

Cisco HyperFlex HX240c SD (Short Depth) Edge All Flash and Hybrid Server

- HXAF240C-M5SD(All Flash)
- HX240C-M5SD (Hybrid)

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



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OVERVIEW

The HX240 All Flash and Hybrid M5 SD edge server is a two-socket 2U short depth chassis designed to operate in Edge environments. Built upon the Cisco UCS C240 SD M5 Rack Server, it enables Intersight managed HyperFlex Edge solutions in more places and smaller spaces.

NOTE: HX 240 Edge (short depth and full depth) requires Intersight for cluster deployment and ongoing management.

The following list summarizes the HX240 All Flash and Hybrid M5 SD Edge features:

- 2U form factor, short depth chassis
- 2nd Gen Intel® Xeon® Processor Scalable Family (1 or 2 CPU sockets)
- 24 DIMM slots (12 slots per CPU socket) for 2933-MHz DIMMs. Supporting 16-128GB DIMM module sizes.
- Maximum memory size is 3 TB (using 24 x 128 GB DDR4 DIMMs compatible CPU)

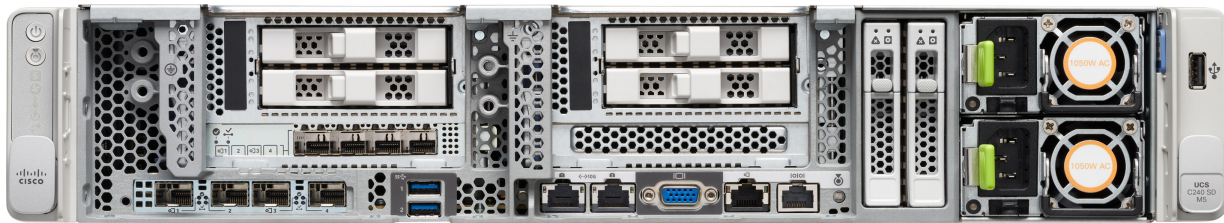
The following list summarizes how the HX240 All Flash and Hybrid M5 SD edge server differs from the HX220c M5 edge server:

- 2U form factor
- 22 chassis depth (HX*220c M5 Edge is 31)
- All user I/O, cables and power supplies are accessible from front of chassis.
- No front bezel available (front power supplies block bezel install).
- New SD Riser Cards (1C / 2E) support:
 - 2 Vertical SAS/SATA drives for Cache/ System Log
 - 4 Horizontal SAS/SATA Capacity drives
 - Two PCIe for any combination of NVIDIA T4 GPU or optional NIC cards
 - One x16 PCIe with single CPU (Optional NIC)
 - Two x16 PCIe with dual CPU (2s Required for 1 or 2 T4 GPU. Optional NIC)
- Fans at rear of chassis provide redundancy and front-to-back airflow.
- Dedicated internal slot for Cisco 12G SAS HBA only

The HX240 All Flash and Hybrid M5 SD server utilizes a dedicated internal modular LAN on motherboard (mLOM) connector for Cisco Virtual Interface Card (VIC) without consuming a PCI slot, in addition to 2 x 10Gbase-T Intel x550 embedded (on the motherboard) LOM ports.

The HX240 All Flash and Hybrid M5 SD is orderable in only one configuration: 2 PCIe slots and 6 drive slots (HX-Edge does not support 6 PCIe slots and 2 drive slots, but these can be ordered as HX-C compute only nodes. [Figure 1 on page 4](#) shows the version with 2 PCIe slots and 6 drive slots.

Figure 1 Cisco HX240 All Flash and Hybrid M5 SD Server
Front Views



Rear View



DETAILED VIEWS

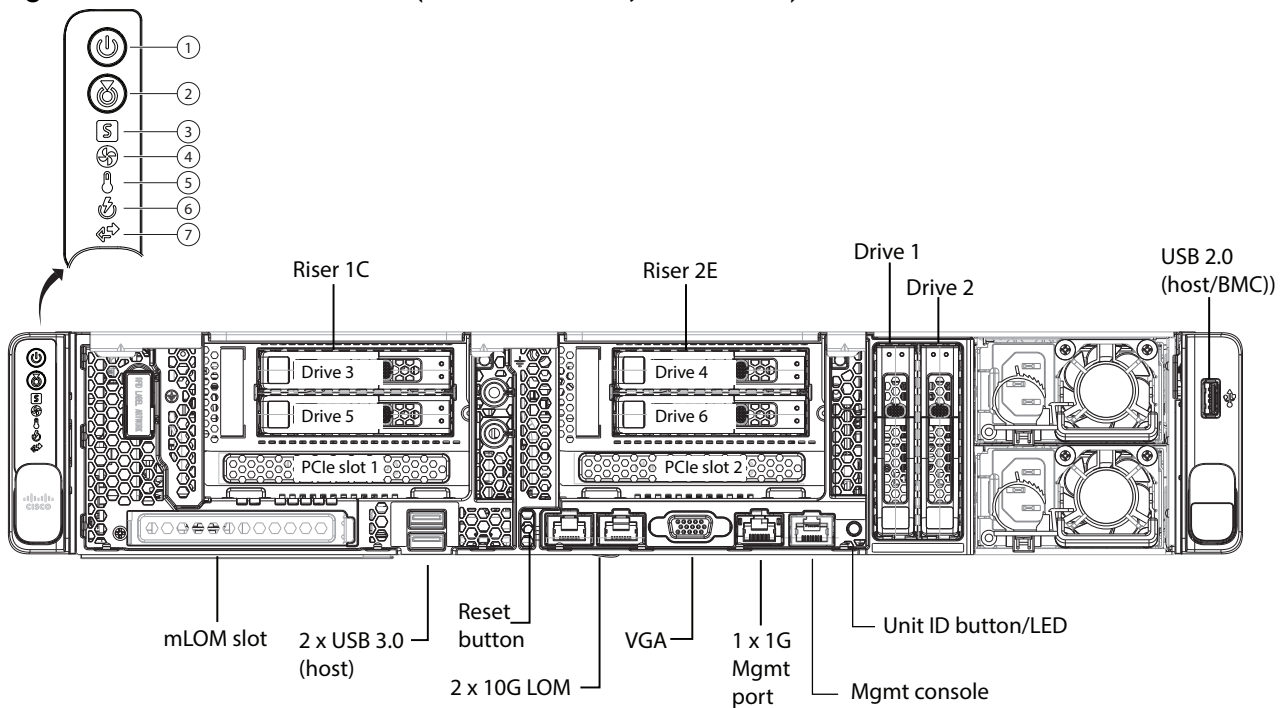
Chassis Front View

The Cisco HX240 All Flash and Hybrid M5 SD Server is optimized for storage capacity and can be configured as shown in [Figure 2 on page 5](#)

NOTE: The 2 drive slots and 6 PCIe slot configuration is NOT orderable as an HXDP Licensed Edge node. Customers can order this configuration as an HX-C Compute only or UCS node.

Figure 2 shows the Cisco HX240 All Flash and Hybrid M5 SD Chassis front view.

Figure 2 Chassis Front View (6 SFF drive slots; 2 PCIe slots)



1	Power button/LED	2	Unit ID button/LED
3	System health LED	4	Fan status LED
5	Temperature status LED	6	Power supply status LED
7	Network link activity LED	-	

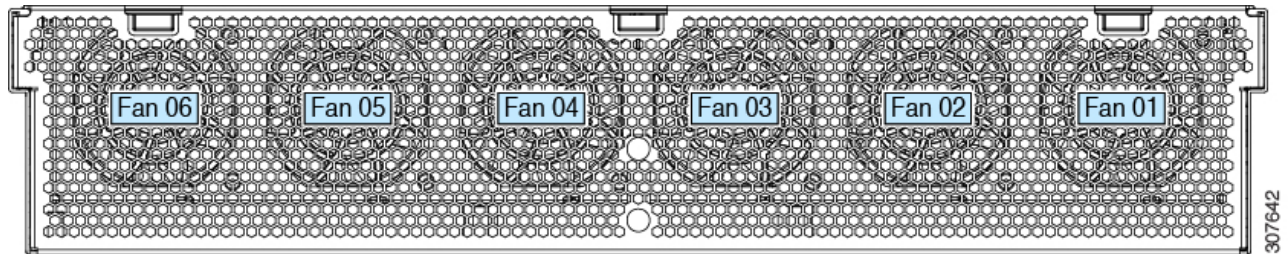


NOTE: Vertical drives 1 & 2 are used for Cache and System Log Drives. Horizontal drives support min 3 or maxim 4 Capacity drives.

Chassis Rear View

Figure 3 shows the external features of the rear panel.

Figure 3 Chassis Rear View (6 Fans, front to back airflow)






BASE SERVER STANDARD CAPABILITIES and FEATURES


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

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	Two rack unit (2RU) chassis
CPU	Support only 2 nd Generation Intel® Xeon® scalable family CPUs
Chipset	Intel® Lewisburg C621 series chipset
Memory	24 slots for 2933-MHz registered DIMMs (RDIMMs), 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: <ul style="list-style-type: none"> ■ Integrated 2D graphics core with hardware acceleration ■ 512MB total DDR4 memory, with 16MB dedicated to Matrox 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	Two of the following hot-swappable power supplies for full redundancy: <ul style="list-style-type: none"> ■ 1050 W (AC) ■ 1050 W (DC) ■ 1050 W (AC) ELV
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	<ul style="list-style-type: none"> ■ Six rear-mounted hot-swappable fans for front-to-rear cooling (air pulled from front to back)

Capability/ Feature	Description
Expansion slots	<p>(6 SFF drive slots; 2 PCIe slots)</p> <ul style="list-style-type: none"> ■ Riser 1 option 1C and riser 2 option 2E <p>Riser 1- PCIe slots controlled by CPU 1 and CPU 2</p> <ul style="list-style-type: none"> ■ Option 1C: one PCIe slot, 2 drive bays, and a micro SD slot <ul style="list-style-type: none"> • Drive bay 3 Gen-3 x4 2.5” card height • Drive bay 5 Gen-3 x4 2.5” card height • PCIe1 (bottom slot) = full height, 3/4 length, Gen-3 x16, CPU1, GPU, NCSI support. • Micro SD slot included on inside top of riser <p>Riser 2 - PCIe slots all controlled by CPU 2.</p> <ul style="list-style-type: none"> ■ Option 2E: one PCIe slot, 2 drive bays <ul style="list-style-type: none"> • Drive bay 4 Gen-3 x4 2.5” card height • Drive bay 6 Gen-3 x4 2.5” card height • PCIe 2 (bottom slot) = full height, 3/4 length, Gen-3 x16, GPU, NCSI support ■ Dedicated Cisco 12G SAS storage controller slot (see Figure 10 on page 57), which is used as follows: <ul style="list-style-type: none"> • Controls four SAS/SATA drives mounted in Risers 1C and 2E <p> Note: HX Edge does not currently support NVMe drives. The chassis provides capability for potential future upgrade and software enablement.</p> <p>The vertical drives are equipped with a SAS/SATA backplane for SAS/SATA drives. Risers 1C and 2E can accommodate SAS/SATA drives with no changes to the risers. Appropriate cable connections accommodate all drive types (SAS/SATA)</p> <p>For more details on riser 1 and riser 2 see Riser Card Configuration and Options, page 60.</p>

Capability/ Feature	Description
Internal storage devices	<ul style="list-style-type: none"> ■ With riser 1C and 2E installed <ul style="list-style-type: none"> • Six SFF drive (Four SFF drives (SAS/SATA SSD or HDD drives) mounted in risers and two front-mounting SFF drives (SAS/SATA SSD or HDD drives, depending on the drive backplane) vertically mounted next to power supplies). <hr/>  <p>NOTE: If you choose SAS/SATA SSDs or HDDs for the vertical drives, a SAS/SATA backplane, storage controller, and appropriate cables are configured for the server.</p>
	<ul style="list-style-type: none"> ■ One internal USB 3.0 port on the motherboard for use with an optional 16 GB USB thumb drive for additional storage. ■ A mini-storage module connector on the motherboard supports either: <ul style="list-style-type: none"> • An M.2 2280 module with two SATA M.2 SSD drive slots. Mixing different capacity M.2 modules is not supported, or <hr/>  <p>NOTE: M.2 does not support RAID1 with VMWare. M.2 modules have Windows and Linux support only.</p>
	<ul style="list-style-type: none"> ■ One slot for a micro-SD card on PCIe Riser 1 and 1C. The micro-SD card serves as a dedicated local resource for utilities such as HUU. Images can be pulled from a file share (NFS/CIFS) and uploaded to the cards for future use.
I/O Interfaces and Indicators	<ul style="list-style-type: none"> ■ Front Panel <ul style="list-style-type: none"> • One 1Gbase-T RJ-45 management port (Marvell 88E6176) • Two 10Gbase-T LOM ports (Intel X550-AT2(100 M/1G/10G) controller embedded on the motherboard) <p>NOTE: HyperFlex does not support 10Gbase-T to top of rack switches For the additional details refer to 10/25 Gigabit Ethernet Topology, page 54</p> • One flexible modular LAN on motherboard (mLOM) slot that can accommodate various interface cards • One RS-232 serial port (RJ45 connector) • One DB15 VGA connector • Two USB 3.0 port connectors • One unit ID (UID) LED/button • One reset button ■ Left Slam Latch <ul style="list-style-type: none"> • One power LED/button • One unit ID (UID) LED/button • One system status LED • One fan status LED • One temperature status LED • One power supply status LED • One network link activity LED ■ Right Slam Latch <ul style="list-style-type: none"> • One USB port (host/BMC)

Capability/ Feature	Description
Storage controller	<ul style="list-style-type: none"> ■ Cisco 12G SAS HBA (JBOD/Pass-through Mode) <ul style="list-style-type: none"> • Supports up to 6 SAS/SATA SSD or SAS/SATA HDD internal drives • Plugs into the dedicated RAID controller slot
Modular LAN on Motherboard (mLOM) slot	<p>The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards:</p> <ul style="list-style-type: none"> ■ Cisco Virtual Interface Cards <hr/> <p> NOTE: The four Intel i350 ports are provided on an optional card that plugs into the mLOM slot, and are separate from the two embedded (on the motherboard) LAN ports</p>
Integrated management processor	<p>Baseboard Management Controller (BMC) running Cisco Integrated Management Controller (CIMC) firmware.</p> <p>Depending on your CIMC settings, the CIMC can be accessed through the 1GE dedicated management port, the 1GE/10GE LOM ports, or a Cisco virtual interface card (VIC).</p> <p>CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.</p>
Intersight	Intersight provides server management capabilities

CONFIGURING the SERVER

Follow these steps to configure the Cisco HX240 All Flash and Hybrid M5 SD Server:

- **STEP 1 VERIFY EDGE BUNDLE AND SERVER SKU, page 12**
- **STEP 2 SELECT RISER CARDS (REQUIRED), page 13**
- **STEP 3 SELECT CPU(s), page 14**
- **STEP 4 SELECT MEMORY, page 19**
- **STEP 5 SELECT STORAGE CONTROLLER, page 24**
- **STEP 6 SELECT DRIVES, page 25**
- **STEP 7 SELECT HYPERFLEX EDGE NETWORK TOPOLOGY, page 30**
- **STEP 8 SELECT PCIe OPTION CARD(s), page 31**
- **STEP 9 ORDER GPU CARDS (OPTIONAL), page 32**
- **STEP 10 ORDER POWER SUPPLY, page 34**
- **STEP 11 SELECT INPUT POWER CORD(s), page 35**
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- **STEP 13 ORDER SECURITY DEVICES (OPTIONAL), page 39**
- **STEP 14 BOOT DRIVES: M.2 SATA SSD, page 40**
- **STEP 15 INTERNAL MICRO-SD CARD MODULE, page 41**
- **STEP 16 SELECT HYPERVISOR/ HOST OS, page 42**
- **STEP 17 SELECT HYPERFLEX DATA PLATFORM EDGE SUBSCRIPTION, page 44**
- **STEP 18 SELECT SERVICE and SUPPORT LEVEL, page 45**

STEP 1 VERIFY EDGE BUNDLE AND SERVER SKU

In CCW, the HX240 All Flash and Hybrid M5 SD servers are configurable under the HX Edge Bundle: HX-E-M5S-HXDP. Add “HX-E-M5S-HXDP” to your estimate, Select options; HyperFlex System: HXAF240C-M5SD (All Flash) or HX240C-M5SD (Hybrid), configure as desired; and then add Cisco HyperFlex HXDP-E license to validate.

