Spec Sheet

Cisco HyperFlex HX220c M6 All NVMe, All Flash and Hybrid Server Nodes

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

CISCO SYSTEMS
170 WEST TASMAN DR
SAN JOSE, CA, 95134
WWW.CISCO.COM

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OVERVIEW

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

The Cisco HyperFlex HX220C M6 All NVMe/All Flash/Hybrid Server Nodes extends the capabilities of Cisco's HyperFlex portfolio in a 1U form factor with the addition of the 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake), 16 DIMM slots per CPU for 3200-MHz DDR4 DIMMs with DIMM capacity points up to 256 GB. The maximum memory capacity for 2 CPUs is listed here:

- 8 TB (32 x 256 GB DDR4 DIMMs[1]), or
- 12 TB (16 x 256 GB DDR4 DIMMs and 16 x 512 GB Intel® Optane™ Persistent Memory Modules (PMEMs)).

Drives

There are three server nodes to choose from:

- **HXAF220C-M6SN (All NVMe)** (see *Figure 1 on page 4*):
  - Up to 10 front NVMe SSDs (only).
- **HXAF220C-M6S (All Flash)** (see *Figure 1 on page 4*):
  - Up to 10 front SFF SAS/SATA SSDs and NVMe caching drive.
- **HX220C-M6S (Hybrid)** (see *Figure 1 on page 4*):
  - Up to 10 front SFF SAS/SATA HDDs and SSDs.

Rear PCIe Risers

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

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

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

NOTE: PCIe drives are controlled directly from the CPUs.

The Cisco HyperFlex HX220C M6 All NVMe/All Flash/Hybrid Server Nodes has two LOM ports (10Gbase-T LOM) and a single 1 GbE management port. A modular LAN on motherboard (mLOM) module provides up to two 100 GbE ports. A connector on the front of the chassis provides KVM functionality.

Notes . . .

1. Target timeframe for supporting 256 GB DIMMs is Q4CY2021.

See *Figure 1 on page 4* for front and rear views of the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes.

Figure 1 Cisco HX220C M6 All NVMe/All Flash/Hybrid Server Nodes

HXAF220C-M6SN (All NVMe)
10 front drives are all NVMe (only) drives

Front View (see *Figure 2 on page 5* for details)

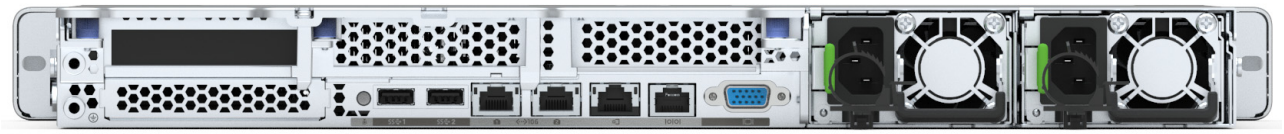
HXAF220C-M6S (All Flash)
10 front drives are SAS/SATA SDDs and NVMe (up to 2 NVMe front drives) drives

Front View (see *Figure 3 on page 6* for details)

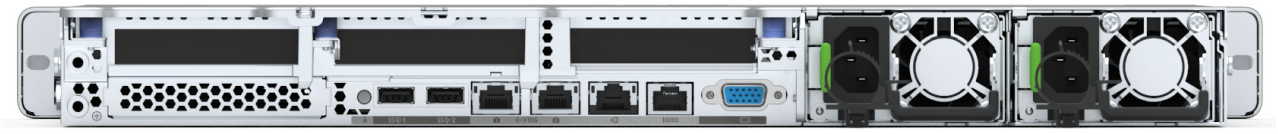
HX220C-M6S (Hybrid)
10 front drives are SAS/SATA HDDS and SDDs

Front View (see *Figure 4 on page 7* for details)

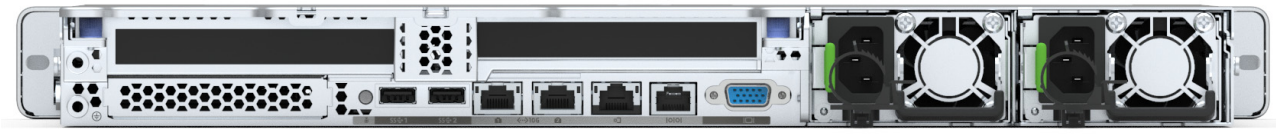
Rear View (one half-height riser version) (see *Figure 5 on page 9* for details)



Rear View (three half-height riser version) (see *Figure 6 on page 10* for details)



Rear View (two full-height riser version) (see *Figure 7 on page 11* for details)

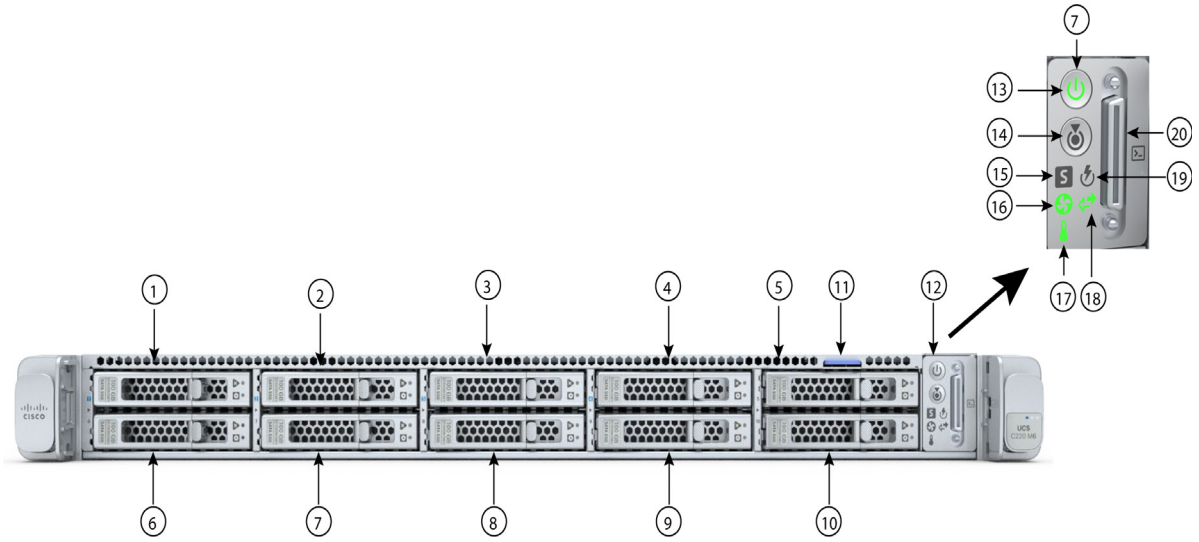


DETAILED VIEWS

Chassis Front View - HXAF220C-M6SN (All NVMe)

Figure 2 shows the front view of the Cisco HyperFlex HXAF220C-M6SN (All NVMe) server node.

Figure 2 Chassis Front View

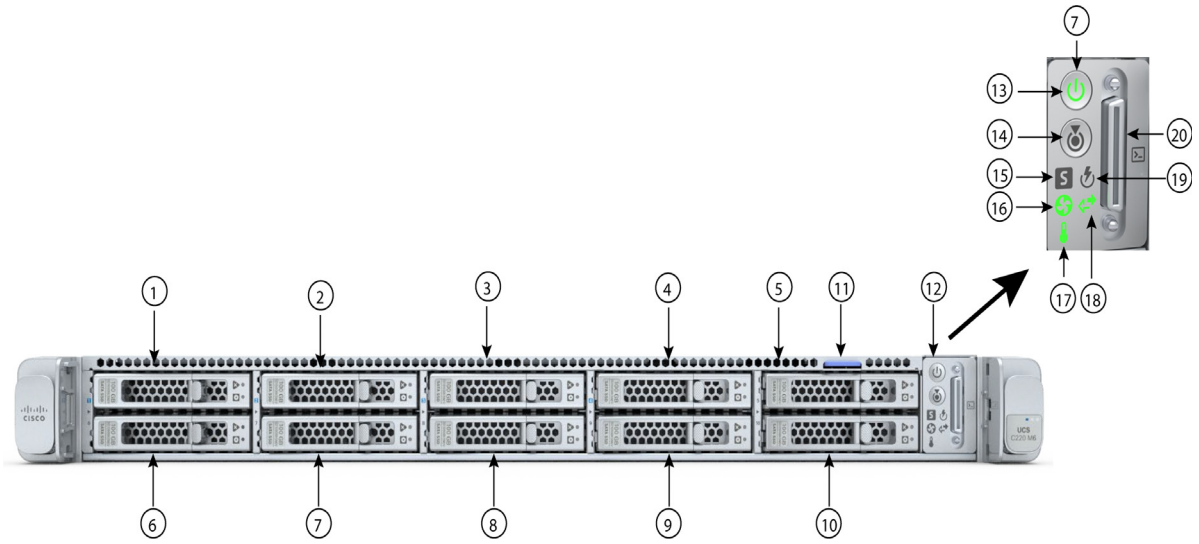


1 - 10	Drive bays 1 – 10 support NVMe PCIe drives (only)	**16**	Fan status LED
11	Asset tag location	**17**	Temperature status LED
12	Control panel	**18**	Network link activity LED
13	Power button/power status LED	**19**	Power supply status LED
14	Unit Identification button/LED	**20**	KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector)
15	System status LED	**-**	-

Chassis Front View - HXAF220C-M6S (All Flash)

Figure 2 shows the front view of the Cisco HyperFlex HXAF220C-M6S (All Flash) server node.

Figure 3 Chassis Front View



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

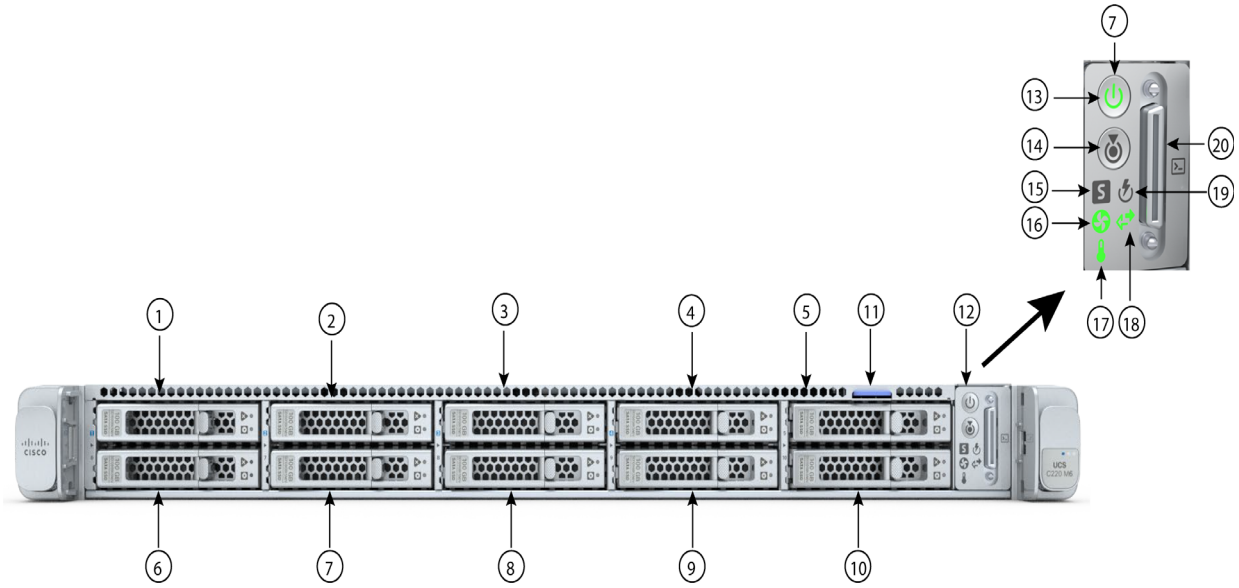
Notes:

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

Chassis Front View - HX220C-M6S (Hybrid)

Figure 2 shows the front view of the Cisco HyperFlex HX220C-M6S (Hybrid) server node.

Figure 4 Chassis Front View



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

Detailed Chassis Rear Views

Figure 5 shows the details of the rear panel for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes with one rear half-height PCIe riser.

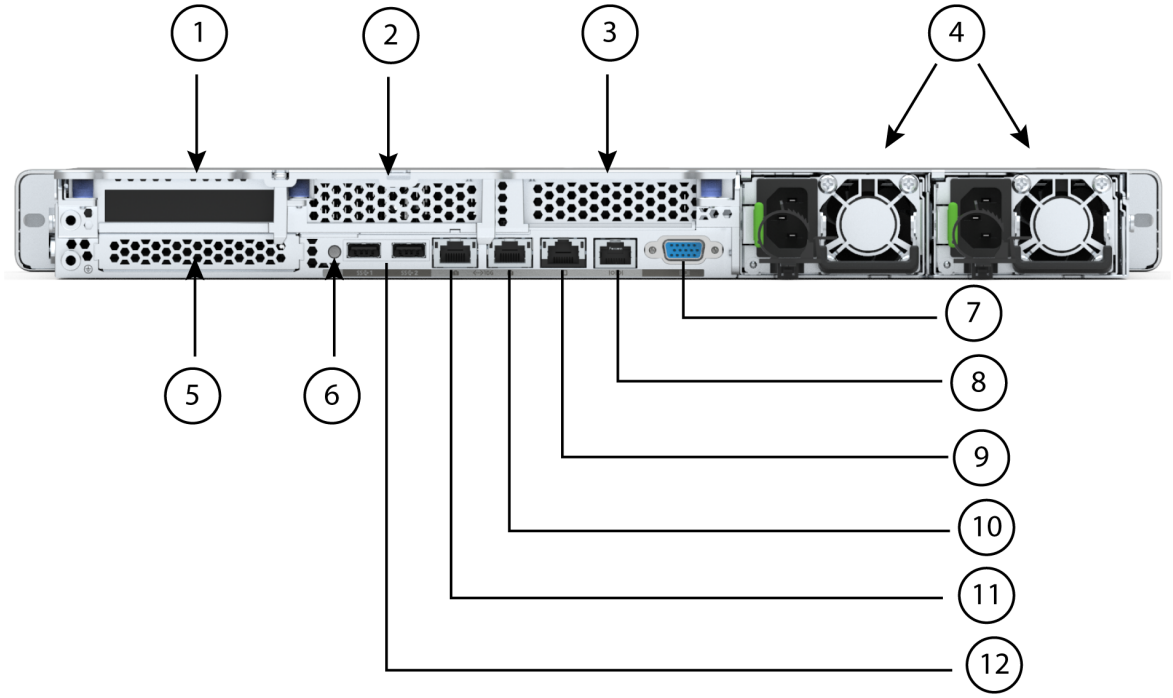
Figure 6 shows the details of the rear panel for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes with three rear half-height PCIe risers.

Figure 7 shows the details of the rear panel for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes with two rear full-height PCIe risers.

