# Cisco HyperFlex HX240C 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**

# CONTENTS

# OVERVIEW

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

The Cisco HyperFlex HX240C M6 All NVMe/All Flash/Hybrid Server Nodes extends the capabilities of Cisco's HyperFlex portfolio in a 2U form factor with the addition of the 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake), 16 DIMM slots per CPU for 3200-MHz DDR4 DIMMs with DIMM capacity points up to 256 GB. The maximum memory capacity for 2 CPUs is listed here:

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

There are three servers to choose from:

- **HXAF240C-M6SN (All NVMe)** (see *Figure 1 on page 6*):
    - Up to 24 front NVMe (only) drives.
    - I/O centric option provides up to 6 PCIe slots using two rear risers.
    - Storage-centric option provides 3 PCIe slots using slots in one of the rear risers and up to 2 rear drives.

- **HXAF240C-M6SX (All Flash)** (see *Figure 1 on page 7*):
    - Up to 24 front SFF SAS/SATA SSDs and NVMe caching drive.
    - I/O centric option provides up to 8 PCIe slots using all three rear risers.
    - Storage-centric option provides 3 PCIe slots using slots in one of the rear risers and two rear risers with a total of up to 4 SFF drives.

- **HX240C-M6SX (Hybrid)** (see *Figure 1 on page 7*):
    - Up to 24 front SFF SAS/SATA HDDs and SSDs
    - I/O centric option provides up to 8 PCIe slots using all three rear risers
    - Storage-centric option provides 3 PCIe slots using slots in one of the rear risers and two rear risers with a total of up to 4 SFF drives

The server provides one or two internal slots (depending on the server type) for the following:

■ Two slots for Cisco 12G SAS pass-through HBAs. Each HBA controls up to 16 SAS/SATA drives

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

The HyperFlex HX240C 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.

Deployment Options

Starting with HyperFlex 4.5(2a) the following 2 deployment options are supported:

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

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

See *Figure 1 on page 6* for front and rear views of all the configurations of the HyperFlex HX240C M6 All NVMe/All Flash/Hybrid Server Nodes.

**Figure 1      Cisco HX240C M6 All NVMe/All Flash/Hybrid Server Nodes**

**HXAF240C-M6SN (All NVMe)**
**24 front drives are all NVMe (only) drives optionally 2 NVMe rear drives**

Front View (see *Figure 2 on page 8* for details)



Rear View (all slots shown unpopulated - see *Figure 3 on page 9* for details)
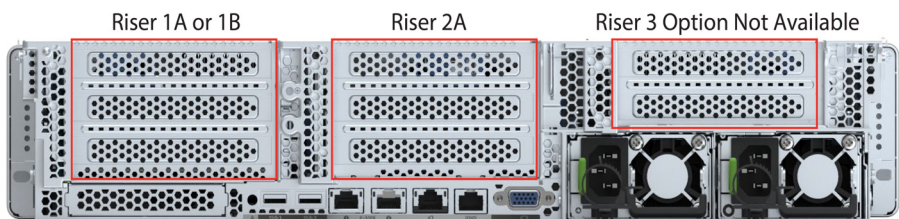
**Figure 1    Cisco HX240C M6 All NVMe/All Flash/Hybrid Server Nodes**

**HXAF240C-M6SX (All Flash)**

**24 Front drives are SAS/SATA/NVMe and optionally 4 SAS/SATA/NVMe rear drives**

Front View (see *Figure 4 on page 11* for details)



Rear View (all slots shown unpopulated - see *Figure 5 on page 12* for details)
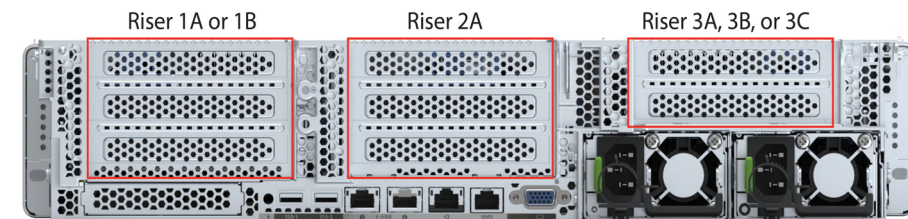


**HX240C-M6SX (Hybrid)**

**24 Front drives are SAS/SATA HDDS & SSDs and optionally 4 SAS/SATA rear drives**

Front View (see *Figure 6 on page 15* for details)



Rear View (all slots shown unpopulated - see *Figure 7 on page 16* for details)
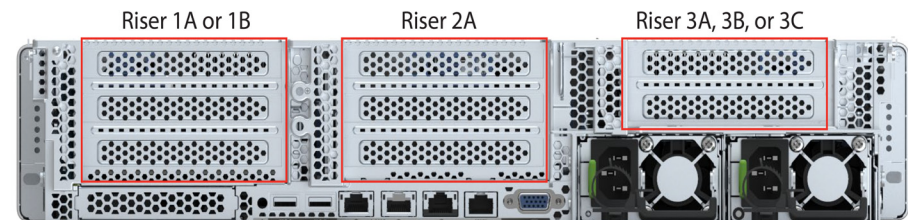
# DETAILED VIEWS

## Chassis Front View - HXAF240C-M6SN (All NVMe)

*Figure 2* shows the front View of the HXAF240C-M6SN (All NVMe) Server configured with 24 SFF NVMe front drives and optionally two rear capacity drives. The drives are all NVMe drives.

**Figure 2**    **Chassis Front View: HXAF240C-M6SN (All NVMe)**
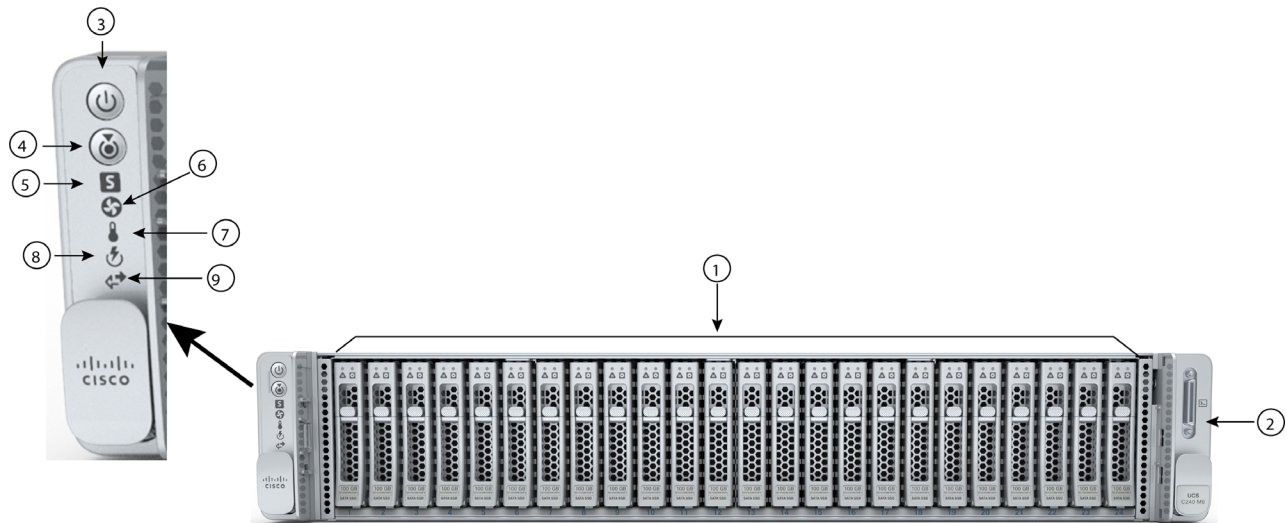


| 1 | Drive bays 1 – 24 support NVMe PCIe drives (only)[1] | 6 | Fan status LED |
|---|---|---|---|
| 2 | KVM connector<br><br>(used with KVM cable that provides two USB 2.0, one VGA, and one serial connector) | 7 | Temperature status LED |
| 3 | Power button/Power status LED | 8 | Power supply status LED |
| 4 | Unit Identification button/LED | 9 | Network link activity LED |
| 5 | System status LED | - | - |

**Notes:**

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

# Chassis Rear View - HXAF240C-M6SN (All NVMe)

*Figure 3* shows the external features of the rear panel. The I/O centric version shows all PCIe slots (two slots are not supported). The storage centric version shows a combination of PCIe risers and storage bays.