During product configuration, the server can be configured as shown in [Table 2](#).

Table 2 PID of the HX240 All Flash and Hybrid M5 SD Rack Base Server

Sample Product Configuration	Description
Storage Centric	<p>Small form-factor (SFF) drives, with a 2 vertical-drive backplane.</p> <ul style="list-style-type: none"> ■ Configured with risers 1C and 2E ■ 2 vertical drive bays, supporting 2.5-inch SAS/SATA SSD or HDD drives. ■ 4 drive bays, 2 in riser 1C and 2 in riser 2E, supporting SAS/SATA SSD or HDD drives ■ 2 PCIe slots ■ CPU, memory, drives, PCIe cards, or power supply must be configured



NOTE: Server configuration depends on the number of CPUs installed. See [Table 28 on page 61](#) for further information.

The Cisco HX240 All Flash and Hybrid M5 SD server:

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



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

STEP 2 SELECT RISER CARDS (REQUIRED)

There are two riser cards per server, riser card 1 and 2. There are two options for riser card 1 (1 and 1C) and two options for riser card 2 (2B and 2E). Riser card 1 is the one on the left when viewed from the back of the server and riser card 2 is on the right.

Table 3 Riser PIDs

Product ID (PID)	Description
HX-RS1C-240M5SD	Riser card 1C. One x16 PCIE slot, 2x Drive slots, supports microSD
HX-RS2E-240M5SD	Riser card 2E. One x16 PCIE slot, 2x Drive slots, does not support microSD

For additional details, see [Riser Card Configuration and Options, page 60](#)

STEP 3 SELECT CPU(s)

The standard CPU features are:

- Only 2nd Generation Intel® Xeon® scalable family CPUs Supported
- Intel® C621 series chipset
- Cache size of up to 38.5 MB



NOTE: Server configuration depends on the number of CPUs installed. See [Table 28 on page 61](#) for further information.

Select CPUs

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

Table 4 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)	Workload/Processor type ²
Cisco Recommended CPUs (2nd Generation Intel® Xeon® Processors)							
HX-CPU-I8276	2.2	165	38.50	28	3 x 10.4	2933	Oracle, SAP
HX-CPU-I8260	2.4	165	35.75	24	3 x 10.4	2933	Microsoft Azure Stack
HX-CPU-I6262V	1.9	135	33.00	24	3 x 10.4	2400	Virtual Server infrastructure or VSI
HX-CPU-I6248R	3.0	205	35.75	24	2 x 10.4	2933	
HX-CPU-I6248	2.5	150	27.50	20	3 x 10.4	2933	VDI, Oracle, SQL, Microsoft Azure Stack
HX-CPU-I6238R	2.2	165	38.50	28	2 x 10.4	2933	Oracle, SAP (2-Socket TDI only), Microsoft AzureStack
HX-CPU-I6238	2.1	140	30.25	22	3 x 10.4	2933	SAP
HX-CPU-I6230R	2.1	150	35.75	26	2 x 10.4	2933	Virtual Server Infrastructure, Data Protection, Big Data, Splunk, Microsoft AzureStack
HX-CPU-I6230	2.1	125	27.50	20	3 x 10.4	2933	Big Data, Virtualization
HX-CPU-I5220R	2.2	125	35.75	24	2 x 10.4	2666	Virtual Server Infrastructure, Splunk, Microsoft Azure Stack
HX-CPU-I5220	2.2	125	24.75	18	2 x 10.4	2666	HCI

Table 4 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)	Workload/Processor type ²
HX-CPU-I5218R	2.1	125	27.50	20	2 x 10.4	2666	Virtual Server Infrastructure, Data Protection, Big Data, Splunk, Scale-out Object Storage, Microsoft AzureStack
HX-CPU-I5218	2.3	125	22.00	16	2 x 10.4	2666	Virtualization, Microsoft Azure Stack, Splunk, Data Protection
HX-CPU-I4216	2.1	100	22.00	16	2 x 9.6	2400	Data Protection, Scale Out Storage
HX-CPU-I4214R	2.4	100	16.50	12	2 x 9.6	2400	Data Protection, Splunk, Scale-out Object Storage, Microsoft AzureStack
HX-CPU-I4214	2.2	85	16.75	12	2 x 9.6	2400	Data Protection, Scale Out Storage
HX-CPU-I4210R	2.4	100	13.75	10	2 x 9.6	2400	Virtual Server Infrastructure, Data Protection, Big Data, Splunk
HX-CPU-I4210	2.2	85	13.75	10	2 x 9.6	2400	Virtualization, Big Data, Splunk
8000 Series Processor							
HX-CPU-I8280L	2.7	205	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8280	2.7	205	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8276L	2.2	165	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8276	2.2	165	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8270	2.7	205	35.75	26	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8268	2.9	205	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260Y	2.4	165	35.75	24/20/16	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260L	2.4	165	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260	2.4	165	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
6000 Series Processor							
HX-CPU-I6262V	1.9	135	33.00	24	3 x 10.4	2400	2 nd Gen Intel® Xeon®
HX-CPU-I6258R	2.7	205	35.75	28	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6254	3.1	200	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6252N	2.3	150	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6252	2.1	150	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®

Table 4 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)	Workload/Processor type ²
HX-CPU-I6248R	3.0	205	35.75	24	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6248	2.5	150	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6246R	3.4	205	35.75	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6246	3.3	165	24.75	12	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6244	3.6	150	24.75	8	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6242R	3.1	205	35.75	20	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6242	2.8	150	22.00	16	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240R	2.4	165	35.75	24	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240Y	2.6	150	24.75	18/14/8	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240L	2.6	150	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240	2.6	150	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238R	2.2	165	38.50	28	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238L	2.1	140	30.25	22	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238	2.1	140	30.25	22	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6234	3.3	130	24.75	8	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230R	2.1	150	35.75	26	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230N	2.3	125	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230	2.1	125	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6226R	2.9	150	22.00	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6226	2.7	125	19.25	12	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6222V	1.8	115	27.50	20	3 x 10.4	2400	2 nd Gen Intel® Xeon®
5000 Series Processor							
HX-CPU-I5220S	2.6	125	19.25	18	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5220R	2.2	150	35.75	24	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5220	2.2	125	24.75	18	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218R	2.1	125	27.50	20	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218B	2.3	125	22.00	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I5218N	2.3	105	22.00	16	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218	2.3	125	22.00	16	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5217	3.0	115	11.00	8	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5215L	2.5	85	13.75	10	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5215	2.5	85	13.75	10	2 x 10.4	2666	2 nd Gen Intel® Xeon®
4000 Series Processor							

Table 4 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)	Workload/Processor type ²
HX-CPU-I4216	2.1	100	22.00	16	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4215R	3.2	130	11.00	8	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4215	2.5	85	11.00	8	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4214R	2.4	100	16.50	12	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4214Y	2.2	105	16.75	12/10/8	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4214	2.2	85	16.75	12	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4210R	2.4	100	13.75	10	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4210	2.2	85	13.75	10	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4208	2.1	85	11.00	8	2 x 9.6	2400	2 nd Gen Intel® Xeon®
3000 Series Processor							
HX-CPU-I3206R	1.9	85	11.00	8	2 x 9.6	2133	2 nd Gen Intel® Xeon®

Notes:

- UPI = Ultra Path Interconnect. 2-socket servers support only 2 UPI performance, even if the CPU supports 3 UPI.
- HyperFlex Data Platform reserves CPU cycle for each controller VM. Refer to the <[Install Guide](#)> for reservation details.

Supported Configurations**(1) 1-CPU Configuration:**

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



NOTE: The 1-CPU configuration is only supported with minimum 10 core processor.

(2) 2-CPU Configuration:

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



NOTE: The 2-CPU configuration supported with any CPUs listed on [Table 4](#)

Caveats

- The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:
 - [STEP 4 SELECT MEMORY, page 19](#)
 - [STEP 5 SELECT STORAGE CONTROLLER, page 24](#)
 - [STEP 6 SELECT DRIVES, page 25](#)
 - [STEP 7 SELECT HYPERFLEX EDGE NETWORK TOPOLOGY, page 30](#)

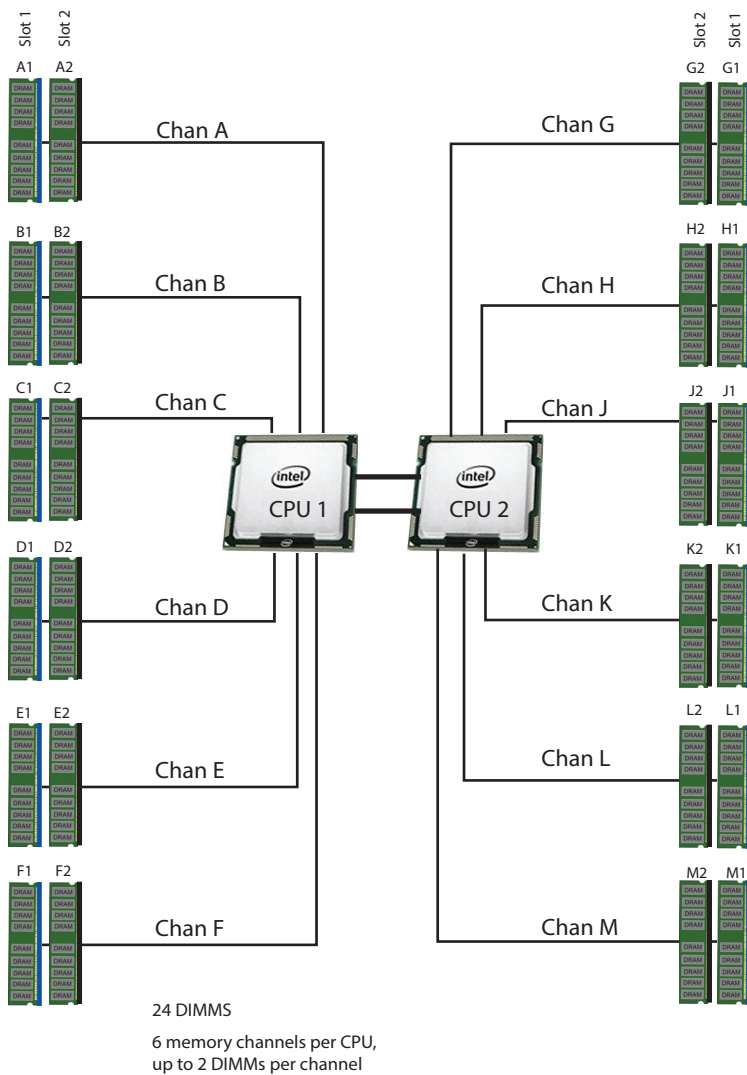
STEP 4 SELECT MEMORY

The standard memory features are:

- Clock speed: Up to 2933 MHz; See available CPUs and their associated DDR4 DIMM maximum clock support in [Table 4](#).
- Rank per DIMM: 1, 2, 4, or 8
- Operational voltage: 1.2 V
- Registered ECC DDR4 DIMMS (RDIMMs), Load-reduced DIMMs (LRDIMMs)

Memory is organized with six memory channels per CPU, with up to two DIMMs per channel, as shown in [Figure 4](#).

Figure 4 HX240 All Flash and Hybrid M5 SD Memory Organization



Select DIMMs

Select the memory configuration. The available memory DIMMs are listed in [Table 5](#)



NOTE: The memory mirroring feature is not supported with HyperFlex nodes.

Table 5 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks/ DIMM
HX-ML-128G4RT-H ¹	128 GB DDR4-2933MHz LRDIMM/4Rx4 (16Gb)	1.2 V	4
HX-ML-X64G4RT-H ¹	64 GB DDR4-2933MHz LRDIMM/4Rx4 (8Gb)	1.2 V	4
HX-MR-X64G2RT-H ¹	64 GB DDR4-2933MHz RDIMM/2Rx4 (16Gb)	1.2 V	2
HX-MR-X32G2RT-H ¹	32GB DDR4-2933MHz RDIMM/2Rx4 (8Gb)	1.2 V	2
HX-MR-X16G1RT-H ¹	16 GB DDR4-2933MHz RDIMM/1Rx4 (8Gb)	1.2 V	1
HX-ML-128G4RW ²	128GB DDR4-3200MHz LRDIMM 4Rx4 (16Gb)	1.2 V	1
HX-MR-X64G2RW ²	64GB DDR4-3200MHz RDIMM 2Rx4 (16Gb)	1.2 V	1
HX-MR-X32G2RW ²	32GB DDR4-3200MHz RDIMM 2Rx4 (8Gb)	1.2 V	1
HX-MR-X16G1RW ²	16GB DDR4-3200MHz RDIMM 1Rx4 (8Gb)	1.2 V	1

Notes:

1. Cisco announced the End-of-sale of the DDR4-2933MHz Memory DIMM products: [EOL14611](#) lists the product part numbers affected by this announcement. [Table 6](#) describes the replacement Memory DIMM product Part Numbers.
2. DDR4-3200MHz replacement part numbers will operate at the maximum speed of the Intel 2nd generation Xeon Scalable processor memory interface, ranging from 2133 MHz to 2933 MHz.