One Half-Height Riser

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

Figure 5 Chassis Rear View (one half-height, 3/4 length PCIe riser)

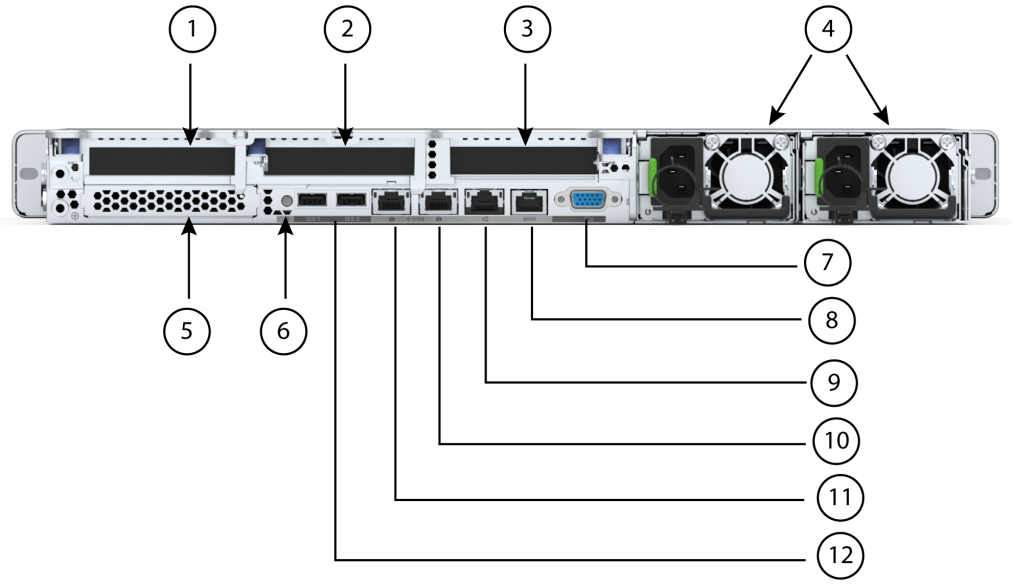


1	Riser 1 (CPU1 control) ■ Supports one PCIe slot ■ Slot 1 is half-height, 3/4 length, x16	**7**	VGA display port (DB15 connector)
2	Riser 2 blanking panel	**8**	COM port (RJ45 connector)
3	Riser 3 blanking panel	**9**	1 GbE dedicated Ethernet management port
4	Power supplies (two, redundant as 1+1)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

Three Half-Height Risers

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

Figure 6 Chassis Rear View (three half-height, 3/4 length PCIe risers)

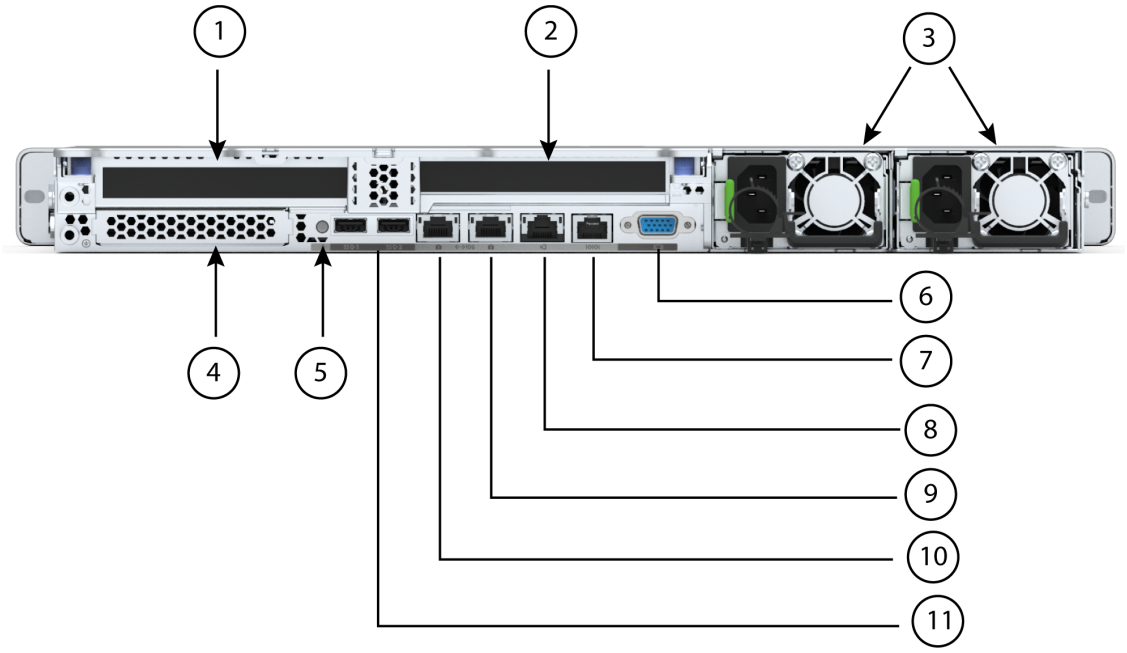


1	Riser 1 (CPU1 control) ■ Supports one PCIe slot (slot 1) ■ Slot 1 is half-height, 3/4 length, x16	**7**	VGA display port (DB15 connector)
2	Riser 2 (CPU1 control) ■ Supports one PCIe slot (slot 2) ■ Slot 2 is half-height, 3/4 length, x16	**8**	COM port (RJ45 connector)
3	Riser 3 (CPU2 control) ■ Supports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

Two Full-Height Risers

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

Figure 7 Chassis Rear View (two full-height, 3/4-length PCIe risers)



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

BASE SERVER NODE STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base server node. 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 16.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	One rack unit (1RU) chassis
CPU	One or two 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)[1]
Chipset	Intel® C621A series chipset
Memory	32 slots for registered DIMMs (RDIMMs) or load-reduced DIMMs (LR DIMMs) and support for Intel® Optane™ Persistent Memory Modules (PMEMs)
Multi-bit Error Protection	This server supports multi-bit error protection.
Video	The Cisco Integrated Management Controller (CIMC) provides video using the Matrox G200e video/graphics controller: ■ Integrated 2D graphics core with hardware acceleration ■ Embedded DDR memory interface supports up to 512 MB of addressable memory (8 MB is allocated by default to video memory) ■ Supports display resolutions up to 1920 x 1200 16bpp @ 60Hz ■ High-speed integrated 24-bit RAMDAC ■ Single lane PCI-Express host interface running at Gen 1 speed
Power subsystem	Up to two of the following hot-swappable power supplies: ■ 1050 W (AC) ■ 1050 W (DC) ■ 1600 W (AC) ■ 2300 W (AC) One power supply is mandatory; one more can be added for 1 + 1 redundancy.
Front Panel	A front panel controller provides status indications and control buttons
ACPI	This server supports the advanced configuration and power interface (ACPI) 4.0 standard.
Fans	Eight hot-swappable fans for front-to-rear cooling

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Expansion slots	Three half-height riser slots ■ Riser 1 (controlled by CPU 1): • One x16 PCIe Gen4 Slot, (Cisco VIC), half-height, 3/4 length ■ Riser 2 (controlled by CPU 1): • One x16 PCIe Gen4 Slot, half-height, 3/4 length ■ Riser 3 (controlled by CPU 2): • One x16 PCIe Gen4 Slot, (Cisco VIC), half-height, 3/4 length Two full-height riser slots ■ Riser 1 (controlled by CPU 1): • One x16 PCIe Gen4 Slot, (Cisco VIC), full-height, 3/4 length ■ Riser 2[2] (controlled by CPU 2): • One x16 PCIe Gen4 Slot, (Cisco VIC), full-height, 3/4 length
Interfaces	■ Rear panel • One 1Gbase-T RJ-45 management port • Two 10Gbase-T LOM ports • One RS-232 serial port (RJ45 connector) • One DB15 VGA connector • Two USB 3.0 port connectors • One flexible modular LAN on motherboard (mLOM) slot that can accommodate various interface cards ■ Front panel • One KVM console connector (supplies two USB 2.0 connectors, one VGA DB15 video connector, and one serial port (RS232) RJ45 connector)

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Internal storage devices	Drive storage: This is orderable in three different server nodes: **HXAF220C-M6SN (All NVMe):** ■ Up to 10 SFF NVMe PCIe solid state drives (SSDs) only. 10 Drives are used as below: • Six to eight NVMe SSD (for capacity) • One NVMe SSD (for caching) • One NVMe SSD (system drive for HXDP operations) **HXAF220C-M6S (All Flash):** ■ Up to 10 SFF SAS/SATA/NVMe solid state drives (SSDs). 10 Drives are used as below: • Six to eight SAS/SATA SSD **or** six to eight **SED** SAS/SATA SSD (for capacity) • One NVMe SSD **or** one SAS/SATA SSD **or** one **SED** SAS/SATA SSD (for caching) • One SAS/SATA SSD (system drive for HXDP operations) **HX220C-M6S (Hybrid):** ■ Up to 10 SFF SAS/SATA hard drives (HDDs) **and** SAS/SATA solid state drives (SSDs). 10 Drives are used as below: • Six to eight SAS HDD **or** six to eight **SED** SAS HDD (for capacity) • One SAS/SATA SSD **or** one **SED** SAS/SATA SSD (for caching) • One SAS/SATA SSD (system drive for HXDP operations) Other storage: ■ A mini-storage module connector on the motherboard supports a boot-optimized RAID controller carrier that holds up two SATA M.2 SSDs. Mixing different capacity SATA M.2 SSDs is not supported.This mini storage is for following usage: • ESXi hypervisor boot and HyperFlex storage controller VM
Integrated management processor	Baseboard Management Controller (BMC) running Cisco Integrated Management Controller (CIMC) firmware. Depending on your CIMC settings, the CIMC can be accessed through the 1GE dedicated management port, the 1GE/10GE LOM ports, or a Cisco virtual interface card (VIC). CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Storage controllers	■ Cisco 12G SAS HBA (for Hybrid and All Flash servers): • No RAID support • JBOD/Pass-through Mode support • Supports up to 10 SAS/SATA internal drives
Modular LAN on Motherboard (mLOM)	The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards: ■ Cisco Virtual Interface Cards
Intersight	Intersight provides server management capabilities
CIMC	Cisco Integrated Management Controller 4.2(1) or later

Notes:

1. If NVMe drives are selected, you must also select 2 CPUs.
2. There are three PCIe riser connectors on the motherboard: they are labeled Riser 1, Riser 2, and Riser 3. If the server is configured with three half-height risers, Riser 1 plugs into Riser 1 connector, Riser 2 plugs into Riser 2 connector, and Riser 3 plugs into Riser 3 connector. If the server is configured with two full-height connectors, Riser 1 plugs into Riser 1 connector and Riser 2 plugs into Riser 3 connector. See **Risers, page 65** for more details.

CONFIGURING the SERVER

Follow these steps to configure the Cisco HX220C M6 All NVMe/All Flash/Hybrid Server Nodes:

STEP 1 VERIFY SERVER SKU

Verify the product ID (PID) of the server node as shown in *Table 2*.

Table 2 PID of the HX220 M6 All NVMe/All Flash/Hybrid Server Nodes

Product ID (PID)	Description
HX-M6-MLB	HX/HXAF/EDG M6 MLB This major line bundle (MLB) consists of the HyperFlex All Flash, Hybrid and Edge Server Nodes, with Intersight and HXDP software spare PIDs.
HXAF220C-M6SN[1] (All NVMe)	Cisco HyperFlex HX220 M6 All NVMe server node is up to 10 SFF front drives (NVMe PCIe SSDs only) with no CPU, memory, HDD, PCIe cards, or power supply.
HXAF220C-M6S[1] (All Flash)	Cisco HyperFlex HX220 M6 All Flash server node is up to 10 SFF front drives and with no CPU, memory, HDD, PCIe cards, or power supply.
HX220C-M6S[1] (Hybrid)	Cisco HyperFlex HX220 M6 Hybrid server node is up to 10 SFF front drives and with no CPU, memory, HDD, PCIe cards, or power supply.

Notes:

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

The Cisco HyperFlex HX220 All NVMe, All Flash and Hybrid M6 server nodes do not include power supplies, CPUs, DIMM memory, Intel® Optane™ Persistent Memory (PMEM), hard disk drives (HDDs), solid-state drives (SSDs), NVMe drives, riser 1, riser 2, riser 3, tool-less rail kit, or option cards.

NOTE:

- Refer to **Cisco HyperFlex Drive Compatibility** document for future expansion and drive compatibility within the same node and HX cluster.
- Use the steps on the following pages to configure the server with the components that you want to include.

STEP 2 SELECT RISERS

The riser PIDs are listed in *Table 3*. Full-height risers cannot be mixed with half-height risers.

Table 3 PIDs of the Risers and Riser Blanks

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

- If you do not order any risers, the system defaults to automatically include the one half-height riser shown in the table.
- If you order PID UCSC-R2R3-C220M6, the system includes three half-height risers (riser 1, riser 2, and riser 3).
- If you order PID HX-GPURKIT-C220, the system includes two full-height risers (riser 1 and riser 2)

Approved Configurations

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

(2) Half-height risers 1, 2, and 3 only. Risers 1 and 2 are controlled from CPU1 and Riser 3 is controlled from CPU2

(3) Full-height risers 1 and 2 only. Riser 1 is controlled from CPU1 and riser 2 is controlled from CPU2.

STEP 3 SELECT CPU(s)

The standard CPU features are:

- 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)
- Intel® C621 series chipset
- Cache size of up to 60 MB
- Up to 40 cores

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)[2]
8000 Series Processors						
HX-CPU-I8380	2.3	270	60	40	3 at 11.2	3200
HX-CPU-I8368	2.4	270	57	38	3 at 11.2	3200
HX-CPU-I8360Y	2.4	250	54	36	3 at 11.2	3200
HX-CPU-I8358P	2.6	240	48	32	3 at 11.2	3200
HX-CPU-I8358	2.6	250	48	32	3 at 11.2	3200
HX-CPU-I8352Y	2.2	205	48	32	3 at 11.2	3200
HX-CPU-I8352V	2.1	195	54	36	3 at 11.2	2933
HX-CPU-I8352S	2.2	205	48	32	3 at 11.2	3200
HX-CPU-I8351N[3]	2.4	225	54	36	0	2933
6000 Series Processors						
HX-CPU-I6354	3.0	205	39	18	3 at 11.2	3200
HX-CPU-I6348	2.6	235	42	28	3 at 11.2	3200
HX-CPU-I6346	3.1	205	36	16	3 at 11.2	3200
HX-CPU-I6342	2.8	230	36	24	3 at 11.2	3200
HX-CPU-I6338N	2.2	185	48	32	3 at 11.2	2666
HX-CPU-I6338T	2.1	165	36	24	3 at 11.2	3200
HX-CPU-I6338	2.0	205	48	32	3 at 11.2	3200
HX-CPU-I6336Y	2.4	185	36	24	3 at 11.2	3200
HX-CPU-I6334	3.6	165	18	8	3 at 11.2	3200
HX-CPU-I6330N	2.2	165	42	28	3 at 11.2	2666
HX-CPU-I6330	2.0	205	42	28	3 at 11.2	2933
HX-CPU-I6326	2.9	185	24	16	3 at 11.2	3200
HX-CPU-I6314U[4]	2.3	205	48	32	0	3200

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)[2]
HX-CPU-I6312U[5]	2.4	185	36	24	0	3200
5000 Series Processors						
HX-CPU-I5320T	2.3	150	30	20	3 at 11.2	2933
HX-CPU-I5320	2.2	185	39	26	3 at 11.2	2933
HX-CPU-I5318N	2.1	150	36	24	3 at 11.2	2666
HX-CPU-I5318S	2.1	165	36	24	3 at 11.2	2933
HX-CPU-I5318Y	2.1	165	36	24	3 at 11.2	2933
HX-CPU-I5317	3.0	150	18	12	3 at 11.2	2933
HX-CPU-I5315Y	3.2	140	12	8	3 at 11.2	2933
4000 Series Processors						
HX-CPU-I4316	2.3	150	30	20	2 at 10.4	2666
HX-CPU-I4314	2.4	135	24	16	2 at 10.4	2666
HX-CPU-I4310T	2.3	105	15	10	2 at 10.4	2666
HX-CPU-I4310	2.1	120	18	12	2 at 10.4	2666
HX-CPU-I4309Y	2.8	105	12	8	2 at 10.4	2666

Notes:

1. UPI = Ultra Path Interconnect.
2. If higher or lower speed DIMMs are selected than what is shown in *Table 6 on page 24* for a given CPU speed, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.
3. The maximum number of HX-CPU-I8351N CPUs is one
4. The maximum number of HX-CPU-I6314U CPUs is one
5. The maximum number of HX-CPU-I6312U CPUs is one

CAUTION: For systems configured with 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake) processors operating above 28° C [82.4° F], a fan fault or executing workloads with extensive use of heavy instructions sets such as Intel® Advanced Vector Extensions 512 (Intel® AVX-512), may assert thermal and/or performance faults with an associated event recorded in the System Event Log (SEL).

