



Cisco HyperFlex HXAF220c M5 Node (All NVMe)

1 OVERVIEW	3
DETAILED VIEWS	4
Chassis Front View	4
Chassis Rear View	5
BASE NODE STANDARD CAPABILITIES and FEATURES	6
CONFIGURING the HyperFlex HXAF220c M5 Node	9
STEP 1 VERIFY SERVER SKU	10
STEP 2 SELECT CPU(s)	11
STEP 3 SELECT MEMORY	16
STEP 4 SELECT DRIVES	20
STEP 5 SELECT PCIe OPTION CARD(s)	22
STEP 6 ORDER GPU CARDS (OPTIONAL)	24
STEP 7 ORDER POWER SUPPLY	25
STEP 8 SELECT POWER CORD(s)	26
STEP 9 SELECT ACCESSORIES	29
STEP 10 ORDER SECURITY DEVICES (OPTIONAL)	30
STEP 11 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM	31
STEP 12 SELECT HYPERVISOR / HOST OPERATING SYSTEM	32
STEP 13 SELECT HX DATA PLATFORM SOFTWARE	34
STEP 14 SELECT INSTALLATION SERVICE	35
STEP 15 SELECT SERVICE and SUPPORT LEVEL	36
OPTIONAL STEP - ORDER RACK(s)	41
OPTIONAL STEP - ORDER PDU	42
SUPPLEMENTAL MATERIAL	43
Hyperconverged Systems	43
CHASSIS	44
Block Diagram	45
Serial Port Details	46
Upgrade and Servicing-Related Parts	47
RACKS	48
PDUs	49
KVM CABLE	50
DISCONTINUED EOL PRODUCTS	51
TECHNICAL SPECIFICATIONS	53
Dimensions and Weight	53
Power Specifications	54
Environmental Specifications	57
Extended Operating Temperature Hardware Configuration Limits	58
Compliance Requirements	59

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 HXAF220c M5 Node is shown in [Figure 1](#).

The HXAF220c M5 servers extend the capabilities of Cisco's HyperFlex portfolio in a 1U form factor with the addition of the Intel® Xeon® Processor Scalable Family, 24 DIMM slots with configuration options ranging from 128GB up to 3TB of DRAM, and an all flash footprint of cache and capacity drives for highly available, high performance storage.

Figure 1 Cisco HyperFlex HXAF220c M5 Node

Front View Front View with Bezel attached



Front View Front View with Bezel Removed



Rear View

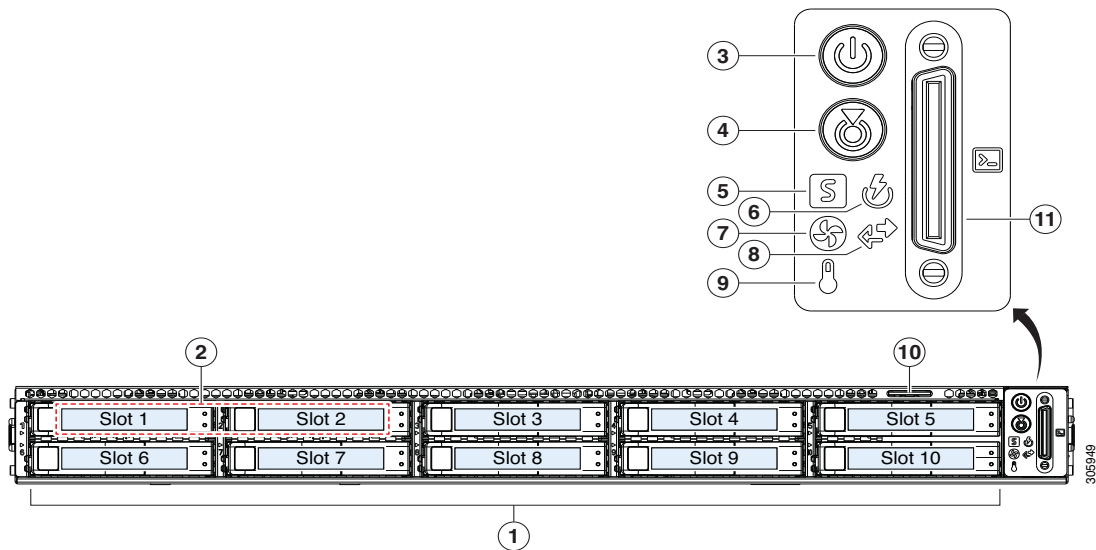


DETAILED VIEWS

Chassis Front View

Figure 2 shows the front view of the Cisco HyperFlex HXAF220c M5 Node.

Figure 2 Chassis Front View

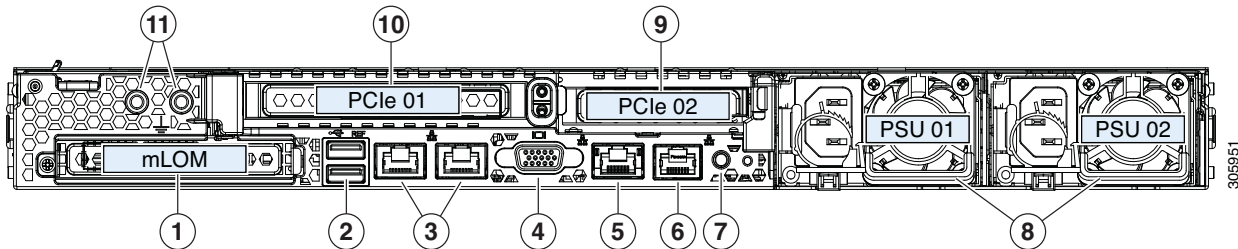


1	Drive bays 1 - 10 support NVMe solid state drives for HXAF220C-M5SN;	7	Fan status LED
2	HXAF220C-M5SX version: Drive bays 1 and 2 support SFF NVMe PCIe SSDs.	8	Network link activity LED
3	Power button/Power status LED	9	Temperature status LED
4	Unit identification button/LED	10	Pull-out asset tag
5	System status LED	11	KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector)
6	Power supply status LED	—	—

Chassis Rear View

Figure 3 shows the external features of the rear panel.

Figure 3 Chassis Rear View



1	Modular LAN-on-motherboard (mLOM) card bay (x16)	7	Rear unit identification button/LED
2	USB 3.0 ports (two)	8	Power supplies (two, redundant as 1+1)
3	Dual 1/10 GE ports (LAN1 and LAN2). LAN1 is left connector and LAN2 is right connector	9	PCIe riser 2 (slot 2) (half-height, x16); NOTE: Use of PCIe riser 2 requires a dual CPU configuration.
4	VGA video port (DB-15)	10	PCIe riser 1 (slot 1) (full-height, x16)
5	1GE dedicated management port	11	Threaded holes for dual-hole grounding lug
6	Serial port (RJ-45 connector)	—	—

BASE NODE STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base HXAF220c M5 Node. Details about how to configure the system for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in [CONFIGURING the HyperFlex HXAF220c M5 Node, page 9](#).

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	One rack unit (1RU) chassis
CPU	One or two Intel® Xeon® processor scalable family CPUs
Chipset	Intel® C621 series chipset
Memory	24 slots for Registered ECC DDR4 DIMMs (RDIMMs), Load-Reduced DIMMS (LRDIMMs), or Through Silicon Via (TSV) DIMM modules
Multi-bit Error Protection	This server supports multi-bit error protection.
Video	The Cisco Integrated Management Controller (CIMC) provides video using the ASPEED Pilot 4 video/graphics controller: <ul style="list-style-type: none"> ■ Integrated 2D graphics core with hardware acceleration ■ DDR4 memory interface supports up to 16 MB directly accessible from host and entire DDR memory indirectly accessible from host processor. ■ Supports all display resolutions up to 1920 x 1200 x 32bpp resolution at 60Hz ■ High-speed integrated 24-bit RAMDAC ■ Single lane PCI-Express host interface ■ eSPI processor to BMC support
Power subsystem	One or two of the following hot-swappable power supplies: <ul style="list-style-type: none"> ■ 1050 W (AC) ■ 1050 W (DC) ■ 1600 W 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	<ul style="list-style-type: none"> ■ Seven hot-swappable fans for front-to-rear cooling

Table 1 Capabilities and Features (*continued*)

Capability/Feature	Description
Expansion slots	<ul style="list-style-type: none"> ■ Riser 1 (controlled by CPU 1): <ul style="list-style-type: none"> • One full-height profile, 3/4-length slot with x24 connector and x16 lane. ■ Riser 2 (controlled by CPU 2): <ul style="list-style-type: none"> • One half-height profile, half-length slot with x24 connector and x16 lane <p>NOTE: Use of PCIe riser 2 requires a dual CPU configuration.</p> ■ Dedicated SAS HBA slot (see Figure 6 on page 45) <ul style="list-style-type: none"> • An internal slot is reserved for use by the Cisco 12G SAS HBA.
Interfaces	<ul style="list-style-type: none"> ■ Rear panel <ul style="list-style-type: none"> • One 1Gbase RJ-45 management port (Marvell 88E6176) • Two 10Gbase-T LOM ports (Intel X550 controller embedded on the motherboard) • One RS-232 serial port (RJ45 connector) • One DB15 VGA connector • Two USB 3.0 port connectors • One flexible modular LAN on motherboard (mLOM) slot that can accommodate various interface cards ■ Front panel <ul style="list-style-type: none"> • One KVM console connector (supplies two USB 2.0 connectors, one VGA DB15 video connector, and one serial port (RS232) RJ45 connector)
Internal storage devices	<ul style="list-style-type: none"> ■ Up to 10 Drives are installed into front-panel drive bays as below <ul style="list-style-type: none"> • Up to Eight NVMe SSD (for capacity) • One NVMe SSD (for caching) • One NVMe SSD (System drive for HXDP Operations) <p>The drives in slots 1 and 2 are connected from Riser 2 and the drives in slots 3 through 10 are connected from the PCIe switch card plugged into the internal HBA slot.</p> ■ A mini-storage module connector on the motherboard for M.2 module for one M.2 SATA SSDs for following usage: <ul style="list-style-type: none"> • ESXi hypervisor boot and HyperFlex storage controller VM ■ One socket for one micro-SD card on PCIe Riser 1 for following usage: <ul style="list-style-type: none"> • The micro-SD card serves as a dedicated local resource for utilities such as host upgrade utility (HUU). Images can be pulled from a file share (NFS/CIFS) and uploaded to the cards for future use.