Table 6 lists the EOL Memory DIMM product part numbers and their replacement PIDs.

Table 6 EOL14611 Memory DIMM Product Part Numbers and their replacement PIDs

EOS Product Part Number (PID)	PID Description	Replacement Product PID	Replacement Product Description
HX-MR-X16G1RT-H	16GB DDR4-2933MHz RDIMM 1Rx4 (8Gb)/1.2v	HX-MR-X16G1RW	16GB DDR4-3200MHz RDIMM 1Rx4 (8Gb)/1.2v
HX-MR-X32G2RT-H	32GB DDR4-2933MHz RDIMM 2Rx4 (8Gb)/1.2v	HX-MR-X32G2RW	32GB DDR4-3200MHz RDIMM 2Rx4 (8Gb)/1.2v
HX-MR-X64G2RT-H	64GB DDR4-2933MHz RDIMM 2Rx4 (16Gb)/1.2v	HX-MR-X64G2RW	64GB DDR4-3200MHz RDIMM 2Rx4 (16Gb)/1.2v
HX-ML-X64G4RT-H	64GB DDR4-2933MHz LRDIMM 4Rx4 (8Gb)/1.2v	HX-MR-X64G2RW ¹	64GB DDR4-3200MHz RDIMM 2Rx4 (16Gb)/1.2v
HX-ML-128G4RT-H	128GB DDR4-2933MHz LRDIMM 4Rx4 (16Gb)/1.2v	HX-ML-128G4RW	128GB DDR4-3200MHz LRDIMM 4Rx4 (16Gb)/1.2v



NOTE: (1) Cisco doesn't support a Load Reduce DIMM (LRDIMM) 64GB Memory PID as a replacement PID of existing UCS-ML-x64G4RT-H and recommends migrating to the Registered DIMM (RDIMM) instead, delivering the best balance in performance and price.

CPU DIMM Configuration Table

Approved Configurations

(1) 1-CPU configuration

- Select from 1 to 12 DIMMs.

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

(2) 2-CPU configuration

- Select from 1 to 12 DIMMs per CPU.

	CPU 1 DIMM Placement in Channels (for identical ranked DIMMs)	CPU 2 DIMM Placement in Channels (for identical ranked DIMMs)
	CPU 1	CPU 2
1	(A1)	(G1)
2	(A1, B1)	(G1, H1)
3	(A1, B1, C1)	(G1, H1, J1)
4	(A1, B1); (D1, E1)	(G1, H1); (K1, L1)
6	(A1, B1); (C1, D1); (E1, F1)	(G1, H1); (J1, K1); (L1, M1)
8	(A1, B1); (D1, E1); (A2, B2); (D2, E2)	(G1, H1); (K1, L1); (G2, H2); (K2, L2)
12	(A1, B1); (C1, D1); (E1, F1); (A2, B2); (C2, D2); (E2, F2)	(G1, H1); (J1, K1); (L1, M1); (G2, H2); (J2, K2); (L2, M2)



NOTE:

- The selected DIMMs must be all of same type and number of DIMMs must be equal for both CPUs
 - Even though 128GB of DRAM is supported, It is recommended to have a minimum of 192GB of DRAM configured for maximum performance
 - HyperFlex Data Platform reserves memory for each controller VM. Refer to the <[Install Guide](#)> for reservation details.
 - Recommended 6 or 12 DIMMs per CPU.
 - Refer to “[CPU DIMM Configuration Table](#)” for the configuration details
-

System Speed

Memory will operate at the maximum speed of the Intel Xeon Scalable processor memory controller, ranging from 2133 MHz to 2933 MHz for M5 servers. Check CPU specifications for supported speeds



NOTE: Detailed mixing DIMM configurations are described in Cisco UCS [M5 Memory Guide](#)

STEP 5 SELECT STORAGE CONTROLLER

Storage Controller Options (internal HDD/SSD support)

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

SAS HBA for JBOD or Pass-through mode support:

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

Select Controller Options

Select the Cisco 12G SAS HBA

Table 7 Hardware Controller Options

Product ID (PID)	PID Description
Controllers for Internal Drives Note that if the Cisco 12G SAS HBA controller is selected, it is factory-installed in the dedicated internal slot.	
HX-SAS-M5	Cisco 12G Modular SAS HBA (max 16 drives) <ul style="list-style-type: none">■ Supports internal SAS/SATA SSDs and HDDs■ Supports JBOD mode only for use with HyperFlex Data Platform software■ The HyperFlex Data Platform performs its own internal data replication for high availability. Hence, no RAID functionality is used.

Approved Configurations

- The Cisco 12 Gbps SAS HBA supports internal drives with JBOD support and is used for both the All Flash and Hybrid configurations.

STEP 6 SELECT DRIVES

The standard disk drive features are:

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

Select Drives - HXAF240c-M5SD (All Flash)

The available drives for HX Edge Short Depth All Flash (HXAF240c-M5SD) listed in [Table 8](#).

Table 8 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Horizontal Capacity Drives (min 3, max 4 of same type for node and cluster)			
HX-SD960G61X-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)	SATA	960 GB
HX-SD38T61X-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)	SATA	3.8 TB
HX-SD76T61X-EV	7.6TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance) (HyperFlex Release 4.5(2a) and later)	SATA	7.6 TB
HX-SD960G6S1X-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance) (HyperFlex Release 4.5(2c), 5.0(1c) + catalog and later)	SATA	960 GB
HX-SD19T6S1X-EV	1.9TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance) (HyperFlex Release 4.5(2c), 5.0(1c) + catalog and later)	SATA	1.9 TB
HX-SD38T6S1X-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance) (HyperFlex Release 4.5(2c), 5.0(1c) + catalog and later)	SATA	3.8 TB
HX-SD76T6S1X-EV	7.6TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance) (HyperFlex Release 4.5(2c), 5.0(1c) + catalog and later)	SATA	7.6 TB
Vertical Caching Drives (min 1, max 1)			
HX-SD800GK3X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) (HyperFlex Release 4.5(1a) and later)	SAS	800 GB
Vertical HyperFlex System Drive (min 1, max 1)			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
HX-SD480G6I1X-EV	480GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	480 GB
HX-SD480GM1X-EV	480GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	480 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2 SSD (HyperFlex Release 4.0(2c) and later)	SATA	240 GB
HX-M2-HWRAID ¹	Cisco Boot optimized M.2 Raid controller (HyperFlex Release 4.5(1a) and later)		

Table 8 Available Hot-Pluggable Sled-Mounted Drives (continued)

Product ID (PID)	PID Description	Drive Type	Capacity
<p>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.</p>			

Notes:

1. A maximum of one HX-M2-240GB or HX-M2-960GB is allowed when HX-M2-HWRAID is not selected. Either reduce Qty of HX-M2-240GB or HX-M2-960GB to 1 or add HX-M2-HWRAID

Approved Configurations

Select the following drives:

■ **Capacity drives**



NOTE:

- Use 3-4 of the same capacity drive. All capacity drives must be of the same type and size.
- For cluster scale related information please see the product [release notes](#)

■ **One Cache drive -**



NOTE:

- use same Cache and System drive configuration across nodes in the same cluster
- SED Encrypted and NVMe drives are not supported in HX Edge configurations

■ **One system drive**

■ One boot drive



NOTE:

- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- 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.
- **RAID Support for Boot Drives:** Support for Hardware RAID M.2 boot drives in HyperFlex converged and compute-only nodes. Requires optional HX-M2-HWRAID controller with two boot drives. Existing single boot drive option remains supported.
- This is supported starting from 4.5 (1a) version and later. please check the [release notes](#) for the further information

Caveats

- HX240 All Flash and Hybrid M5 SD requires HXDP 4.0(2c) release or above
- SED Encrypted drives NVMe drives are not supported in HX Edge configurations
- Refer to [Cisco HyperFlex Drive Compatibility](#) document for future expansion and drive compatibility within the same node and HX cluster:

Select Drives - HX240c-M5SD (Hybrid)

The available drives for HX Edge Short Depth (HX240c-M5SD) listed in [Table 9](#)

Table 9 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Horizontal Capacity Drives (min 3, max 4 of same type for node and cluster)			
HX-HD12TB10K12N	1.2 TB 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
Vertical Caching Drives (min 1, max 1)			
HX-SD480G63X-EP	480GB 2.5 inch Enterprise Performance 6G SATA SSD (3X endurance) (HyperFlex Release 4.0(2c) and later)	SATA	480 GB
Vertical HyperFlex System Drive (min 1, max 1)			

Table 9 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
HX-SD480G611X-EV	480GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	480 GB
HX-SD480GM1X-EV	480GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	480 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2 SSD (HyperFlex Release 4.0(2c) and later)	SATA	240 GB
HX-M2-HWRAID ¹	Cisco Boot optimized M.2 Raid controller (HyperFlex Release 4.5(1a) and later)		
<p>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.</p>			

Notes:

1. A maximum of one HX-M2-240GB or HX-M2-960GB is allowed when HX-M2-HWRAID is not selected. Either reduce Qty of HX-M2-240GB or HX-M2-960GB to 1 or add HX-M2-HWRAID

Approved Configurations

Select the following drives:

■ **Capacity drives**



NOTE:

- Use 3-4 of the same capacity drive. All capacity drives must be of the same type and size.
- For cluster scale related information please see the product [release notes](#)

■ **One Cache drive -**



NOTE:

- use same Cache and System drive configuration across nodes in the same cluster
- SED Encrypted drives NVMe drives are not supported in HX Edge configurations

-
- One system drive
 - One boot drive



NOTE:

- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- 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.
- **RAID Support for Boot Drives:** Support for Hardware RAID M.2 boot drives in HyperFlex converged and compute-only nodes. Requires optional HX-M2-HWRAID controller with two boot drives. Existing single boot drive option remains supported.
- This is supported starting from 4.5 (1a) version and later. please check the [release notes](#) for the further information

Caveats

- HX240 All Flash and Hybrid M5 SD requires HXDP 4.0(2c) release or above
- SED Encrypted drives NVMe drives are not supported in HX Edge configurations
- Refer to [Cisco HyperFlex Drive Compatibility](#) document for future expansion and drive compatibility within the same node and HX cluster:

STEP 7 SELECT HYPERFLEX EDGE NETWORK TOPOLOGY

HyperFlex Edge utilizes the existing top of rack (ToR) switches available in the customer environment.

Many topologies are supported to ensure the right fit for many environments. HyperFlex Edge supports single and dual switch topologies, depending on the level of high availability required. See the [SUPPLEMENTAL MATERIAL, page 50](#) for more details on each topology option.

Select one network topology from the options listed in [Table 10](#).

Table 10 Edge network category

Product ID (PID)	PID Description
HX-E-TOPO1	10/25 GE Single or Dual Switch (2, 3, or 4 node)
HX-E-TOPO2	1 GE Dual Switch (3 or 4 node), 1GE Dual or Single (2 node)
HX-E-TOPO3	1 GE Single Switch (3 or 4 node only)



NOTE:

- A topology selection is required. Optional Intel NIC adapters in [STEP 8 SELECT PCIe OPTION CARD\(s\)](#) are used by guest VMs/applications only. These adapters may not be substituted for the adapters automatically included when selecting a topology.
 - Selecting **HX-E-TOPO1** will include the VIC 1457 mLOM card for 10/25GE topologies. Two ports on the VIC 1457 are used for HyperFlex functions. The remaining two ports may be used by applications after the HyperFlex deployment is completed.
 - Selecting **HX-E-TOPO2** will include the Intel i350 quad port PCIe NIC for 1GE topologies. Two ports on the NIC are used for HyperFlex functions. The remaining two ports may be used by applications after the HyperFlex deployment is completed.
 - Cisco strongly recommends **HX-E-TOPO1** for all new deployments for the following reasons:
 - Higher storage performance
 - Expansion ready - Ability to support node expansion in a future HyperFlex Data Platform software release.
 - Investment protection provides up to 100GE of theoretical throughput per server.
 - Leaves PCIe slots free for accessories
-

STEP 8 SELECT PCIe OPTION CARD(s)

HyperFlex Edge supports the use of additional PCIe NIC cards for use by guest VMs or applications running on top of HyperFlex. For full details see the [HyperFlex Networking Topologies Tech Note](#).

Select PCIe Option Cards

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

Table 11 Optional PCIe NIC Cards Choices

Product ID (PID)	PID Description	Card Height	Electrical Slot
Network Interface Cards (NICs)			
HX-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	1 or 2	x8
HX-PCIE-ID10GF	Intel X710-DA2 dual-port 10G SFP+ NIC	1 or 2	x8
HX-PCIE-ID10GC	Intel X550-T2 dual-port 10GBase-T NIC	1 or 2	x8
HX-PCIE-ID25GF	Intel XXV710-DA2 10-dual-port 25G NIC	1 or 2	x8



NOTE:

- The number of additional NICs supported depends on the HyperFlex network topology selected and the number of physical CPUs configured.
- These additional adapters are optional and may not be substituted for an HX Edge network topology selection.
- This list is non-exhaustive. For a complete list of compatible NICs, refer to the UCS HCL tool and search for the C220-M5SX to determine adapter compatibility.
- Connections to optional NIC adapters must be in a link-down or disconnected state during HyperFlex deployment.

The number of supported optional adapters depends on the number of CPUs configured and the HyperFlex Edge network topology selected:

Single CPU

- One additional PCIe card may be added with HX-E-TOPO1 or HX-E-TOPO3 selections.
- No additional PCIe cards may be added with HX-E-TOPO2 selection.

Dual CPU

- One or two additional PCIe cards may be added with HX-E-TOPO1 or HX-E-TOPO3 selections.
- One additional PCIe card may be added with HX-E-TOPO2 selection.

STEP 9 ORDER GPU CARDS (OPTIONAL)

Select GPU Options

The available GPU PCIe options are listed in [Table 12](#).

Table 12 Available PCIe GPU Cards

Product ID (PID)	PID Description	Card Size	Max cards per node
GPU PCIe Cards			
HX-GPU-T4-16 ¹	NVIDIA T4 PCIE 75W 16GB	Low Profile Single-Width	2

Notes:

1. Refer to HX240 All Flash and Hybrid M5 SD [GPU Card Installation](#) for more details.



NOTE:

- All GPU cards must be procured from Cisco as there is a unique SBIOS ID required by CIMC and HXM
- When two GPUs are installed, it is required to have two power supplies in the server. When only one GPU is installed, use the power calculator at the following link to determine the needed power based on the options chosen (CPUs, drives, GPUs, memory, and so on):

<http://HXpowercalc.cisco.com>

Caveats

- Currently, only T4 GPUs are supported.
- For riser combination 1C/2E (see [Figure 2 on page 5](#)), slot 1 on riser card 1C is the required slot for the first GPU and slot 2 on riser card 2E is the required slot for the second GPU.
- 2 CPUs are required to order 1 or 2 T4 GPUs

Refer to [Table 13](#) for the PCIe slot usage for GPU cards.