**Figure 3        Chassis Rear View: HXAF240C-M6SN (All NVMe)**

| 1 | There are two Riser 1 options: | 7 | COM port (RJ45 connector) |
|---|---|---|---|
| | Riser 1A (I/O centric, CPU1 control) | | |
| | ■ Supports three PCIe slots: | | |
| | • Slot 1 is full-height, 3/4 length, x8, NCSI | | |
| | • Slot 2 is full-height, full-length, x16, NCSI | | |
| | • Slot 3 is full-height, full-length, x8, no NCSI | | |
| | Riser 1B (storage-centric, CPU1 control) | | |
| | ■ Supports two NVMe drives | | |
| | • Slot 1 is reserved | | |
| | • Slot 2 (drive bay 102), x4 (CPU1 control) | | |
| | • Slot 3 (drive bay 101), x4 (CPU1 control) | | |
| | See *Riser Card Configuration and Options, page 87* for details. | | |
| 2 | Riser 2A (always I/O centric, CPU2 control) | 8 | 1 GbE dedicated Ethernet management port |
| | ■ Supports three PCIe slots: | | |
| | • Slot 4 is full-height, 3/4 length, x8 | | |
| | • Slot 5 is full-height, full-length, x16 | | |
| | • Slot 6 is full-height, full length, x8 | | |
| | See *Riser Card Configuration and Options, page 87* for details. | | |
| 3 | Riser 3A, 3B, and 3C | 9 -10 | Dual 1/10 GbE Ethernet ports (LAN1, LAN2) |
| | ■ Not supported | | LAN1 is left connector, |
| | | | LAN2 is right connector |
| 4 | Modular LAN-on-motherboard (mLOM) card slot (x16) | 11 | USB 3.0 ports (two) |
| 5 | System ID pushbutton/LED | 12 | Power supplies (two) |
| 6 | VGA display port (DB15 connector) | - | - |

**NOTE:** For GPU support on a particular riser slot, see *Table 20 on page 55*

# Chassis Front View - HXAF240C-M6SX (All Flash)

*Figure 4* shows the front View of the HXAF240C-M6SX (All Flash) Server configured with 24 front drives.

**Figure 4     Chassis Front View: HXAF240C-M6SX (All Flash)**
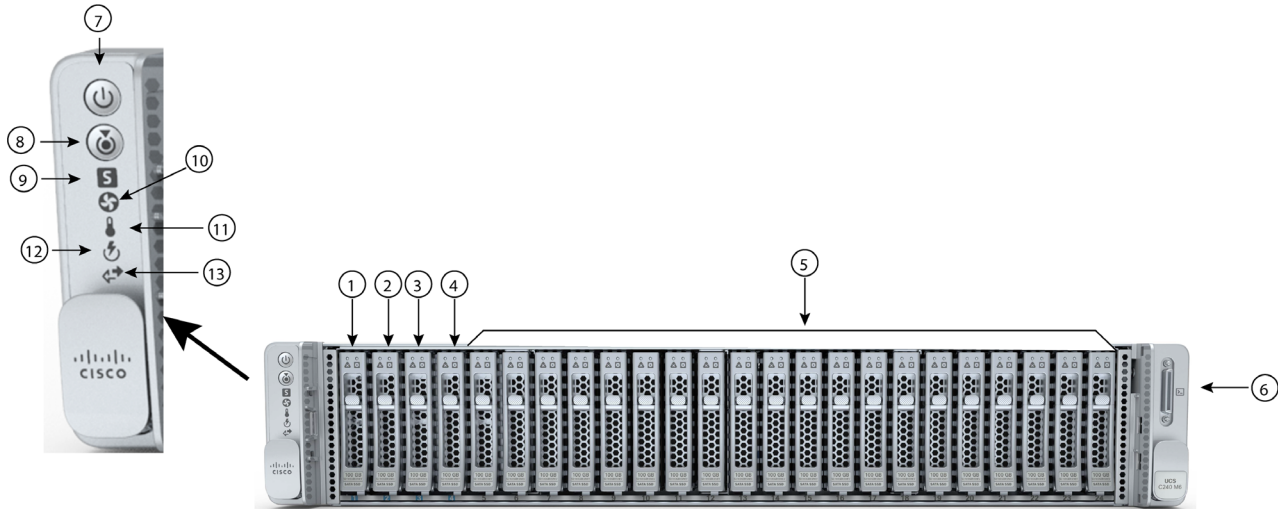


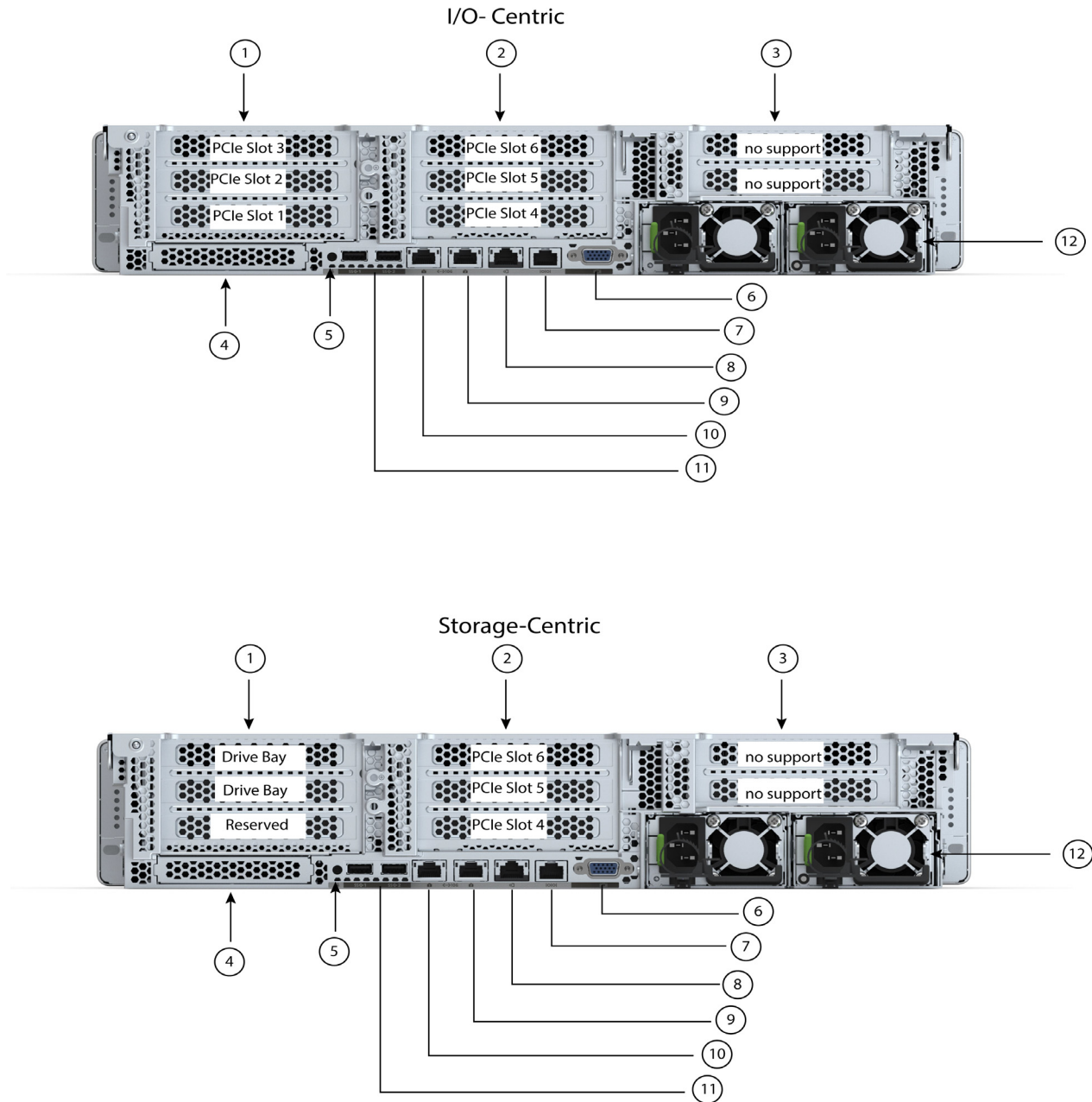| | | | |
|---|---|---|---|
| **1 - 4** | Drive bays 1 – 4 support SAS/SATA solid state drives (SSDs) as well as NVMe PCIe drives[1] | **9** | System status LED |
| **5** | Drive bays 5 - 24 support SAS/SATA solid state drives (SSDs) only | **10** | Fan status LED |
| **6** | KVM connector (used with KVM cable that provides two USB 2.0, one VGA, and one serial connector) | **11** | Temperature status LED |
| **7** | Power button/Power status LED | **12** | Power supply status LED |
| **8** | Unit Identification button/LED | **13** | Network link activity LED |

**Notes:**

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

# Chassis Rear View - HXAF240C-M6SX (All Flash)

*Figure 5* shows the external features of the rear panel. The I/O centric version shows all PCIe slots. The storage centric version shows a combination of PCIe risers and storage bays.

