDIA A100 Cable
UCS-M10CBL-C240M5	C240M5 NVIDIA M10/A10 Cable
CBL-GPU-C240M6	Y TYPE GPU POWER Cable for A10 GPU, C240M6 and C245M6
UCSC-HSLP-M6= **Note:** Order two of these low-profile heatsinks if you are adding an A10 or A100 GPU	Heatsink for 1U/2U LFF/SFF GPU SKU
UCSC-AD-M6LGPU= **Note:** Order this air baffle if you are adding an A10 or A100 GPU	C240M6 GPU Air Duct 2U
UCSC-AD-M6L=	LFF PCIe Air Duct for PCIe Cards (not for GPU use)
Power Supply	
HX-PSU1-1050W	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC	1050W -48V DC Power Supply for Rack Server
HX-PSU1-1600W	1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSU1-2300W	2300W AC Power Supply for Rack Servers Titanium
PSU (Input Low Line 110VAC)	
HX-PSU1-1050W	1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant)
HX-PSUV2-1050DC	1050W -48V DC Power Supply for Rack Server
HX-PSU1-2300W	2300W AC Power Supply for Rack Servers Titanium
HX-PSU1-1050ELV	1050W AC Power Supply for Rack Server Enhanced Low Line **Platinum**

Table 37 Spare Parts *(continued)*

Product ID (PID)	PID Description
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, SFS, 250V, 10A, India
CAB-250V-10A-IS=	Power Cord, SFS, 250V, 10A, Israel
CAB-9K10A-IT=	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy
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=	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=	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
Rail Kit	
HX-RAIL-M6=	Ball Bearing Rail Kit for C220 and C240 M6 rack servers
CMA	
HX-CMA-240M6=	Reversible CMA for C240 M6 ball bearing rail kit
Security	
HX-TPM-002C=	TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers
HX-INT-SW02=	C220 and C240 M6 Chassis Intrusion Switch
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. Order an extender board and two matching M.2 SATA SSDs along with a boot-optimized RAID controller (see *STEP 6 SELECT DRIVES*). See *Figure 8 on page 52* for the location of the extender board connector on the motherboard. The motherboard extender board connector accepts the extender board and the extender board accepts the boot-optimized RAID controller.

UPGRADING or REPLACING CPUs

> **NOTE:** Before servicing any CPU, do the following:
> - Decommission and power off the server.
> - Slide the HX240C M6 LFF Server Node out from the rack.
> - Remove the top cover.

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

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

- T-30 Torx driver—Supplied with replacement CPU.

- #1 flat-head screwdriver—Supplied with replacement CPU.

- CPU assembly tool—Supplied with replacement CPU. Can be ordered separately as Cisco PID UCS-CPUAT=.

- Heatsink cleaning kit—Supplied with replacement CPU. Can be ordered separately as Cisco PID UCSX-HSCK=.

- Thermal interface material (TIM)—Syringe supplied with replacement CPU. Can be ordered separately as Cisco PID UCS-CPU-TIM=.

(2) **Order the appropriate replacement CPU from** *Table 5 on page 12*:

Carefully remove and replace the CPU and heatsink in accordance with the instructions found in "HX240 M6 server Installation and Service Guide" found at:
https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html?bookSearch=true#concept_bfk_kwp_hz

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.

- #1 flat-head screwdriver—Supplied with new CPU

- CPU assembly tool—Supplied with new CPU.Can be ordered separately as Cisco PID UCS-CPUAT=

- Thermal interface material (TIM)—Syringe supplied with replacement CPU.Can be ordered separately as Cisco PID UCS-CPU-TIM=

(2) **Order the appropriate new CPU from** *Table 5 on page 12*

(3) **Order PID UCSC-HSLP-M6= for servers with GPUs.**

Carefully install the CPU and heatsink in accordance with the instructions found in "240 M6 server Installation and Service Guide," found at:
https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html?bookSearch=true#concept_bfk_kwp_hz