Table 13 PCIe Slot Usage in Riser 1/2B and Riser 1C/2E Combinations

Riser Combinations	Total Riser Slots Available		Riser Slots Available for GPUs	
	1-CPU System	2-CPU System	1-CPU System	2-CPU System
1C/2E	Slot 1	Slots 1 and 2	Slot 1	Slots 1 and 2



NOTE:

- 2 CPUs are required to support either 1 or 2 GPU
 - If you install two GPUs, they must be located in PCIe slots 1 and 2.
 - For more information on the riser card options, see [*Riser Card Configuration and Options, page 60*](#)
-

STEP 10 ORDER POWER SUPPLY

Power supplies share a common electrical and physical design that allows for hot-plug and tool-less installation into M5 C-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://HXpowercalc.cisco.com>

Table 14 Power Supply

Product ID (PID)	PID Description
HX-PSUF-1050W	HX 1050W Power Supply for SD
HX-PSUF-1050WDC	UCSC 1050WDC Power Supply for SD
HX-PSU1-1050ELV	Cisco UCS 1050W AC Power Supply for Rack Server Low Line



NOTE:

- HX240 All Flash and Hybrid M5 SD Requires two power supplies, both power supplies must be identical.
 - If a GPU is installed, it is required to have two power supplies, 2 CPUs, and 1C/2E Riser Cards
-

STEP 11 SELECT INPUT POWER CORD(S)

Using [Table 15](#), 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 15 Available Power Cords

Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A	<p>Figure 1-3 CAB-48DC-40A-8AWG, (00) Power Cord (3.5 m)</p>
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America	<p>Plug: NEMA 6-15P Cordset rating: 10 A, 250 V Length: 8.2 ft Connector: IEC60320/C13</p>
CAB-AC-L620-C13	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft	<p>3" From Plug End 79±2</p>
CAB-C13-CBN	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V	<p>685 MM ± 25 MM 75MM ± 10MM PLUG TYPE: S138 PWR DETAILS: 10A/250V (EC 332-2-2) CONNECTOR TYPE: 4252</p>
CAB-C13-C14-2M	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V	<p>2000 76mm PLUG TYPE: S138 CONNECTOR TYPE: 4252</p>
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/C13, 3.0M	<p>ASSEMBLY : 3000±50 76(REF) LIVE(BROWN) NEUTRAL(BLUE) LIVE(BROWN) NEUTRAL(BLUE) HEAT SEALED 250±20</p>

Table 15 Available Power Cords

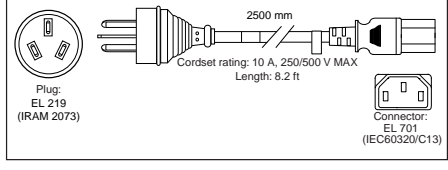
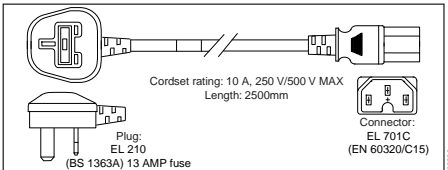
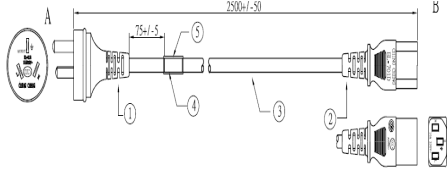
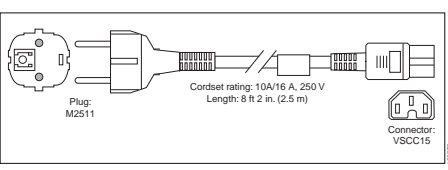
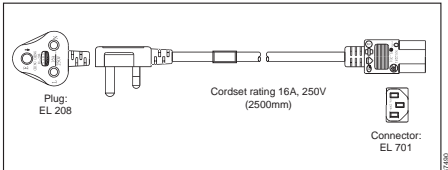
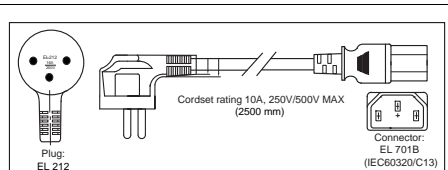
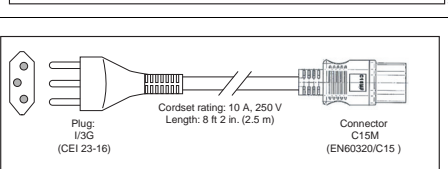
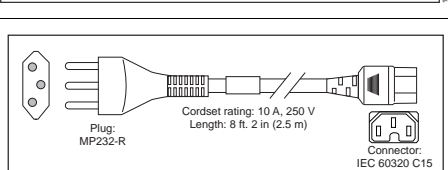
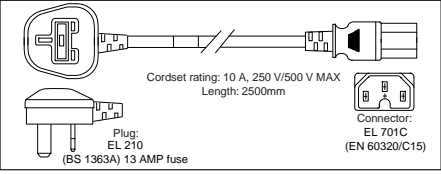
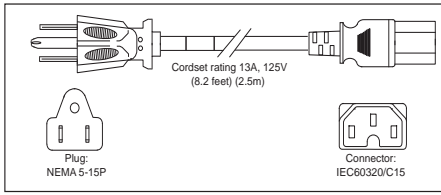
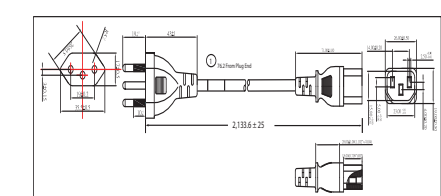
Product ID (PID)	PID Description	Images
CAB-250V-10A-AR	Power Cord, 250V, 10A, Argentina	 <p>Plug: EL 219 (IRAM 2073)</p> <p>Cordset rating: 10 A, 250/500 V MAX Length: 8.2 ft</p> <p>Connector: EL 701 (IEC60320/C13)</p>
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	 <p>Plug: EL 210 (BS 1363A) 13 AMP fuse</p> <p>Cordset rating: 10 A, 250 V/500 V MAX Length: 2500mm</p> <p>Connector: EL 701C (EN 60320/C15)</p>
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	 <p>Plug: M2511</p> <p>Cordset rating: 10A/16 A, 250 V Length: 8 ft 2 in. (2.5 m)</p> <p>Connector: VSCC15</p>
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	 <p>Plug: M2511</p> <p>Cordset rating: 10A/16 A, 250 V Length: 8 ft 2 in. (2.5 m)</p> <p>Connector: VSCC15</p>
CAB-250V-10A-ID	Power Cord, 250V, 10A, India	 <p>Plug: EL 208</p> <p>Cordset rating 16A, 250V (2500mm)</p> <p>Connector: EL 701</p>
CAB-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	 <p>Plug: EL 212 (SI-32)</p> <p>Cordset rating 10A, 250V/500V MAX (2500 mm)</p> <p>Connector: EL 701B (IEC60320/C13)</p>
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	 <p>Plug: I/G (CEI 23-16)</p> <p>Cordset rating: 10 A, 250 V Length: 8 ft 2 in. (2.5 m)</p> <p>Connector: C15M (EN60320/C15)</p>
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	 <p>Plug: MP232-R</p> <p>Cordset rating: 10 A, 250 V Length: 8 ft. 2 in. (2.5 m)</p> <p>Connector: IEC 60320 C15</p>

Table 15 Available Power Cords

Product ID (PID)	PID Description	Images
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	-48VDC PSU PWR Cord, 3.5M, 3 Wire, 8AWG, 40A (INT)	Image Not available
CAB-48DC-40A-AS	-48VDC PSU PWR Cord, 3.5M, 3Wire, 8AWG, 40A (AS/NZ)	Image Not available
CAB-C13-C14-IN ²	Power Cord Jumper,C13-C14 Connectors,1.4 Meter Length, India	Image Not available
CAB-C13-C14-3M-IN ²	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India	Image Not available

Notes:

1. This power cord is rated to 125V and only supported for PSU rated at 1050W or less
2. These new replacement parts for cards in compliance with the Dec 1st, 2020 Bureau of Indian Standards (BIS) regulatory standard for lower-power consumption products.

STEP 12 ORDER TOOL-LESS RAIL KIT and RAIL EXTENDER KIT

Select a Tool-less Rail Kit

Select a tool-less rail kit from [Table 16](#).

Table 16 Tool-less Rail Kit Options

Product ID (PID)	PID Description
HX-RAILS-M5	Ball Bearing Rail Kit for C240M5 SD Server
HX-RAIL-NONE	No rail kit option

For more information about the tool-less rail kit, see the Cisco HX240 All Flash and Hybrid M5 SD Installation and Service Guide at this URL:

http://www.cisco.com/c/en/us/td/docs/unified_computing/HX/c/hw/c240sdm5/install/c240sdm5.html



NOTE: If you plan to rackmount your HX240 All Flash and Hybrid M5 SD server, you must order a tool-less rail kit. The same rail kits is used for C240 M4 M5 and HX240 All Flash and Hybrid M5 SD servers.

Select a Rail Extender Kit

For two-post rack installation, you must select a rail extender kit from [Table 17](#).

Table 17 Rail Extender Kit Option

Product ID (PID)	PID Description
HX-C240SD-EXT	HX C240SD M5 Extender Kit

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 18](#).

Table 18 Security Devices

Product ID (PID)	PID Description
HX-TPM2-002	Trusted Platform Module 2.0 for HX servers
HX-TPM2-002B	Trusted Platform Module 2.0 M5 UCS servers (FIPS 140-2 Compliant)
HX-INT-SW01	C220 M5 and HX240 All Flash and Hybrid M5 SD Chassis Intrusion Switch



NOTE:

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

Order one M.2 SATA SSDs. See [Figure 10 on page 57](#) for the location of the mini storage module connector, which accommodates an M.2 module. Each M.2 module has two PCIe/SATA M.2 SSD slots.

Table 19 M.2 SATA SSDs

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

Caveats

- Install one M.2 SATA SSDs.
- You cannot mix M.2 SATA SSDs with SD cards

STEP 15 INTERNAL MICRO-SD CARD MODULE

One 32 GB micro-SD card. The micro-SD card serves as a dedicated local resource for utilities such as a Host Upgrade Utility (HUU). Images can be pulled from a file share (NFS/CIFS) and uploaded to the card for future use.

Table 20 32 GB Secure Digital (SD) Card (Auto Included)

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

NOTE:

- The microSD card mounts internally on riser 1C.
- The Flexutil user partition does not support OS installation. The user partition must be used for storage only.

STEP 16 SELECT HYPERVISOR/ HOST OS

Several operating system versions and HyperFlex Edge software subscriptions are available to choose from. HyperFlex comes conveniently pre-installed with the ESXi hypervisor of your choice, reducing the time needed to deploy a HyperFlex cluster on-site.

Select one VMware license from either section (VMware/VMware PAC Licenses) and one HyperFlex Edge software subscription license.

Select Operating systems and Hypervisor from [Table 21](#)

Table 21 Operating systems and HyperFlex Software

Product ID (PID)	PID Description
VMware	
HX-VSP-7-0-FND-D	Factory Installed vSphere SW 7.0 1-CPU Enduser provides License (HyperFlex Release 4.5(1a) and later)
HX-VSP-7-0-FND2-D	Factory Installed vSphere SW 7.0 2-CPU Enduser provides License (HyperFlex Release 4.5(1a) and later)
VMware PAC Licenses¹	
HX-VSP-ROBO1-STD	VMware vSphere 7.x ROBO Standard (25 VM pack)
HX-VSP-ROBO2-STD	VMware vSphere 7.x ROBO Standard (100 VM pack)
HX-VSP-ROBO3-STD	VMware vSphere 7.x ROBO Standard (500 VM pack)
HX-VSP-ROBO1-ADV	VMware vSphere 7.x ROBO Advanced (25 VM pack)
HX-VSP-ROBO2-ADV	VMware vSphere 7.x ROBO Advanced (100 VM pack)
HX-VSP-ROBO3-ADV	VMware vSphere 7.x ROBO Advanced (500 VM pack)
HX-VSP-ROBO1-ENT	VMware vSphere 7.x ROBO Enterprise (25 VM pack)
HX-VSP-ROBO2-ENT	VMware vSphere 7.x ROBO Enterprise (100 VM pack)
HX-VSP-ROBO3-ENT	VMware vSphere 7.x ROBO Enterprise (500 VM pack)
HX-VSP-EPL-1A	VMware vSphere 7 Ent Plus (1 CPU), 1-yr, Support Required Cisco
HX-VSP-EPL-3A	VMware vSphere 7 Ent Plus (1 CPU), 3-yr, Support Required Cisco
HX-VSP-EPL-5A	VMware vSphere 7 Ent Plus (1 CPU), 5-yr, Support Required Cisco
HX-VSP-STD-1A	VMware vSphere 7 Standard (1 CPU), 1-yr, Support Required Cisco
HX-VSP-STD-3A	VMware vSphere 7 Standard (1 CPU), 3-yr, Support Required Cisco
HX-VSP-STD-5A	VMware vSphere 7 Standard (1 CPU), 5-yr, Support Required Cisco
Guest Operating system²	
Microsoft Windows Server	
MSWS-19-DC16C-NS	Windows Server 2019 Data Center (16 Cores/Unlimited VMs) - No Cisco SVC

Table 21 Operating systems and HyperFlex Software

MSWS-19-ST16C-NS	Windows Server 2019 Standard (16 Cores/2 VMs) - No Cisco SVC
HX-MSWS-19-DC16C	Windows Server 2019 Data Center (16 Cores/Unlimited VMs)
HX-MSWS-19-ST16C	Windows Server 2019 Standard (16 Cores/2 VMs)

Notes:

1. Choose quantity of two when choosing PAC licensing for dual CPU systems.
2. Optional guest OS licenses that may be purchased to run on top of the hypervisor

STEP 17 SELECT HYPERFLEX DATA PLATFORM EDGE SUBSCRIPTION

Select HyperFlex HXDP Software at the top level of your estimate - options in [Table 22](#)

Table 22 HX Data Platform Software

Product ID (PID)	PID Description
HXDP-S001-1YR to HXDP-S001-5YR	HyperFlex Data Platform Datacenter Advantage (1 to 5) Yr
HXDP-S-SLR	HyperFlex Data Platform Datacenter Advantage SLR 1 to 10 Years
HXDP-P001-1YR To HXDP-P001-5YR	HyperFlex Data Platform Datacenter Premier (1 to 5) Yr
HXDP-P-SLR	HyperFlex Data Platform Datacenter Premier SLR 1 to 10 Years

STEP 18 SELECT SERVICE and SUPPORT LEVEL

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

Smart Net Total Care (SNTC)

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

For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco Smart Net Total Care for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. For more information please refer to the following url: <http://www.cisco.com/c/en/us/services/technical/smart-net-total-care.html?stickynav=1>
You can choose a desired service listed in [Table 23](#).