**Figure 5     Chassis Rear View: HXAF240C-M6SX (All Flash)**

| 1 | There are two Riser 1 options:<br><br>Riser 1A (I/O centric, CPU1 control)<br><br>■ Supports three PCIe slots:<br><br>   • Slot 1 is full-height, 3/4 length, x8, NCSI<br><br>   • Slot 2 is full-height, full-length, x16, NCSI<br><br>   • Slot 3 is full-height, full-length, x8, no NCSI<br><br>Riser 1B (storage-centric, CPU1 control)<br><br>■ Supports two SFF drives (SAS/SATA/NVMe)<br><br>   • Slot 1 is reserved<br><br>   • Slot 2 (drive bay 102), x4 (CPU1 control)<br><br>   • Slot 3 (drive bay 101), x4 (CPU1 control)<br><br>   • When using a hardware drive controller card (SAS HBA) in the server, SAS/SATA SSDs or NVMe PCIe SSDs are supported in the rear bays.<br><br>See *Riser Card Configuration and Options, page 87* for details. | 7 | COM port (RJ45 connector) |
| 2 | Riser 2A (always I/O centric, CPU2 control)<br><br>■ Supports three PCIe slots:<br><br>   • Slot 4 is full-height, 3/4 length, x8<br><br>   • Slot 5 is full-height, full-length, x16<br><br>   • Slot 6 is full-height, full length, x8<br><br>See *Riser Card Configuration and Options, page 87* for details. | 8 | 1 GbE dedicated Ethernet management port |
| 3 | There are three Riser 3 options:<br><br>Riser 3A (I/O centric, CPU2 control)<br><br>■ Supports two PCIe slots:<br><br>   • Slot 7 is full-height, full-length, x8, no NCSI<br><br>   • Slot 8 is full-height, full-length, x8, no NCSI<br><br>Riser 3B (storage-centric, CPU2 control)<br><br>■ Supports two SFF drives (SAS/SATA/NVMe)<br><br>   • Slot 7 (drive bay 104), x4<br><br>   • Slot 8 (drive bay 103), x4<br><br>   • When using a hardware drive controller card (SAS HBA) in the server, SAS/SATA SSDs or NVMe PCIe drives are supported in the rear bays.<br><br>Riser 3C (for GPU, CPU2 control)<br><br>■ Supports one full-height, full-length, double-wide GPU (PCIe slot 7 only), x16<br><br>■ Slot 8 is blocked by double-wide GPU<br><br>See *Riser Card Configuration and Options, page 87* for details. | 9 -10 | Dual 1/10 GbE Ethernet ports (LAN1, LAN2)<br><br>LAN1 is left connector,<br><br>LAN2 is right connector |
| 4 | Modular LAN-on-motherboard (mLOM) card slot (x16) | 11 | USB 3.0 ports (two) |

| 5 | System ID pushbutton/LED | 12 | Power supplies (two) |
|---|---|---|---|
| 6 | VGA display port (DB15 connector) | - | - |

> **NOTE:** For GPU support on a particular riser slot, see *Table 20 on page 55*

# Chassis Front View - HX240C-M6SX (Hybrid)

*Figure 4* shows the front View of the HX240C-M6SX (Hybrid) Server Node configured with 24 front drives and optionally 4 SAS/SATA rear drives.

**Figure 6**     **Chassis Front View: HX240C-M6SX (Hybrid)**
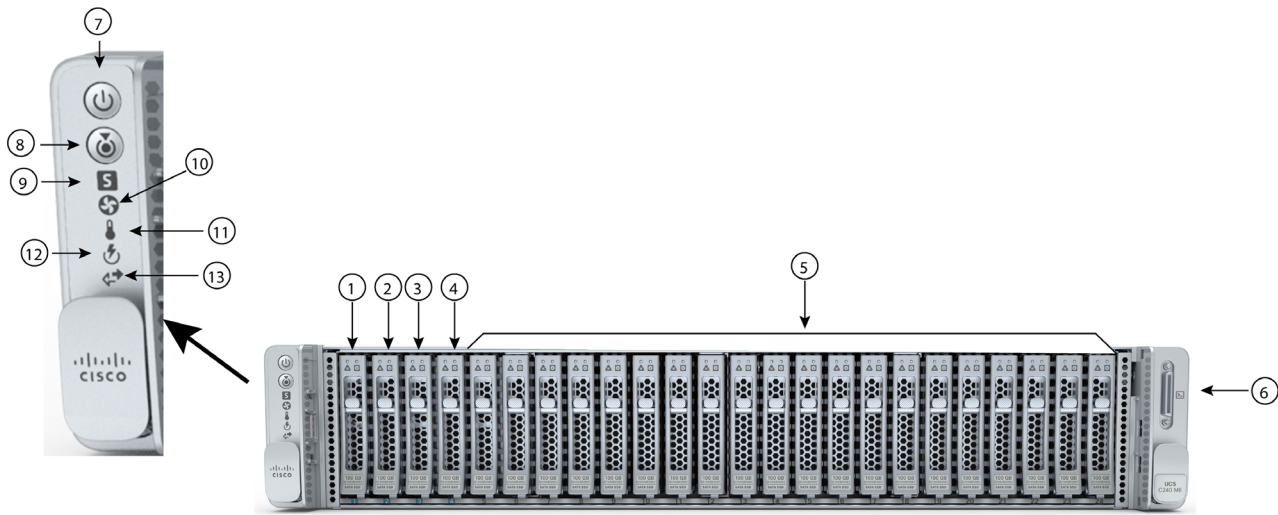


| 1 - 4 | Drive bays 1 – 4 support SAS/SATA hard drives (HDDs) and solid state drives (SSDs) | 9 | System status LED |
|---|---|---|---|
| 5 | Drive bays 5 - 24 support SAS/SATA hard drives (HDDs) only | 10 | Fan status LED |
| 6 | KVM connector<br><br>(used with KVM cable that provides two USB 2.0, one VGA, and one serial connector) | 11 | Temperature status LED |
| 7 | Power button/Power status LED | 12 | Power supply status LED |
| 8 | Unit Identification button/LED | 13 | Network link activity LED |

## Chassis Rear View - HX240C-M6SX (Hybrid)

*Figure 5* shows the external features of the rear panel. The I/O centric version shows all PCIe slots. The storage centric version shows a combination of PCIe risers and storage bays.

**Figure 7**      **Chassis Rear View: HX240C-M6SX (Hybrid)**

| 1 | There are two Riser 1 options:<br><br>Riser 1A (I/O centric, CPU1 control)<br><br>■ Supports three PCIe slots:<br><br>• Slot 1 is full-height, 3/4 length, x8, NCSI<br><br>• Slot 2 is full-height, full-length, x16, NCSI<br><br>• Slot 3 is full-height, full-length, x8, no NCSI<br><br>Riser 1B (storage-centric, CPU1 control)<br><br>■ Supports two SFF drives (SAS/SATA)<br><br>• Slot 1 is reserved<br><br>• Slot 2 (drive bay 102), x4 (CPU1 control)<br><br>• Slot 3 (drive bay 101), x4 (CPU1 control)<br><br>• When using a hardware drive controller card (SAS HBA) in the server, SAS/SATA HDDs or SSDs or PCIe drives are supported in the rear bays.<br><br>See *Riser Card Configuration and Options, page 87* for details. | 7 | COM port (RJ45 connector) |
| 2 | Riser 2A (always I/O centric, CPU2 control)<br><br>■ Supports three PCIe slots:<br><br>• Slot 4 is full-height, 3/4 length, x8<br><br>• Slot 5 is full-height, full-length, x16<br><br>• Slot 6 is full-height, full length, x8<br><br>See *Riser Card Configuration and Options, page 87* for details. | 8 | 1 GbE dedicated Ethernet management port |

| 3 | There are three Riser 3 options | 9 -10 | Dual 1/10 GbE Ethernet ports (LAN1, LAN2) |
|---|---|---|---|
| | Riser 3A (I/O centric, CPU2 control) | | |
| | ■ Supports two PCIe slots: | | LAN1 is left connector, |
| |    • Slot 7 is full-height, full-length, x8, no NCSI | | LAN2 is right connector |
| |    • Slot 8 is full-height, full-length, x8, no NCSI | | |
| | Riser 3B (storage-centric, CPU2 control) | | |
| | ■ Supports two SFF drives (SAS/SATA) | | |
| |    • Slot 7 (drive bay 104), x4 | | |
| |    • Slot 8 (drive bay 103), x4 | | |
| |    • When using a hardware drive controller card (SAS HBA) in the server, SAS/SATA HDDs or SSDs or PCIe drives are supported in the rear bays. | | |
| | Riser 3C (for GPU, CPU2 control) | | |
| | ■ Supports one full-height, full-length, double-wide GPU (PCIe slot 7 only), x16 | | |
| | ■ Slot 8 is blocked by double-wide GPU | | |
| | See *Riser Card Configuration and Options, page 87* for details. | | |
| 4 | Modular LAN-on-motherboard (mLOM) card slot (x16) | 11 | USB 3.0 ports (two) |
| 5 | System ID pushbutton/LED | 12 | Power supplies (two) |
| 6 | VGA display port (DB15 connector) | - | - |

**NOTE:**  For GPU support on a particular riser slot, see *Table 20 on page 55*

# BASE SERVER NODE STANDARD CAPABILITIES and FEATURES

*Table 1* lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER, page 23*.