Table 5 CPU Suffixes

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

Approved Configurations

(1) DIMM only configurations:

- Select one or two identical CPUs listed in Table 4 Available CPUs, page 19.

(2) DIMM/PMEM Mixed Configurations:

- You must select two identical CPUs listed in Table 4 Available CPUs, page 19.

(3) One-CPU Configuration

- Choose one CPU from any one of the rows of Table 4 Available CPUs, page 19.
- For 1-CPU systems, the server is shipped by default with riser 1 only.

(4) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of Table 4 Available CPUs, page 19.
- For 2-CPU systems, the server is shipped:
  - With half-height risers 1, 2, and 3 by default, or
  - With full-height risers 1 and 2 if you order a non-T4 GPU with more than 75 W power dissipation.

(5) For the HXAF220C-M6SN (All NVMe) server node:

- You must select two identical CPUs listed in Table 4 Available CPUs, page 19.

NOTE:

- You cannot have two I8351N or two I6314U or I6312U CPUs in a two-CPU configuration.
- If you configure a server with one I8351N CPU or one I6314U CPU or one I6312U CPU you cannot later upgrade to a 2-CPU system with two of these CPUs.

Caveats

- The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:
  - STEP 4 SELECT MEMORY, page 23
  - STEP 5 SELECT DRIVE CONTROLLERS, page 29
  - STEP 6 SELECT DRIVES, page 30
  - STEP 7 SELECT OPTION CARD(s), page 36

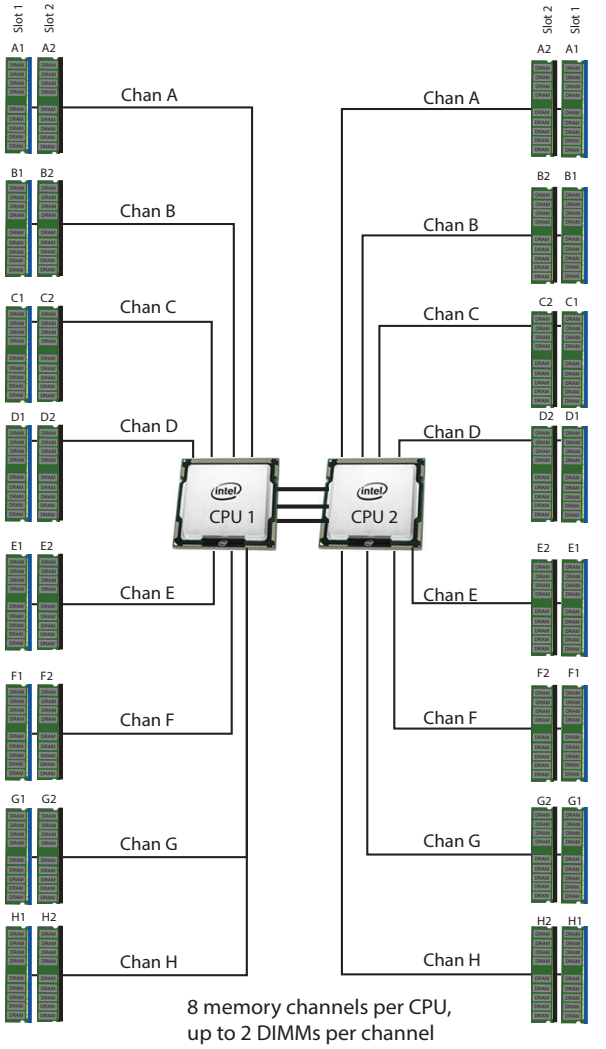
STEP 4 SELECT MEMORY

The available memory for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes is as follows:

- Clock speed: 3200 MHz
- Ranks per DIMM: 1, 2, 4, or 8
- Operational voltage: 1.2 V
- Registered ECC DDR4 DIMMS (RDIMMs), Load-reduced DIMMs (LR DIMMs), or Intel® Optane™ Persistent Memory Modules (PMEMs)

Memory is organized with eight memory channels per CPU, with up to two DIMMs per channel, as shown in ***Figure 8***.

Figure 8 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Memory Organization



8 memory channels per CPU,
up to 2 DIMMs per channel

32 DIMMS total (16 DIMMs per CPU)
8 TB maximum memory (with 256 GB DIMMs)
Note: 256 GB DIMMs available in Q4 of 2021

DIMMs and PMEMs

The supported memory options are listed in *Table 6*.

Table 6 Available DDR4 DIMMs and PMEMs

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
3200-MHz DIMMs			
HX-MR-X16G1RW	16 GB RDIMM SRx4 3200 (8Gb)	1.2 V	1
HX-MR-X32G2RW	32 GB RDIMM DRx4 3200 (8Gb)	1.2 V	2
HX-MR-X64G2RW	64 GB RDIMM DRx4 3200 (16Gb)	1.2 V	2
HX-ML-128G4RW	128 GB LRDIMM QRx4 3200 (16Gb) (non-3DS)	1.2 V	4
HX-ML-256G8RW[1]	256 GB LRDIMM 8Rx4 3200 (16Gb) (3DS)	1.2 V	8
Intel® Optane™ Persistent Memory (PMEM)			
HX-MP-128GS-B0	Intel® Optane™ Persistent Memory, 128GB, 3200 MHz		
HX-MP-256GS-B0	Intel® Optane™ Persistent Memory, 256 GB, 3200 MHz		
HX-MP-512GS-B0	Intel® Optane™ Persistent Memory, 512 GB, 3200 MHz		
DIMM Blank[2]			
UCS-DIMM-BLK	UCS DIMM Blank		
Intel® Optane™ Persistent Memory (PMEM[3]) Operational Modes			
HX-DCPMM-AD	App Direct Mode		

Notes:

1. 256 GB LRDIMMs are three-dimensional stacking (3DS) technology and Target timeframe for supporting this DIMMs is Q4CY2021.
2. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.
3. App Direct Mode: PMEM operates as a solid-state disk storage device. Data is saved and is non-volatile. Both PMEM and DIMM capacities count towards the CPU capacity limit.

NOTE:

- System performance is optimized when the DIMMs type and quantity are equal for both CPUs, and when all channels are filled equally across the CPUs in the server.
- The selected DIMMs must be all of same type and number of DIMMs must be equal for both CPUs.
- HyperFlex Data Platform reserves memory for each controller VM. Refer to the <**Install Guide**> for reservation details.
- The memory mirroring feature is not supported with HyperFlex nodes.

Memory Configurations, Features, and Modes

System speed is dependent on the CPU DIMM speed support. Refer to Available CPUs, page 19 for DIMM speeds.

- The server supports the following memory reliability, availability, and serviceability (RAS) BIOS options (only one option can be chosen):
  - Adaptive Double Device Data Correction (ADDDC) (default).
  - Maximum performance.
- For best performance, observe the following:
  - When one DIMM is used, it must be populated in DIMM slot 1 (farthest away from the CPU) of a given channel.
  - When single- or dual-rank DIMMs are populated in two DIMMs per channel (2DPC) configurations, always populate the higher number rank DIMM first (starting from the farthest slot). For a 2DPC example, first populate with dual-rank DIMMs in DIMM slot 1. Then populate single-rank DIMMs in DIMM 2 slot.
- DIMMs for CPU 1 and CPU 2 (when populated) must always be configured identically.
- Cisco memory from previous generation servers (DDR3 and DDR4) is not compatible with the server.
- Memory can be configured in any number of DIMMs as pairs, although for optimal performance, see the following document:

  Cisco C220/C240/B200 M6 Memory Guide
- For detailed Intel® Optane™ Persistent Memory (PMEM) configurations, refer to the following document:

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

Approved Configurations

(1) 1-CPU configuration:

- Select from 1 to 16 DIMMs
  - 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed
  - 3, 5, 7, 9, 10, 11, 13, 14, 15 DIMMs not allowed
  - DIMMs for both CPUs must be configured identically.

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

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

(2) 2-CPU configuration:

- Select from 1 to 16 DIMMs per CPU
  - 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed
  - 3, 5, 7, 9, 10, 11, 13, 14, 15 DIMMs not allowed
  - DIMMs for both CPUs must be configured identically.

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

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

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

Table 7 3200-MHz DIMM Memory Speeds with Different Intel® Xeon® Ice Lake® Processors

DIMM and CPU Frequencies (MHz)	DPC	LRDIMM (8Rx4)- 256 GB (MHz)	LRDIMM (4Rx4)- 128 GB (MHz)	LRDIMM (4Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 32 GB (MHz)	RDIMM (1Rx4) - 16 GB (MHz)
		1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
DIMM = 3200 CPU = 3200	1DPC	3200	3200	3200	3200	3200	3200
	2DPC	3200	3200	3200	3200	3200	3200
DIMM = 3200 CPU = 2933	1DPC	2933	2933	2933	2933	2933	2933
	2DPC	2933	2933	2933	2933	2933	2933
DIMM = 3200 CPU = 2666	1DPC	2666	2666	2666	2666	2666	2666
	2DPC	2666	2666	2666	2666	2666	2666

DIMM Rules

- Allowed DIMM count for 1 CPU:
  - Minimum DIMM count = 1; Maximum DIMM count = 16
  - 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed.
  - 3, 5, 7. 9, 10, 11, 13, 14, or 15 DIMMs not allowed.
- Allowed DIMM count for 2 CPUs:
  - Minimum DIMM count = 2; Maximum DIMM count = 32
  - 2, 4, 8, 12, 16, 24, or 32 DIMMs allowed.
  - 6, 10, 14, 18, 20, 22, 26, 28, or 30 DIMMs not allowed.
- DIMM Mixing:
  - (3DS LRDIMM with non-3DS LRDIMM). Therefore the 128GB non-3DS LRDIMM device and the 256GB 3DS LRDIMM device are excluded from any mixing configuration.
  - Allowed mixing has be in pairs of similar quantities (for example, 8x32GB and 8x64GB, 8x16GB and 8x64GB, 8x32GB and 8x64GB, or 8x16GB and 8x32GB). Mixing of 10x32GB and 6x64GB, for example, is not allowed.

NOTE: DIMMs mixing is not allowed when PMEMs are installed; in these cases, all DIMMs must be the same type and size.

For detailed Intel® Optane™ Persistent Memory (PMEM) configurations, refer to the following documents:

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

Cisco C220/C240/B200 M6 Memory Guide

STEP 5 SELECT DRIVE CONTROLLERS

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

- SAS/SATA drives are controlled through a Cisco 12G SAS pass-through HBA.
- PCIe drives are controlled directly from the CPUs.

NOTE: Drive Controller are not supported in **HXAF220C-M6SN** (All NVMe) server node.

Cisco 12G SAS HBA

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

Select Drive Controller Options

Select the following:

- Cisco 12G SAS HBA (see *Table 8*).

Table 8 Hardware Controller Options

Product ID (PID)	PID Description
Controllers for Internal Drives **Note that if the following Cisco 12G SAS HBA is selected, it is factory-installed in a dedicated slot.**	
HX-SAS-220M6	Cisco 12G SAS HBA for (16 drives) w/1U Brkt ■ No RAID support ■ Supports up to 10 internal SAS HDDs and SAS/SATA SSDs ■ Supports JBOD or pass-through mode

Approved Configurations

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

STEP 6 SELECT DRIVES

The standard disk drive features are:

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

Select Drives - HXAF220C-M6SN (All NVMe)

The available drives are listed in *Table 9*.

Table 9 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-NVME2H-I1000	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endu	NVMe	1.0 TB
HX-NVMEI4-I1920	1.9TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	1.9 TB
HX-NVMEI4-I3840	3.8TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	3.8 TB
HX-NVME2H-I4000	Cisco 2.5" U.2 4.0TB Intel P4510 NVMe High Perf. Value Endu	NVMe	4.0 TB
HX-NVMEI4-I7680	7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	7.6 TB
HX-NVMEHW-I8000	8TB 2.5in U.2 Intel P4510 NVMe High Perf. Value Endurance	NVMe	8 TB
Front Cache Drive			
HX-NVMEXPB-I375	375GB 2.5in Intel Optane NVMe Extreme Performance SSD	NVMe	375 GB
Front System Drive			
HX-NVME2H-I1000	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endurance	NVMe	1 TB
Boot Drives			
HX-M2-240GB	240GB SATA M.2	SATA	240 GB
HX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller		

NOTE: Cisco uses solid state drives (SSDs) from a number of vendors. All solid state drives (SSDs) are subject to physical write limits and have varying maximum usage limitation specifications set by the manufacturer. Cisco will not replace any solid state drives (SSDs) that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco.

Approved Configurations

- Six to eight capacity drives

NOTE:

- For cluster scale related information please see the product release notes

- One cache drive
- One system drive
- One boot drive

NOTE:

- Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
- The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
- CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
- The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
- Hot-plug replacement is not supported. The server must be powered off.
- The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
- See *Figure 11 on page 64* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

Caveats

- **SED** drives are not supported with HXAF220C-M6SN (All NVMe) server node.
- SFF **NVMe** drives are connected directly to CPU2, and are not managed by any drive controller.

Select Drives - HXAF220C-M6S (All Flash)

The available drives are listed in *Table 10*.

Table 10 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-SD960G61X-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	960 GB
HX-SD19T61X-EV	1.9TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	1.9 TB
HX-SD38T61X-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	3.8 TB
HX-SD76T61X-EV	7.6TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	7.6 TB
Front SED Capacity Drive			
HX-SD960GBM2NK9	960GB Enterprise value SATA SSD (1X, SED)	SATA	960 GB
HX-SD38TBEM2NK9	3.8TB Enterprise value SATA SSD (1X, SED)	SATA	3.8 TB
HX-SD76TBEM2NK9	7.6TB Enterprise value SATA SSD (1X, SED)	SATA	7.6 TB
HX-SD960GBKNK9	960GB Enterprise Value SAS SSD (1X FWPD, SED)	SAS	960 GB
HX-SD38TBKNK9	3.8TB Enterprise Value SAS SSD (1X FWPD, SED)	SAS	3.8 TB
Front Cache Drive			
HX-NVMEXPB-I375	375GB 2.5in Intel Optane NVMe Extreme Performance SSD	NVMe	375 GB
HX-NVMEM6-W1600	1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance	NVMe	1.6 TB
HX-SD800GK3X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	800 GB
Front SED Cache Drive			
HX-SD800GBKNK9	800GB Enterprise Performance SAS SSD (3X FWPD, SED)	SAS	800 GB
Front System Drive			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2	SATA	240 GB
HX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller		

NOTE: Cisco uses solid state drives (SSDs) from a number of vendors. All solid state drives (SSDs) are subject to physical write limits and have varying maximum usage limitation specifications set by the manufacturer. Cisco will not replace any solid state drives (SSDs) that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco.