Table 23 Cisco SNTC Service (PID HXAF-E-220M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-AF220CM5	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-AF220CM5	UCSD8	Yes	UC SUPP DR 24X7X2OS*
CON-C2PL-AF220CM5	C2PL	Yes	LL 24X7X2OS**
CON-OSP-AF220CM5	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-AF220CM5	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-AF220CM5	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-AF220CM5	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-AF220CM5	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-AF220CM5	UCSD6	Yes	UC SUPP DR 8X5X4OS*
CON-SNCO-AF220CM5	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-AF220CM5	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-AF220CM5	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-AF220CM5	S2P	No	SNTC 24X7X2
CON-S2PL-AF220CM5	S2PL	No	LL 24X7X2**
CON-SNTP-AF220CM5	SNTP	No	SNTC 24X7X4
CON-SNTPL-AF220CM5	SNTPL	No	LL 24X7X4**
CON-SNTE-AF220CM5	SNTE	No	SNTC 8X5X4
CON-SNC-AF220CM5	SNC	No	SNTC 8x7xNCD****
CON-SNT-AF220CM5	SNT	No	SNTC 8X5XNBD
CON-SW-AF220CM5	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

****Available in China only

Smart Net Total Care with 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 Hyper-Converged environment. It is delivered by a Cisco Certified field engineer (FE) in collaboration with remote TAC engineer and Virtual Internet working Support Engineer (VISE). You can choose a desired service listed in [Table 24](#)

Table 24 SNTC with UCS Onsite Troubleshooting Service (PID HXAF-E-220M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-AF220CM5	OSPT	Yes	24X7X40S Trblshtg
CON-OSPTD-AF220CM5	OSPTD	Yes	24X7X40S TrblshtgDR*
CON-OSPTL-AF220CM5	OSPTL	Yes	24X7X40S TrblshtgLL**
CON-OPTLD-AF220CM5	OPTLD	Yes	24X7X40S 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

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 25](#)

Table 25 Solution Support Service (PID HXAF-E-220M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-AF220CM5	SSC2P	Yes	SOLN SUPP 24X7X20S
CON-SSC4P-AF220CM5	SSC4P	Yes	SOLN SUPP 24X7X40S
CON-SSC4S-AF220CM5	SSC4S	Yes	SOLN SUPP 8X5X40S
CON-SSCS-AF220CM5	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-AF220CM5	SSDR7	Yes	SSPT DR 24X7X40S*

Table 25 Solution Support Service (PID HXAF-E-220M5SX)

CON-SSDR5-AF220CM5	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-AF220CM5	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-AF220CM5	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-AF220CM5	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-AF220CM5	SSSNC	No	SOLN SUPP NCD**
CON-SSSNT-AF220CM5	SSSNT	No	SOLN SUPP 8X5XNBD

Includes Drive Retention (see below for description)

**Available in China only

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.

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 26](#).

Table 26 PSS (PID HXAF-E-220M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-AF220CM5	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-AF220CM5	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-AF220CM5	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-AF220CM5	PSJ6	Yes	UCS PSS 8X5X4 OS
CON-PSJD6-AF220CM5	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-AF220CM5	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-AF220CM5	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-AF220CM5	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-AF220CM5	PSJ1	No	UCS SUPP PSS 8X5XNBD

Table 26 PSS (PID HXAF-E-220M5SX)

*Includes Drive Retention (see below for description)

Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. 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 27](#)

Table 27 Combined Support Service (PID HXAF-E-220M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-AF220CM5	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-AF220CM5	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-AF220CM5	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-AF220CM5	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-AF220CM5	NCF2	No	CMB SVC 24X7X2
CON-NCFP-AF220CM5	NCFP	No	CMB SVC 24X7X4
CON-NCFE-AF220CM5	NCFE	No	CMB SVC 8X5X4
CON-NCFT-AF220CM5	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-AF220CM5	NCFW	No	CMB SVC SW

UCS 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 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 HyperFlex System, see the following URL:
<https://www.cisco.com/c/en/us/services/technical.html?stickynav=1>

SUPPLEMENTAL MATERIAL

Supported Network Topologies for HyperFlex Edge 2 Node Deployments

Cisco HyperFlex Edge offers both a 1 Gigabit Ethernet (GE) and a 10/25GE installation option. Both topologies support single top-of-rack (ToR) and dual ToR switch options for ultimate network flexibility and redundancy.

Consider the following when determining the best topology for your cluster:

- Cisco highly recommends the 10/25GE topology for higher performance and future node expansion capabilities.
- The 1GE topology is reserved for clusters that will never require node expansion, and instances where the ToR switch does not have 10GE or 25GE ports available.



NOTE: A network topology is chosen during initial deployment and cannot be changed or upgraded without a full reinstallation. Choose your network topology carefully and with future needs in mind.

Below is a summary of the supported topologies, refer to the [Cisco HyperFlex Edge Deployment Guide, Pre-installation Checklist chapter](#), for full details.



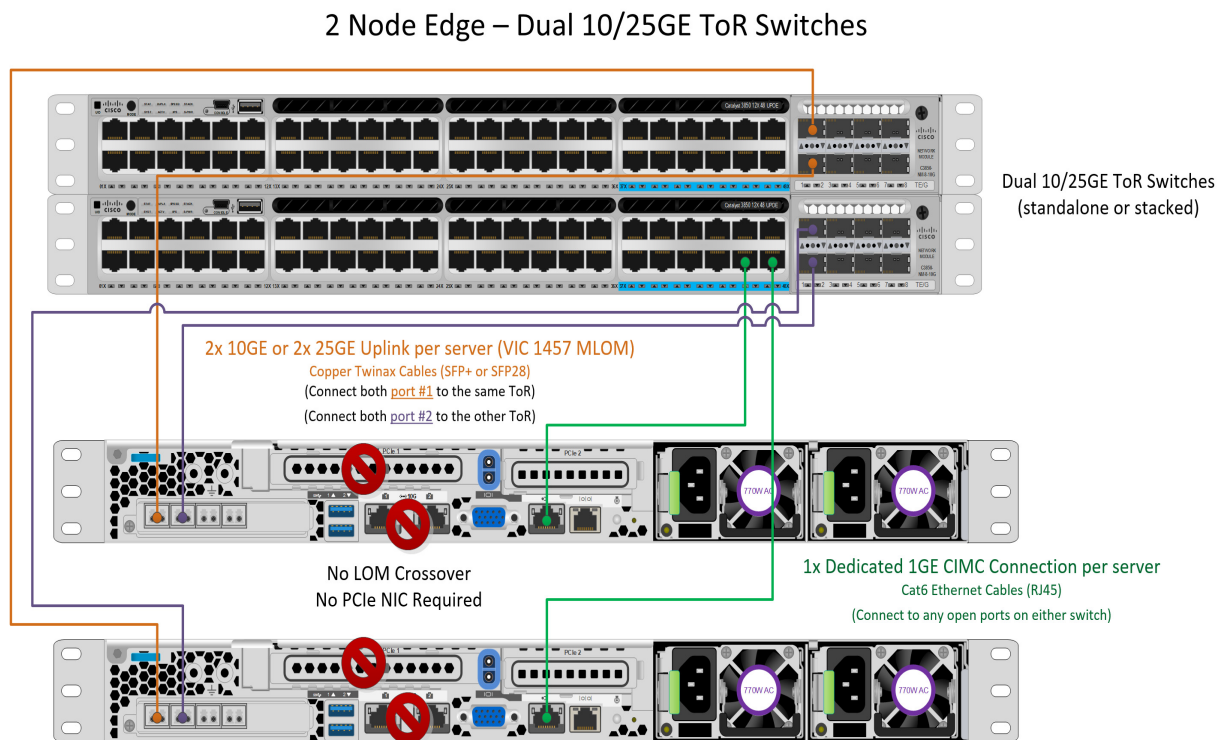
NOTE: The Edge node images are 220 servers for illustrative purposes only. The same Topology deployments are supported with HX240 All Flash and Hybrid M5 SD

10/25 Gigabit Ethernet Topology

The 10/25 Gigabit Ethernet (GE) switch topology provides a fully redundant design that protects against switch (if using dual or stacked switches), link and port failures. The 10/25GE switch may be one or two standalone switches or may be formed as a switch stack.

To deploy this topology, select HX-E-TOP01 in [Step 7](#).

Figure 5 Physical cabling for the 10/25GE Dual Switch topology. Detailed diagrams for other topologies can be found in the pre-installation checklist.



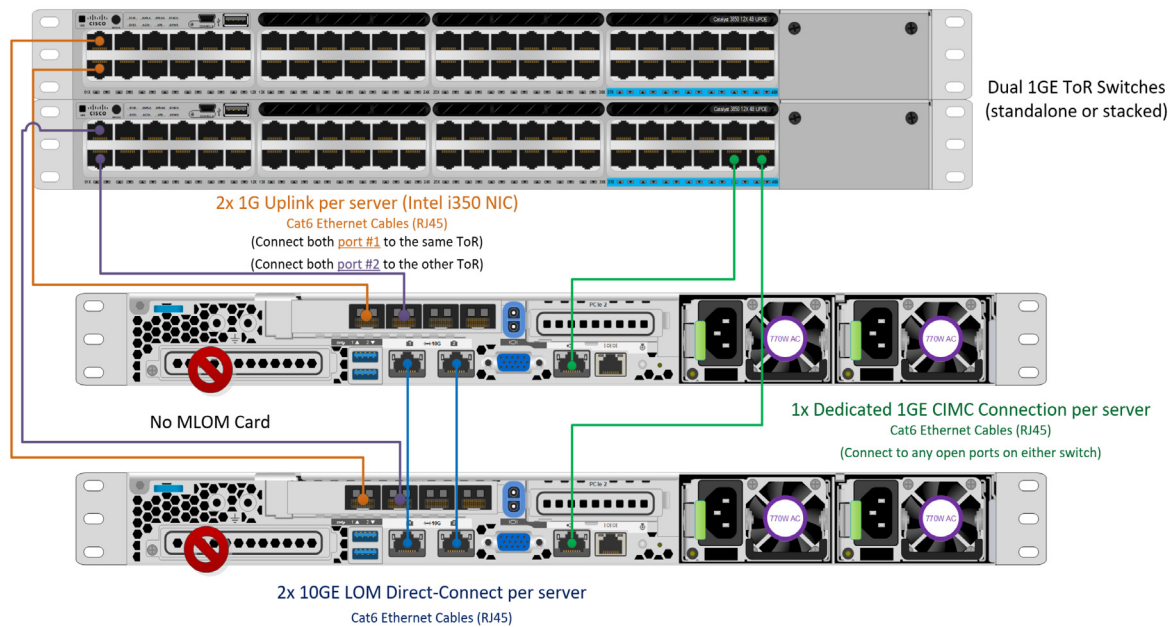
1 Gigabit Ethernet Topology

The 1 Gigabit Ethernet (GE) switch topology provides a fully redundant design that protects against switch (if using dual or stacked switches), link and port failures. The 1GE switch may be one or two standalone switches or may be formed as a switch stack.

To deploy this topology, select HX-E-TOPO2 in [Step 7](#).

Figure 6 Physical cabling for the 1GE Dual Switch topology. Detailed diagrams for other topologies can be found in the pre-installation checklist.

2 Node Edge – Dual 1GE ToR Switches



Supported Network Topologies for HyperFlex Edge 3 and 4 Node Deployments

Cisco HyperFlex Edge offers both a 1 Gigabit Ethernet (GE) and a 10/25GE installation option. Both topologies support single top-of-rack (ToR) and dual ToR switch options for ultimate network flexibility and redundancy.

Consider the following when determining the best topology for your cluster:

- Cisco highly recommends the 10/25GE topology for higher performance and future node expansion capabilities.
- The 1GE topology is reserved for clusters that will never require node expansion, and instances where the ToR switch does not have 10GE or 25GE ports available.



NOTE: A network topology is chosen during initial deployment and cannot be changed or upgraded without a full reinstallation. Choose your network topology carefully and with future needs in mind.

Below is a summary of the supported topologies, refer to the [Cisco HyperFlex Edge Deployment Guide, Pre-installation Checklist chapter](#), for full details.

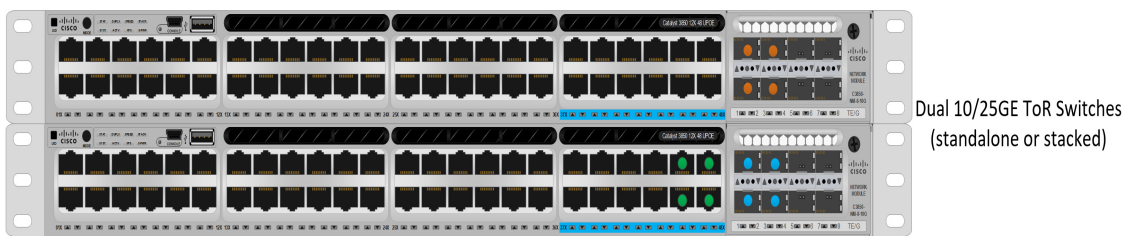
10/25 Gigabit Ethernet Topology

The 10/25 Gigabit Ethernet (GE) switch topology provides a fully redundant design that protects against switch (if using dual or stacked switches), link and port failures. The 10/25GE switch may be one or two standalone switches or may be formed as a switch stack.

To deploy this topology, select HX-E-TOP01 in [Step 7](#).

Figure 7 Physical cabling for the 10/25GE Dual Switch topology. Detailed diagrams for other topologies can be found in the pre-installation checklist.