**Table 1   Capabilities and Features**

| Capability/ Feature | Description |
|---|---|
| Chassis | Two rack unit (2RU) 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 (LRDIMMs) and support for Intel® Optane™ Persistent Memory Modules (PMem) |
| 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:<br><br>■ Integrated 2D graphics core with hardware acceleration<br><br>■ Embedded DDR memory interface supports up to 512 MB of addressable memory (8 MB is allocated by default to video memory)<br><br>■ Supports display resolutions up to 1920 x 1200 16bpp @ 60Hz<br><br>■ High-speed integrated 24-bit RAMDAC<br><br>■ Single lane PCI-Express host interface running at Gen 1 speed |
| Power subsystem | Up to two of the following hot-swappable power supplies:<br><br>■ 1050 W (AC)<br><br>■ 1050 W (DC)<br><br>■ 1600 W (AC)<br><br>■ 2300 W (AC)<br><br>One power supply is mandatory; one more can be added for 1 + 1 redundancy. |
| Front Panel | A front panel controller provides status indications and control buttons. |
| ACPI | This server supports the advanced configuration and power interface (ACPI) 6.2 standard. |
| Fans | Six hot-swappable fans for front-to-rear cooling |

| Capability/ Feature | Description |
|---|---|
| Expansion slots | ■ Riser 1A (3 PCIe slots)<br><br>■ Riser 1B (2 drive bays)<br><br>■ Riser 2A (3 PCIe slots)<br><br>■ Riser 3A (2 PCIe slots)<br><br>■ Riser 3B (2 drive bays)<br><br>■ Riser 3C (1 full-length, double-wide GPU)<br><br>**Note:** Not all risers are available in every server configuration option.<br><br>For more details on the variations of riser 1, riser 2, and riser 3, see *Riser Card Configuration and Options, page 87*. |
| Interfaces | ■ Rear panel<br><br>  • One 1Gbase-T RJ-45 management port<br><br>  • Two 10Gbase-T LOM ports<br><br>  • One RS-232 serial port (RJ45 connector)<br><br>  • One DB15 VGA connector<br><br>  • Two USB 3.0 port connectors<br><br>  • One flexible modular LAN on motherboard (mLOM) slot that can accommodate various interface cards<br><br>■ Front panel<br><br>  • One KVM console connector (supplies two USB 2.0 connectors, one VGA DB15 video connector, and one serial port (RS232) RJ45 connector) |

| Capability/<br>Feature | Description |
|---|---|
| Internal<br>storage devices | <u>Drive storage:</u><br><br>The server is orderable in three different server node:<br><br>**HXAF240C-M6SN (All NVMe):**<br>■ Up to 24 SFF NVMe PCIe solid state drives (SSDs) only. 24 Drives are used as below:<br> • Six to twenty-two NVMe SSD (for capacity)<br> • One NVMe SSD (for caching)<br> • One NVMe SSD (system drive for HXDP operations)<br>■ Up to 2 rear NVMe solid state drives (SSDs) only (Optional)<br>**NOTE:** Two CPUs are required when choosing NVMe SSDs.<br><br>**HXAF240C-M6SX (All Flash):**<br>■ Up to 24 front SFF SAS/SATA/NVMe solid state drives (SSDs). 24 Drives are used as below:<br> • Six to twenty-two SAS/SATA SSD **or** six to twenty-two **SED** SAS/SATA SSD (for capacity)<br> • One NVMe SSD **or** one SAS/SATA SSD **or** one **SED** SAS/SATA SSD (for caching)<br> • One SAS/SATA SSD (system drive for HXDP operations)<br>■ Up to 4 SFF rear-facing SAS/SATA/NVMe drives (Optional)<br><br>**HX240C-M6SX (Hybrid):**<br>■ Up to 24 front SFF hard drives (HDDs) **and** solid state drives (SSDs). 24 Drives are used as below:<br> • Six to twenty-two SAS HDD **or** six to twenty-two **SED** SAS HDD (for capacity)<br> • One SAS/SATA SSD **or** one **SED** SAS/SATA SSD (for caching)<br> • One SAS/SATA SSD (system drive for HXDP operations)<br>■ Up to 4 SFF rear-facing SAS/SATA drives (Optional)<br><br><u>Other storage:</u><br>■ A mini-storage module connector on the motherboard supports a boot-optimized RAID controller carrier that holds two SATA M.2 SSDs. Mixing different capacity SATA M.2 SSDs is not supported. |
| Integrated<br>management<br>processor | Baseboard Management Controller (BMC) running Cisco Integrated Management Controller (CIMC) firmware.<br><br>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).<br><br>CIMC manages certain components within the server, such as the Cisco 12G SAS HBA. |

| Capability/ Feature | Description |
|---|---|
| Storage controllers | One or two 12G SAS HBAs plug into a dedicated slot.<br><br>■ Cisco M6 12G SAS HBA (for Hybrid and All Flash servers):<br><br>    • No RAID support<br><br>    • JBOD/Pass-through Mode support<br><br>    • Each HBA supports up to 16 SAS/SATA internal drives |
| Modular LAN on Motherboard (mLOM) slot | The dedicated mLOM slot on the motherboard can flexibly accommodate the following cards:<br><br>■ 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.

# CONFIGURING the SERVER

Follow these steps to configure the Cisco HyperFlex HX240C M6 All NVMe/All Flash/Hybrid Server Nodes:

## STEP 1    VERIFY SERVER SKU

**Table 2   PID of Major Line Bundle (MLB)**

| Product ID (PID) | Description |
|---|---|
| HX-M6-MLB | HX/HXAF/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. |

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

**Table 3   PID of the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes**

| Product ID (PID) | Description |
|---|---|
| HXAF240C-M6SN[1] (All NVMe) | Cisco HyperFlex HX240 All NVMe server has Small form-factor (SFF) drives, with 24-drive backplane. <br>■ Front-loading drive bays 1—24 support 2.5-inch NVMe (only) drives. <br>■ No CPU, memory, drives, PCIe cards, or power supply included |
| HXAF240C-M6SX[1] (All Flash) | Cisco HyperFlex HX240 All Flash server has Small form-factor (SFF) drives, with 24-drive backplane. <br>■ Front-loading drive bays 1—24 support 2.5-inch SAS/SATA drives. <br>■ Optionally, front-loading drive bays 1, 2, 3, and 4 support 2.5-inch NVMe SSDs. <br>■ Optionally, 4 rear facing SAS/SATA/NVMe drives <br>■ No CPU, memory, drives, PCIe cards, or power supply included |
| HX240C-M6SX[1] (Hybrid) | Cisco HyperFlex HX240 Hybrid has Small form-factor (SFF) drives, with 24-drive backplane. <br>■ Front-loading drive bays 1—24 support 2.5-inch SAS/SATA drives. <br>■ Optionally, 4 rear facing SAS/SATA drives <br>■ No CPU, memory, drives, PCIe cards, or power supply included |

**Notes:**

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

The Cisco HyperFlex HX240C M6 All NVMe, All Flash and Hybrid server nodes:

■ Includes 24 drive backplane.

■ Does not include power supply, CPU, memory (DIMMs or PMem), hard disk drives (HDDs), solid-state drives (SSDs), NVMe drives, SD cards, riser 1, riser 2, riser 3, tool-less rail kit, or PCIe cards.

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

## STEP 2 SELECT DEPLOYMENT MODE (OPTIONAL)

Starting with HyperFlex 4.5(2a), the following 2 deployment options are supported

**Select deployment mode**

The available deployment modes are listed in *Table 4*

**Table 4   Deployment Modes**

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

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

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

Note the following apply:

— No support for SED drives

— No hyper-V support

— No support for PMem

— No support for Additional PCIe Cisco VIC

— No support for stretch cluster

— No support for Application acceleration engine

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

**NOTE:**

■ HX Data Center without Fabric Interconnect (DC-no-FI) All NVMe - HXAF240C-M6SN require HXDP 5.0(1b) or higher.

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

# STEP 3  SELECT RISER CARDS (REQUIRED)

Select risers from *Table 5*.

**Table 5  PIDs of the Risers**

| Product ID (PID) | Description |
|---|---|
| HX-RIS1A-240M6 (default riser) | C240 M6 Riser1A (controlled with CPU1)<br>■ PCIe Slot 1 (bottom slot): full height, 3/4 length, x8, NCSI<br>■ PCIe Slot 2 (middle slot): full height, full length (GPU Card), x16, NCSI<br>■ PCIe Slot 3 (top slot): full height, full length, x8 |
| HX-RIS1B-240M6 (storage riser) | C240 M6 Riser1B (controlled with CPU1)<br>■ Slot 1 is reserved<br>■ Slot 2 (middle slot, 2.5" drive bay 102), x4<br>■ Slot 3 (top slot, 2.5" drive bay 101), x4 |
| UCSC-RIS2A-240M6 (default riser) | C240 M6 Riser2A (controlled with CPU2)<br>■ Slot 4 (bottom slot): full height, 3/4 length, x8, NCSI<br>■ Slot 5 (middle slot): full height, full length (GPU Card), x16, NCSI<br>■ Slot 6 (top slot): full height, full length, x8 |
| HX-RIS3A-240M6 (default riser) | C240 M6 Riser3A (controlled with CPU2)<br>■ Slot 7 (bottom slot): full height, full length, x8<br>■ Slot 8 (top slot): full height, full length, x8 |
| HX-RIS3B-240M6 (storage riser) | C240 M6 Riser 3B (controlled with CPU2)<br>■ Slot 7 (bottom slot, 2.5" drive bay 104), x4<br>■ Slot 8 (top slot, 2.5" drive bay 103), x4 |
| HX-RIS3C-240M6 (GPU riser) | C240 M6 Riser 3C (controlled with CPU2)<br>■ Slot 7 supports one full-height, full-length, double-wide GPU (PCIe slot 7 only), x16<br>■ Slot 8 blocked by double-wide GPU |

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

For additional details, see *Riser Card Configuration and Options, page 87*.