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Integrated management processor	<p>Baseboard Management Controller (BMC) running Cisco Integrated Management Controller (CIMC) firmware.</p> <p>Depending on your CIMC settings, the CIMC can be accessed through the 1GE dedicated management port, the 1GE/10GE LOM ports, or a Cisco virtual interface card (VIC).</p> <p>CIMC manages certain components within the server, such as the Cisco 12G SAS HBA.</p>
Storage controller	<p>Cisco 12G SAS HBA (JBOD/Pass-through Mode)</p> <ul style="list-style-type: none"> ■ Supports up to 10 SAS/SATA internal drives ■ Plugs into the dedicated RAID controller slot
Modular LAN on Motherboard (mLOM) slot	<p>The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards:</p> <ul style="list-style-type: none"> ■ Cisco 1457 Quad Port Virtual Interface Card (10GE/25GE) ■ Quad Port Intel i350 1GbE RJ45 Network Interface Card (NIC) <p>NOTE:</p> <ul style="list-style-type: none"> ■ 1387 VIC natively supports 6300 series FIs. ■ To support 6200 series FIs with 1387, 10G QSAs compatible with 1387 are available for purchase. ■ Breakout cables are not supported with 1387 ■ Use of 10GE is not allowed when used with 6300 series FI.
(optional) Additional NICs	<p>PCIe slot 1 and PCIe slot 2 on the motherboard can flexibly accommodate the following cards:</p> <ul style="list-style-type: none"> ■ Intel X550-T2 dual port 10Gbase-T ■ Intel XXV710-DA2 dual port 25GE NIC ■ Intel i350 quad port 1Gbase-T ■ Intel X710-DA2 dual port 10GE NIC
UCSM	<p>Unified Computing System Manager (UCSM) runs in the Fabric Interconnect and automatically discovers and provisions some of the server components.</p>



CONFIGURING the HyperFlex HXAF220c M5 Node

For the most part, this system comes with a fixed configuration. Use these steps to see or change the configuration of the Cisco HXAF220c M5 Node:

- *STEP 1 VERIFY SERVER SKU, page 10*
- *STEP 2 SELECT CPU(s), page 11*
- *STEP 3 SELECT MEMORY, page 16*
- *STEP 4 SELECT DRIVES, page 21*
- *STEP 5 SELECT PCIe OPTION CARD(s), page 23*
- *STEP 6 ORDER GPU CARDS (OPTIONAL), page 25*
- *STEP 7 ORDER POWER SUPPLY, page 26*
- *STEP 8 SELECT POWER CORD(s), page 27*
- *STEP 9 SELECT ACCESSORIES, page 30*
- *STEP 10 ORDER SECURITY DEVICES (OPTIONAL), page 31*
- *STEP 11 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM, page 32*
- *STEP 12 SELECT HYPERVISOR / HOST OPERATING SYSTEM, page 33*
- *STEP 13 SELECT HX DATA PLATFORM SOFTWARE, page 35*
- *STEP 14 SELECT INSTALLATION SERVICE, page 36*
- *STEP 15 SELECT SERVICE and SUPPORT LEVEL, page 37*
- *OPTIONAL STEP - ORDER RACK(s), page 42*
- *OPTIONAL STEP - ORDER PDU, page 43*

STEP 1 VERIFY SERVER SKU

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

Table 2 PID of the HXAF220c M5 Node

Product ID (PID)	Description
HXAF220C-M5SN	HXAF220c M5SN Node, with one or two CPUs, recommended memory sizes, 1 NVMe SSD for Caching, 1 NVMe SSD for system logs, up to 8 data NVMe SSDs, 1 VIC mLOM card, 1 M.2 SATA SSD and 1 micro-SD card.

The HXAF220c M5SN Node:

- Requires configuration of one or two power supplies, one or two CPUs, recommended memory sizes, 1 NVMe SSD for Caching, 1 NVMe SSD for system logs, up to 8 data NVMe SSDs, 1 VIC mLOM card, 1 M.2 SATA SSD and 1 micro-SD card.
- Provides option to choose 10G QSAs to connect with HX-FI-6248UP and HX-FI-6296UP
- Provides option to choose rail kits.



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

STEP 2 SELECT CPU(s)

The standard CPU features are:

- Intel® Xeon® processor scalable family CPUs or 2nd Generation Intel®Xeon® scalable family CPUs
- From 8 cores up to 28 cores per CPU
- Intel C621 series chipset
- Cache size of up to 38.5 MB

Select CPUs

The available CPUs are listed in [Table 3](#).

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)	Workload/Processor type
Cisco Recommended CPUs (2nd Generation Intel® Xeon® Processors)							
HX-CPU-I8276	2.2	165	38.50	28	3 x 10.4	2933	Oracle, SAP
HX-CPU-I8260	2.4	165	35.75	24	3 x 10.4	2933	Microsoft Azure Stack
HX-CPU-I6262V	1.9	135	33.00	24	3 x 10.4	2400	Virtual Server infrastructure or VSI
HX-CPU-I6248R	3.0	205	35.75	24	2 x 10.4	2933	
HX-CPU-I6248	2.5	150	27.50	20	3 x 10.4	2933	VDI, Oracle, SQL, Microsoft Azure Stack
HX-CPU-I6238R	2.2	165	38.50	28	2 x 10.4	2933	Oracle, SAP (2-Socket TDI only), Microsoft AzureStack
HX-CPU-I6238	2.1	140	30.25	22	3 x 10.4	2933	SAP
HX-CPU-I6230R	2.1	150	35.75	26	2 x 10.4	2933	Virtual Server Infrastructure, Data Protection, Big Data, Splunk, Microsoft AzureStack
HX-CPU-I6230	2.1	125	27.50	20	3 x 10.4	2933	Big Data, Virtualization
HX-CPU-I5220R	2.2	125	35.75	24	2 x 10.4	2666	Virtual Server Infrastructure, Splunk, Microsoft Azure Stack
HX-CPU-I5220	2.2	125	24.75	18	2 x 10.4	2666	HCI

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)	Workload/Processor type
HX-CPU-I5218R	2.1	125	27.50	20	2 x 10.4	2666	Virtual Server Infrastructure, Data Protection, Big Data, Splunk, Scale-out Object Storage, Microsoft AzureStack
HX-CPU-I5218	2.3	125	22.00	16	2 x 10.4	2666	Virtualization, Microsoft Azure Stack, Splunk, Data Protection
HX-CPU-I4216	2.1	100	22.00	16	2 x 9.6	2400	Data Protection, Scale Out Storage
HX-CPU-I4214R	2.4	100	16.50	12	2 x 9.6	2400	Data Protection, Splunk, Scale-out Object Storage, Microsoft AzureStack
HX-CPU-I4214	2.2	85	16.50	12	2 x 9.6	2400	Data Protection, Scale Out Storage
8000 Series Processor							
HX-CPU-I8280L	2.7	205	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8280	2.7	205	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8276L	2.2	165	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8276	2.2	165	38.50	28	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8270	2.7	205	35.75	26	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8268	2.9	205	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260Y	2.4	165	35.75	24/20/ 16	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260L	2.3	165	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I8260	2.4	165	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-8180M	2.5	205	38.50	28	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8176M	2.1	165	38.50	28	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8170M	2.1	165	35.75	26	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8160M	2.1	150	33.00	24	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8180	2.5	205	38.50	28	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8176	2.1	165	38.50	28	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8170	2.1	165	35.75	26	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8168	2.7	205	33.00	24	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8164	2.0	150	35.75	26	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8160	2.1	150	33.00	24	3 x 10.4	2666	Intel® Xeon®

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)	Workload/Processor type
HX-CPU-8158	3.0	150	24.75	12	3 x 10.4	2666	Intel® Xeon®
HX-CPU-8153	2.0	125	22.00	16	3 x 10.4	2666	Intel® Xeon®
6000 Series Processor							
HX-CPU-I6262V	1.9	135	33.00	24	3 x 10.4	2400	2 nd Gen Intel® Xeon®
HX-CPU-I6258R	2.7	205	35.75	28	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6254	3.1	200	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6252N	2.3	150	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6252	2.1	150	35.75	24	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6248R	3.0	205	35.75	24	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6248	2.5	150	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6246R	3.4	205	35.75	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6246	3.3	165	24.75	12	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6242R	3.1	205	35.75	20	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6242	2.8	150	22.00	16	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240R	2.4	165	35.75	24	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240L	2.6	150	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6240	2.6	150	24.75	18	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238R	2.2	165	38.50	28	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238L	2.1	140	30.25	22	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6238	2.1	140	30.25	22	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230R	2.1	150	35.75	26	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230N	2.3	125	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6230	2.1	125	27.50	20	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6226R	2.8	150	22.00	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6226	2.7	125	19.25	12	3 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I6222V	1.8	115	27.50	20	3 x 10.4	2400	2 nd Gen Intel® Xeon®
HX-CPU-6142M	2.6	150	22.00	16	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6140M	2.3	140	24.75	18	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6134M	3.2	130	24.75	8	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6154	3.0	200	24.75	18	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6152	2.1	140	30.25	22	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6150	2.7	165	24.75	18	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6148	2.4	150	27.50	20	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6146	3.2	165	24.75	12	3 x 10.4	2666	Intel® Xeon®