Approved Configurations

- Six to eight capacity drives

NOTE:

- Less than six capacity drives is supported only for HX Edge configuration.
- For cluster scale related information please see the product release notes

- One cache drive

NOTE:

- **SED** cache drive can only be selected if you have selected **SED** capacity drives.
- When configuring front facing drives with NVMe drives, you must order an NVMe cable (PID = CBL-FNVME-220M6) along with the drives.

- One system drive
- One boot drive

NOTE:

- Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
- The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
- CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
- The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
- Hot-plug replacement is not supported. The server must be powered off.
- The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
- See *Figure 11 on page 64* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

Caveats

- **SED** drives can not be mixed with the **non-SED** drives.

Select Drives - HX220C-M6S (Hybrid)

The available drives are listed in *Table 11*.

Table 11 Available Hot-Pluggable Sled-Mounted Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Front Capacity Drive			
HX-HD12TB10K12N	1.2TB 12G SAS 10K RPM SFF HDD	SAS	1.2 TB
HX-HD18TB10K4KN	1.8TB 12G SAS 10K RPM SFF HDD (4K)	SAS	1.8 TB
HX-HD24TB10K4KN	2.4TB 12G SAS 10K RPM SFF HDD (4K)	SAS	2.4 TB
Front SED Capacity Drive			
HX-HD12T10NK9	1.2TB 12G SAS 10K RPM SFF HDD (SED)	SAS	1.2 TB
HX-HD24T10NK9	2.4TB 12G SAS 10K RPM SFF HDD (SED)	SAS	2.4 TB
Front Cache Drive			
HX-SD480G63X-EP	480GB 2.5in Enterprise Performance 6G SATA SSD(3X endurance)	SATA	480 GB
HX-SD800GK3X-EP	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	800 GB
Front SED Cache Drive			
HX-SD800GBKNK9	800GB Enterprise Performance SAS SSD (3X FWPD, SED)	SAS	800 GB
Front System Drive			
HX-SD240GM1X-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	240 GB
Boot Drives			
HX-M2-240GB	240GB SATA M.2	SATA	240 GB
HX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller		

NOTE: Cisco uses solid state drives (SSDs) from a number of vendors. All solid state drives (SSDs) are subject to physical write limits and have varying maximum usage limitation specifications set by the manufacturer. Cisco will not replace any solid state drives (SSDs) that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco.

Approved Configurations

- Six to eight capacity drives

NOTE:

- Less than six capacity drives is supported only for HX Edge configuration.
- For cluster scale related information please see the product **release notes**
- All SED HDDs are FIPs 140-2 compliant

- One cache drive

NOTE:

- **SED** cache drive can only be selected if you have selected **SED** capacity drives.

- One system drive
- One boot drive

NOTE:

- Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
- The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
- CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
- The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
- Hot-plug replacement is not supported. The server must be powered off.
- The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
- See *Figure 11 on page 64* for the location of the module connector on the motherboard. This connector accepts the boot-optimized RAID controller.

Caveats

- **SED** drives can not be mixed with the **non-SED** drives.

STEP 7 SELECT OPTION CARD(s)

The standard PCIe card offerings are:

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

Select Option Cards

The available option cards are listed in *Table 12*.

Table 12 Available PCIe Option Cards

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

Notes:

1. HHHL = half-height, half-length; FHHL = full-height, half-length; SS = single-slot; DS = double-slot.
2. If HX-P-I8Q25GFselected then HX-GPURKIT-C220 PID must be selected
3. • Every node in an HX cluster must use HX-PCIE-OFFLOAD-1 card
   • Optional card offloads the compression functionality to HW acceleration card.HX-PCIE-OFFLOAD-1 uses a more computationally intensive compression algorithm. This results in lower storage space and frees up CPU cycle.
   • HXDP Enterprise licenses are required.
   • HX-PCIE-OFFLOAD-1 works with all HXDP features, including Stretched Cluster, SED drives and more

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

Approved Configurations

(1) 1-CPU Systems

- You can select up to one of the PCIe option cards listed in *Table 12* to be installed in Riser 1. Riser 1 is controlled by CPU 1. Risers 2 and 3 are not installed in a 1-CPU system.

(2) 2-CPU Systems

- You can select up to two of the PCIe option cards listed in *Table 12* for a two-riser system (Riser 1 and Riser 2 installed) and up to three of the PCIe option cards for a three-riser system (Riser 1, Riser 2, and Riser 3 installed). Risers 1 and 2 are controlled by CPU 1 and riser 3 is controlled by CPU 2.

Caveats

- For 1-CPU systems:
  - Only Riser 1 is supported.
  - Only a single plug-in PCIe VIC card is supported and must be installed in Riser 1. However, in addition to the one PCIe VIC card, you can also choose to install an mLOM VIC card in the mLOM slot at the rear of the chassis.
- For 2-CPU systems:
  - All risers (Risers 1, 2, and 3) are supported.
  - Two plug-in PCIe VIC cards can be installed in 2-CPU systems, using risers 1 and 3. In addition, you can order an mLOM VIC card, which is installed in the mLOM slot at the rear of the chassis and thus have three VIC cards in operation at the same time. See *Table 12 on page 36* for the selection of plug-in and mLOM VIC cards.
  - To help ensure that your operating system is compatible with the card you have selected, or to see additional cards that have been qualified to work with the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes, but are not sold on the Cisco pricelist, check the Hardware Compatibility List at this URL:

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

STEP 8 ORDER OPTIONAL PCIe OPTION CARD ACCESSORIES

- For list of supported optics and cables for VIC 1455, VIC 1495, VIC 1467 and VIC 1477. refer to the VIC 1400 series data sheets at the following link:
  - https://www.cisco.com/c/en/us/products/collateral/interfaces-modules/unified-computing-system-adapters/datasheet-c78-741130.html

Select

- NIC Interoperability with Cisco Cables/Optics (***Table 13*** & ***Table 14 on page 39***).
- NIC Interoperability with Intel Cables/Optics (***Table 15 on page 40***).

Table 13 10G NIC Interoperability with Cisco Cables/Optics

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

Table 14 25G NIC Interoperability with Cisco Cables/Optics

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

Table 15 NIC Interoperability with Intel Cables/Optics

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

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

Refer to the these links for additional connectivity options:

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

STEP 9 ORDER GPU CARDS (OPTIONAL)

Select GPU Options

The available GPU PCIe options are listed in ***Table 16***.

Table 16 Available PCIe GPU Cards[1]

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

Notes:

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

NOTE:

- All GPU cards must be procured from Cisco as there is a unique SBIOS ID required by CIMC and UCSM.

Caveats

- GPUs cannot be mixed.
- For the maximum of 3x T4 GPUs, the 3x half slot riser should be selected.-
- A GPU can be installed in either full-height PCIe riser 1 or 2 (or both).

STEP 10 ORDER POWER SUPPLY

Power supplies share a common electrical and physical design that allows for hot-plug and tool-less installation into M6 HX-series servers. Each power supply is certified for high-efficiency operation and offers multiple power output options. This allows users to “right-size” based on server configuration, which improves power efficiency, lowers overall energy costs and avoids stranded capacity in the data center. Use the power calculator at the following link to determine the needed power based on the options chosen (CPUs, drives, memory, and so on):

http://ucspowercalc.cisco.com

Table 17 Power Supply

Product ID (PID)	PID Description
HX-PSU1-1050W	1050W AC power supply for C-Series servers
HX-PSUV2-1050DC	1050W DC power supply for C-Series servers
HX-PSU1-1600W	1600W AC power supply for C-Series servers
HX-PSU-2300W[1]	2300W Power supply for C-series servers

Notes:

1. The 2300 W power supply uses a different power connector that the rest of the power supplies, so you must use different power cables to connect it. See *Table 18 on page 43* and *Table 19 on page 46*.

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

STEP 11 SELECT INPUT POWER CORD(s)

Using *Table 18* and *Table 19*, select the appropriate AC power cords. You can select a minimum of no power cords and a maximum of two. If you select the option R2XX-DMYMPWRCORD, no power cord is shipped with the server.

NOTE: *Table 18* lists the power cords for servers that use power supplies less than 2300 W. *Table 19* lists the power cords for servers that use 2300 W power supplies. Note that the power cords for 2300 W power supplies use a C19 connector so they only fit the 2300 W power supply connector.

Table 18 Available Power Cords (for server PSUs less than 2300 W)

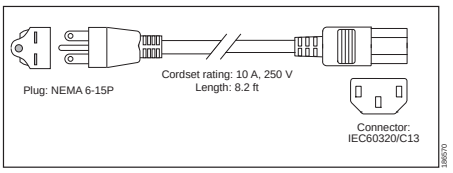
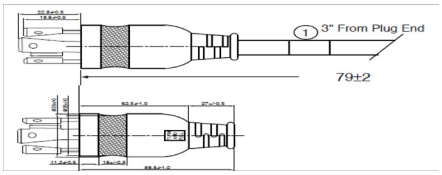
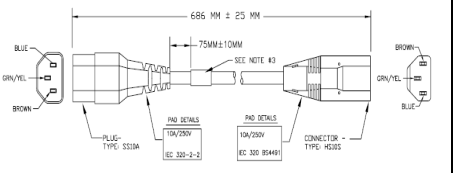
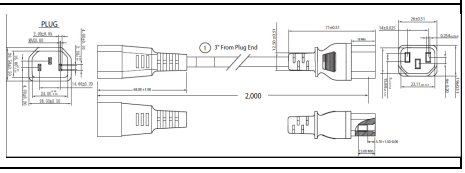
Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A	
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America	
CAB-AC-L620-C13	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft	
CAB-C13-CBN	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V	
CAB-C13-C14-2M	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V	

Table 18 Available Power Cords (for server PSUs less than 2300 W)

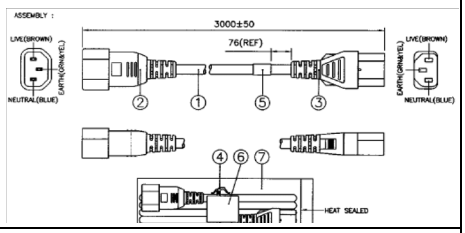
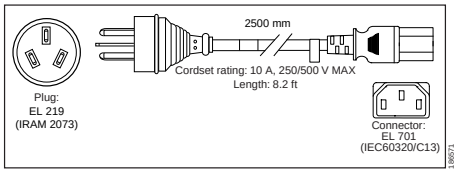
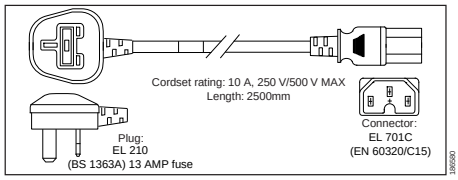
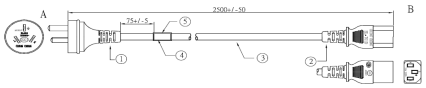
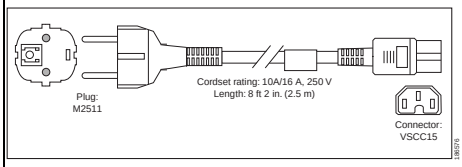
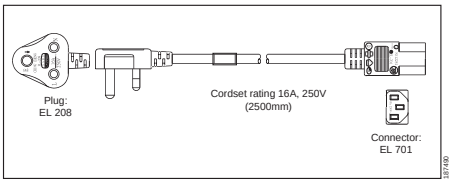
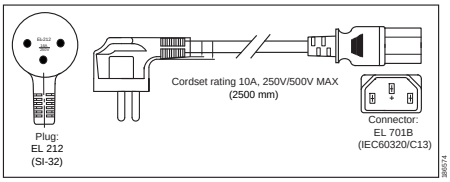
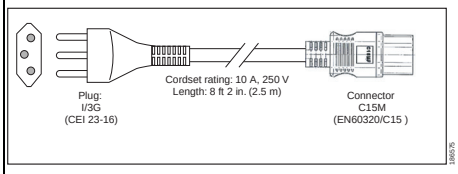
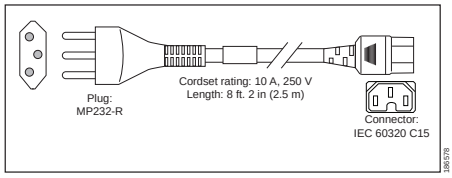
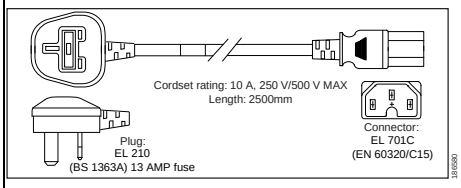
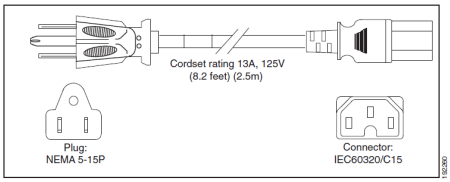
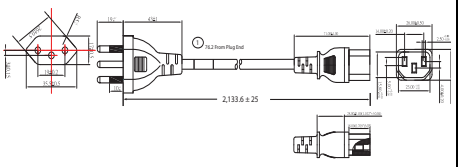
Product ID (PID)	PID Description	Images
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/C13, 3.0M	
CAB-250V-10A-AR	Power Cord, 250V, 10A, Argentina	
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	
CAB-250V-10A-ID	Power Cord, 250V, 10A, India	
CAB-C13-C14-3M-IN	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India	Image not available
CAB-C13-C14-IN	Power Cord Jumper,C13-C14 Connectors,1.4 Meter Length, India	Image not available
CAB-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	

Table 18 Available Power Cords (for server PSUs less than 2300 W)

Product ID (PID)	PID Description	Images
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	
CAB-9K10A-UK	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK	
CAB-9K12A-NA[1]	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	
CAB-250V-10A-BR	Power Cord - 250V, 10A - Brazil	
CAB-C13-C14-2M-JP	Power Cord C13-C14, 2M/6.5ft Japan PSE mark	Image not available
CAB-9K10A-KOR[1]	Power Cord, 125VAC 13A KSC8305 Plug, Korea	Image not available
CAB-ACTW	AC Power Cord (Taiwan), C13, EL 302, 2.3M	Image not available
CAB-JPN-3PIN	Japan, 90-125VAC 12A NEMA 5-15 Plug, 2.4m	Image not available

Notes:

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

Table 19 Available Power Cords (for servers with 2300 W PSUs)

Product ID (PID)	PID Description	Images
CAB-C19-CBN	Cabinet Jumper Power Cord, 250 VAC 16A, C20-C19 Connectors	Not applicable
CAB-S132-C19-ISRL	S132 to IEC-C19 14ft Israeli	Image not available
CAB-IR2073-C19-AR	IRSM 2073 to IEC-C19 14ft Argen	Image not available
CAB-BS1363-C19-UK	BS-1363 to IEC-C19 14ft UK	Image not available
CAB-SABS-C19-IND	SABS 164-1 to IEC-C19 India	Image not available
CAB-C2316-C19-IT	CEI 23-16 to IEC-C19 14ft Italy	Image not available
CAB-L520P-C19-US	NEMA L5-20 to IEC-C19 6ft US	Image not available
CAB-US515P-C19-US	NEMA 5-15 to IEC-C19 13ft US	Image not available
CAB-US520-C19-US	NEMA 5-20 to IEC-C19 14ft US	Image not available
CAB-US620P-C19-US	NEMA 6-20 to IEC-C19 13ft US	Image not available
CAB-C19-C20-IND	Power Cord C19-C20 India	Image not available
UCSB-CABL-C19-BRZ	NBR 14136 to C19 AC 14FT POWER CORD, BRAZIL	Image not available
CAB-9K16A-BRZ	Power Cord 250VAC 16A, Brazil, Src Plug EL224-C19	Image not available
CAB-ACS-16	AC Power Cord (Swiss) 16A	Image not available
CAB-AC-16A-AUS	Power Cord, 250VAC, 16A, Australia C19	Image not available
CAB-C19-C20-3M-JP	Power Cord C19-C20, 3M/10ft Japan PSE mark	Image not available
CAB-AC-C19-TW	Power Cord, 250 V, 16A, C19, Taiwan	Image not available
CAB-AC-C6K-TWLK	Power Cord, 250Vac 16A, twist lock NEMA L6-20 plug, US	Image not available
CAB-AC-2500W-EU	Power Cord, 250Vac 16A, Europe	Image not available
CAB-AC-2500W-INT	Power Cord, 250Vac 16A, INTL	Image not available
CAB-9K16A-KOR	Power Cord 250VAC 16A, Korea, Src Plug	Image not available
CAB-AC-2500W-ISRL	Power Cord,250VAC,16A,Israel	Image not available
CAB-AC16A-CH	16A AC Power Cord For China	Image not available
R2XX-DMYMPWRCORD	No power cord option	Image not available

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

Select a Tool-less Rail Kit

Select a tool-less rail kit from *Table 20*.