3 & 4 Node Edge – Dual 10/25GE ToR Switches

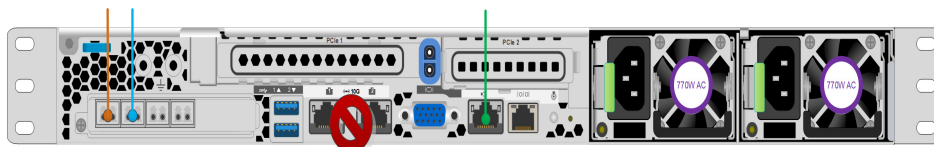


2x 10GE or 2x 25GE Uplink per server (VIC 1457 MLOM)

Copper Twinax Cables (SFP+ or SFP28)

(Connect all [port #1](#) to the same ToR)

(Connect all [port #2](#) to the other ToR)



1x Dedicated 1GE CIMC Connection per server

Cat6 Ethernet Cables (RJ45)

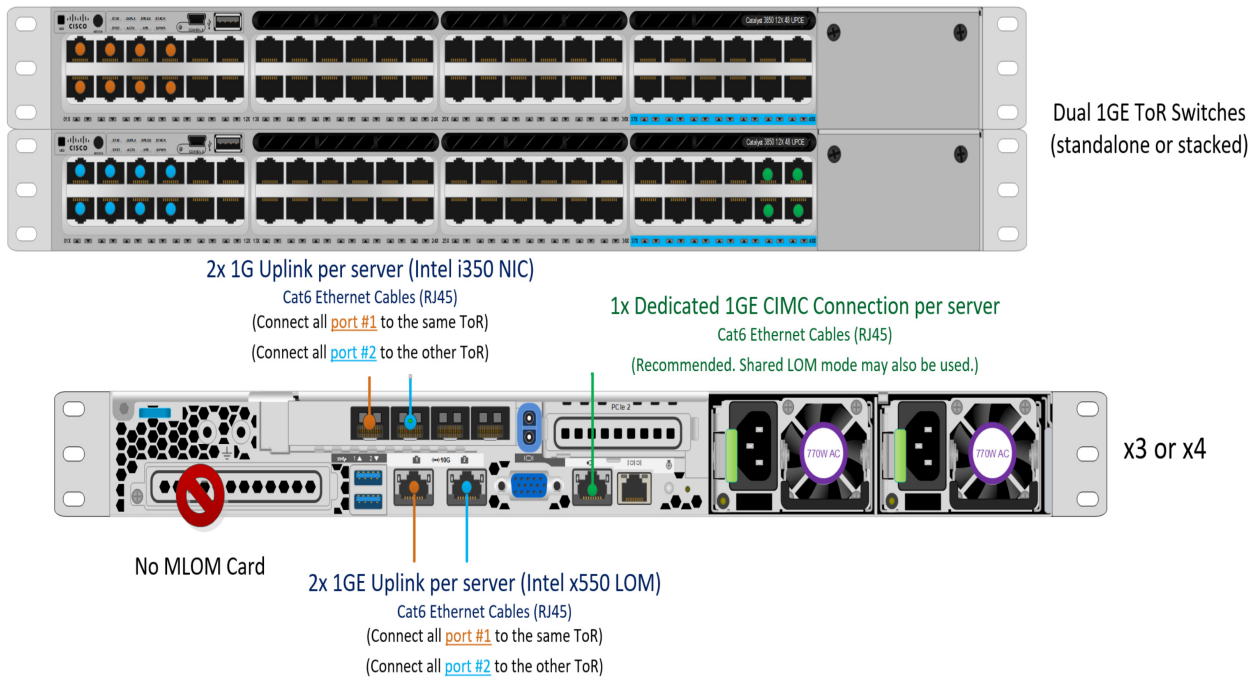
(Connect to any open port on either switch)

1 Gigabit Ethernet Dual Switch Topology

Dual switch configuration provides a slightly more complex topology with full redundancy that protects against: switch failure, link and port failure, and LOM/PCIe NIC HW failures. It requires two switches that may be standalone or stacked, and four 1GbE ports and one additional PCIe NIC per server. Trunk ports are the only supported network port configuration.

Figure 8 Physical cabling for the 1GE Dual Switch topology. Detailed diagrams for other topologies can be found in the pre-installation checklist.

3 & 4 Node Edge – Dual 1GE ToR Switches

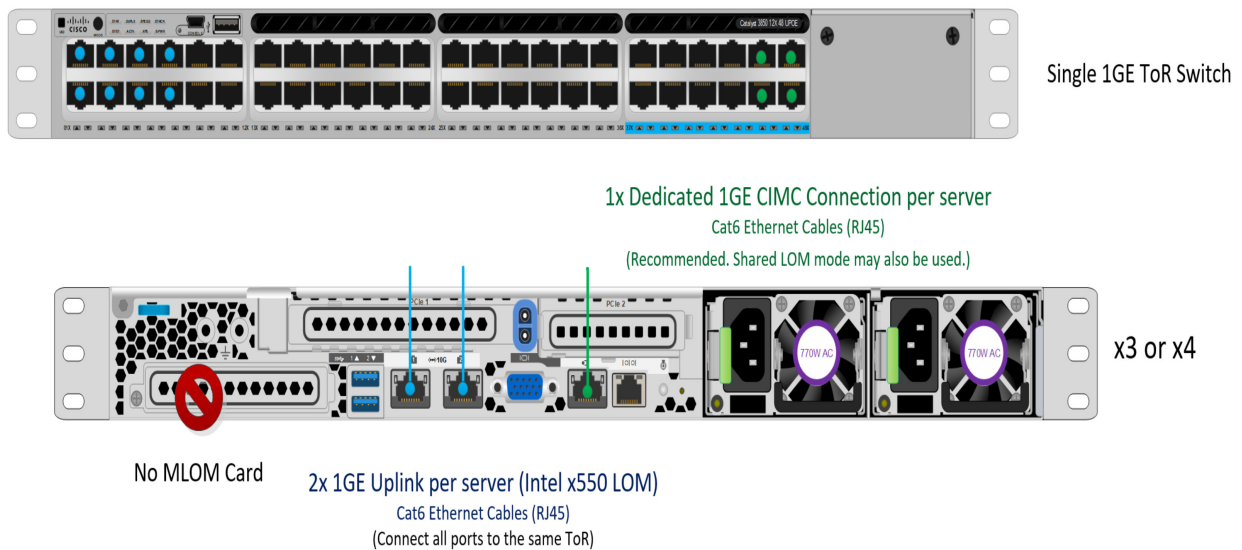


1 Gigabit Ethernet Single Switch Topology

Single switch configuration provides a simple topology requiring only a single switch, and two 1GbE ports per server. Link or switch redundancy is not provided. Access ports and trunk ports are the two supported network port configurations.

Figure 9 Physical cabling for the 1GE Single Switch topology. Detailed diagrams for other topologies can be found in the pre-installation checklist.

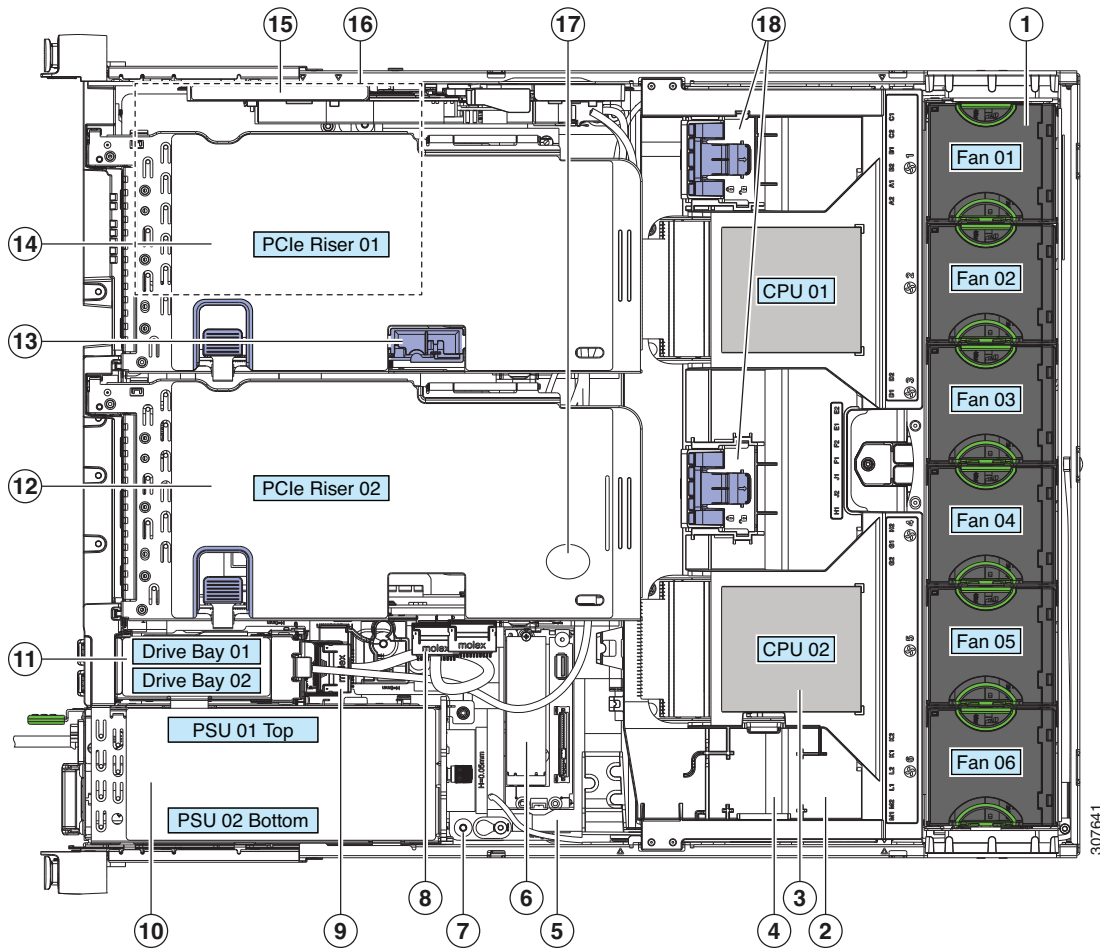
3 & 4 Node Edge – Single 1GE ToR Switch



Chassis

An internal view of the HX240 All Flash and Hybrid M5 SD chassis with the top cover removed is shown in [Figure 10](#).

Figure 10 HX240 All Flash and Hybrid M5 SD With Top Cover Off



1	Fan modules (hot swap)	2	DIMM sockets (hidden in this view)
3	CPUs and heatsinks (1 or 2)	4	N/A
5	USB slot on motherboard	6	Mini storage module socket
7	Chassis intrusion switch	8	PCI cable connectors for NVMe drives NOTE: NVMe drives are not supported with HyperFlex Edge
9	Vertical drive backplane assembly	10	Power supplies (hot swap)

11	Drive bays 01 and 02	12	PCIe riser 2 ■ Riser 2E option - PCIe slot 2 and drive bays 4 and 6
13	Micro SD socket on PCIe riser 01	14	PCIe riser 1 ■ Riser 1C option - PCIe slot 1 and drive bays 3 and 5
15	Storage controller (dedicated slot)	16	mLOM card socket on board
17	RTC battery on board (not visible in this view)	18	-

CPU and DIMM Layout

Each CPU has four DIMM channels:

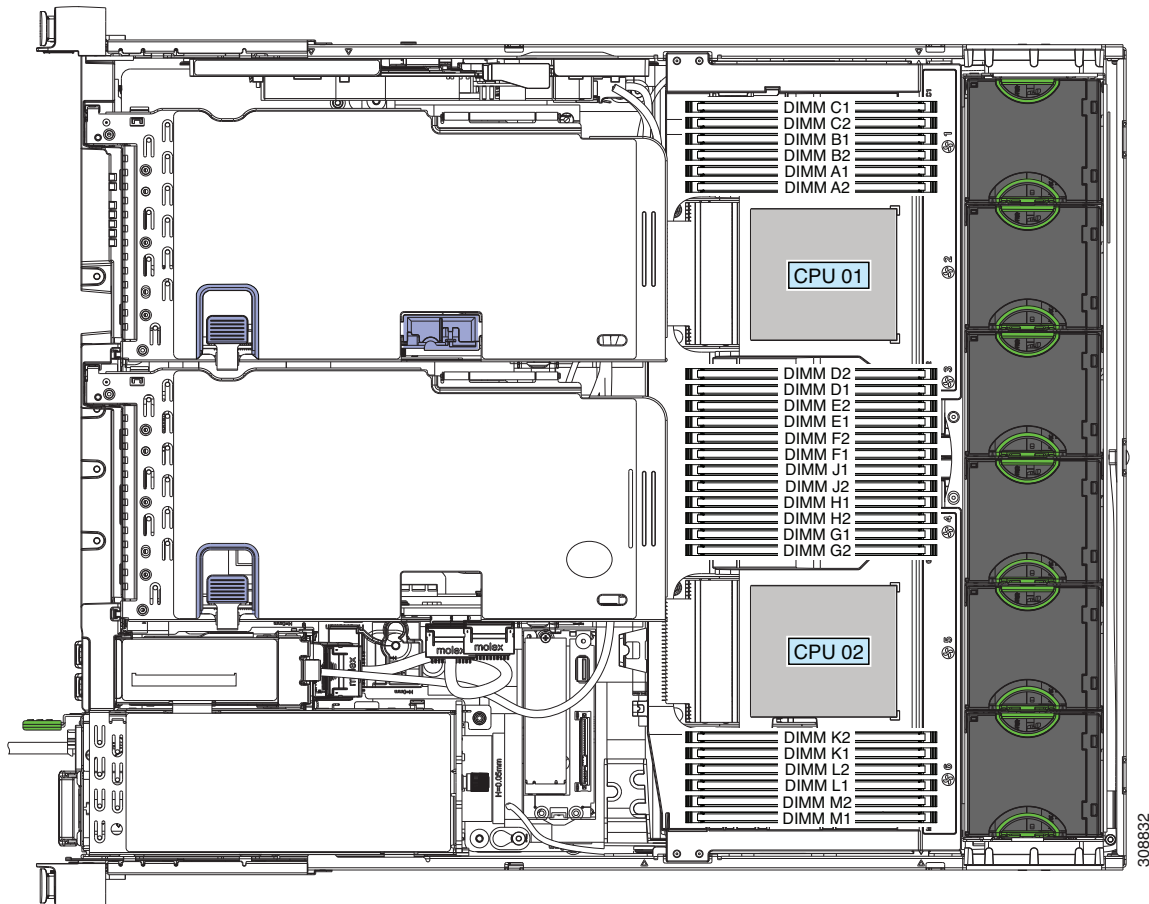
- CPU1 has channels A, B, C, D, E, F
- CPU2 has channels G, H, J, K, L, M

Each DIMM channel has two slots: slot 1 and slot 2. The black-colored DIMM slots are for slot 1 and the blue-colored slots for slot 2.

As an example, DIMM slots A1, B1, C1, D1, E1, and F1 belong to slot 1, while A2, B2, C2, D2, E2, and F2 belong to slot 2.

Figure 11 shows how slots and channels are physically laid out on the motherboard. The slot 1 (blue) DIMM slots are always located farther away from a CPU than the corresponding slot 2 (black) DIMM slots. Slot 1 slots (blue) are populated before slot 2 slots (black).