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz)	Workload/Processor type
HX-CPU-6144	3.5	150	24.75	8	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6142	2.6	150	22.00	16	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6140	2.3	140	24.75	18	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6138	2.0	125	27.50	20	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6136	3.0	150	24.75	12	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6134	3.2	130	24.75	8	3 X 10.4	2666	Intel® Xeon®
HX-CPU-6132	2.6	140	19.25	14	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6130	2.1	125	22.00	16	3 x 10.4	2666	Intel® Xeon®
HX-CPU-6126	2.6	125	19.25	12	3 x 10.4	2666	Intel® Xeon®
5000 Series Processor							
HX-CPU-I5220S	2.6	125	19.25	18	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5220R	2.2	150	35.75	24	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5220	2.2	125	24.75	18	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218R	2.1	125	27.50	20	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218B	2.3	125	22.00	16	2 x 10.4	2933	2 nd Gen Intel® Xeon®
HX-CPU-I5218N	2.3	105	22.00	16	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-I5218	2.3	125	22.00	16	2 x 10.4	2666	2 nd Gen Intel® Xeon®
HX-CPU-5120	2.2	105	19.25	14	2 x 10.4	2400	Intel® Xeon®
HX-CPU-5118	.2.3	105	16.50	12	2 x 10.4	2400	Intel® Xeon®
HX-CPU-5117	2.0	105	19.25	14	2 x 10.4	2400	Intel® Xeon®
HX-CPU-5115	2.4	85	13.75	10	2 x 10.4	2400	Intel® Xeon®
4000 Series Processor							
HX-CPU-I4216	2.1	100	22.00	16	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4214R	2.4	100	16.50	12	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-I4214	2.2	85	16.50	12	2 x 9.6	2400	2 nd Gen Intel® Xeon®
HX-CPU-4116	2.1	85	16.50	12	2 x 9.6	2400	Intel® Xeon®

Notes:

1. UPI = Ultra Path Interconnect. 2-socket servers support only 2 UPI performance, even if the CPU supports 3 UPI.



CAUTION: For systems configured with 2nd Gen Intel® Xeon® 205W R-series processors, operating above 30° C [86° F], a fan fault or executing workloads with extensive use of heavy instructions sets like 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).

- HX-CPU-I6258R - Intel 6258R 2.7GHz/205W 28C/35.75MB DDR4 2933MHz
 - HX-CPU-I6248R - Intel 6248R 3.0GHz/205W 24C/35.75MB DDR4 2933MHz
 - HX-CPU-I6246R - Intel 6246R 3.4GHz/205W 16C/35.75MB DDR4 2933MHz
 - HX-CPU-I6242R - Intel 6242R 3.1GHz/205W 20C/35.75MB DDR4 2933MHz
-

Approved Configurations

(1) 1-CPU Configuration:

- Select any one CPU listed in [Table 3 on page 11](#).



NOTE:

- The 1-CPU configuration is not supported when choosing either NVMe Caching drives or All NVMe systems
-

(2) 2-CPU Configuration:

- Select two identical CPUs from any one of the rows of [Table 3 on page 11](#).

Caveats

- You can select either one processor or two identical processors.

STEP 3 SELECT MEMORY

The standard memory features are:

- DIMMs
 - Clock speed: 2666 MHz or 2933 MHz depending on CPU type

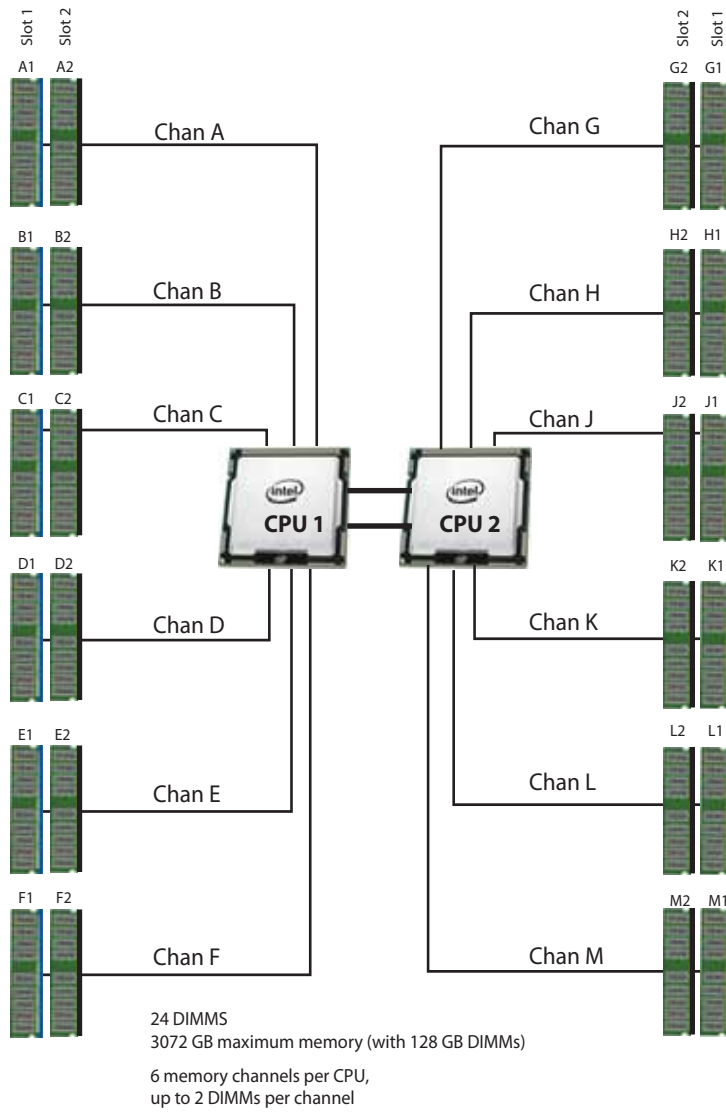


NOTE: The compatibility of Intel® Xeon® scalable processor family CPUs and 2nd Generation Intel® Xeon® Scalable CPUs with different DIMM memory speeds and production servers is as shown below:

CPU Family	DIMM Speed (MHz)	Configuration
Intel Scalable CPUs	2666	2666 MHz DIMMs are supported for all production servers
	2933	2933 MHz DIMMs are not supported for new production servers
2 nd Gen Intel Scalable CPUs	2666	2666 MHz DIMMs are only supported when upgrading from Intel Scalable CPUs to 2 nd Gen Intel Scalable CPUs
	2933	2933 MHz is the only DIMM speed supported for new production servers

- Ranks per DIMM: 1, 2, 4, or 8
 - Operational voltage: 1.2 V
 - Registered ECC DDR4 DIMMs (RDIMMs), Load-Reduced DIMMS (LRDIMMs), or Through Silicon Via (TSV) DIMM modules
- Memory is organized with six memory channels per CPU, with up to two DIMMs per channel, as shown in [Figure 4](#).

Figure 4 HXAF220c M5 Node Memory Organization



Select DIMMs



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

Table 4 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks/ DIMM
HX-MR-128G8RS-H	128 GB DDR4-2666-MHz TSV-RDIMM/8R/x4	1.2 V	8
HX-ML-X64G4RS-H	64 GB DDR4-2666-MHz LRDIMM/4R/x4	1.2 V	4
HX-MR-X32G2RS-H	32 GB DDR4-2666-MHz RDIMM/2R/x4	1.2 V	2
HX-MR-X16G1RS-H	16 GB DDR4-2666-MHz RDIMM/1R/x4	1.2 V	1
HX-ML-128G4RT-H	128 GB DDR4-2933-MHz LRDIMM/4Rx4 (16Gb)	1.2 V	4
HX-ML-X64G4RT-H	64 GB DDR4-2933-MHz LRDIMM/4Rx4 (8Gb)	1.2 V	4
HX-MR-X64G2RT-H	64 GB DDR4-2933-MHz RDIMM/2Rx4 (16Gb)	1.2 V	2
HX-MR-X32G2RT-H	32GB DDR4-2933-MHz RDIMM/2Rx4 (8Gb)	1.2 V	2
HX-MR-X16G1RT-H	16 GB DDR4-2933-MHz RDIMM/1Rx4 (8Gb)	1.2 V	1
Intel® Persistent Memory Product			
HX-MP-512GS-A0	Intel Optane DC Persistent Memory, 512GB, 2666MHz		
HX-MP-256GS-A0	Intel Optane DC Persistent Memory, 256GB, 2666MHz		
HX-MP-128GS-A0	Intel Optane DC Persistent Memory, 128GB, 2666MHz		
Intel® Persistent Memory Product Operational Modes			
UCS-DCPMM-AD	Intel Optane DC Persistent Memory Operational Mode - App Di		

Approved Configurations

(1) 1-CPU configuration

- Select from 1 to 12 DIMMs.

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

(2) 2-CPU configuration.