Table 20 Tool-less Rail Kit Options

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

Select an Optional Reversible Cable Management Arm

The reversible cable management arm mounts on either the right or left slide rails at the rear of the server and is used for cable management. Use *Table 21* to order a cable management arm.

Table 21 Cable Management Arm

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

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

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

NOTE: If you plan to rackmount your HX220C M6 All NVMe/All Flash/Hybrid Server Nodes, you must order a tool-less rail kit.The same rail kits and CMAs are used for M5 and M6 servers.

STEP 13 ORDER SECURITY DEVICES (OPTIONAL)

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

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

The security device ordering information is listed in *Table 22*.

Table 22 Security Devices

Product ID (PID)	PID Description
HX-TPM-002C	TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers
HX-INT-SW02	C220 and C240 M6 Chassis Intrusion Switch
UCSX-TPM-OPT-OUT	OPT OUT, TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified[1]

Notes:

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

NOTE:

- The TPM module used in this system conforms to TPM 2.0, as defined by the Trusted Computing Group (TCG). It is also SPI-based.
- TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced, upgraded, or moved to another server. If a server with a TPM is returned, the replacement server must be ordered with a new TPM.

STEP 14 SELECT LOCKING SECURITY BEZEL (OPTIONAL)

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

Select the locking bezel from *Table 23*.

Table 23 Locking Bezel Options for HX220C M6 All NVMe/All Flash/Hybrid Server Nodes

Product ID (PID)	Description
HXAF220C-BZL-M5SN	HXAF220C M5 All NVMe Security Bezel
HXAF220C-BZL-M5S	HXAF220C M5 Security Bezel
HX220C-BZL-M5	HX220C M5 Security Bezel

STEP 15 SELECT HYPERVISOR / HOST OPERATING SYSTEM

Cisco Hypervisor/Operating systems options are available as follows. Select either VMware ESXi or Microsoft Windows Server as desired from *Table 24*.

Table 24 Hypervisor/Host Operation System

Product ID (PID)	PID Description
ESXi Options	
VMware[1]	
HX-VSP-6-7-FNDR-D	Factory Installed vSphere 6.7 1-CPU Enduser provides License
HX-VSP-6-7-FNDR2-D	Factory Installed vSphere 6.7 2-CPU Enduser provides License
HX-VSP-7-0-FND-D	Factory Installed vSphere SW 7.0 1-CPU Enduser provides License
HX-VSP-7-0-FND2-D	Factory Installed vSphere SW 7.0 2-CPU Enduser provides License
VMware PAC Licenses[2]	
HX-VSP-EPL-1A	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 1-yr, Support Required
HX-VSP-EPL-3A	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 3-yr, Support Required
HX-VSP-EPL-5A	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 5-yr, Support Required
HX-VSP-STD-1A	VMware vSphere 7.x Standard (1 CPU, 32 core), 1-yr, Support Required
HX-VSP-STD-3A	VMware vSphere 7.x Standard (1 CPU, 32 core), 3-yr, Support Required
HX-VSP-STD-5A	VMware vSphere 7.x Standard (1 CPU, 32 core), 5-yr, Support Required
Operating system[3]	
Microsoft Options	
MSWS-19-DC16C-NS	Windows Server 2019 Data Center (16 Cores/Unlimited VMs) - No Cisco SVC
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. Refer to https://kb.vmware.com/s/article/82794 link for more details.
2. Choose quantity of two when choosing PAC licensing for dual CPU systems.
3. Optional guest OS licenses that may be purchased to run on top of the hypervisor.

STEP 16 SELECT HYPERFLEX DATA PLATFORM (HXDP) SOFTWARE

HyperFlex Data Platform Edition & Subscription Period options are available as follows. Select as desired from *Table 25*.

Table 25 HX Data Platform Software

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

STEP 17 CISCO INTERSIGHT

Cisco Intersight™ is a Software-as-a-Service (SaaS) hybrid cloud operations platform which delivers intelligent automation, observability, and optimization to customers for traditional and cloud-native applications and infrastructure. Select as desired from *Table 26*.

Table 26 Cisco Intersight

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

STEP 18 SELECT INSTALLATION SERVICE

Customers can purchase Cisco Advanced Services (AS). Select as desired from *Table 27*.

Table 27 Installation services

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

STEP 19 SELECT SERVICE and SUPPORT LEVEL

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

HyperFlex Warranty, No Contract

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

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

Smart Net Total Care (SNTC)

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

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

You can choose a desired service listed in *Table 28*.

Table 28 SNTC Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-HXAF220N	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-HXAF220N	UCSD8	Yes	UC SUPP DR
CON-C2PL-HXAF220N	C2PL	Yes	LL 24X7X2OS**
CON-OSP-HXAF220N	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-HXAF220N	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-HXAF220N	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-HXAF220N	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-HXAF220N	C4S	Yes	SNTC 8X5X4OS

Table 28 SNTC Service (PID HXAF220C-M6SN)

CON-UCSD6-HXAF220N	UCSD6	Yes	UC SUPP DR 8X5X4OS*
CON-SNCO-HXAF220N	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-HXAF220N	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-HXAF220N	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-HXAF220N	S2P	No	SNTC 24X7X2
CON-S2PL-HXAF220N	S2PL	No	LL 24X7X2**
CON-SNTP-HXAF220N	SNTP	No	SNTC 24X7X4
CON-SNTPL-HXAF220N	SNTPL	No	LL 24X7X4**
CON-SNTE-HXAF220N	SNTE	No	SNTC 8X5X4
CON-SNC-HXAF220N	SNC	No	SNTC 8x7xNCD
CON-SNT-HXAF220N	SNT	No	SNTC 8X5XNBD
CON-SW-HXAF220N	SW	No	SNTC NO RMA
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-OSP-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-OSP-HX220CMS)			
*Includes Drive Retention (see below for full description)			
**Includes Local Language Support (see below for full description) – Only available in China and Japan			
***Includes Local Language Support and Drive Retention – Only available in China and Japan			

Smart Net Total Care Onsite Troubleshooting Service

An enhanced offer over traditional Smart Net Total Care which provides onsite troubleshooting expertise to aid in the diagnostics and isolation of hardware issue within our customers' Cisco HyperFlex System environment. It is delivered by a Cisco Certified field engineer (FE) in collaboration with remote TAC engineer and Virtual Internetworking Support Engineer (VISE).

You can choose a desired service listed in ***Table 29***.

Table 29 SNTC Onsite Troubleshooting Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-HXAF220N	OSPT	Yes	24X7X4OS Trblshtg
CON-OSPTD-HXAF220N	OSPTD	Yes	24X7X4OS TrblshtgDR*
CON-OSPTL-HXAF220N	OSPTL	Yes	24X7X4OS TrblshtgLL**
CON-OPTLD-HXAF220N	OPTLD	Yes	24X7X4OS TrblshtgLLD***
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-OSPT-HXAF220M)			

Table 29 SNTC Onsite Troubleshooting Service (PID HXAF220C-M6SN)

For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-OSPT-HX220CMS)
*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 (SSPT)

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

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

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

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

Table 30 Solution Support Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-HXAF220N	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-HXAF220N	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-HXAF220N	SSC4S	Yes	SOLN SUPP 8X5X4OS
CON-SSCS-HXAF220N	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-HXAF220N	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-HXAF220N	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-HXAF220N	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-HXAF220N	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-HXAF220N	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-HXAF220N	SSSNC	No	SOLN SUPP NCD
CON-SSSNT-HXAF220N	SSSNT	No	SOLN SUPP 8X5XNBD
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-SSC4P-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-SSC4P-HX220CMS)			

Table 30 Solution Support Service (PID HXAF220C-M6SN)

*Includes Drive Retention (see below for full description)

Solution Support for Service Providers

You can choose a desired service listed in *Table 31*.

Table 31 Solution Support for Service Providers Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
SP-SSC2P-HXAF220N	SPSSC2P	Yes	SP SOLN SUPP
SP-SSC4P-HXAF220N	SPSSC4P	Yes	SP SOLN SUPP
SP-SSC4S-HXAF220N	SPSSC4S	Yes	SP SOLN SUPP
SP-SSCS-HXAF220N	SPSSCS	Yes	SP SOLN SUPP
SP-SSS2P-HXAF220N	SPSSS2P	Yes	SP SOLN SUPP 24X7X2
SP-SSS4P-HXAF220N	SPSSS4P	Yes	SP SOLN SUPP 24X7X4
SP-SSSNE-HXAF220N	SPSSSNE	No	SP SOLN SUPP 8X5X4
SP-SSSNT-HXAF220N	SPSSSNT	No	SP SOLN SUPP
SP-SSSPB-HXAF220N	SPSSSPB	No	SP SOLN SUPP NO HW
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: SP-SSC4P-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: SP-SSC4P-HX220CMS)			

Smart Net Total Care Hardware Only Service

For faster parts replacement than is provided with the standard Cisco HyperFlex warranty, Cisco offers the Cisco Smart Net Total Care Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. Smart Net Total Care Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required.

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

Table 32 SNTC Hardware Only Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-HXAF220N	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-HXAF220N	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-HXAF220N	UCW7L	Yes	LL UCS 24X7X4OS**
CON-UWD7L-HXAF220N	UWD7L	Yes	LL UCS DR 24X7X4OS***

Table 32 SNTC Hardware Only Service (PID HXAF220C-M6SN)

CON-UCW5-HXAF220N	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-HXAF220N	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-UCW7-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-UCW7-HX220CMS)			
*Includes Drive Retention (see below for full description)			
**Includes Local Language Support (see below for full description) – Only available in China and Japan			
***Includes Local Language Support and Drive Retention – Only available in China and Japan			

Partner Support Service

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

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

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

PSS is available to all Cisco PSS partners.

The two Partner Support Options include:

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

PSS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support.

You can choose a desired service listed in ***Table 33***.

Table 33 PSS Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-HXAF220N	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-HXAF220N	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-HXAF220N	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-HXAF220N	PSJ6	Yes	UCS PSS 8X5X4 OS

Table 33 PSS Service (PID HXAF220C-M6SN)

CON-PSJD6-HXAF220N	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-HXAF220N	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-HXAF220N	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-HXAF220N	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-HXAF220N	PSJ1	No	UCS SUPP PSS 8X5XNBD
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-PSJ7-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-PSJ7-HX220CMS)			
*Includes Drive Retention (see below for full description)			

PSS Hardware Only

PSS Hardware Only provides customers with replacement parts in as little as two hours and provides remote access any time to Partner Support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in ***Table 34***.

Table 34 PSS Hardware Only Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-PSW7-HXAF220N	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-HXAF220N	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-HXAF220N	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-HXAF220N	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-HXAF220N	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-HXAF220N	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-HXAF220N	PSW2	No	UCS W PL PSS 8X5X4
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-PSW7-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-PSW7-HX220CMS)			
*Includes Drive Retention (see below for full description)			

Distributor Support Service (DSS)

You can choose a desired service listed in *Table 35*.

Table 35 DSS Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-DSCO-HXAF220N	DSCO	Yes	DSS CORE 24X7X2OS
CON-DSO-HXAF220N	DSO	Yes	DSS CORE 24X7X4
CON-DSNO-HXAF220N	DSNO	Yes	DSS CORE 8X5XNBDOS
CON-DSCC-HXAF220N	DSCC	No	DSS CORE 24X7X2
CON-DCP-HXAF220N	DCP	No	DSS CORE 24X7X4
CON-DSE-HXAF220N	DSE	No	DSS CORE 8X5X4
CON-DSN-HXAF220N	DSN	No	DSS CORE 8X5XNBD
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-DSO-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-DSO-HX220CMS)			

Combined Support Service

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

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

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

Table 36 Combined Support Service (PID HXAF220C-M6SN)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-HXAF220N	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-HXAF220N	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-HXAF220N	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-HXAF220N	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-HXAF220N	NCF2	No	CMB SVC 24X7X2
CON-NCFP-HXAF220N	NCFP	No	CMB SVC 24X7X4
CON-NCFE-HXAF220N	NCFE	No	CMB SVC 8X5X4
CON-NCFT-HXAF220N	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-HXAF220N	NCFW	No	CMB SVC SW
Note: For PID HXAF220C-M6S, select Service SKU with HXAF220M suffix (Example: CON-NCF4P-HXAF220M)			
For PID HX220C-M6S, select Service SKU with HX220CMS suffix (Example: CON-NCF4P-HX220CMS)			

Drive Retention Service

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

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

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in the above tables (where available)

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

Local Language Technical Support

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

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

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

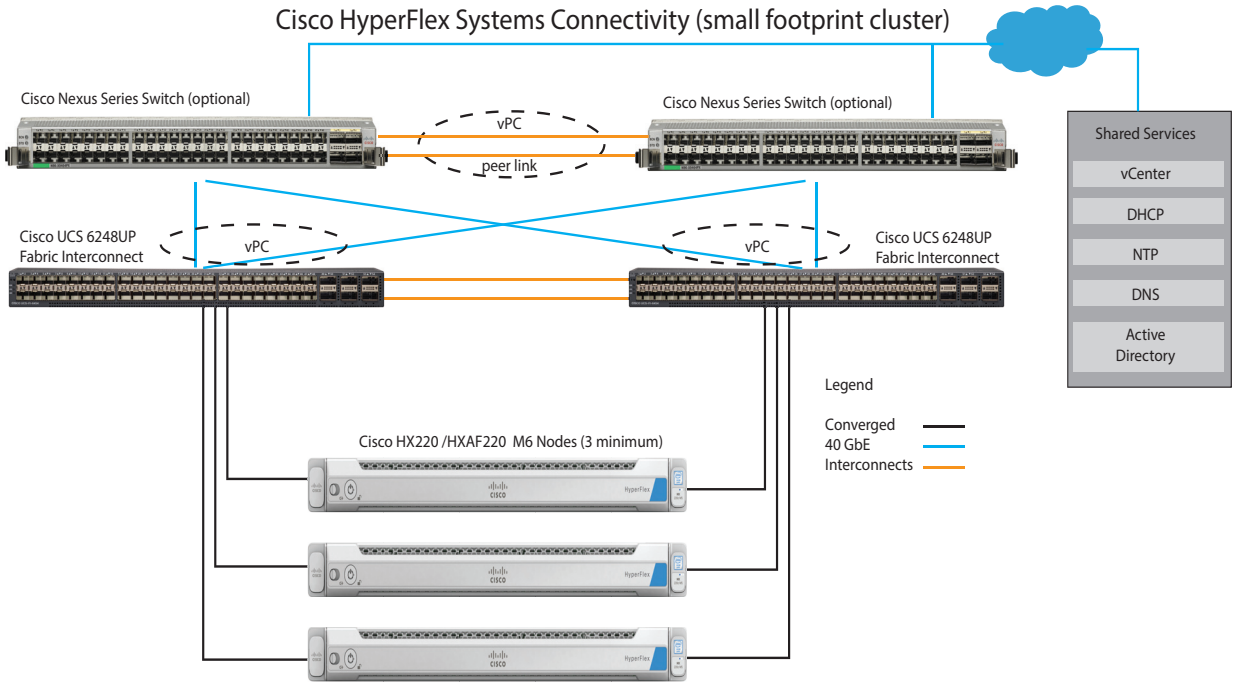
SUPPLEMENTAL MATERIAL

Hyperconverged Systems

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

Figure 9 show a small footprint cluster.