## STEP 4    SELECT CPU(s)

The standard CPU features are:

- 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)
- Intel® C621A series chipset
- Cache size of up to 60 MB
- Up to 40 cores

**Select CPUs**

The available CPUs are listed in *Table 6*

**Table 6    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] | Support HyperFlex Boost Mode | | Support PMem |
|---|---|---|---|---|---|---|---|---|---|
| **8000 Series Processors** | | | | | | | All Flash | All NVMe | |
| HX-CPU-I8380 | 2.3 | 270 | 60 | 40 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8368 | 2.4 | 270 | 57 | 38 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8362 | 2.8 | 265 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8360Y | 2.4 | 250 | 54 | 36 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8358P | 2.6 | 240 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8358 | 2.6 | 250 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8352Y | 2.2 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8352V | 2.1 | 195 | 54 | 36 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I8352M | 2.3 | 185 | 48 | 32 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I8352S | 2.2 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I8351N[3] | 2.4 | 225 | 54 | 36 | 0 | 2933 | Yes | Yes | Yes |
| **6000 Series Processors** | | | | | | | | | |
| HX-CPU-I6354 | 3.0 | 205 | 39 | 18 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6348 | 2.6 | 235 | 42 | 28 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6346 | 3.1 | 205 | 36 | 16 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6342 | 2.8 | 230 | 36 | 24 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6338N | 2.2 | 185 | 48 | 32 | 3 at 11.2 | 2666 | Yes | Yes | Yes |
| HX-CPU-I6338T | 2.1 | 165 | 36 | 24 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6338 | 2.0 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6336Y | 2.4 | 185 | 36 | 24 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6334 | 3.6 | 165 | 18 | 8 | 3 at 11.2 | 3200 | No | No | Yes |
| HX-CPU-I6330N | 2.2 | 165 | 42 | 28 | 3 at 11.2 | 2666 | Yes | Yes | Yes |
| HX-CPU-I6330 | 2.0 | 205 | 42 | 28 | 3 at 11.2 | 2933 | Yes | Yes | Yes |

**Table 6   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] | Support HyperFlex Boost Mode | | Support PMem |
|---|---|---|---|---|---|---|---|---|---|
| HX-CPU-I6326 | 2.9 | 185 | 24 | 16 | 3 at 11.2 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6314U[4] | 2.3 | 205 | 48 | 32 | 0 | 3200 | Yes | Yes | Yes |
| HX-CPU-I6312U[5] | 2.4 | 185 | 36 | 24 | 0 | 3200 | Yes | Yes | Yes |
| **5000 Series Processors** | | | | | | | | | |
| HX-CPU-I5320T | 2.3 | 150 | 30 | 20 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I5320 | 2.2 | 185 | 39 | 26 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I5318N | 2.1 | 150 | 36 | 24 | 3 at 11.2 | 2666 | Yes | Yes | Yes |
| HX-CPU-I5318S | 2.1 | 165 | 36 | 24 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I5318Y | 2.1 | 165 | 36 | 24 | 3 at 11.2 | 2933 | Yes | Yes | Yes |
| HX-CPU-I5317 | 3.0 | 150 | 18 | 12 | 3 at 11.2 | 2933 | Yes | No | Yes |
| HX-CPU-I5315Y | 3.2 | 140 | 12 | 8 | 3 at 11.2 | 2933 | No | No | Yes |
| **4000 Series Processors** | | | | | | | | | |
| HX-CPU-I4316 | 2.3 | 150 | 30 | 20 | 2 at 10.4 | 2666 | Yes | Yes | No |
| HX-CPU-I4314 | 2.4 | 135 | 24 | 16 | 2 at 10.4 | 2666 | Yes | Yes | Yes |
| HX-CPU-I4310T | 2.3 | 105 | 15 | 10 | 2 at 10.4 | 2666 | No | No | No |
| HX-CPU-I4310 | 2.1 | 120 | 18 | 12 | 2 at 10.4 | 2666 | Yes | No | No |
| HX-CPU-I4309Y | 2.8 | 105 | 12 | 8 | 2 at 10.4 | 2666 | No | No | No |

**Notes:**

1. UPI = Ultra Path Interconnect.
2. If higher or lower speed DIMMs are selected than what is shown in *Table 8 on page 33* for a given CPU speed, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.
3. The maximum number of HX-CPU-I8351N CPUs is one
4. The maximum number of HX-CPU-I6314U CPUs is one
5. The maximum number of HX-CPU-I6312U CPUs is one

**CAUTION:  For systems configured with 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake) operating above 28º C [82.4º 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).**

**If an NVIDIA A10 or A100 GPU is installed or rear HDDs are installed, the 28º C [82.4º F] restriction changes to 25º C [77º F]**

**Table 7   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. |

**Supported Configurations**

**(1) DIMM only configurations:**

- Select one or two identical CPUs listed in *Table 6 Available CPUs, page 27*

**(2) DIMM/PMem Mixed Configurations:**

- You must select two identical CPUs listed in *Table 6 Available CPUs, page 27*

> **NOTE:** Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support **Intel® Optane™ Persistent Memory (PMem).** Refer to *STEP 2* for the details

**(3) Configurations with NVMe PCIe drives (either all NVMe drives or mixed NVMe/SAS/SATA):**

- You must select two identical CPUs listed in *Table 6 Available CPUs, page 27*

**(4) One-CPU Configuration:**

- Choose one CPU from any one of the rows of *Table 6 Available CPUs, page 27*
- HX DC supports single socket configuration
- HX DC supports single socket for 12 core and above

> **NOTE:** **HXAF240C-M6SN (All NVMe)** server node does not support One-CPU Configuration.

**(5) Two-CPU Configuration:**

- Choose two identical CPUs from any one of the rows of *Table 6 Available CPUs, page 27*

> **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.

**(6) For the HXAF240C-M6SN (All NVMe) server node:**

- You must select two identical CPUs listed in *Table 6 Available CPUs, page 27*.
- Dual socket is required with All NVMe server

**Caveats**

- The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:
    - *STEP 5 SELECT MEMORY, page 32*
    - *STEP 6 SELECT DRIVE CONTROLLERS, page 38*
    - *STEP 7 SELECT DRIVES, page 39*
    - *STEP 8 SELECT HYPERFLEX CONNECTIVITY MODE, page 48*

# STEP 5   SELECT MEMORY

The available memory main characteristics for the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes are as follows:

- Clock speed: 3200 MHz

- Ranks per DIMM: 1, 2, 4, or 8

- Operational voltage: 1.2 V

- Registered ECC DDR4 DIMMS (RDIMMs), Load-reduced DIMMs (LRDIMMs), or Intel® Optane™ Persistent Memory Modules (PMem).

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

**Figure 8**      **HX240C 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 per CPU)
8 TB maximum memory (with 256 GB DIMMs)
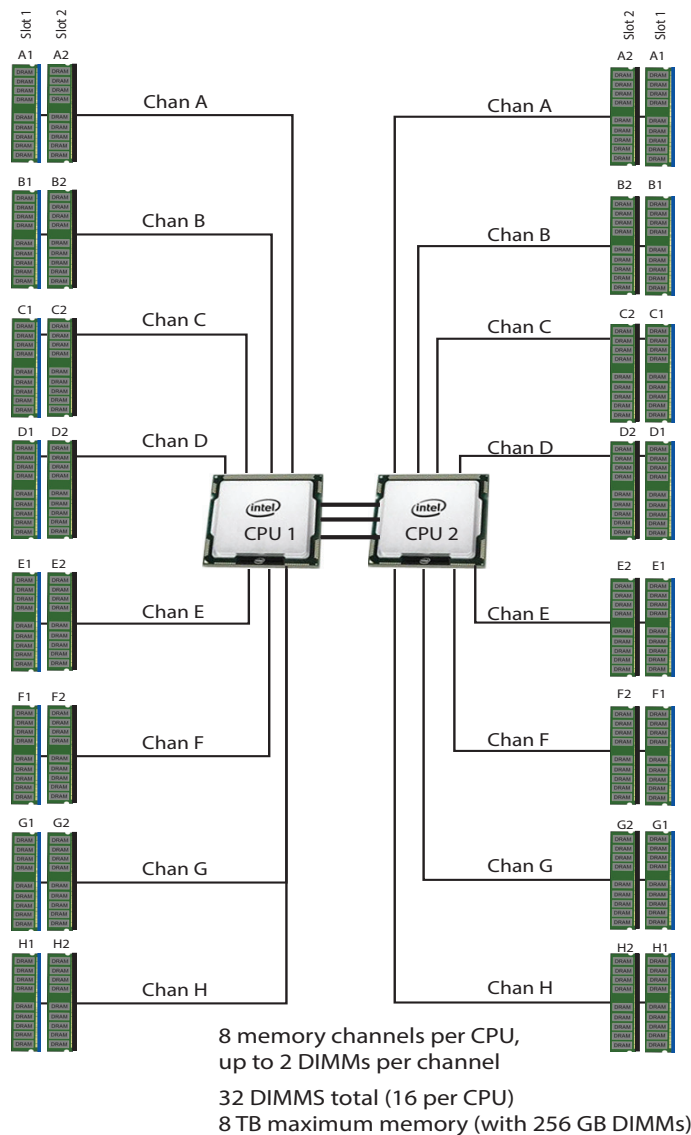
### Select DIMMs and PMem

The available memory DIMMs, PMem and Memory Mode option are listed in *Table 8*.