- Select 8, 12, 16, or 24 identical DIMMs per CPU. The DIMMs will be placed by the factory as shown in the following table

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



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 5 2933-MHz DIMM Memory Speeds with Different 2nd Generation Intel® Xeon® Scalable Processors

DIMM and CPU Frequencies (MHz)	DPC	LRDIMM (4Rx4)- 128 GB (MHz)	LRDIMM (4Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 32 GB (MHz)	RDIMM (1Rx4) - 16 GB (MHz)
		1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
DIMM = 2933 CPU = 2933	1DPC	2933	2933	2933	2933	2933
	2DPC	2933	2933	2933	2933	2933
DIMM = 2933 CPU = 2666	1DPC	2666	2666	2666	2666	2666
	2DPC	2666	2666	2666	2666	2666
DIMM = 2933 CPU = 2400	1DPC	2400	2400	2400	2400	2400
	2DPC	2400	2400	2400	2400	2400
DIMM = 2933 CPU = 2133	1DPC	2133	2133	2133	2133	2133
	2DPC	2133	2133	2133	2133	2133

Table 6 2666-MHz DIMM Memory Speeds with Different Intel® Xeon® Scalable Processors

DIMM and CPU Frequencies (MHz)	DPC	TSV-RDIMM (8Rx4) - 128 GB (MHz)	TSV-RDIMM (4Rx4) - 64 GB (MHz)	LRDIMM (4Rx4) - 64 GB (MHz)	RDIMM (2Rx4) - 32 GB (MHz)	LRDIMM (2Rx4) - 32 GB (MHz)
		1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
DIMM = 2666 CPU = 2666	1DPC	2666	2666	2666	2666	2666
	2DPC	2666	2666	2666	2666	2666
DIMM = 2666 CPU = 2400	1DPC	2400	2400	2400	2400	2400
	2DPC	2400	2400	2400	2400	2400
DIMM = 2666 CPU = 2133	1DPC	2133	2133	2133	2133	2133
	2DPC	2133	2133	2133	2133	2133

STEP 4 SELECT DRIVES

The standard disk drive features are:

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

Select Drives

The available drives are listed in [Table 7](#)

Table 7 Available Sled-Mounted SSDs

Product ID (PID)	PID Description	Drive Type	Capacity
Capacity Drives			
HX-NVME2H-I1000	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value endurance (HyperFlex Release 4.0 (2a) or later)	NVMe	1 TB
HX-NVME2H-I4000	Cisco 2.5" U.2 4.0TB Intel P4510 NVMe High Perf. Value endurance (HyperFlex Release 4.0 (2a) or later)	NVMe	4 TB
HX-NVMEHW-I8000	8TB 2.5in U.2 Intel P4510 NVMe High Perf Value endurance (HyperFlex Release 4.0 (2a) or later)	NVMe	8 TB
Caching Drives			
HX-NVMEXPB-I375	375GB 2.5in Intel Optane NVMe Extreme Performance SSD (HyperFlex Release 3.5 (2h) or later)	NVMe	375 GB
System / Log Drives			
HX-NVME2H-I1000	Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endu	NVMe	1 TB
Boot Drives			
HX-M2-240GB	240GB SATA M.2 SSD	SATA	240 GB
HX-M2-960GB	960GB SATA M.2 (HyperFlex Release 4.0(2a) and later)	SATA	940 GB

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.
- ** SED drive components are not supported with Microsoft Hyper-V
- * NVMe cache drive components are not supported with Microsoft Hyper-V

Approved Configurations

Select the following drives:

- 6 to 8 capacity drives -

- Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value End (HX-NVME2H-I1000) OR
- Cisco 2.5" U.2 4.0TB Intel P4510 NVMe High Perf. Value End (HX-NVME2H-I4000) OR
- 8 TB 2.5in U.2 Intel P4510 NVMe High Perf Value End (HX-NVMEHW-I8000)
- **One cache drive -**
 - 375GB 2.5in Intel Optane NVMe Extreme Performance SSD (HX-NVMEXPB-I375) OR
- **One system drive -**
 - Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endu (HX-NVME2H-I1000)
- **One boot drive -**
 - 240GB M.2 SATA SSD boot drive (HX-M2-240GB)



NOTE: For cluster scale related information please see the product [release notes](#)

STEP 5 SELECT PCIe OPTION CARD(s)

The standard PCIe card offerings is:

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

Select PCIe Option Card

The available PCIe option card is listed in [Table 8](#).

Table 8 Available PCIe Option Cards

Product ID (PID)	PID Description	Card Height
Modular LAN on Motherboard (mLOM)¹		
HX-MLOM-C40Q-03	Cisco VIC 1387 Dual Port 40Gb QSFP CNA MLOM	N/A
HX-MLOM-C25Q-04	Cisco UCS VIC 1457 Quad Port 10/25G SFP28 CNA MLOM (Requires HX 4.0(1a) or higher)	N/A
Virtual Interface Cards (VICs)		
HX-PCIE-C40Q-03	Cisco VIC 1385 Dual Port 40Gb QSFP+ CNA w/RDMA	HHHL*
HX-PCIE-C25Q-04	Cisco UCS VIC 1455 Quad Port 10/25G SFP28 CNA PCIe (Requires HX 4.0(1a) or higher)	HHHL*
Network Interface Cards (NICs)^{2,3}		
HX-PCIE-IRJ45	Intel i350 Quad Port 1Gb Adapter	HHHL*
HX-PCIE-ID10GF	Intel X710-DA2 Dual Port 10G SFP+ NIC	HHHL*
HX-PCIE-ID10GC	Intel X550-T2 Dual Port 10GBase-T NIC	HHHL*
HX-PCIE-ID25GF	Intel XXV710-DA2 10-Dual Port 25G NIC	HHHL*
HX PCIe Accel Engine⁴		
HX-PCIE-OFFLOAD-1	Application Acceleration Engine	
* HHHL= Half Height Half length		

Notes:

1. The mLOM card does not plug into any of the riser 1 or riser 2 card slots; instead, it plugs into a connector inside the chassis.
2. The NIC is supported for HyperFlex Edge configurations.
3. The NIC is not supported with Microsoft Hyper-V.

4.
 - 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 cycles
 - HXDP-P Enterprise licenses are required.
 - HX-PCIE-OFFLOAD-1 works with all HXDP features, including Stretched Cluster, SED drives, T4 GPUs and more.
 - Native Replication (NR) will be supported in a future release

Caveats

Other considerations for the Cisco VIC 1387 card:

- VIC 1387 natively supports 6300 series FI.
- VIC 1387 also supports Cisco QSA Modules when working with HX-FI-6248UP or HX-FI-6296UP is desired.
- Cisco QSA Module is available as an option under 'Accessories -> SFP'. PID for QSA is CVR-QSFP-SFP10G'
- Please order two of above QSA modules when connectivity with 6200 is desired
- Use of 10GbE is not permitted with 6300 series FI.

STEP 6 ORDER GPU CARDS (OPTIONAL)

Select GPU Options

The available GPU PCIe options are listed in [Table 9](#)

Table 9 Available PCIe Option Cards

Product ID (PID)	PID Description	Card Height	Maximum cards Per node
GPU PCIe Cards			
HX-GPU-T4-16	NVIDIA T4 PCIE 75W 16GB	Low Profile Single-Width	2



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

Caveats

- GPU cannot be mixed.

STEP 7 ORDER POWER SUPPLY

Power supplies share a common electrical and physical design that allows for hot-plug and tool-less installation into HXAF220c M5 Nodes. 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, lower 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>

Select one or two power supplies from the list in *Table 10*

Table 10 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 power supply for C-Series servers



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

STEP 8 SELECT POWER CORD(S)

Using [Table 11](#), select the appropriate AC power cords. You can select zero to two power cords. If you select the option R2XX-DMYMPWRCORD, no power cord is shipped with the server.

Table 11 Available Power Cords

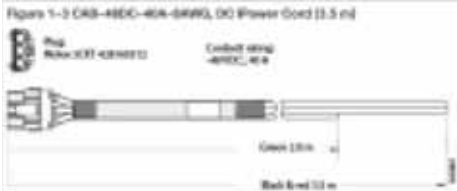
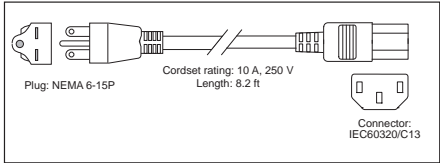
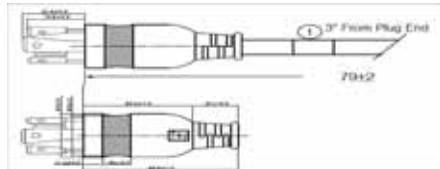
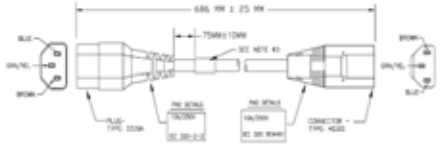
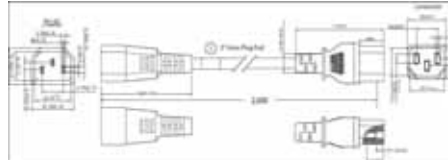
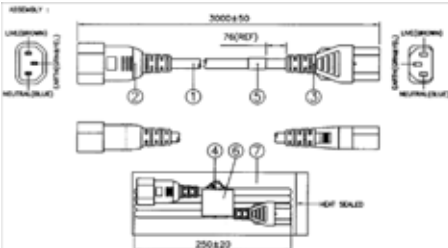
Product ID (PID)	PID Description	Images
R2XX-DMYMPWRCORD	No power cord (dummy PID to allow for a no power cord option)	Not applicable
CAB-48DC-40A-8AWG	C-Series -48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A	 <p>Figure 1-3 CAB-48DC-40A-8AWG, DC Power Cord (3.5 m)</p> <p>Plug: R2XX-DMYMPWRCORD Cordset: 48VDC -48DC, 40A Bulk Length: 3.5 m</p>
CAB-N5K6A-NA	Power Cord, 200/240V 6A, North America	 <p>Plug: NEMA 6-15P Cordset rating: 10 A, 250 V Length: 8.2 ft Connector: IEC60320/C13</p>
CAB-AC-L620-C13	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft	 <p>3' From Plug End 70±2</p>
CAB-C13-CBN	CABASY,WIRE,JUMPER CORD, 27" L, C13/C14, 10A/250V	 <p>656 MM ± 25 MM 70MM±10MM C13 NEMA 40 C14 NEMA 40 CONDUCTOR: 10G-450E</p>
CAB-C13-C14-2M	CABASY,WIRE,JUMPER CORD, PWR, 2 Meter, C13/C14,10A/250V	 <p>3' From Plug End 1.00</p>
CAB-C13-C14-AC	CORD,PWR,JMP,IEC60320/C14,IEC60320/C13, 3.0M	 <p>ASSEMBLY: 3000±50 70(40)±3 NEUTRAL(BLUE) NEUTRAL(BLUE) 250±20 HEAT SEALED</p>