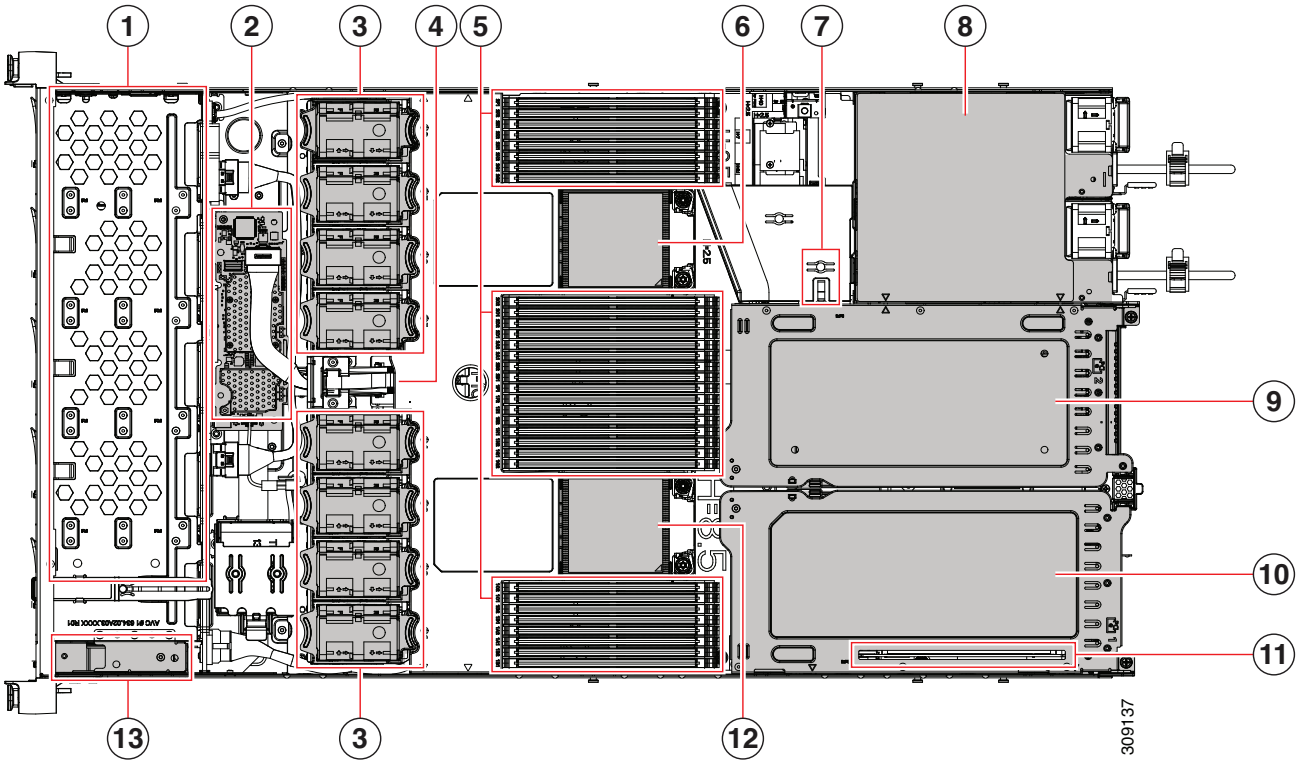
Figure 9 Small Footprint Cluster Using HX220C M6 All NVMe/All Flash/Hybrid Server Nodes



Chassis

Internal views of the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes chassis with the top cover removed are shown in *Figure 10* and *Figure 11 on page 64*.

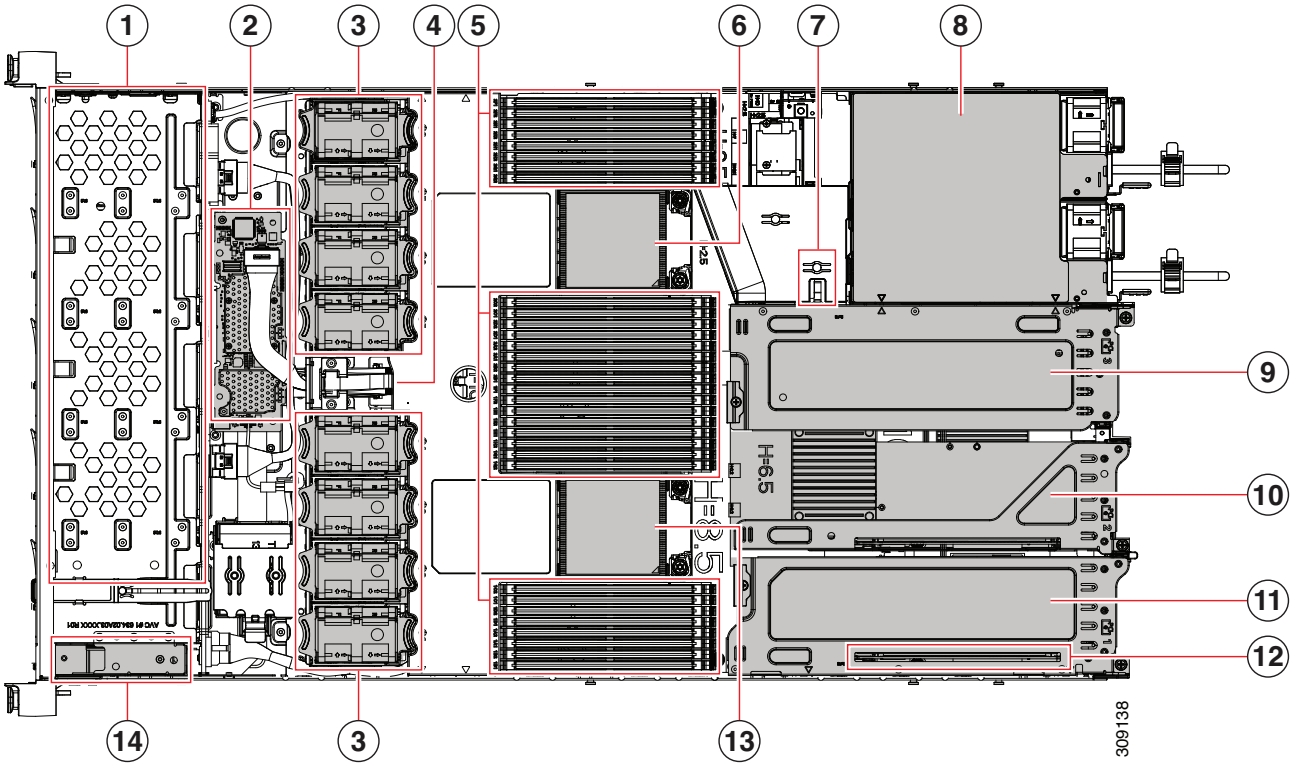
Figure 10 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes With Top Cover Off (full-height, full-width PCIe cards)



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

An internal view of the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes chassis with the top cover removed is shown in ***Figure 11***.

Figure 11 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes With Top Cover Off (full-height, half-width PCIe cards)



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

Risers

Figure 12 shows the locations of the PCIe riser connectors on the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes motherboard. The allowed configurations are:

- Half-height risers in riser 1 connector, riser 2 connector, and riser 3 connector, or
- Full-height risers in riser 1 connector and riser 3 connector.

See *Figure 13* and *Figure 14* for more details.

Figure 12 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Riser Connector Locations

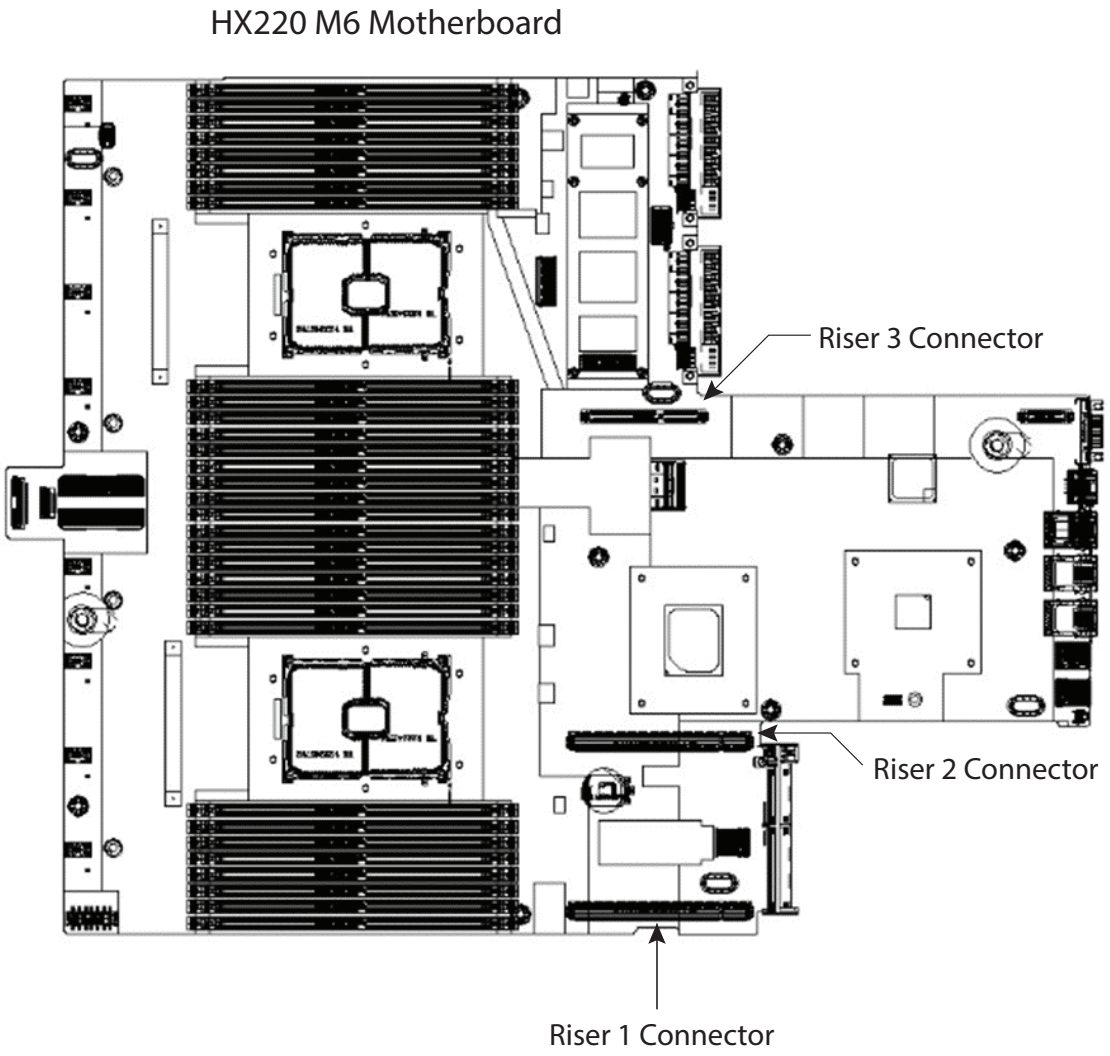


Figure 13 shows three half-height risers plugged into their respective connectors.

Figure 13 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes with three half-height risers plugged In