**Table 8  Available DDR4 DIMMs and PMem**

| Product ID (PID) | PID Description | Voltage | Ranks /DIMM |
|---|---|---|---|
| **3200-MHz DIMMs** | | | |
| HX-MR-X16G1RW | 16 GB RDIMM SRx4 3200 (8Gb) | 1.2 V | 1 |
| HX-MR-X32G1RW | 32 GB RDIMM SRx4 3200 (16Gb) | 1.2 V | 1 |
| HX-MR-X32G2RW | 32 GB RDIMM DRx4 3200 (8Gb) | 1.2 V | 2 |
| HX-MR-X64G2RW | 64 GB RDIMM DRx4 3200 (16Gb) | 1.2 V | 2 |
| HX-ML-128G4RW | 128 GB LRDIMM QRx4 3200 (16Gb) (non 3DS) | 1.2 V | 4 |
| HX-ML-256G8RW[1,2] | 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[3]** | | | |
| UCS-DIMM-BLK | UCS DIMM Blank | | |
| **Intel® Optane™ Persistent Memory (PMem) Operational Modes** | | | |
| HX-DCPMM-AD[4] | Intel Optane DC Persistent Memory Operational Mode - App Di | | |
| HX-DCPMM-MM[5] | Intel Optane DC Persistent Memory Operational Mode - Memory | | |

**Notes:**

1. 256 GB DIMM is available on HX240M6 server models, with the exclusion of HX240M6 LFF model.
2. 256 GB DIMMs cannot be combined with GPU cards, and the ambient temperature shall be limited to a maximum of 28°C.
3. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.
4. **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.
5. **Memory Mode:**

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

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

> **Data Center Deployment Mode**
>
> NOTE:  Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support HX-MP-512GS-A0, HX-MP-256GS-A0, HX-MP-128GS-A0, HX-DCPMM-AD and HX-DCPMM-MM. Refer to *STEP 2* for the details

**NOTE:**

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

■ The selected DIMMs must be all of same type and number of DIMMs must be equal for both CPUs

■ HyperFlex Data Platform reserves memory for each controller VM. Refer to the <**Install Guide**> for reservation details.

■ The memory mirroring feature is not supported with HyperFlex nodes.

## Memory Configurations, Features, and Modes

System speed is dependent on the CPU DIMM speed support. Refer to *Available CPUs, page 27* for DIMM speeds.

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

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

— Maximum performance

■ For best performance, observe the following:

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

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

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

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

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

**HX M6 Memory Guide**

**Approved Configurations**

**(1) 1-CPU configuration:**

■ Select from 1 to 16 DIMMs

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

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

    — DIMMs for both CPUs must be configured identically.

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

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

**(2) 2-CPU configuration:**

■ Select from 1 to 16 DIMMs per CPU

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

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

    — DIMMs for both CPUs must be configured identically.

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

| #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 9   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) | RDIMM (2Rx4) - 64 GB (MHz) | RDIMM (2Rx4) - 32 GB (MHz) | RDIMM (1Rx4) - 16 GB (MHz) |
|---|---|---|---|---|---|---|
|  |  | 1.2 V | 1.2 V | 1.2 V | 1.2 V | 1.2 V |
| DIMM = 3200 CPU = 3200 | 1DPC | 3200 | 3200 | 3200 | 3200 | 3200 |
|  | 2DPC | 3200 | 3200 | 3200 | 3200 | 3200 |
| DIMM = 3200 CPU = 2933 | 1DPC | 2933 | 2933 | 2933 | 2933 | 2933 |
|  | 2DPC | 2933 | 2933 | 2933 | 2933 | 2933 |
| DIMM = 3200 CPU = 2666 | 1DPC | 2666 | 2666 | 2666 | 2666 | 2666 |
|  | 2DPC | 2666 | 2666 | 2666 | 2666 | 2666 |

**DIMM Rules**

- Allowed DIMM count for 1 CPU:
    - Minimum DIMM count = 1; Maximum DIMM count = 16
    - 1, 2, 4, 6, 8, 12, or 16 DIMMs allowed
    - 3, 5, 7. 9, 10, 11, 13, 14, or 15 DIMMs not allowed.
- Allowed DIMM count for 2 CPUs:
    - Minimum DIMM count = 2; Maximum DIMM count = 32
    - 2, 4, 8, 12, 16, 24, or 32 DIMMs allowed
    - 6, 10, 14, 18, 20, 22, 26, 28, or 30 DIMMs not allowed.
- DIMM Mixing:
    - Mixing different types of DIMM (RDIMM with any type of LRDIMM or 3DS LRDIMM with non-3DS LRDIMM) is not supported within a server.
    - Mixing RDIMM with RDIMM types is allowed if they are mixed in same quantities, in a balanced configuration.
    - Mixing 16 GB, 32 GB, and 64 GB RDIMMs is supported.
    - 128 GB and 256 GB LRDIMMs cannot be mixed with other RDIMMs
    - 128 GB non-3DS LRDIMMs cannot be mixed with 256 GB 3DS LRDIMMs

**NOTE:**

- DIMM mixing is not allowed when PMem are installed; in these cases, all DIMMs must be the same type and size.

- See the detailed mixing DIMM configurations at the following link
  **HX M6 Memory Guide**

## STEP 6 SELECT DRIVE CONTROLLERS

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

- SAS/SATA drives are controlled through one or two Cisco 12G SAS pass-through HBAs.

- PCIe drives are controlled directly from the CPUs.

> **NOTE:** Drive Controller are not supported in **HXAF240C-M6SN** (All NVMe) server node.

## Cisco 12G SAS HBA

This HBA supports up to 16 SAS or SATA drives (HX240C-M6SX and HXAF240C-M6SX servers has 24 front drives and 2 or 4 rear drives) operating at 3 Gbs, 6 Gbs, and 12Gbs. It supports JBOD or pass-through mode (not RAID) and plugs directly into the drive backplane. Two of these controllers are required to control 24 front drives and 2 or 4 rear drives.

### Select Drive Controller Options

Select the following:

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

**Table 10  Hardware Controller Options**

| Product ID (PID) | PID Description |
|---|---|
| **Controllers for Internal Drives** | |
| **Note that if a Cisco 12G SAS HBA is selected, it is factory-installed in the drive backplane connector.** | |
| HX-SAS-240M6[1] | Cisco 12G SAS HBA (for All Flash and Hybrid server nodes)<br>■ Supports up to 16 internal SAS HDDs and SAS/SATA SSDs<br>■ Supports JBOD or pass-through mode |

**Notes:**
1. Two of these controllers are required to control 24 front drives and four rear drives.

### Approved Configurations

The HX240C M6 All NVMe/All Flash/Hybrid Server Nodes can be ordered as follows:

- HXAF240C-M6SN (24-drive NVMe (only) drives)
- HXAF240C-M6SX (24-drive SAS/SATA backplane and optionally 4 of those can be NVMe)
- HX240C-M6SX (24-drive SAS/SATA backplane)
- There is no RAID support for NVMe drives.

## STEP 7   SELECT DRIVES

The standard disk drive features are:

■   2.5-inch small form factor

■   Hot-pluggable

■   Drives come mounted in sleds

### Select Drives - HXAF240C-M6SN (All NVMe)

The available drives are listed in *Table 11*.

> **Data Center Deployment Mode**
>
> NOTE:  HX Data Center without Fabric Interconnect (DC-no-FI) All NVMe - HXAF240C-M6SN require HXDP 5.0(1b) or higher.

> **\* NOTE:**
>
> ■   HX 5.0(2b) supports the ability to handle inter-operability of mixed cache drives on HyperFlex All NVMe clusters with certain hardware configurations:
>
>   • Existing cluster with 375G cache can be expanded with 1.6TB cache.
>
>   • New cluster creation with heterogeneous cache drives needs two-step approach for a minimum of 4 node cluster; (Step 1) cluster creation with minimum three of lesser capacity 375GB cache, (Step 2) cluster expansion with 1.6TB cache. New heterogeneous cluster with less than three 375GB cache is not supported; Upgrade to homogenous cluster with 1.6TB cache is recommended in this scenario.
>
> ■   For expansion of existing clusters or general information about interoperability of different drives, see **Cisco HyperFlex Drive Compatibility.**

**Table 11  Available Hot-Pluggable Sled-Mounted Drives**

| Product ID (PID) | PID Description | Drive Type | Capacity |
|---|---|---|---|
| **Front Capacity Drive** | | | |
| HX-NVME4-1920 | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 1.9 TB |
| HX-NVME4-3840 | 3.8TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 3.8 TB |
| HX-NVME4-7680 | 7.6TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 7.6 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-NVMEI4-I7680 | 7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance | NVMe | 7.6 TB |

**Table 11  Available Hot-Pluggable Sled-Mounted Drives**

| Product ID (PID) | PID Description | Drive Type | Capacity |
|---|---|---|---|
| HX-NVMEM6-W15300 | 15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0 (2a) and later** | NVMe | 15.3 TB |
| HX-NVME4-15360 | 15.3TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0 (2b + Catalog) and later)** | NVMe | 15.3 TB |
| **Rear Capacity Drive** | | | |
| HX-NVME4-1920 | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 1.9 TB |
| HX-NVME4-3840 | 3.8TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 3.8 TB |
| HX-NVME4-7680 | 7.6TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 7.6 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-NVMEI4-I7680 | 7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance | NVMe | 7.6 TB |
| HX-NVMEM6-W15300 | 15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0 (2a) and later** | NVMe | 15.3 TB |
| HX-NVME4-15360 | 15.3TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0 (2b + Catalog) and later)** | NVMe | 15.3 TB |
| **Front Cache Drive** | | | |
| HX-NVMEXPB-I375* | 375GB 2.5in Intel Optane NVMe Extreme Performance SSD **(Mixed drive support with HyperFlex Release 5.0(2b))** | NVMe | 375 GB |
| HX-NVMEXP-I400 | 400GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) **(HyperFlex Release 5.0(2b) and later)** | NVMe | 400 GB |
| HX-NVMEM6-W1600* | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0(2b); Mixed drive support available)** | NVMe | 1.6 TB |
| **Front System Drive** | | | |
| HX-NVME2H-I1000 | Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endurance | NVMe | 1.0 TB |
| HX-NVME4-1920 | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** | NVMe | 1.9 TB |
| **Boot Drive** | | | |
| HX-M2-240GB | 240GB SATA M.2 | SATA | 240 GB |
| HX-M2-HWRAID | Cisco Boot optimized M.2 Raid controller | | |

**Approved Configurations**

- Capacity drive:
    - **I/O Centric:** Six to twenty-two front capacity drives
    - **Storage Centric**: Six to twenty-four (twenty-two front + two rear) capacity drives

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

- One cache drive
- One system drive
- Boot drive:

> **NOTE:**
> - Order two identical M.2 SATA SSDs for the boot-optimized RAID controller. You cannot mix M.2 SATA SSD capacities.
> - It is recommended that M.2 SATA SSDs be used as boot-only devices.
> - The Boot-Optimized RAID controller supports VMWare, Windows and Linux Operating Systems.
> - CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
> - The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID
> - The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
> - Hot-plug replacement is not supported. The server must be powered off.
> - The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
> - See *Figure 16 on page 83* 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 HXAF240C-M6SN (All NVMe) server node.
- SFF **NVMe** drives are connected directly to CPU2, and are not managed by any drive controller.