Table 11 Available Power Cords

Product ID (PID)	PID Description	Images
CAB-250V-10A-AR	Power Cord, 250V, 10A, Argentina	<p>2500 mm Cordset rating: 10 A, 250/500 V MAX Length: 8.2 ft Plug: EL 219 (IRAM 2073) Connector: EL 701 (IEC60320/C13)</p>
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	<p>Cordset rating: 10 A, 250 V/500 V MAX Length: 2500mm Plug: EL 210 (BS 1363A) 13 AMP fuse Connector: EL 701C (EN 60320/C15)</p>
CAB-250V-10A-CN	AC Power Cord - 250V, 10A - PRC	<p>750mm Cordset rating: 10 A, 250 V/500 V MAX Length: 2500mm Plug: EL 210 (BS 1363A) 13 AMP fuse Connector: EL 701C (EN 60320/C15)</p>
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	<p>Cordset rating: 10A/16 A, 250 V Length: 8 ft 2 in. (2.5 m) Plug: M2511 Connector: VSCC15</p>
CAB-250V-10A-ID	Power Cord, 250V, 10A, India	<p>Cordset rating 16A, 250V (2500mm) Plug: EL 208 Connector: EL 701</p>
CAB-250V-10A-IS	Power Cord, SFS, 250V, 10A, Israel	<p>Cordset rating 10A, 250V/500V MAX (2500 mm) Plug: EL 212 (SI-32) Connector: EL 701B (IEC60320/C13)</p>
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	<p>Cordset rating: 10 A, 250 V Length: 8 ft 2 in. (2.5 m) Plug: I/3G (CEI 23-16) Connector: C15M (EN60320/C15)</p>
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	<p>Cordset rating: 10 A, 250 V Length: 8 ft. 2 in. (2.5 m) Plug: MP232-R Connector: IEC 60320 C15</p>

Table 11 Available Power Cords

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

Notes:

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

STEP 9 SELECT ACCESSORIES

Select

1. **Internal microSD Card Module HX-MSD-32G.**
 - This is a required component.
 - The micro-SD card mounts internally on riser 1.
 - The micro-SD card serves as a dedicated local resource for utilities such as HUU. Images can be pulled from a file share (NFS/CIFS) and uploaded to the cards for future use.
2. **Optional SFP adapter CVR-QSFP-SFP10G.**
 - This is optional and only needed if connection to 6200 series FI (HX-FI-6248UP, HX-FI-6296UP) is desired.
 - When choosing this option, please choose two QSAs per server.

STEP 10 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 12](#).

Table 12 Security Devices

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



NOTE:

- The TPM module used in this system conforms to TPM v1.2 and 2.0, as defined by the Trusted Computing Group (TCG). It is also SPI-based.
- TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced, upgraded, or moved to another server. If a server with a TPM is returned, the replacement server must be ordered with a new TPM.

STEP 11 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 13](#).

Table 13 Tool-less Rail Kit Options

Product ID (PID)	PID Description
HX-RAILF-M4	Friction Rail Kit for HXAF220c M5 Nodes
HX-RAILB-M4	Ball Bearing Rail Kit for HXAF220c M5 Node

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 14](#) to order a cable management arm.

Table 14 Cable Management Arm

Product ID (PID)	PID Description
HX-CMAF-M4	Reversible CMA for M4 & M5 rack servers

For more information about the tool-less rail kit and cable management arm, see the *Cisco UCS C220 M5 Installation and Service Guide* at this URL:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M5/install/C220M5.html



NOTE: If you plan to rackmount your HXAF220c M5 Node, you must order a tool-less rail kit. The same rail kits and CMA's are used for M4 and M5 servers.

STEP 12 SELECT HYPERVISOR / HOST OPERATING SYSTEM

Hypervisor/Operating systems options are available as follows. Select either VMware ESXi or Microsoft Windows Server with Hyper-V PIDs as desired from [Table 15](#)

Table 15 Hypervisor/Host Operating System

Product ID (PID)	PID Description
VMware¹	
HX-VSP-6-5-FNDR-D	Factory Installed vSphere 6.5 1-CPU Enduser provides License
HX-VSP-6-5-FNDR2-D	Factory Installed vSphere 6.5 2-CPU Enduser provides License
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-6-5-FND-D	Factory Installed - vSphere SW 6.5 (End user to provide License)
HX-VSP-6-5-EPL-D	Factory Installed - VMware vSphere 6.5 Ent Plus SW+Lic (2 CPU)
HX-VSP-6-5-STD-D	Factory Installed - VMware vSphere 6.5 Std SW and Lic (2 CPU)
HX-VSP-6-7-FND-D	Factory Installed -vSphere SW 6.7 Enduser to provide License
HX-VSP-6-7-EPL-D	Factory Installed - VMware vSphere 6.7 Ent Plus SW+Lic 2-CPU
HX-VSP-6-7-STD-D	Factory Installed - VMware vSphere 6.7 Std SW and Lic (2CPU)
VMWare PAC Licenses²	
HX-VSP-EPL-1A	VMware vSphere 6 Ent Plus (1 CPU), 1-yr, Support Required Cisco
HX-VSP-EPL-3A	VMware vSphere 6 Ent Plus (1 CPU), 3-yr, Support Required Cisco
HX-VSP-EPL-5A	VMware vSphere 6 Ent Plus (1 CPU), 5-yr, Support Required Cisco
HX-VSP-STD-1A	VMware vSphere 6 Standard (1 CPU), 1-yr, Support Required Cisco
HX-VSP-STD-3A	VMware vSphere 6 Standard (1 CPU), 3-yr, Support Required Cisco
HX-VSP-STD-5A	VMware vSphere 6 Standard (1 CPU), 5-yr, Support Required Cisco
Guest Operating system.	
Microsoft Windows Server	
HX-19-DC16C	Windows Server 2019 Data Center (16 Cores/Unlimited VMs)
HX-19-DC16C-NS	Windows Server 2019 DC (16 Cores/Unlim VMs) - No Cisco SVC
HX-19-ST16C	Windows Server 2019 Standard (16 Cores/2 VMs)
HX-19-ST16C-NS	Windows Server 2019 Standard (16 Cores/2 VMs) - No Cisco SVC
HX-MSWS-19-ST16C	Windows Server 2019 Standard (16 Cores/2 VMs)

Table 15 Hypervisor/Host Operating System

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)
HX-MSWS-19-DC16C	Windows Server 2019 Data Center (16 Cores/Unlimited VMs)
Microsoft Hyper-V^{3,4}	
HX-MSWS-OPT-OUT	No Factory Install - Windows Server 2016 Data Center

Notes:

1. Although VMware 6.0 is installed at the factory, VMware 6.5 is also supported.
2. Choose quantity of two when choosing PAC licensing for dual CPU systems.
3. Microsoft Windows Server with Hyper-V will NOT be installed in Cisco Factory. Customers need to bring their own Windows Server ISO image that needs to be installed at deployment site.
4. To ensure the best possible Day 0 Installation experience, mandatory Installation Services are required with all Hyper-V orders. Details on PIDs can be found in HyperFlex Ordering Guide.