UPGRADING or REPLACING MEMORY

> **NOTE:** Before servicing any DIMM or PMEM, 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 or PMEMs, 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 14 Replacing Memory
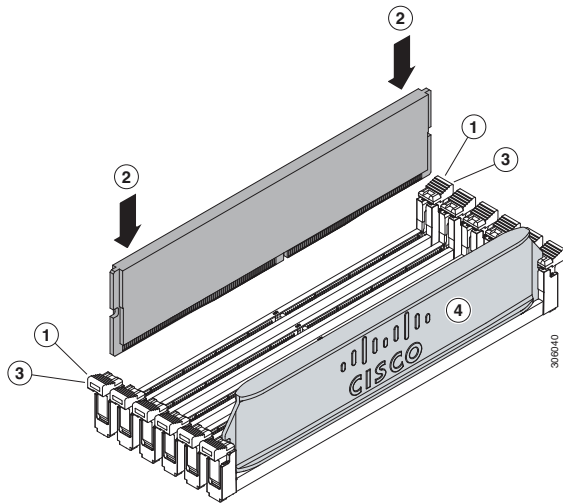
For additional details on replacing or upgrading DIMMs and PMEMs, see "Cisco Server Installation and Service Guide" found at this link:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html?bookSearch=true#concept_c53_tbp_hz

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 38 HyperFlex HX240C M6 LFF Server Node Dimensions and Weight

Parameter	Value
Height	3.42 in. (8.7 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: 0 HDD, 0 CPU, 0 DIMM, and 1 2400 W power supply	39.13 lbs (17.8 kg)
Weight with following options and including rail kit: 0 HDD, 0 CPU, 0 DIMM, and 1 2400 W power supply	47.44 lbs (21.5 kg)
Weight with following options and no rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 2400 W power supply	41.95 lbs (19 kg)
Weight with following options and including rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 2400 W power supply	50.26 lbs (22.8 kg)
Weight with following options and no rail kit: 12 HDDs, 2 CPUs, 32 DIMMs, and 2 2400 W power supplies	61.7 lbs (28 kg)
Weight with following options and including rail kit: 12 HDDs, 2 CPUs, 32 DIMMs, and 2 2400 W power supplies	66.75 lbs (30.3 kg)

Power Specifications

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

■ 1050 W (AC) power supply (see *Table 39*).

■ 1050 W V2 (DC) power supply (see *Table 40*)

■ 1600 W (AC) power supply (see *Table 41*)

■ 2300 W (AC) power supply (see *Table 42*)

Table 39 HX240C M6 LFF Server Node 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 40 HX240C M6 LFF Server Node 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 41 HX240C M6 LFF Server Node 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)	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 (%)[1]	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)[2]	12			

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 42 HX240C M6 LFF Server Node 2300 W (AC) Power Supply Specifications

Parameter	Specification			
Input Connector	IEC320 C20			
Input Voltage Range (Vrms)	100 to 240			
Maximum Allowable Input Voltage Range (Vrms)	90 to 264			
Frequency Range (Hz)	50 to 60			
Maximum Allowable Frequency Range (Hz)	47 to 63			
Maximum Rated Output (W)[1]	2300			
Maximum Rated Standby Output (W)	36			
Nominal Input Voltage (Vrms)	100	120	208	230
Nominal Input Current (Arms)	13	11	12	10.8
Maximum Input at Nominal Input Voltage (W)	1338	1330	2490	2480
Maximum Input at Nominal Input Voltage (VA)	1351	1343	2515	2505
Minimum Rated Efficiency (%)[2]	92	92	93	93
Minimum Rated Power Factor[2]	0.99	0.99	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 1200W when operating at low-line input voltage (100-127V)
2. This is the minimum rating required to achieve 80 PLUS Titanium 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 HX240C M6 LFF Server Node are listed in *Table 43*

Table 43 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 44   HX240C M6 LFF Server Node Extended Operating Temperature Hardware Configuration Limits

Platform[1]	ASHRAE A3 (5°C to 40°C)[2]	ASHRAE A4 (5°C to 45°C)[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	HDDs or SSDs (Rear Bays) PCIe NVMe SSDs GPUs VICs (Slots 1 and 4) NICs (Slots 1 and 4) HBAs (Slots 1 and 4)

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 HX-Series servers are listed in *Table 45*.

Table 45 Regulatory Compliance Requirements

Parameter	Description
Regulatory Compliance	Products should comply with CE Markings per directives 2014/30/EU and 2014/35/EU
Safety	UL 60950-1 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1 GB4943 2001
EMC - Emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR32 Class A CISPR32 Class A EN55032 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN32 Class A CNS13438 Class A
EMC - Immunity	EN55024 CISPR24 EN300386 KN35

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