## Select Drives - HXAF240C-M6SX (All Flash)

The available drives are listed in *Table 12*.

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

> **\* NOTE:**
> ■ HX 5.0(2b) supports the ability to handle inter-operability of mixed cache drives on HyperFlex All Flash clusters with certain hardware configurations:
>   • Existing cluster with 375G cache can be expanded with 1.6TB cache.
>   • New cluster creation with heterogeneous cache drives needs two-step approach for a minimum of 4 node cluster; (Step 1) cluster creation with minimum three of lesser capacity 375GB cache, (Step 2) cluster expansion with 1.6TB cache. New heterogeneous cluster with less than three 375GB cache is not supported; Upgrade to homogenous cluster with 1.6TB cache is recommended in this scenario.
> ■ For expansion of existing clusters or general information about interoperability of different drives, see **Cisco HyperFlex Drive Compatibility.**

**Table 12  Available Hot-Pluggable Sled-Mounted Drives**

| Product ID (PID) | PID Description | Drive Type | Capacity |
|---|---|---|---|
| **Front Capacity Drive** | | | |
| 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 |
| HX-SD960G6S1X-EV | 960GB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 960 GB |
| HX-SD19T6S1X-EV | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 1.9 TB |
| HX-SD38T6S1X-EV | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 3.8 TB |
| HX-SD76T6S1X-EV | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 7.6 TB |
| **Rear Capacity Drive** | | | |
| 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 |

**Table 12  Available Hot-Pluggable Sled-Mounted Drives** *(continued)*

| Product ID (PID) | PID Description | Drive Type | Capacity |
|---|---|---|---|
| HX-SD960G6S1X-EV | 960GB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 960 GB |
| HX-SD19T6S1X-EV | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 1.9 TB |
| HX-SD38T6S1X-EV | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | SATA | 3.8 TB |
| HX-SD76T6S1X-EV | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD **(HyperFlex Release (5.0(1c) and later)** | 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 |
| HX-SD76TBKNK9 | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) | SAS | 7.6 TB |
| **Rear 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 |
| HX-SD76TBKNK9 | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) | SAS | 7.6 TB |
| **Front Cache Drive** | | | |
| HX-NVMEXPB-I375* | 375GB 2.5in Intel Optane NVMe Extreme Performance SSD **(Mixed drive support with HyperFlex Release 5.0(2b))** | NVMe | 375 GB |
| HX-NVMEXP-I400 | 400GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) **(HyperFlex Release 5.0(2b) and later)** | NVMe | 400 GB |
| HX-NVMEM6-W1600* | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0(2b); Mixed drive support available)** | 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 Drive** | | | |
| HX-M2-240GB | 240GB SATA M.2 | SATA | 240 GB |

**Table 12  Available Hot-Pluggable Sled-Mounted Drives** *(continued)*

| Product ID (PID) | PID Description | Drive Type | Capacity |
|---|---|---|---|
| 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**

- Capacity drive:
    - *I/O Centric:* Six to twenty-two front capacity drives
    - **Storage Centric:** Six to twenty-six (twenty-two front + four rear) capacity drive
    - **DC-no-FI:** Both I/O Centric and Storage Centric is supported

> **NOTE:**
> - Rear drives can only be selected once after the front drive slots are filled.
> - 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 drive
> - When configuring front facing drives with NVMe drives, you must order an NVMe cable (PID = CBL-FNVMe-240M6) 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.
> - CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
> - The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID
> - The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
> - Hot-plug replacement is not supported. The server must be powered off.
> - The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
> - See *Figure 16 on page 83* 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 - HX240C-M6SX (Hybrid)

The available drives are listed in *Table 13*.

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

**Table 13  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 |
| **Rear 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 | 2.4 TB 12G SAS 10K RPM SFF HDD (4K) SED | SAS | 2.4 TB |
| **Rear SED Capacity Drive** | | | |
| HX-HD12T10NK9 | 1.2TB 12G SAS 10K RPM SFF HDD (SED) | SAS | 1.2 TB |
| HX-HD24T10NK9 | 2.4 TB 12G SAS 10K RPM SFF HDD (4K) SED | SAS | 2.4 TB |
| **Front Cache Drive** | | | |
| HX-SD16TK3X-EP | 1.6TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) | SAS | 1.6 TB |
| **Front SED Cache Drive** | | | |
| HX-SD16TBKNK9 | 1.6TB Enterprise performance SAS SSD (3X FWPD, SED) | SAS | 1.6 TB |
| **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**

- Capacity drive:
  - **I/O Centric:** Six to twenty-two front capacity drives
  - **Storage Centric**: Six to twenty-six (twenty two front + four rear) capacity drives
  - **DC-no-FI:** Both I/O Centric and Storage Centric is supported

> **NOTE:**
> - Rear drives can only be selected once after the front drive slots are filled
> - 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.
> - CIMC/UCSM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives.
> - The minimum version of Cisco IMC and Cisco UCS Manager that supports this controller is 4.2(1) and later. The name of the controller in the software is MSTOR-RAID.
> - The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.
> - Hot-plug replacement is not supported. The server must be powered off.
> - The boot-optimized RAID controller is supported when the server is used as a compute node in HyperFlex configurations.
> - See *Figure 16 on page 83* 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 8  SELECT HYPERFLEX CONNECTIVITY MODE

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

**Select Connectivity mode**

The available connectivity modes are listed in *Table 14*

**Table 14  Connectivity Modes**

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

**Notes:**

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

**Table 15  Available Cards for the Connectivity Modes**

| Product ID (PID) | Description |
|---|---|
| **HyperFlex VIC Connectivity Mode** | |
| HX-M-V25-04 | Cisco UCS VIC 1467 quad port 10/25G SFP28 mLOM |
| HX-M-V100-04 | Cisco UCS VIC 1477 dual port 40/100G QSFP28 mLOM |
| | |
| **HyperFlex NIC Connectivity Mode** | |
| **R2 Slot 4 x8 PCIe NIC** | |
| HX-PCIE-ID10GF | Intel X710 dual-port 10G SFP+ |
| HX-PCIE-IQ10GF | Intel X710 quad-port 10G SFP+ NIC |
| HX-P-I8D25GF | Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC |
| HX-P-I8Q25GF | Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC |
| **R2 Slot 6 x8 PCIe NIC** | |
| HX-PCIE-ID10GF | Intel X710 dual-port 10G SFP+ |
| HX-PCIE-IQ10GF | Intel X710 quad-port 10G SFP+ NIC |
| HX-P-I8D25GF | Cisco-Intel E810XXVDA2 2x25/10 GbE SFP28 PCIe NIC |
| HX-P-I8Q25GF | Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC |

# STEP 9    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 16*

> **Data Center Deployment Mode**
>
> NOTE:
>
> - Data center deployment mode without fabric interconnect (HX-DC-no-FI) does not support HX-PCIE-C25Q-04 and HX-PCIE-OFFLOAD-1. Refer to *STEP 2* for the details.
> - HX-M-V100-04 require HXDP 4.5(2c) or higher for data center deployment mode without fabric interconnect (DC-no-FI).

**Table 16  Available PCIe Option Cards**

| Product ID (PID) | PID Description | Location | Card Size[1] |
|---|---|---|---|
| **Virtual Interface Card (VICs)** | | | |
| HX-PCIE-C100-04 | Cisco UCS VIC 1495 dual port 40/100G QSFP28 CNA PCIe | Riser 1 or 2 | HHHL, SS |
| HX-PCIE-C25Q-04 | Cisco UCS VIC 1455 quad port 10/25G SFP28 PCIe | Riser 1 or 2 | HHHL, SS |
| **Network Interface Cards (NICs)** | | | |
| **1 Gb NICs** | | | |
| HX-PCIE-IRJ45 | Intel i350 quad port 1G copper PCIe | 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 | Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe NIC | Riser 1, 2, or 3 | FHHL, SS |
| **HX PCIe Accel Engine[2,3]** | | | |
| 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; S = single-slot; DS = double-slot

2. • 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

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

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

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**Caveats**

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■ For 1-CPU systems:

— Only PCIe slots 1, 2, and 3 on PCIe riser 1A are available for a 1-CPU system.