STEP 13 SELECT HX DATA PLATFORM SOFTWARE

HyperFlex Data Platform Edition & Subscription Period options are available as follows. Select as desired from [Table 16](#)

Table 16 HX Data Platform Software

Product ID (PID)	PID Description
HXDP-S001-1YR=	Cisco HyperFlex Data Platform Enterprise Edition 1 yr Subscription
HXDP-S001-2YR=	Cisco HyperFlex Data Platform Enterprise Edition 2 yr Subscription
HXDP-S001-3YR=	Cisco HyperFlex Data Platform Enterprise Edition 3 yr Subscription
HXDP-S001-4YR=	Cisco HyperFlex Data Platform Enterprise Edition 4 yr Subscription
HXDP-S001-5YR=	Cisco HyperFlex Data Platform Enterprise Edition 5 yr Subscription
HXDP-P001-1YR=	Cisco HyperFlex Data Platform Enterprise Edition 1 yr Subscription
HXDP-P001-2YR=	Cisco HyperFlex Data Platform Enterprise Edition 2 yr Subscription
HXDP-P001-3YR=	Cisco HyperFlex Data Platform Enterprise Edition 3 yr Subscription
HXDP-P001-4YR=	Cisco HyperFlex Data Platform Enterprise Edition 4 yr Subscription
HXDP-P001-5YR=	Cisco HyperFlex Data Platform Enterprise Edition 5 yr Subscription
HXDP-P-SLR=	HyperFlex Data Platform Enterprise Edition SLR 1 to 10 Years

STEP 14 SELECT INSTALLATION SERVICE

To ensure the best possible Day 0 Installation experience, mandatory Installation Services are required with all Hyper-V orders. Customers can purchase Cisco Advanced Services (AS) or Cisco Learning partner mentored Services. Select as desired from [Table 17](#)

Table 17 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
Cisco Learning Partner Mentored Services	
HXDP-P001-1YR=	Cisco HyperFlex Data Platform Enterprise Edition 1 yr Subscription
HXDP-P001-2YR=	Cisco HyperFlex Data Platform Enterprise Edition 2 yr Subscription

STEP 15 SELECT SERVICE and SUPPORT LEVEL

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

Smart Net Total Care (SNTC)

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

For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco Smart Net Total Care for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. For more information please refer to the following url: <http://www.cisco.com/c/en/us/services/technical/smart-net-total-care.html?stickynav=1>
You can choose a desired service listed in [Table 18](#).

Table 18 Cisco SNTC Service (PID HXAF220C-M5SX)

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

*Includes Drive Retention (see below for full description)

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

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

****Available in China only

Smart Net Total Care with Onsite Troubleshooting Service

An enhanced offer over traditional Smart Net Total Care which provides onsite troubleshooting expertise to aid in the diagnostics and isolation of hardware issue within our customers' Cisco Hyper-Converged environment. It is delivered by a Cisco Certified field engineer (FE) in collaboration with remote TAC engineer and Virtual Internet working Support Engineer (VISE). You can choose a desired service listed in [Table 19](#)

Table 19 SNTC with UCS Onsite Troubleshooting Service (PID HXAF220C-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-AF220CM5	OSPT	Yes	24X7X4OS Trblshtg
CON-OSPTD-AF220CM5	OSPTD	Yes	24X7X4OS TrblshtgDR*
CON-OSPTL-AF220CM5	OSPTL	Yes	24X7X4OS TrblshtgLL**
CON-OPTLD-AF220CM5	OPTLD	Yes	24X7X4OS TrblshtgLLD***

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

Solution Support

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 20](#)

Table 20 Solution Support Service (PID HXAF220C-M5SX)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-AF220CM5	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-AF220CM5	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-AF220CM5	SSC4S	Yes	SOLN SUPP 8X5X4OS

Table 20 Solution Support Service (PID HXAF220C-M5SX)

CON-SSCS-AF220CM5	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-AF220CM5	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-AF220CM5	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-AF220CM5	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-AF220CM5	SSSNP	No	SOLN SUPP 24X7X4
CON-SSSNE-AF220CM5	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-AF220CM5	SSSNC	No	SOLN SUPP NCD**
CON-SSSNT-AF220CM5	SSSNT	No	SOLN SUPP 8X5XNBD

Includes Drive Retention (see below for description)

**Available in China only

Partner Support Service for UCS

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

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

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

PSS is available to all Cisco PSS partners.

PSS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support. You can choose a desired service listed in [Table 21](#).

Table 21 PSS (PID HXAF220C-M5SX)

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

Table 21 PSS (PID HXAF220C-M5SX)

CON-PSJ2-AF220CM5	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-AF220CM5	PSJ1	No	UCS SUPP PSS 8X5XNBD
*Includes Drive Retention (see below for description)			

Combined Support Service

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

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

You can choose a desired service listed in [Table 22](#)

Table 22 Combined Support Service (PID HXAF220C-M5SX)

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

UCS Drive Retention Service

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

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

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



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

Local Language Technical Support for UCS

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

For a complete listing of available services for Cisco HyperFlex System, see the following URL:
<https://www.cisco.com/c/en/us/services/technical.html?stickynav=1>

OPTIONAL STEP - ORDER RACK(S)

The optional R42612 rack is available from Cisco for the C-Series servers, including the HXAF220c M5 Node. This rack is a standard 19-inch rack and can be ordered with a variety of options, as listed in [Table 23](#). Racks are shipped separately from the HXAF220c M5 Node.

Table 23 Racks and Rack Options

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

OPTIONAL STEP - ORDER PDU

An optional power distribution unit (PDU) is available from Cisco for the C-Series rack servers. This PDU is available in a zero rack unit (RU) style or horizontal PDU style. see Cisco RP-Series Rack and Rack PDU specification for more details at

<http://www.cisco.com/c/dam/en/us/products/collateral/servers-unified-computing/r-series-racks/rack-pdu-specsheet.pdf>

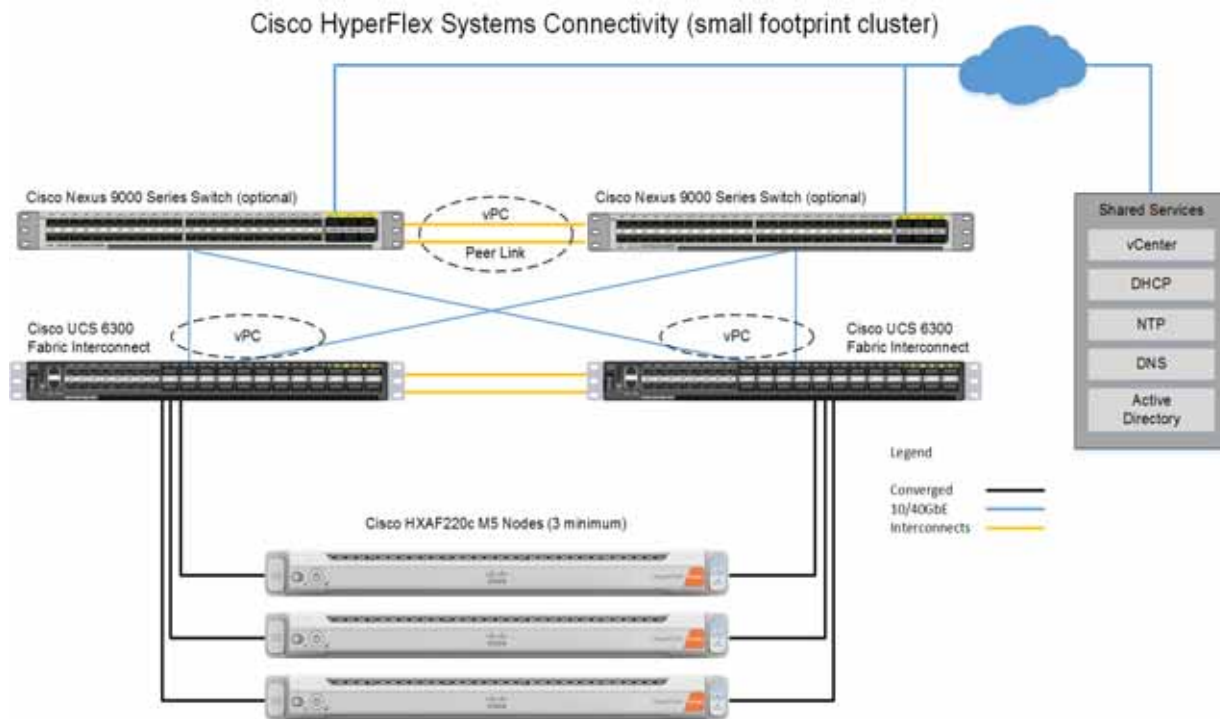
SUPPLEMENTAL MATERIAL

Hyperconverged Systems

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

Figure 5 show a small footprint cluster.

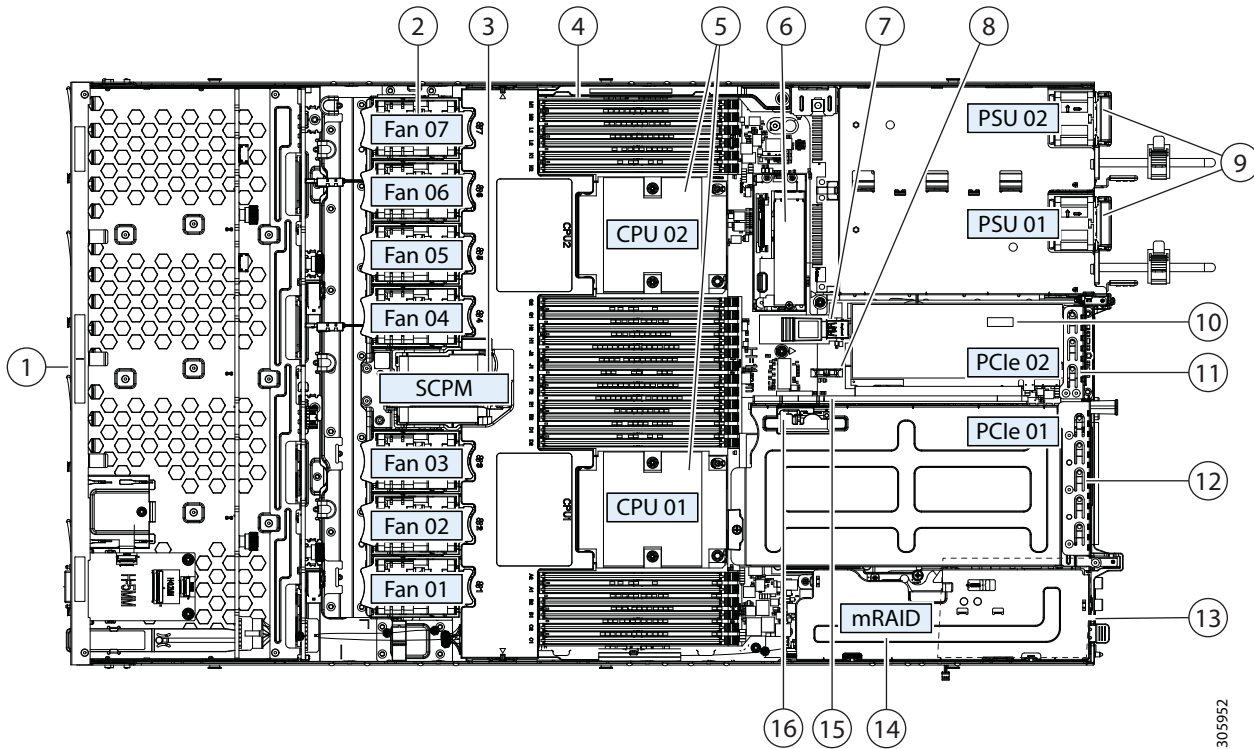
Figure 5 Small Footprint Cluster Using HXAF220c M5 Nodes