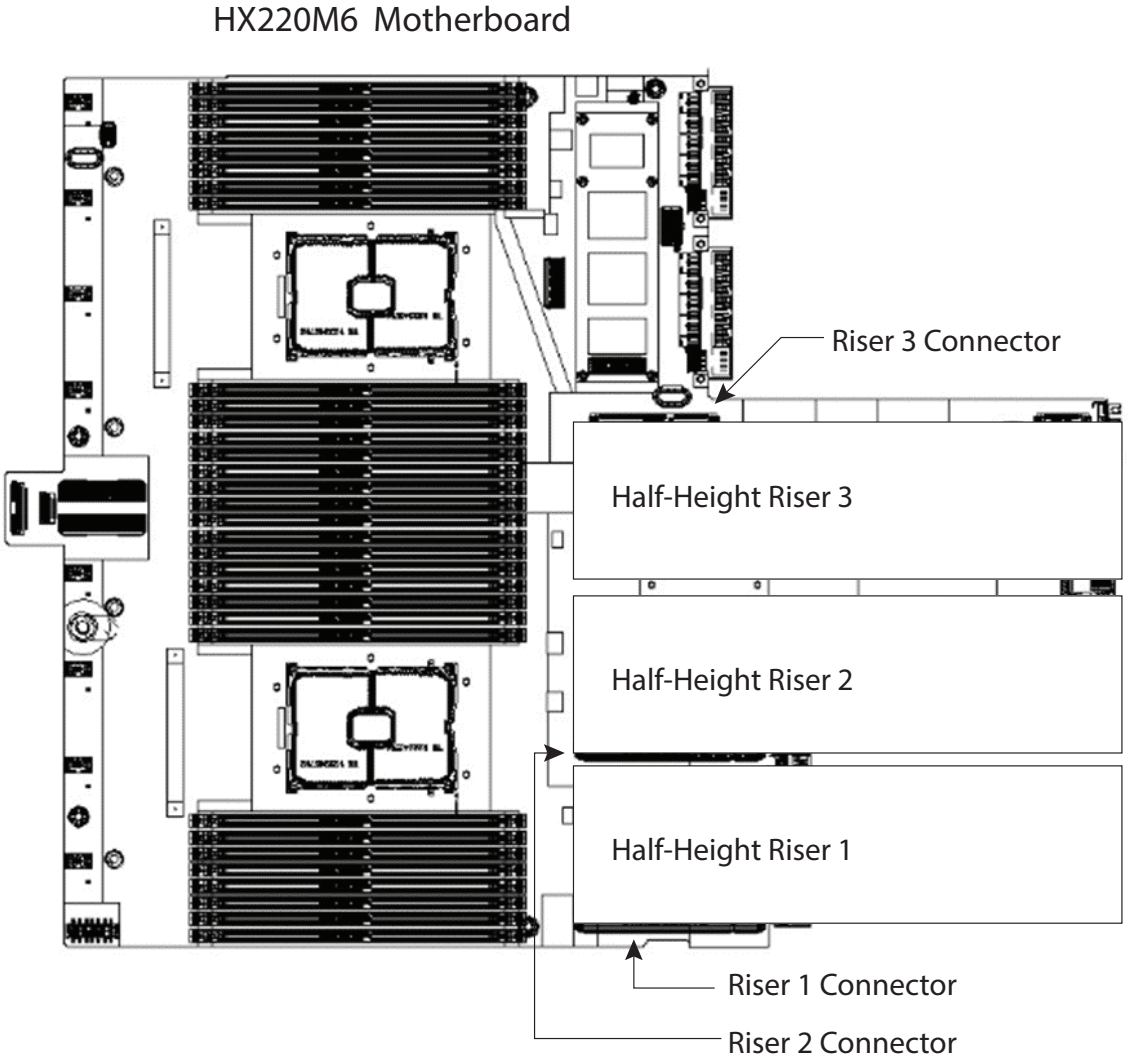
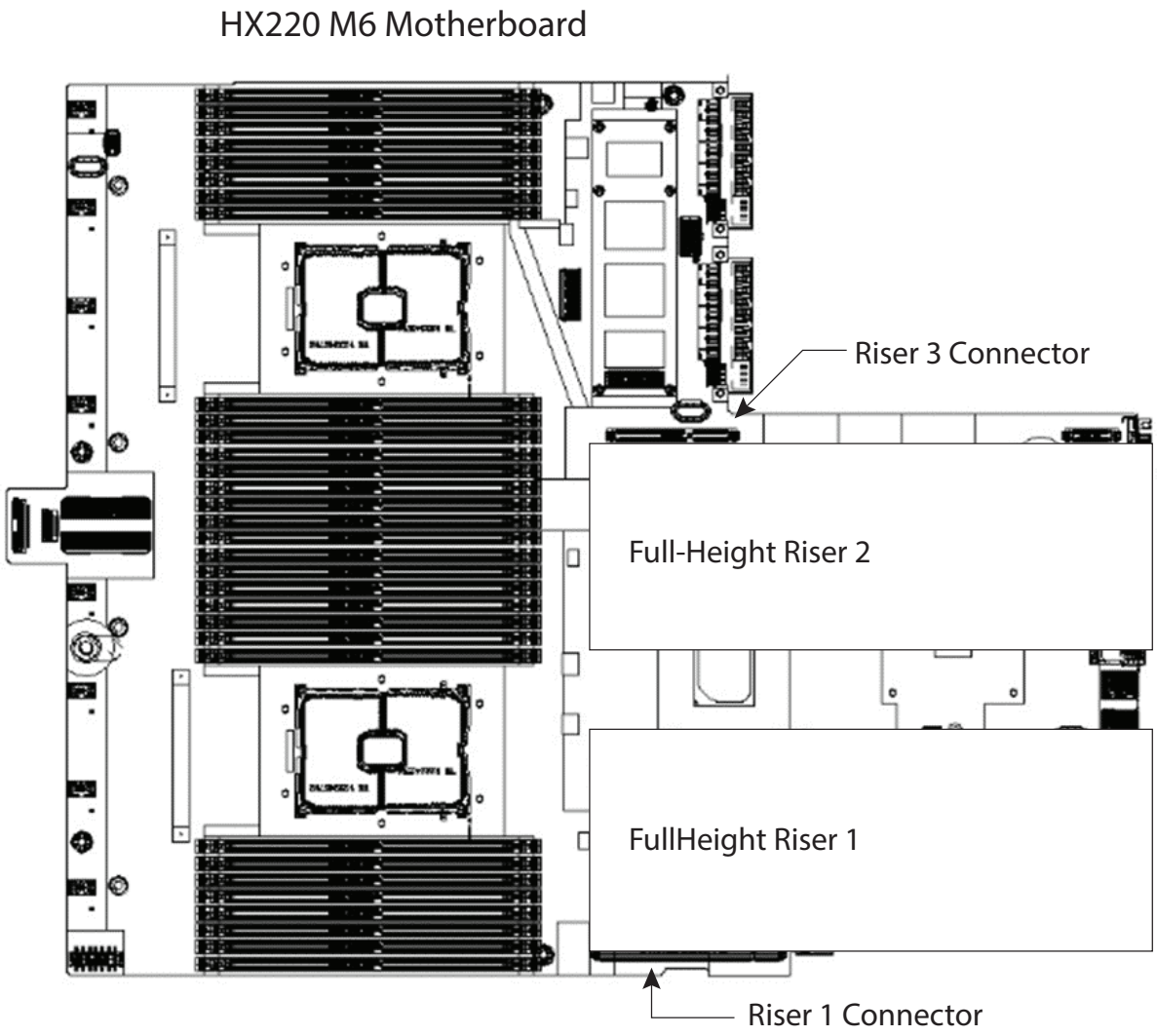


Figure 14 shows two full-height risers plugged in. Note that riser 1 is plugged into the riser 1 connector and riser 2 is plugged into the riser 3 connector. Riser 2 connector is not used.

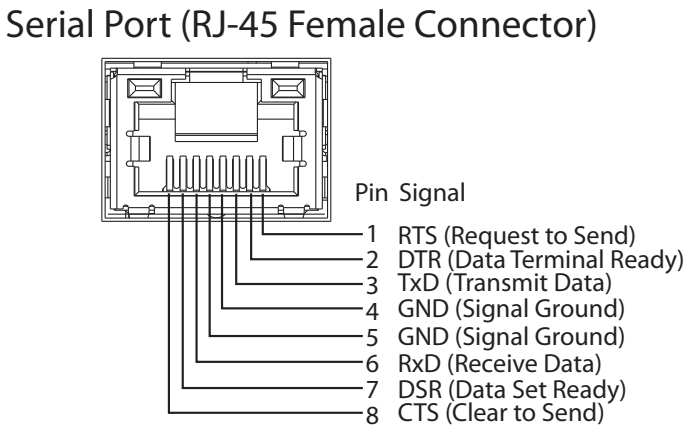
Figure 14 HX220 M6 All NVMe/All Flash/Hybrid With Two Full-Height Risers Plugged In



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



KVM Cable

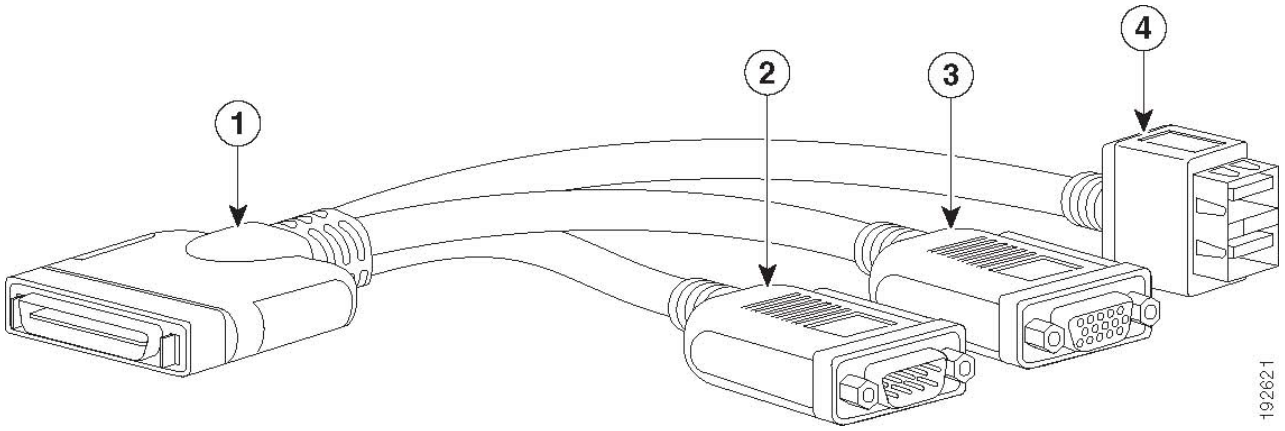
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in *Table 37*.

Table 37 KVM Cable

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

Figure 16 KVM Cable



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

Memory Support for 3rd Generation Intel® Xeon® Scalable Processors (Ice Lake)

PMEM Support

The Ice Lake CPUs support below memory mode:

- App Direct Mode.

App Direct Mode

PMEM operates as a solid-state disk storage device. Data is saved and is non-volatile. Both DCPMM and DIMM capacities count towards the CPU capacity limit.

For example, if App Direct mode is configured and the DIMM sockets for a CPU are populated with 8 x 256 GB DRAMs (2 TB total DRAM) and 8 x 512 GB PMEMs (4 TB total PMEM), then 6 TB total counts towards the CPU capacity limit. Follow the Intel recommended DRAM:PMEM ratio for App Direct Mode.

For 3rd Generation Intel® Xeon® Scalable Processors (Ice Lake):

- DRAMs and PMEMs are supported.
- Each CPU has 16 DIMM sockets and supports the following maximum memory capacities:
  - 4 TB using 16 x 256 GB DRAMs, or
  - 6 TB using 8 x 256 GB DRAMs and 8 x 512 GB Intel® Optane™ Persistent Memory Modules (PMEMs).

Only the following mixed DRAM/PMEM memory configurations are supported per CPU socket:

- 4 DRAMs and 4 PMEMs, or 8 DRAMs and 4 PMEMs, or 8 DRAMs and 1 PMEM, or 8 DRAMs and 8 PMEMs

The available DRAM capacities are 32 GB, 64 GB, 128 GB, 256 GB.

The available PMEM capacities are 128 GB, 256 GB, or 512 GB.

For further details see the following link:

https://www.cisco.com/c/dam/en/us/products/collateral/servers-unified-computing/HX-c-series-rack-servers/memory-guide-c220-c240-b200-m6.pdf

SPARE PARTS

This section lists the upgrade and service-related parts for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes. Some of these parts are configured with every server.

NOTE: Some spare parts you order may also require accessories for full functionality. For example, drives or RAID controllers may need accompanying cables. CPUs may need heatsinks, thermal paste, and installation tools. The spares and their accessory parts are listed in *Table 38*.

Table 38 Spare Parts

Product ID (PID)	PID Description
KVM Cable	
N20-BKVM=	KVM local IO cable for UCS servers console port
Risers	
UCSC-R2R3-C220M6=	Kit containing two half-height risers (risers 2 and 3)
HX-GPURKIT-C220=	Kit containing a GPU mounting bracket and the following risers (risers 1 and 2)
UCSC-FBRS-C220M6=	Riser 2 and Riser 3 blank panels
CPUs **Note:** If you are ordering a second CPU, see the **CPU Accessories** section in this table for additional parts you may need to order for the second CPU.	
8000 Series Processors	
HX-CPU-I8380=	Intel 8380 2.3GHz/270W 40C/60MB DDR4 3200MHz
HX-CPU-I8368=	Intel 8368 2.4GHz/270W 38C/57MB DDR4 3200MHz
HX-CPU-I8360Y=	Intel 8360Y 2.4GHz/250W 36C/54MB DDR4 3200MHz
HX-CPU-I8358P=	Intel 8358P 2.6GHz/240W 32C/48MB DDR4 3200MHz
HX-CPU-I8358=	Intel 8358 2.6GHz/250W 32C/48MB DDR4 3200MHz
HX-CPU-I8352Y=	Intel 8352Y 2.2GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I8352V=	Intel 8352V 2.1GHz/195W 36C/54MB DDR4 2933MHz
HX-CPU-I8352S=	Intel 8352S 2.2GHz/205W 32C/48MB DDR4 3200MHz
HX-CPU-I8351N=	Intel 8351N 2.4GHz/225W 36C/54MB DDR4 2933MHz
6000 Series Processors	
HX-CPU-I6354=	Intel 6354 3.0GHz/205W 18C/39MB DDR4 3200MHz

Table 38 Spare Parts *(continued)*

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

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
UCS-CPU-TIM=	Single CPU thermal interface material syringe for M5 server HS seal[1]
UCS-M6-CPU-CAR=	Spare CPU Carrier for M6
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit (when replacing a CPU)
UCS-CPUAT=	CPU Assembly Tool for M5 Servers
3200-MHz DIMMs	
HX-MR-X16G1RW=	16 GB RDIMM SRx4 3200 (8Gb)
HX-MR-X32G2RW=	32 GB RDIMM DRx4 3200 (8Gb)
HX-MR-X64G2RW=	64 GB RDIMM DRx4 3200 (16Gb)
HX-ML-128G4RW=	128 GB LRDIMM QRx4 3200 (16Gb)
HX-ML-256G8RW[2]=	256 GB LRDIMM 8Rx4 3200 (16Gb) (3DS)
Intel® Optane™ Persistent Memory (PMEM)	
HX-MP-128GS-B0=	Intel® Optane™ Persistent Memory, 128GB, 3200 MHz
HX-MP-256GS-B0=	Intel® Optane™ Persistent Memory, 256 GB, 3200 MHz
HX-MP-512GS-B0=	Intel® Optane™ Persistent Memory, 512 GB, 3200 MHz
DIMM Blank	
UCS-DIMM-BLK=	UCS DIMM Blank
Drives **Note:** When ordering additional SAS/SATA or NVMe front or rear drives, you may need to order a cable to connect from the drive to the motherboard. See the **Drive Cables** section in this table.	
HXAF240-M6SN (All NVMe)	
Front Capacity Drive	
HX-NVME2H-I1000=	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endu
HX-NVMEI4-I1920=	1.9TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance
HX-NVMEI4-I3840=	3.8TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance
HX-NVME2H-I4000=	Cisco 2.5" U.2 4.0TB Intel P4510 NVMe High Perf. Value Endu
HX-NVMEI4-I7680=	7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance
HX-NVMEHW-I8000=	8TB 2.5in U.2 Intel P4510 NVMe High Perf. Value Endurance
Front Cache Drive	