Figure 11 HX240 All Flash and Hybrid M5 SD CPU and DIMM Layout

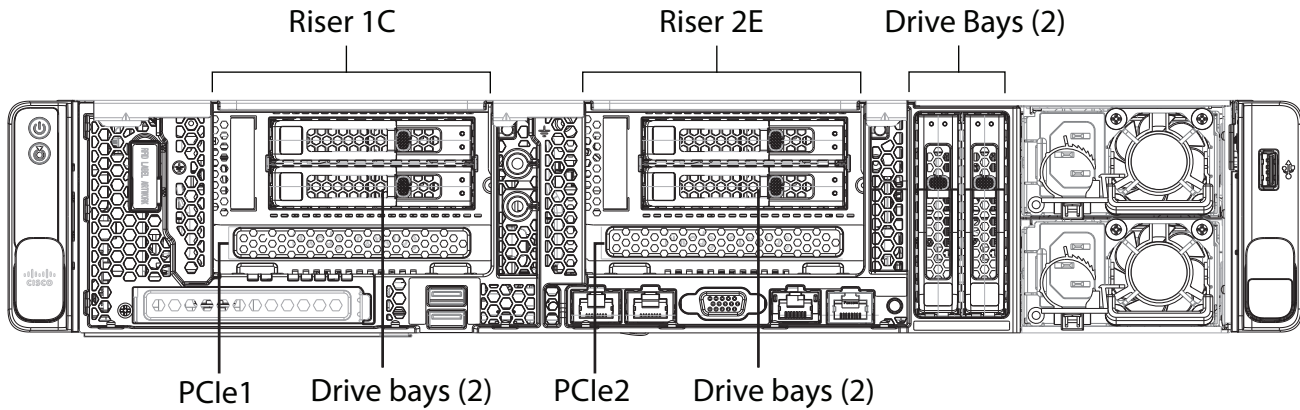


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Riser Card Configuration and Options

The 1C/2E riser card combination is shown in [Figure 12](#). This combination provides two PCIe slots and four drive bays in addition to the two permanent drive bays in the chassis.

Figure 12 Riser Card 1C (PCIe1 slot and two drive bays) on left and Riser Card 2E (PCIe2 slot and two drive bays) on right



[Table 28](#) shows the storage and PCIe slot combinations for the risers.

Table 28 Storage and PCIe Slot Combinations

Configuration	Combination Options
Single CPU Server with Risers 1C and 2E Installed (Figure 12 on page 60)	
Vertical Drives (drives 1 and 2)	Up to 2 SAS/SATA drives (with vertical SAS backplane)
Horizontal Drives (drives 3, 4, 5, and 6)	Up to 4 SAS/SATA drives
PCIe Slots (PCIe slots 1 and 2)	Only PCIe slot 1 is available (x16). NCSI and NVIDIA T4 GPU compatible.
Dual CPU Server with Risers 1C and 2E Installed (Figure 12 on page 60)	
Vertical Drives (drives 1 and 2)	Up to 2 SAS/SATA drives (with vertical SAS backplane), or
Horizontal Drives (drives 3, 4, 5, and 6)	Up to 4 SAS/SATA drives in any combination
PCIe Slots (PCIe slots 1 and 2)	PCIe slot 1 (x16) and PCIe 2 slot (x16) are available. Both slots are NCSI and NVIDIA T4 GPU compatible.

Riser card 1C is shown in [Figure 13 Table 29](#).

Figure 13 Riser Card 1C (PCIe slot 1 and Drive Bays 3 and 5)

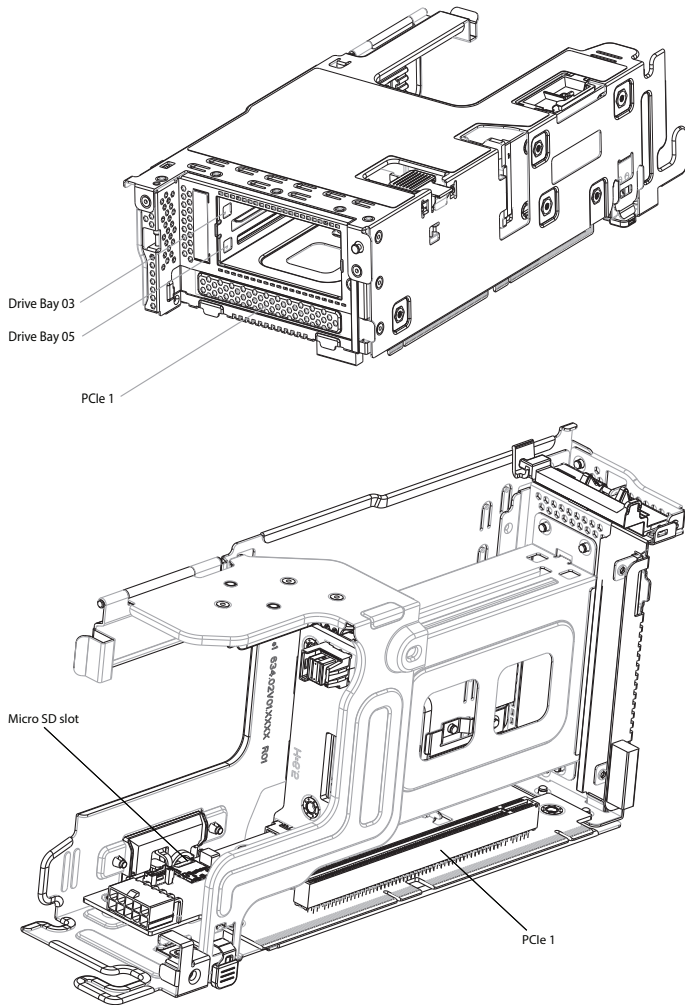


Table 29 Riser Card 1C

Slot #	Height	Length	Electrical	NCSI Support
Riser Card 1C PID HX-RS1C-240M5SD				
Drive Bay 03 - accommodates an SAS/SATA HDD/SSD drive				
Drive Bay 05 - accommodates an SAS/SATA HDD/SSD drive				
PCIe 1	Full	3/4	x16	Yes



NOTE: NVMe drives not supported with HX-Edge

Riser card 2E is shown in [Figure 14](#) and [Table 30](#).

Figure 14 Riser Card 2E (PCIe slot 2 and Drive Bays 4 and 6)

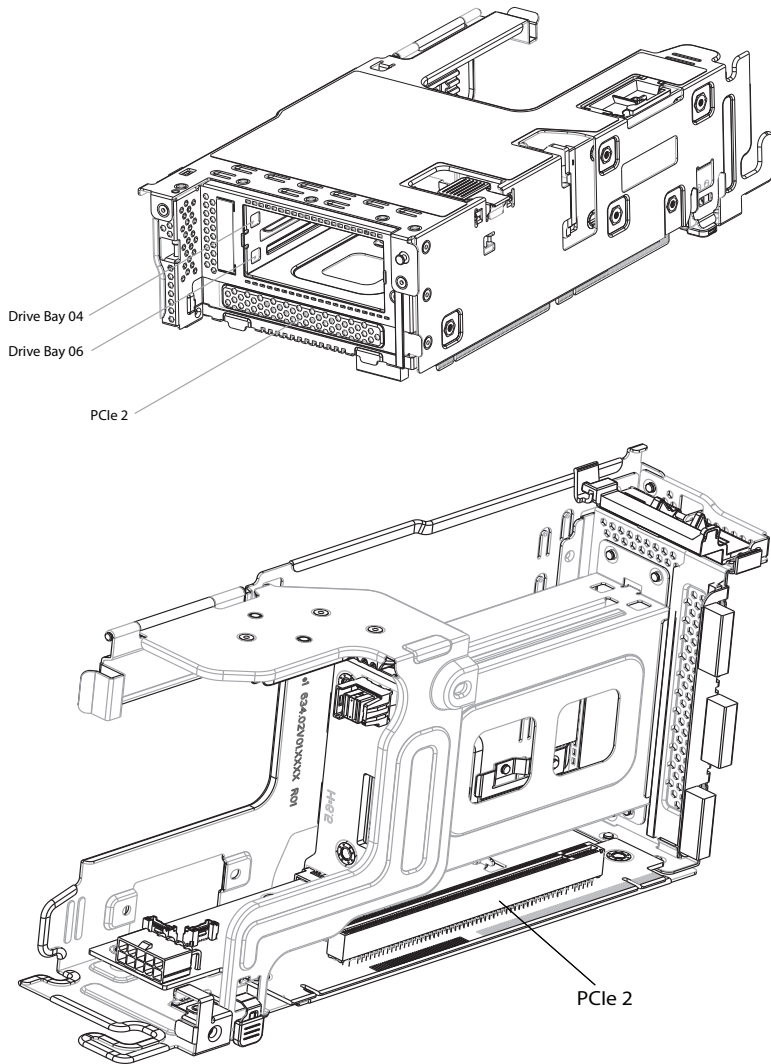


Table 30 Riser Card 2E

Slot #	Height	Length	Electrical	NCSI Support
Riser Card 2E PID HX-RS2E-240M5SD				
Drive Bay 04 - accommodates an SAS/SATA HDD/SSD drive				
Drive Bay 06 - accommodates an SAS/SATA HDD/SSD drive				
PCIe 2	Full	3/4	x16	Yes



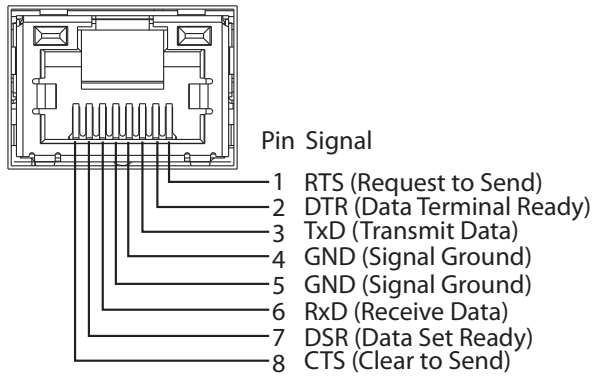
NOTE: NVMe drives not supported with HX-Edge

Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in [Figure 15](#).

Figure 15 Serial Port (Female RJ-45 Connector) Pinout

Serial Port (RJ-45 Female Connector)



Memory Support for HX240 All Flash and Hybrid M5 SD CPUs

- Only DIMMs supported
- CPU PIDs ending in “M” support up to a limit of 2048 GB per CPU
- CPU PIDs ending in “L” support up to a limit of 4608 GB per CPU (recommend L processor for memory >1024 GB per CPU)
- All other CPU PIDs support up to a limit of 1024 GB per CPU

For Configurations Using Only DIMMs

- CPU PIDs ending in “M” support DIMM capacities up to 1536 GB per CPU (using 12 x 128 GB DIMMs) and DIMM capacities up to 2048 GB per CPU (using 8 x 256 GB DIMMs).
- CPU PIDs ending in “L” support DIMM capacities up to 1536 GB per CPU (using 12 x 128 GB DIMMs) and DIMM capacities up to 3072 GB per CPU (using 12 x 256 GB DIMMs). The 4608 GB limit cannot be reached with these capacity DIMMs.
- CPU PIDs not ending in “L” or “M” support DIMM capacities up to 1024 GB per CPU (using 8 x 128 GB DIMMs or 4 x 256 GB DIMMs).

Cisco M5 Memory Guide:

<https://www.cisco.com/c/dam/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/memory-guide-c220-c240-b200-m5.pdf>

Note: DCPMM not supported on HX240 All Flash and Hybrid M5 SD

SPARE PARTS

This section lists the upgrade and service-related parts for the M5 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 31](#).

Table 31 Spare Parts

Product ID (PID)	PID Description
HX-HS2-C240M5=	Heat sink for HX240 All Flash and Hybrid M5 SD Servers CPUs above 150W
HX-CPUAT=	CPU Assembly Tool for M5 Servers
HX-CPU-TIM=	Single CPU thermal interface material syringe for M5 server HS seal
HX-HSCK=	HX Processor Heat Sink Cleaning Kit For Replacement of CPU
HX-M5-CPU-CAR=	HX M5 CPU Carrier
HX-RSAS-C240M5x	C240M5SX Rear drive SAS cable kit (includes SAS cable/backplane)
HX-BBLKD-S2=	C-Series M5 SFF drive blanking panel ¹
CBL-SASHBA-M5SD=	CBL, SAS HBA to Riser1 & 2 w/ SAS/SATA drive, C240M5SD
HX-RIS-CBL-M5SD	HX240c M5SD Riser-2 to Riser-1 Cable
HX-RS1C-240M5SD=	Riser 1C one PCIe slot, 2 drive bays, and a micro SD slot
HX-PCIF-240M5= ²	HX240 All Flash and Hybrid M5 SD PCIe Riser Blanking Panel
HX-MLOMBLK-M5=	C220 M5 and HX240 All Flash and Hybrid M5 SD mLOM blanking panel
HX-RAILS-M5=	Ball Bearing Rail Kit for C240M5 SD Server
HX-C240SD-EXT=	HX C240SD M5 Extender Kit for 2-post rack
HX-FAN-C240M5SD=	HX240 All Flash and Hybrid M5 SD Fan Module (one)
N20-BKVM=	KVM cable for Server console port
HX-PSU-M5BLK=	Power Supply Blanking Panel for M5 servers
HX-MSTOR-M2=	Mini Storage Carrier for M.2 SATA (holds up to 2)
PACK-QSFP-SFP=	Packaging for QSFP 40G and SFP 10G
HX-INT-SW01=	C220 M5 and HX240 All Flash and Hybrid M5 SD Chassis Intrusion Switch
Riser	

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
HX-RS1C-240M5SD=	Riser card 1C. One x16 PCIE slot, 2x Drive slots, supports microSD
HX-RS2E-240M5SD=	Riser card 2E. One x16 PCIE slot, 2x Drive slots, does not support microSD
CPUs	
8000 Series Processor	
HX-CPU-I8280L=	2.7
HX-CPU-I8280=	2.7
HX-CPU-I8276L=	2.2
HX-CPU-I8276=	2.2
HX-CPU-I8270=	2.7
HX-CPU-I8268=	2.9
HX-CPU-I8260Y=	2.4
HX-CPU-I8260L=	2.3
HX-CPU-I8260=	2.4
6000 Series Processor	
HX-CPU-I6262V=	1.9
HX-CPU-I6258R=	2.7
HX-CPU-I6254=	3.1
HX-CPU-I6252N=	2.3
HX-CPU-I6252=	2.1
HX-CPU-I6248R=	3.0
HX-CPU-I6248=	2.5
HX-CPU-I6246R=	3.4
HX-CPU-I6246=	3.3
HX-CPU-I6244=	3.6
HX-CPU-I6242R=	3.1
HX-CPU-I6242=	2.8
HX-CPU-I6240R=	2.4
HX-CPU-I6240Y=	2.6