CHASSIS

An internal view of the HXAF220c M5 Node chassis with the top cover removed is shown in [Figure 6](#).

Figure 6 HXAF220c M5 With Top Cover Off

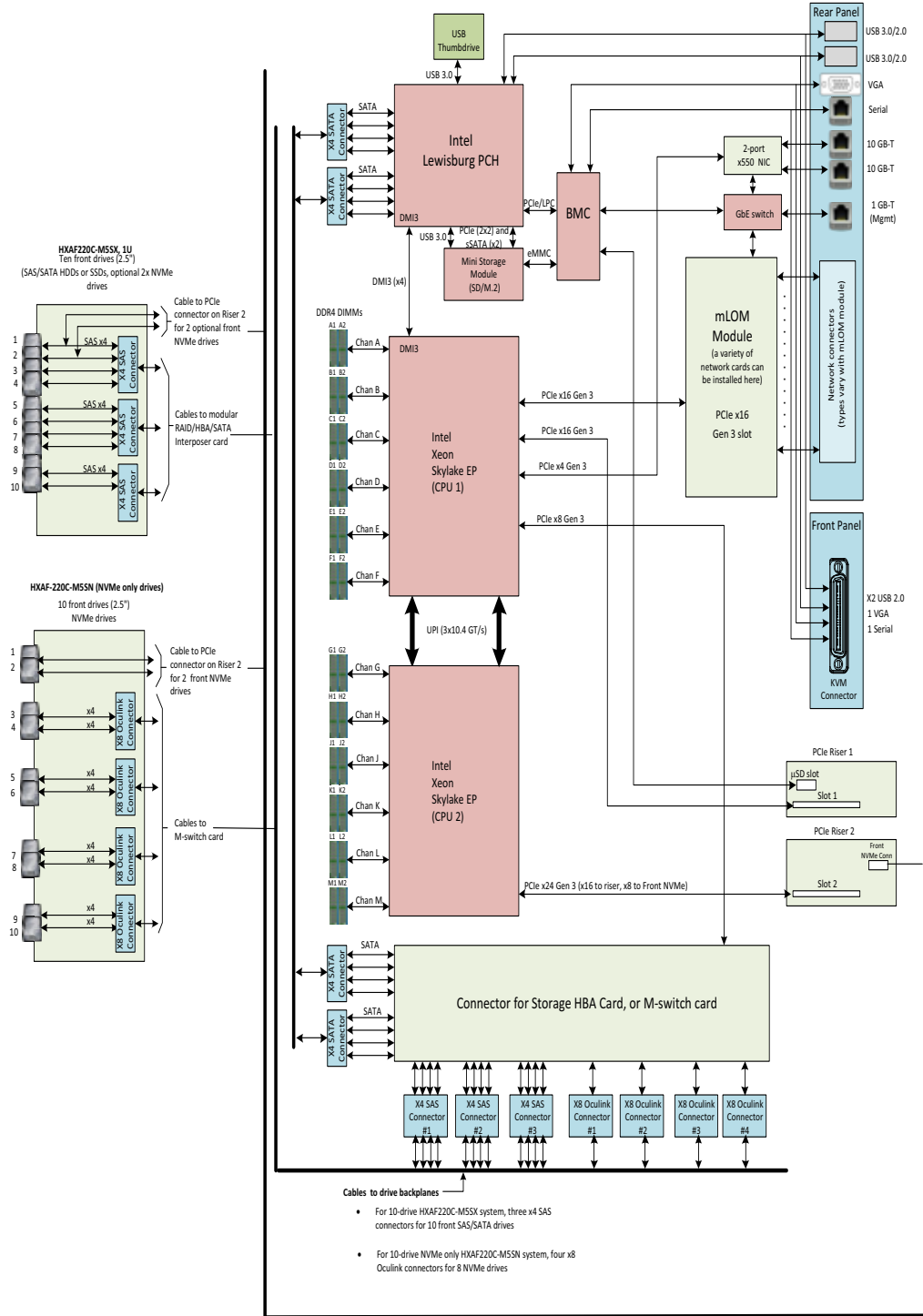


305952

1	Drive bays 1-10 are hot swappable	9	Power supplies (Hot-swappable when redundant as 1+1)
2	Cooling fan modules (seven)	10	Trusted platform module (TPM) socket on motherboard (not visible in this view)
3	N/A	11	PCIe slot 2 (half-height, x16); includes PCIe cable connector for SFF NVMe SSDs (x8)
4	DIMM sockets on motherboard (up to 12 per CPU; total 24)	12	PCIe slot 1 (full-height, x16); includes socket for Micro-SD card
5	CPUs and heatsinks (up to two)	13	Modular LOM (mLOM) card bay on chassis floor (x16) (not visible in this view)
6	Mini storage module connector For M.2 module with SATA M.2 SSD slots	14	Cisco 12 Gbps Modular SAS HBA controller card
7	Internal USB 3.0 port on motherboard	15	PCIe cable connectors for front-panel NVMe SSDs on PCIe riser 2
8	RTC battery vertical socket on motherboard	16	Micro-SD card socket on PCIe riser 1

Block Diagram

Figure 7 HXAF220c M5 SFF Block Diagram

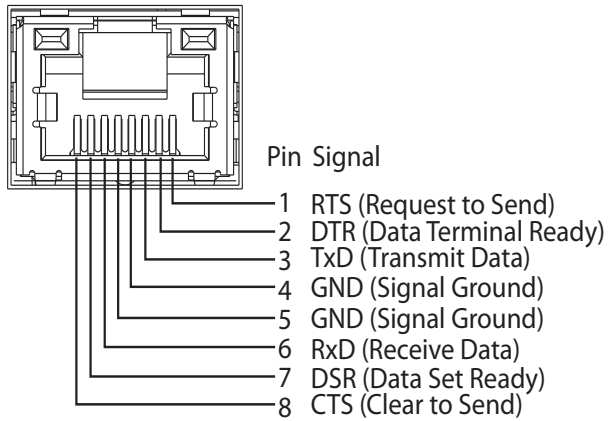


Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in [Figure 8](#).

Figure 8 Serial Port (Female RJ-45 Connector) Pinout

Serial Port (RJ-45 Female Connector)



Upgrade and Servicing-Related Parts

This section lists the upgrade and servicing-related parts you may need during the life of your system. Some of these parts are configured with every system, and some may be ordered when needed or may be ordered and kept on hand as spares for future use.

Table 24 Upgrade and Servicing-related Parts for UCS HXAF220c M5 Server

Spare Product ID (PID)	Description
UCSC-HS-C220M5=	Heat sink for UCS C220 M5 rack servers 150W CPUs & below
UCSC-HS2-C220M5=	Heat sink for UCS C220 M5 rack servers CPUs above 150W
UCS-CPUAT=	CPU Assembly Tool for M5 Servers
UCS-CPU-TIM=	Single CPU thermal interface material syringe for M5 server HS seal
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit For Replacement of CPU
UCS-M5-CPU-CAR=	UCS M5 CPU Carrier
CBL-NVME-C220FF=	C220 M5L/M5S PCIe SSD cable (1) for SFF & LFF chassis
UCSC-SATA-KIT-M5=	C220 M5 (2) SATA/SW RAID cables, 1U riser & interposer, for up to 8-drives
UCSC-SATAIN-220M5=	C220 M5 (8-drive) SATA Interposer board
UCSC-XRAIDR-220M5=	Riser to support SATA, MRAID for C220 M5 servers
UCSC-BBLKD-S2=	C-Series M5 SFF drive blanking panel
UCSC-PCIF-01H=	PCIe Low Profile blanking panel for UCS C-Series Server
UCSC-PCIF-01F=	PCIe Full Height blanking panel for UCS C-Series Server
UCSC-MLOM-BLK=	MLOM Blanking Panel
UCSC-RAILF-M4=	Friction Rail Kit for C220 M4 and M5 rack servers
UCSC-CMAF-M4=	Reversible CMA for C220 & C240 M4 & M5 rack servers
UCSC-RAILB-M4=	Ball Bearing Rail Kit for C220 & C240 M4 & M5 rack servers
UCSC-FAN-C220M5=	C220 M5 Fan Module (one)
N20-BKVM=	KVM cable for Server console port
UCSC-PSU-BLKP1U=	Power Supply Blanking Panel for C220 M5 and C240 M5 servers
UCS-MSTOR-SD=	Mini Storage Carrier for SD (holds up to 2)
UCS-MSTOR-M2=	Mini Storage Carrier for M.2 SATA/NVME (holds up to 2)