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-NVMEXPB-I375=	375GB 2.5in Intel Optane NVMe Extreme Performance SSD
Front System Drive	
HX-NVME2H-I1000	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endurance
Boot Drives	
HX-M2-240GB=	240GB SATA M.2
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
HXAF220-M6S (All Flash)	
Front Capacity Drive	
HX-SD960G61X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD19T61X-EV=	1.9TB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD38T61X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD
HX-SD76T61X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD
Front SED Capacity Drive	
HX-SD960GBM2NK9=	960GB Enterprise value SATA SSD (1X, SED)
HX-SD38TBEM2NK9=	3.8TB Enterprise value SATA SSD (1X, SED)
HX-SD76TBEM2NK9=	7.6TB Enterprise value SATA SSD (1X, SED)
HX-SD960GBKNK9=	960GB Enterprise Value SAS SSD (1X FWPD, SED)
HX-SD38TBKNK9=	3.8TB Enterprise Value SAS SSD (1X FWPD, SED)
Front Cache Drive	
HX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
HX-NVMEM6-W1600=	1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance
HX-NVMEXPB-I375=	375GB 2.5in Intel Optane NVMe Extreme Performance SSD
Front SED Cache Drive	
HX-SD800GBKNK9=	800GB Enterprise Performance SAS SSD (3X FWPD, SED)
Front System Drive	
HX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drives	
HX-M2-240GB=	240GB SATA M.2
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX220-M6S (Hybrid)	
Front Capacity Drive	
HX-HD12TB10K12N=	1.2 TB 12G SAS 10K RPM SFF HDD
HX-HD18TB10K4KN=	1.8TB 12G SAS 10K RPM SFF HDD (4K)
HX-HD24TB10K4KN=	2.4 TB 12G SAS 10K RPM SFF HDD (4K)
Front SED Capacity Drive	
HX-HD12T10NK9=	1.2TB 12G SAS 10K RPM SFF HDD (SED)
HX-HD24T10NK9=	2.4TB 12G SAS 10K RPM SFF HDD (SED)
Front Cache Drive	
HX-SD480G63X-EP=	480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance)
HX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
Front SED Cache Drive	
HX-SD800GBKNK9=	800GB Enterprise Performance SAS SSD (3X FWPD, SED)
Front System Drive	
HX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
Boot Drive	
HX-M2-240GB=	240GB SATA M.2
HX-M2-HWRAID=	Cisco Boot optimized M.2 Raid controller
Drive Cables	
CBL-SATA-C220M6= **Note:** Order this cable if you are adding a front SAS/SATA drive.	SATA cable C220M6 (1U)
CBL-FNVME-220M6= **Note:** Order this cable set if you are adding a front NVMe drive	C220M6 1U x4 Front NVMe cable
Drive Blanking Panel	
UCSC-BBLKD-S2=	C-Series M5 SFF drive blanking panel

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
Drive Controllers **Note:** If you are ordering a HX-SAS-220M6 you might need to order SAS cables. See the **Drive Controller Cables** section of this table.	
HX-SAS-220M6=	Cisco 12G SAS HBA
Drive Controller Cables	
CBL-SAS-C220M6= **Note:** Order this cable of you are adding a HX-SAS-220M6 SAS controller	C220M6 SAS cable (1U)
Modular LAN on Motherboard (mLOM)	
HX-M-V25-04=	Cisco UCS VIC 1467 Quad Port 10/25G SFP28 mLOM
HX-M-V100-04=	Cisco UCS VIC 1477 Quad Port 40/100G QSFP28 mLOM
Virtual Interface Card (VICs)	
HX-PCIE-C100-04=	Cisco UCS VIC 1495 Dual Port 40/100G QSFP28 CNA PCIe
HX-PCIE-C25Q-04=	Cisco UCS VIC 1455 Quad Port 10/25G SFP28 PCIe
Network Interface Cards (NICs)	
1 Gb NICs	
HX-PCIE-IRJ45=	Intel i350 quad-port 1G copper PCIe
10 Gb NICs	
HX-PCIE-ID10GF=	Intel X710-DA2 Dual Port 10Gb SFP+ NIC
HX-PCIE-IQ10GF=	Intel X710 quad-port 10G SFP+ NIC
HX-P-ID10GC=	Cisco-Intel X710T2LG 2x10 GbE RJ45 PCIe NIC
25 Gb NICs	
HX-P-I8D25GF=	Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC
HX-P-I8Q25GF=	Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC
GPU	
HX-GPU-T4-16=	NVIDIA T4 PCIE 75W 16GB
Power Supplies	

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
HX-PSU1-1050W=	1050W AC power supply for C-Series servers
HX-PSUV2-1050DC=	1050W DC power supply for C-Series servers
HX-PSU1-1600W=	1600W AC power supply for C-Series servers
HX-PSU1-2300W	Cisco UCS 2300W AC Power Supply for Rack Servers
UCSC-PSU-M5BLK=	Power Supply Blanking Panel for M5 servers
Power Cables	
CAB-48DC-40A-8AWG=	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A
CAB-N5K6A-NA=	Power Cord, 200/240V 6A, North America
CAB-AC-L620-C13=	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft
CAB-C13-CBN=	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V
CAB-C13-C14-2M=	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V
CAB-C13-C14-AC=	CORD,PWR,JMP,IEC60320/C14,IEC6 0320/C13, 3.0M
CAB-250V-10A-AR=	Power Cord, 250V, 10A, Argentina
CAB-9K10A-AU=	Power Cord, 250VAC 10A 3112 Plug, Australia
CAB-250V-10A-CN=	AC Power Cord - 250V, 10A - PRC
CAB-9K10A-EU=	Power Cord, 250VAC 10A CEE 7/7 Plug, EU
CAB-250V-10A-ID=	Power Cord, SFS, 250V, 10A, India
CAB-250V-10A-IS=	Power Cord, SFS, 250V, 10A, Israel
CAB-9K10A-IT=	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy
CAB-9K10A-SW=	Power Cord, 250VAC 10A MP232 Plug, Switzerland
CAB-9K10A-UK=	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK
CAB-9K12A-NA=	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America
CAB-250V-10A-BR=	Power Cord - 250V, 10A - Brazil
CAB-C13-C14-2M-JP=	Power Cord C13-C14, 2M/6.5ft Japan PSE mark
CAB-9K10A-KOR=	Power Cord, 125VAC 13A KSC8305 Plug, Korea
CAB-ACTW=	AC Power Cord (Taiwan), C13, EL 302, 2.3M
CAB-JPN-3PIN=	Japan, 90-125VAC 12A NEMA 5-15 Plug, 2.4m
Rail Kit	
HX-RAIL-M6=	Ball Bearing Rail Kit for C220 and C240 M6 rack servers

Table 38 Spare Parts *(continued)*

Product ID (PID)	PID Description
CMA	
HX-CMA-C220M6=	Reversible CMA for C220 M6 ball bearing rail kit
Security	
HX-TPM-002C=	TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers
HX-INT-SW02=	C220 and C240 M6 Chassis Intrusion Switch
Bezel	
HXAF220C-BZL-M5SN=	HXAF220C M5 All NVMe Security Bezel
HXAF220C-BZL-M5S=	HXAF220C M5 Security Bezel
HX220C-BZL-M5=	HX220C M5 Security Bezel
Select Hypervisor / Host Operating System	
VMware	
HX-VSP-6-7-FNDR-D=	Factory Installed vSphere 6.7 1-CPU Enduser provides License
HX-VSP-6-7-FNDR2-D=	Factory Installed vSphere 6.7 2-CPU Enduser provides License
HX-VSP-7-0-FND-D=	Factory Installed vSphere SW 7.0 1-CPU Enduser provides License
HX-VSP-7-0-FND2-D=	Factory Installed vSphere SW 7.0 2-CPU Enduser provides License
VMware PAC Licenses	
HX-VSP-EPL-1A=	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 1-yr, Support Required
HX-VSP-EPL-3A=	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 3-yr, Support Required
HX-VSP-EPL-5A=	VMware vSphere 7.x Ent Plus (1 CPU, 32 core), 5-yr, Support Required
HX-VSP-STD-1A=	VMware vSphere 7.x Standard (1 CPU, 32 core), 1-yr, Support Required
HX-VSP-STD-3A=	VMware vSphere 7.x Standard (1 CPU, 32 core), 3-yr, Support Required
HX-VSP-STD-5A=	VMware vSphere 7.x Standard (1 CPU, 32 core), 5-yr, Support Required
Operating system	
Microsoft Windows Server	
MSWS-19-DC16C-NS=	Windows Server 2019 Data Center (16 Cores/Unlimited VMs) - No Cisco SVC
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. This part is included with the purchase of option or spare CPU or CPU processor kits.
2. Target timeframe for supporting 256 GB DIMMs is Q4CY2021.

UPGRADING or REPLACING CPUs

NOTE: Before servicing any CPU, do the following:

- Decommission and power off the server.
- Slide the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes 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 UCS-CPUAT=.
- Heatsink cleaning kit—Supplied with replacement CPU. Can be ordered separately as Cisco PID UCSX-HSCK=.
- Thermal interface material (TIM)—Syringe supplied with replacement CPU. Can be ordered separately as Cisco PID UCS-CPU-TIM=.

(2) Order the appropriate replacement CPU from *Table 4 on page 19*

Carefully remove and replace the CPU and heatsink in accordance with the instructions found in **"Cisco M5 Server Installation and Service Guide,"** found at:
https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c220m6/install/c220m6.html

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

(2) Order the appropriate new CPU from *Table 4 on page 19*

(3) Order one heat sink for each new CPU. Order PID UCSC-HSLP-M6=.

Carefully install the CPU and heatsink in accordance with the instructions found in **"Cisco M5 Server Installation and Service Guide,"** found at:
https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/c/hw/c220m6/install/c220m6.html

UPGRADING or REPLACING MEMORY

NOTE: Before servicing any DIMM or PMEM, do the following:

- Decommission and power off the server.
- Remove the top cover from the server
- Slide the server out the front of the chassis.

To add or replace DIMMs or PMEMs, follow these steps:

Step 1 Open both DIMM connector latches.

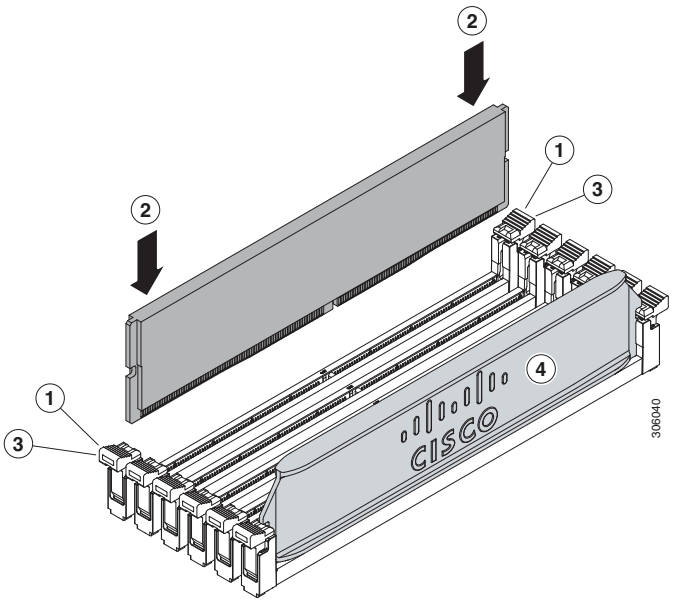
Step 2 Press evenly on both ends of the DIMM until it clicks into place in its slot

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

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

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

Figure 17 Replacing Memory



For additional details on replacing or upgrading DIMMs and PMEMs, see **"Cisco M5 Server Installation and Service Guide"** found at this link:

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

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 39 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Dimensions and Weight

Parameter	Value
Height	1.70 in. (4.3 cm)
Width (including slam latches)	16.9 in.(42.9 cm)
Depth	30 in. (76.2 cm)
Front Clearance	3 in. (76 mm)
Side Clearance	1 in. (25 mm)
Rear Clearance	6 in. (152 mm)
Weight	
Weight with following options and no rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 1600 W power supply	22.32 lbs (10.1 kg)
Weight with following options and including rail kit: 1 HDD, 1 CPU, 1 DIMM, and 1 1600 W power supply	32.38 lbs (14.7 kg)
Weight with following options and no rail kit: 10 HDDs, 2 CPUs, 32 DIMMs, and 2 1600 W power supplies	32.38 lbs (14.7 kg)
Weight with following options and including rail kit: 10 HDDs, 2 CPUs, 32 DIMMs, and 2 1600 W power supplies	42.43 lbs (19.3 kg)

Power Specifications

The HX220C M6 All NVMe/All Flash/Hybrid Server Nodes is available with the following types of power supplies:

- 1050 W (AC) power supply (see *Table 40*).
- 1050 W V2 (DC) power supply (see *Table 41*).
- 1600 W (AC) power supply (see *Table 42*).
- 2300 W (AC) power supply (see *Table 43*).

Table 40 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Power Specifications (1050 W AC power supply)

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

Notes:

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

Table 41 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Power Specifications (1050 W V2 DC power supply)

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

Notes:

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

Table 42 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes 1600 W (AC) Power Supply Specifications

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

Notes:

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

Table 43 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes 2300 W (AC) Power Supply Specifications

Parameter	Specification			
Input Connector	IEC320 C20			
Input Voltage Range (Vrms)	100 to 240			
Maximum Allowable Input Voltage Range (Vrms)	90 to 264			
Frequency Range (Hz)	50 to 60			
Maximum Allowable Frequency Range (Hz)	47 to 63			
Maximum Rated Output (W)[1]	2300			
Maximum Rated Standby Output (W)	36			
Nominal Input Voltage (Vrms)	100	120	208	230
Nominal Input Current (Arms)	13	11	12	10.8
Maximum Input at Nominal Input Voltage (W)	1338	1330	2490	2480
Maximum Input at Nominal Input Voltage (VA)	1351	1343	2515	2505
Minimum Rated Efficiency (%)[2]	92	92	93	93
Minimum Rated Power Factor[2]	0.99	0.99	0.97	0.97
Maximum Inrush Current (A peak)	30			
Maximum Inrush Current (ms)	0.2			
Minimum Ride-Through Time (ms)[3]	12			

Notes:

1. Maximum rated output is limited to 1200W when operating at low-line input voltage (100-127V)
2. This is the minimum rating required to achieve 80 PLUS Titanium certification, see test reports published at http://www.80plus.org/ for certified values
3. Time output voltage remains within regulation limits at 100% load, during input voltage dropout

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

http://ucspowercalc.cisco.com

Environmental Specifications

The environmental specifications for the HX220C M6 All NVMe/All Flash/Hybrid Server Nodes are listed in *Table 44*.

Table 44 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Environmental Specifications

Parameter	Minimum
Operating Temperature	10° C to 35° C (50° F to 95° F) with no direct sunlight Maximum allowable operating temperature derated 1° C/300 m (1° F/547 ft) above 950 m (3117 ft)
Non-Operating Temperature	Below -40° C or above 65° C (below -40° F or above 149° F) Maximum rate of change (operating and non-operating) 20° C/hr (36° F/hr)
Extended Operating Temperature	5° C to 40° C (41° F to 104° F) with no direct sunlight Maximum allowable operating temperature derated 1° C/175 m (1° F/319 ft) above 950 m (3117 ft) 5° C to 45° C (41° F to 113° F) with no direct sunlight Maximum allowable operating temperature derated 1° C/125 m (1° F/228 ft) above 950 m (3117 ft) System performance may be impacted when operating in the extended operating temperature range. Operation above 40° C is limited to less than 1% of annual operating hours. Hardware configuration limits apply to extended operating temperature range.
Operating Relative Humidity	8% to 90% and 24° C (75° F) maximum dew-point temperature, non-condensing environment
Non-Operating Relative Humidity	Below 5% or above 95% and 33° C (91° F) maximum dew-point temperature, non-condensing environment
Operating Altitude	0 m to 3050 m (10,000 ft)
Non-Operating Altitude	Below 0 m or above 12,000 m (39,370 ft)
Sound Power level, Measure A-weighted per ISO7779 LWAd (Bels) Operation at 73˚F (23˚C)	5.8
Sound Pressure level, Measure A-weighted per ISO7779 LpAm (dBA) Operation at 73˚F (23˚C)	43

Extended Operating Temperature Hardware Configuration Limits

Table 45 HX220C M6 All NVMe/All Flash/Hybrid Server Nodes Extended Operating Temperature Hardware Configuration Limits

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

Notes:

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

Compliance Requirements

The regulatory compliance requirements for HX-Series servers are listed in *Table 46*.

Table 46 HX-Series Regulatory Compliance Requirements

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

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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