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
HX-CPU-I6240L=	2.6
HX-CPU-I6240=	2.6
HX-CPU-I6238R=	2.2
HX-CPU-I6238L=	2.1
HX-CPU-I6238=	2.1
HX-CPU-I6234=	3.3
HX-CPU-I6230R=	2.1
HX-CPU-I6230N=	2.3
HX-CPU-I6230=	2.1
HX-CPU-I6226R=	2.9
HX-CPU-I6226=	2.7
HX-CPU-I6222V=	1.8
5000 Series Processor	
HX-CPU-I5220S=	2.6
HX-CPU-I5220R=	2.2
HX-CPU-I5220=	2.2
HX-CPU-I5218R=	2.1
HX-CPU-I5218B=	2.3
HX-CPU-I5218N=	2.3
HX-CPU-I5218=	2.3
HX-CPU-I5217=	3.0
HX-CPU-I5215L=	2.5
HX-CPU-I5215=	2.5
4000 Series Processor	
HX-CPU-I4216=	2.1
HX-CPU-I4215R=	3.2
HX-CPU-I4215=	2.5
HX-CPU-I4214R=	2.4
HX-CPU-I4214Y=	2.2

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
HX-CPU-I4214=	2.2
HX-CPU-I4210R=	2.4
HX-CPU-I4210=	2.2
HX-CPU-I4208=	2.1
3000 Series Processor	
HX-CPU-I3206R=	1.9
Memory	
HX-ML-128G4RW=	128GB DDR4-3200MHz LRDIMM 4Rx4 (16Gb)
HX-MR-X64G2RW=	64GB DDR4-3200MHz RDIMM 2Rx4 (16Gb)
HX-MR-X32G2RW=	32GB DDR4-3200MHz RDIMM 2Rx4 (8Gb)
HX-MR-X16G1RW=	16GB DDR4-3200MHz RDIMM 1Rx4 (8Gb)
Drives	
HXAF240c-M5SD (All Flash)	
Horizontal Capacity Drives (min 3, max 4 of same type for node and cluster)	
HX-SD960G61X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD38T61X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD76T61X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD960G6S1X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD19T6S1X-EV=	1.9TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD38T6S1X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
HX-SD76T6S1X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD (1X endurance)
Vertical Caching Drives (min 1, max 1)	
HX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
Vertical HyperFlex System Drive (min 1, max 1)	
HX-SD240GM1X-EV =	240GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD480G6I1X-EV =	480GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD480GM1X-EV=	480GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
HX-M2-240GB=	240GB SATA M.2 SSD
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
HX240c-M5SD (Hybrid)	
Horizontal Capacity Drives (min 3, max 4 of same type for node and cluster)	
HX-HD12TB10K12N=	1.2 TB 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)
Vertical Caching Drives (min 1, max 1)	
HX-SD480G63X-EP=	480GB 2.5 inch Enterprise Performance 6G SATA SSD (3X endurance)
Vertical HyperFlex System Drive (min 1, max 1)	
HX-SD240GM1X-EV =	240GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD480G611X-EV =	480GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD480GM1X-EV=	480GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	
HX-M2-240GB=	240GB SATA M.2 SSD)
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
PCIe Cards	
HX-PCIE-IRJ45=	Intel i350 Quad Port 1Gb Adapter
HX-PCIE-ID10GF=	Intel X710-DA2 dual-port 10G SFP+ NIC
HX-PCIE-ID10GC=	Intel X550-T2 dual-port 10GBase-T NIC
HX-PCIE-ID25GF=	Intel XXV710-DA2 10-dual-port 25G NIC
GPU	
HX-GPU-T4-16=	NVIDIA T4 PCIE 75W 16GB
Power Supplies	
HX-PSU1-1050W=	1050W AC power supply for C-Series servers
HX-PSUV2-1050DC=	1050W DC power supply for C-Series servers
Security	
HX-TPM2-002=	Trusted Platform Module 2.0 for UCS servers

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
HX-TPM2-002B=	Trusted Platform Module 2.0 M5 UCS servers (FIPS 140-2 Compliant)
HX-INT-SW01=	C220 M5 and C240 M5 Chassis Intrusion Switch
Power Cables	
R2XX-DMYMPWRCORD=	No power cord (dummy PID to allow for a no power cord option)
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
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
CAB-48DC-40A-INT=	-48VDC PSU PWR Cord, 3.5M, 3 Wire, 8AWG, 40A (INT)
CAB-48DC-40A-AS =	-48VDC PSU PWR Cord, 3.5M, 3Wire, 8AWG, 40A (AS/NZ)
CAB-C13-C14-IN=	Power Cord Jumper,C13-C14 Connectors,1.4 Meter Length, India
CAB-C13-C14-3M-IN=	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India

Table 31 Spare Parts (continued)

Product ID (PID)	PID Description
Select Hypervisor / Host Operating System	
ESXi Options	
VMware	
HX-VSP-7-0-FND-D=	Factory Installed vSphere SW 7.0 1-CPU Enduser provides License (HyperFlex Release 4.5(1a) and later)
HX-VSP-7-0-FND2-D=	Factory Installed vSphere SW 7.0 2-CPU Enduser provides License (HyperFlex Release 4.5(1a) and later)
VMware PAC Licenses	
HX-VSP-EPL-1A=	VMware vSphere 7.x Ent Plus (1 CPU), 1-yr, Support Required
HX-VSP-EPL-3A=	VMware vSphere 7.x Ent Plus (1 CPU), 3-yr, Support Required
HX-VSP-EPL-5A=	VMware vSphere 7.x Ent Plus (1 CPU), 5-yr, Support Required
HX-VSP-STD-1A=	VMware vSphere 7.x Standard (1 CPU), 1-yr, Support Required
HX-VSP-STD-3A=	VMware vSphere 7.x Standard (1 CPU), 3-yr, Support Required
HX-VSP-STD-5A=	VMware vSphere 7.x Standard (1 CPU), 5-yr, Support Required
Guest Operating system	
Microsoft Options	
HX-MSWS-19-ST16C=	Windows Server 2019 Standard (16 Cores/2 VMs)
HX-MSWS-19-DC16C=	Windows Server 2019 Data Center (16 Cores/Unlimited VMs)
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)

Notes:

1. A drive blanking panel must be installed if you remove a disk drive from a HX server. These panels are required to maintain system temperatures at safe operating levels, and to keep dust away from system components.
2. If a new riser blanking panel is required, please order HX-PCIF-240M5=, which is a 3-panel filler for the entire riser. For a single slot filler, please order HX-PCIF-01F= (only for Riser 1 and Riser 2B).

UPGRADING or REPLACING CPUs



NOTE: Before servicing any CPU, do the following:

- Decommission and power off the server.
- Slide the HX240 All Flash and Hybrid M5 SD server out from the rack.
- Remove the top cover.

To replace an existing CPU, 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 HX-CPUAT=.
- Heatsink cleaning kit—Supplied with replacement CPU. Can be ordered separately as Cisco PID HX-HSCK=.
- Thermal interface material (TIM)—Syringe supplied with replacement CPU. Can be ordered separately as Cisco PID HX-CPU-TIM=.

(2) Order the appropriate replacement CPU from [Table 4 on page 14](#) or [Table 5 on page 20](#).

(3) Carefully remove and replace the CPU and heatsink in accordance with the instructions found in “Cisco HX240 All Flash and Hybrid M5 SD Server Installation and Service Guide,” found at:

https://www.cisco.com/c/en/us/td/docs/unified_computing/HX/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html#concept_bfk_kwp_hz.

To add a new CPU, 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 HX-CPUAT=
- Thermal interface material (TIM)—Syringe supplied with replacement CPU. Can be ordered separately as Cisco PID HX-CPU-TIM=

(2) Order the appropriate new CPU from [Table 4 on page 14](#) or [Table 5 on page 20](#).

(3) Order one heat sink for each new CPU. Order PID HX-HS-C220M5= for CPUs that dissipate 150 W or less. Order PID HX-HS2-C220M5= for CPUs that dissipate more than 150 W.

(4) Carefully install the CPU and heatsink in accordance with the instructions found in “Cisco HX C220 M5 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#concept_bfk_kwp_hz

UPGRADING or REPLACING MEMORY



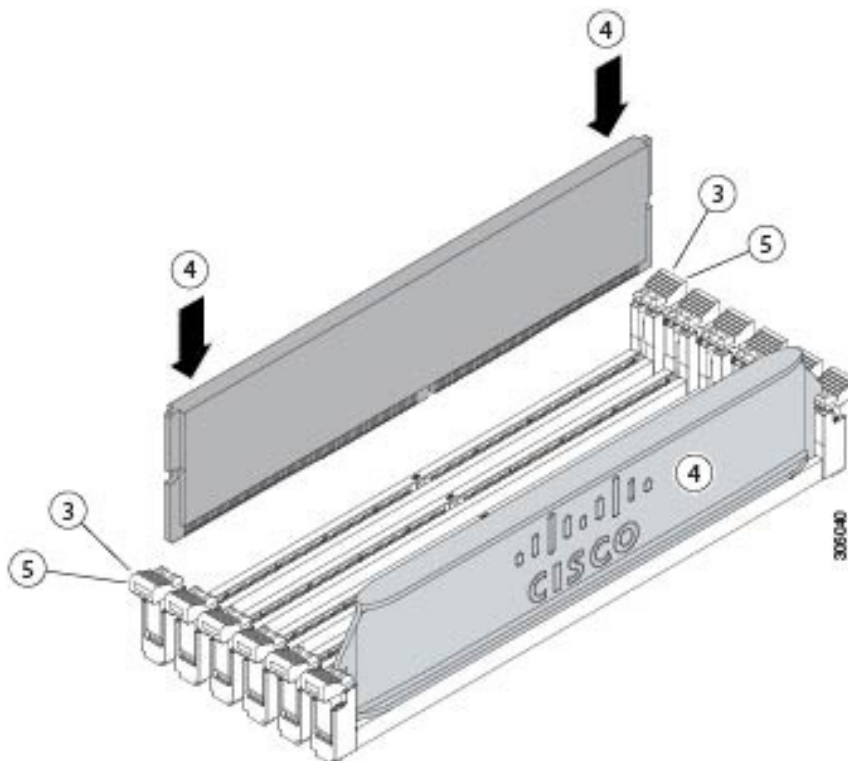
NOTE: Before servicing any DIMM, do the following:

- 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:

- (1) Order new DIMMs as needed from [Table 5 on page 20](#).
- (2) Open both connector latches and remove and replace the DIMM or blank as needed.

Figure 16 Replacing Memory



- (3) 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.

- (4) Press the connector latches inward slightly to seat them fully.

For additional details on replacing or upgrading DIMMs, see “Cisco 240 SD M5 Server Installation and Service Guide,” found at these links:

https://www.cisco.com/c/en/us/td/docs/unified_computing/UCS/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html#concept_c53_tbp_hz

https://www.cisco.com/c/en/us/td/docs/unified_computing/UCS/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html#concept_b1k_mbt_tgb

DISCONTINUED EOL PRODUCTS

Below is the list of parts were previously available for this product and are no longer sold. Please refer to the EOL Bulletin Links via the [Table 32](#) below to determine if still supported.

Table 32 EOL Products

EOS option PID	Description	EOL bulletin link
DRIVES		
HX-SD16T123X-EP	1.6TB 2.5 inch Enterprise performance 12G SAS SSD(3X endurance)	https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/eos-eol-notice-c51-2451489.html
HX-SD800G123X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/eos-eol-notice-c51-2451489.html
Memory		
HX-MR-X16G1RT-H	16GB DDR4-2933MHz RDIMM 1Rx4 (8Gb)/1.2v	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-hyperflex-accessories-eol14611.html
HX-MR-X32G2RT-H	32GB DDR4-2933MHz RDIMM 2Rx4 (8Gb)/1.2v	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-hyperflex-accessories-eol14611.html
HX-MR-X64G2RT-H	64GB DDR4-2933MHz RDIMM 2Rx4 (16Gb)/1.2v	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-hyperflex-accessories-eol14611.html
HX-ML-X64G4RT-H	64GB DDR4-2933MHz LRDIMM 4Rx4 (8Gb)/1.2v	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-hyperflex-accessories-eol14611.html
HX-ML-128G4RT-H	128GB DDR4-2933MHz LRDIMM 4Rx4 (16Gb)/1.2v	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-hyperflex-accessories-eol14611.html

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 33 HX240 All Flash and Hybrid M5 SD Dimensions and Weight

Parameter	Value
Height	3.43 in. (87.1 mm)
Width (including slam latches)	17.57 in. (446.3 mm) Including handles: 18.96 in (481.5 mm)
Depth	22.0 in. (55.9 cm) Including handles: 22.9 in (58.1cm)
Front Clearance	3 in. (76 mm)
Side Clearance	1 in. (25 mm)
Rear Clearance	6 in. (152 mm)
Weight ¹	
Maximum (6 SSD, 2 CPUs, 24 DIMMs, 2 1050 W power supplies)	40.5 lbs (18.4 kg)
Minimum (1 SSD, 1 CPU, 1 DIMM, 1 1050 W power supply))	33 lbs (15 kg)
Bare (0 SSD, 0 CPU, 0 DIMM, 1 1050 W power supply))	29 lbs (13.2 kg)

Notes:

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

Power Specifications

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

- 1050 W (AC) power supply (see [Table 34](#))
- 1050 W (DC) power supply (see [Table 35](#)).

Table 34 HX240 All Flash and Hybrid M5 SD 1050 W (AC) Power Supply Specifications

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 35 HX240 All Flash and Hybrid M5 SD 1050 W (DC) Power Supply Specifications

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

Table 35 HX240 All Flash and Hybrid M5 SD 1050 W (DC) Power Supply Specifications

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

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

<http://HXpowercalc.cisco.com>

Environmental Specifications

The environmental specifications for the HX240 All Flash and Hybrid M5 SD server are listed in [Table 36](#).

Table 36 Environmental Specifications

Parameter	Minimum
Operating Temperature	<p>Dry bulb temperature of 10°C to 35°C (50°F to 95°F)</p> <p>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)</p> <p>Humidity condition: Uncontrolled, not to exceed 50% RH starting condition</p> <p>Derate the maximum temperature by 1°C (33.8°F) per every 305 meters of altitude above 900m</p>
Extended Operating Temperature	<p>5°C to 40°C (41°F to 104°F) with no direct sunlight</p> <p>Humidity condition: Uncontrolled, not to exceed 50% RH starting condition</p> <p>Derate the maximum temperature by 1°C (33.8°F) per every 305 meters of altitude above 900m</p>
Non-Operating Temperature	Dry bulb temperature of -40°C to 65°C (-40°F to 149°F)
Operating Relative Humidity	<p>10% to 90% and 28°C (82.4°F) maximum dew-point temperature, non-condensing environment</p> <p>Minimum to be higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity</p> <p>Maximum to be 24°C (75.2°F) dew point or 90% relative humidity</p>
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

Compliance Requirements

The regulatory compliance requirements for servers are listed in [Table 37](#)

Table 37 HX 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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