RACKS

The Cisco R42612 rack is certified for Cisco UCS installation at customer sites and is suitable for the following equipment:

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

The rack is compatible with hardware designed for EIA-standard 19-inch racks. Cisco R42612 Rack. See Cisco RP-Series Rack and Rack PDU specification for more details at

<http://www.cisco.com/c/dam/en/us/products/collateral/servers-unified-computing/r-series-racks/rack-pdu-specsheet.pdf>

PDU

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

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

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

The C-series servers accept the zero-rack-unit (ORU) or horizontal PDU. See Cisco RP-Series Rack and Rack PDU specification for more details at

<http://www.cisco.com/c/dam/en/us/products/collateral/servers-unified-computing/r-series-racks/rack-pdu-specsheet.pdf>

KVM CABLE

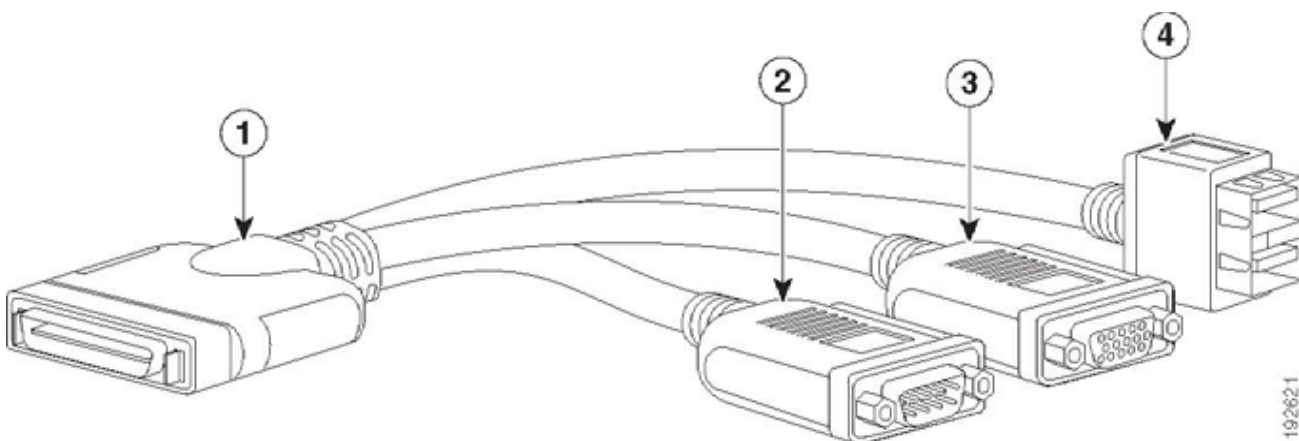
The KVM cable provides a connection into the server, providing a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on the server.

The KVM cable ordering information is listed in [Table 25](#).

Table 25 KVM Cable

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

Figure 9 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)

DISCONTINUED EOL PRODUCTS

Below is the list of parts were previously available for this product and are no longer sold. Please refer to the EOL Bulletin Links via the [Table 26](#) below to determine if still supported.

Table 26 EOL Products

EOS option PID	Description	EOL bulletin link
DRIVES		
HX-NVMEXP-I375	Cisco 2.5" 375GB Intel Optane NVMe Extreme Performance SSD	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-742509.html
HX-NVMELW-I500	Cisco 2.5" U.2 500GB Intel P4501 NVMe Med. Perf. Value Endurance	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-742509.html
HX-NVMEHW-I1000	1TB 2.5in U.2 Intel P4500 NVMe High Perf. Value Endurance	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-742823.html
HX-NVMEHW-I4000	4TB 2.5in U.2 Intel P4500 NVMe High Perf. Value Endurance	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-742823.html
CPU		
HX-CPU-I8280M	Intel 8280M 2.7GHz/205W 28C/38.50MB 3DX DDR4 2TB 2933 MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
HX-CPU-I8276M	Intel 8276M 2.2GHz/165W 28C/38.50MB 3DX DDR4 2TB 2933 MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
HX-CPU-I8260M	Intel 8260M 2.4GHz/165W 24C/35.75MB 3DX DDR4 2TB 2933 MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
HX-CPU-I6240M	Intel 6240M 2.6GHz/150W 18C/24.75MB 3DX DDR4 2TB 2933 MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
HX-CPU-I6238M	Intel 6238M 2.1GHz/140W 22C/30.25MB 3DX DDR4 2TB 2933 MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
HX-CPU-I5215M	Intel 5215M 2.5GHz/85W 10C/13.75MB 3DX DDR4 2TB 2666MHz	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743832.html
Host OS		
HX-VSP-ENT-D	Factory Installed - VMware vSphere6 Ent SW and Lic (2 CPU)	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/eos-eol-notice-c51-740304.html
HX-VSP-ENT-DL	Factory Installed - VMware vSphere6 Enterprise SW Download	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/eos-eol-notice-c51-740304.html

Microsoft Windows server

Table 26 EOL Products

EOS option PID	Description	EOL bulletin link
HX-16-ST16C	Windows Server 2016 Standard (16 Cores/2 VMs)	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-ST24C	Windows Server 2016 Standard (24 Cores/2 VMs)	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-ST16C-NS	Windows Server 2016 Standard (16 Cores/2 VMs) - No Cisco SVC	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-ST24C-NS	Windows Server 2016 Standard (24 Cores/2 VMs) - No Cisco SVC	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC16C	Windows Server 2016 Data Center (16 Cores/Unlimited VMs)	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC24C	Windows Server 2016 Data Center (24 Cores/Unlimited VMs)	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC16C-NS	Windows Server 2016 DC (16 Cores/Unlim VMs) - No Cisco SVC	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC24C-NS	Windows Server 2016 DC (24 Cores/Unlim VMs) - No Cisco SVC	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
OS Media		
HX-16-ST16C-RM	Windows Server 2016 Std (16 Cores/2 VMs) - Recovery Media	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-ST24C-RM	Windows Server 2016 Std (24 Cores/2 VMs) - Recovery Media	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC16C-RM	Windows Server 2016 DC (16 Cores/Unlim VMs) - Recovery Media	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html
HX-16-DC24C-RM	Windows Server 2016 DC (24 Cores/Unlim VMs) - Recovery Media	https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-c-series-rack-servers/eos-eol-notice-c51-743145.html

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 27 UCS HXAF220c M5 Dimensions and Weight

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

Power Specifications

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

- 1050 W (AC) power supply (see [Table 28](#)).
- 1050 W V2 (DC) power supply (see [Table 29](#))
- 1600 power supply (see [Table 30](#))

Table 28 UCS HXAF220c M5 1050 W (AC) Power Supply Specifications

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

Notes:

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

Table 29 UCS HXAF220c M5 1050 W (DC) Power Supply Specifications

Parameter	Specification
Input Connector	Molex 42820
Input Voltage Range (V rms)	-48
Maximum Allowable Input Voltage Range (V rms)	-40 to -72
Frequency Range (Hz)	NA

Table 29 UCS HXAF220c M5 1050 W (DC) Power Supply Specifications

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 30 UCS HXAF220c M5 1600 W 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			

Table 30 UCS HXAF220c M5 1600 W Power Supply Specifications

Minimum Ride-Through Time (ms) ³	12
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Notes:

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

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

<http://ucspowercalc.cisco.com>

Environmental Specifications

The environmental specifications for the HXAF220c M5 server are listed in [Table 31](#).

Table 31 HXAF220c M5 Environmental Specifications

Parameter	Minimum
Operating Temperature	10°C to 35°C (50°F to 95°F) with no direct sunlight Maximum allowable operating temperature de-rated 1°C/300 m (1°F/547 ft) above 950 m (3117 ft)
Extended Operating Temperature	5°C to 40°C (41°F to 104°F) with no direct sunlight Maximum allowable operating temperature de-rated 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 de-rated 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 40C is limited to less than 1% of annual operating hours. Hardware configuration limits apply to extended operating temperature range.
Non-Operating Temperature	-40°C to 65°C (-40°F to 149°F) Maximum rate of change (operating and non-operating) 20°C/hr (36°F/hr)
Operating Relative Humidity	8% to 90% and 24°C (75°F) maximum dew-point temperature, non-condensing environment
Non-Operating Relative Humidity	5% to 95% and 33°C (91°F) maximum dew-point temperature, non-condensing environment
Operating Altitude	0 m to 3050 m {10,000 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 32 Cisco HXAF220c M5 Extended Operating Temperature Hardware Configuration Limits

Platform ¹	ASHRAE A3 (5°C to 40°C) ²	ASHRAE A4 (5°C to 45°C) ³
Processors:	155W+	155W+ and 105W+ (4 or 6 Cores)
Memory:	LRDIMMs	LRDIMMs
Storage:	M.2 SATA SSDs	M.2 SATA SSDs
	NVMe SSDs	NVMe SSDs
Peripherals:	PCIe NVMe SSDs	MRAID
	GPUs	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 C-Series servers are listed in [Table 33](#).

Table 33 UCS C-Series Regulatory Compliance Requirements

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



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