— The PCIe slots on riser 2 are not supported on 1-CPU systems. The riser 2 slots are full-height PCIe slots 4, 5, and 6 (see *Figure 5 on page 12*). These are the slots in the middle when looking at the rear of the server. Slot 4 is the bottom slot.

— The PCIe slots on riser 3 are not supported on 1-CPU systems. The riser 3 slots are full-height PCIe slots 7 and 8 (see *Figure 5 on page 12*). These are the slots on the right when looking at the rear of the server. Slot 7 is the bottom slot.

— Only a single plug-in PCIe VIC card may be installed on a 1-CPU system, and it must be installed in slots 1, 2, or 3 of riser 1A.

— You can order an mLOM VIC card to be installed in the mLOM slot internal to the chassis. You can also have a PCIe VIC in slot 2 and thus have a PCIe VIC and one mLOM VIC in operation at the same time. If you order a double-width GPU, it must be installed in slot 2; then a PCIe VIC can be installed in slot 1. See *Table 20 on page 55*. See *Table 16 on page 49* for the selection of plug-in and mLOM VIC cards. See also *Table 1 on page 19* and *SPARE PARTS, page 93* for the PCIe slot physical descriptions.

■ For 2-CPU systems:

— The following PCIe slots are available:

   • Three on PCIe riser 1A (PCIe slots 1, 2, and 3),

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

   • Two on PCIe riser 3A (PCIe slots 7 and 8).

— You can order an mLOM VIC card to be installed in the mLOM slot internal to the chassis. You can also have PCIe VICs in slot 2 and slot 5 and thus have two PCIe VICs and one mLOM VIC in operation at the same time. If you order a double width GPU, it must be installed in slots 2, 4 or 7; then two PCIe VIC can be installed in slot 1 and slot 4. See *Table 16 on page 49* for the selection of plug-in and mLOM VIC cards. See also *Table 1 on page 19* and *SPARE PARTS, page 93* for the PCIe slot physical descriptions.

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— If GPUs are installed in slot 2 of riser 1A or slot 5 of riser 2A, the NCSI capability automatically switches over to slot 1 of riser 1A or slot 4 of Riser 2A. Therefore, Cisco PCIe VICs can be installed in slots 1 and 4 if GPUs are installed in slots 2 and 5. If you order multiple GPUs, they must be installed as shown in *Table 20 on page 55*.

**NOTE:** UCSM managed servers are discoverable only if a PCIe VIC is installed or a VIC is installed in the MLOM slot.

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

However, single wire management is supported on only one VIC at a time. If multiple VICs are installed on a server, only one slot has NCSI enabled at a time and for single wire management, priority goes to the MLOM slot, then slot 2, then slot 5 for NCSI management traffic. When multiple cards are installed, connect the single wire management cables in the priority order mentioned above.

■ To help ensure that your operating system is compatible with the card you have selected, or to see additional cards that have been qualified to work with the HX240C M6 All NVMe/All Flash/Hybrid server, but are not sold on the Cisco price list, check the Hardware Compatibility List at this URL:
http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html

## STEP 10 ORDER OPTIONAL PCIe OPTION CARD ACCESSORIES

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

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

**Select**

■ NIC Interoperability with Cisco Cables/Optics (*Table 17 & Table 18 on page 53*).

■ NIC Interoperability with Intel Cables/Optics (*Table 19 on page 54*).

**Table 17  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 18  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 19  NIC Interoperability with Intel Cables/Optics**

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

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

Refer to the these links for additional connectivity options:

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

## STEP 11  ORDER GPU CARDS (OPTIONAL)

**NOTE:**  When a GPU is ordered, the server comes with low-profile heatsinks PID (HX-HSLP-M6=) and need to select special air duct PID (HX-ADGPU-245M6=) for double-wide GPUs.

### Select GPU Options

The available GPU PCIe options and their riser slot compatibilities are listed in *Table 20*

**Table 20  Available PCIe GPU Cards[1]**

| GPU Product ID (PID) | PID Description | Card Size | Max GPU per Node | Riser Slot Compatibility | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Riser 1A (Gen 4) | Riser 1B[2] | Riser 2 (Gen 4) | Riser 3A[3] Gen 4) | Riser 3B[4] | Riser 3C[5,6] |
| HX-GPU-A10 | TESLA A10, PASSIVE, 150W, 24GB | Single-wide | 5 | slot 2&3 | N/A | slot 5&6 | N/A | N/A | slot 7 |
| HX-GPU-A30 | TESLA A30, PASSIVE, 180W, 24GB | Double-wide | 3 | slot 2 | N/A | slot 5 | N/A | N/A | slot 7 |
| HX-GPU-A40 | TESLA A40 RTX, PASSIVE, 300W, 48GB | Double-wide | 3 | slot 2 | N/A | slot 5 | N/A | N/A | slot 7 |
| HX-GPU-A100-80 | TESLA A100, PASSIVE, 300W, 80GB | Double-wide | 3 | slot 2 | N/A | slot 5 | N/A | N/A | slot 7 |
| HX-GPU-A16 | NVIDIA A16 PCIE 250W 4X16GB | Double-wide | 3 | slot 2 | N/A | slot 5 | N/A | N/A | slot 7 |

**Notes:**

1. Refer to **installation guide** for the GPU related information
2. Riser 1B does not accept GPUs
3. Riser 3A does not accept GPUs
4. Riser 3B does not accept GPUs
5. The server supports one full-height, full-length, double-wide GPU (PCIe slot 7 only) in Riser 3C.
6. All NVMe server does not support riser 3C

Cisco HyperFlex HX240C M6 All NVMe, All Flash and Hybrid Server Nodes

**NOTE:**

- ■ All NVMe server does not support riser 3

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

- ■ If you are adding GPUs later, please refer to *SPARE PARTS, page 93* section of the below spec sheet to find the accessories/cables needed along with the GPU spare.

- ■ Please refer to **installation guide** for the GPU related information.

- ■ GPUs cannot be mixed.

## STEP 12  ORDER POWER SUPPLY

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

**http://ucspowercalc.cisco.com**

**WARNING:**

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

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

**Table 21  Power Supply**

| Product ID (PID) | PID Description |
|---|---|
| **PSU (Input High Line 210VAC)** | |
| HX-PSU1-1050W | 1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSUV2-1050DC | 1050W -48V DC Power Supply for Rack Server |
| HX-PSU1-1600W | 1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSU1-2300W[1] | 2300W AC Power Supply for Rack Servers Titanium |
| **PSU (Input Low Line 110VAC)** | |
| HX-PSU1-1050W | 1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSUV2-1050DC | 1050W -48V DC Power Supply for Rack Server |
| HX-PSU1-2300W | 2300W AC Power Supply for Rack Servers Titanium |
| HX-PSU1-1050ELV | 1050W AC PSU Enhanced Low Line (Not EU/UK Lot 9 Compliant) |

**Notes:**

1. The 2300 W power supply uses a different power connector that the rest of the power supplies, so you must use different power cables to connect it. See *Table 22 on page 58* and *Table 23 on page 61*.

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

## STEP 13  SELECT INPUT POWER CORD(s)

Using *Table 22* and *Table 23*, 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 22* lists the power cords for servers that use power supplies less than 2300 W. *Table 23* 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.
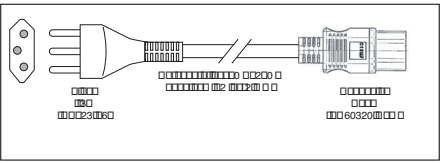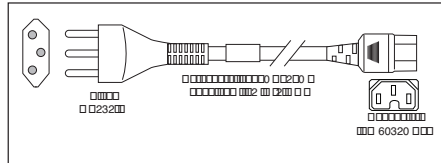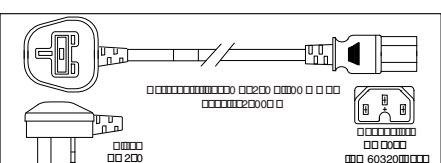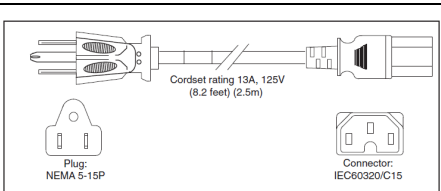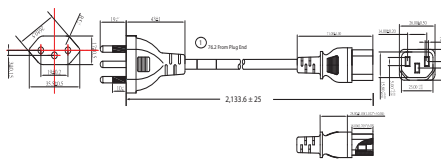
**Table 22  Available Power Cords (for server PSUs less than 2300 W)**

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

**Table 22  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 22  Available Power Cords (for server PSUs less than 2300 W)**

| Product ID (PID) | PID Description | Images |
|---|---|---|
| CAB-9K10A-IT | Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy |  |
| CAB-9K10A-SW | Power Cord, 250VAC 10A MP232 Plug, Switzerland |  |
| CAB-9K10A-UK | Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK |  |
| CAB-9K12A-NA[1] | Power Cord, 125VAC 13A NEMA 5-15 Plug, North America |  |
| CAB-250V-10A-BR | Power Cord - 250V, 10A - Brazil |  |
| CAB-C13-C14-2M-JP | Power Cord C13-C14, 2M/6.5ft Japan PSE mark | Image not available |
| CAB-9K10A-KOR[1] | Power Cord, 125VAC 13A KSC8305 Plug, Korea | Image not available |
| CAB-ACTW | AC Power Cord (Taiwan), C13, EL 302, 2.3M | Image not available |
| CAB-JPN-3PIN | Japan, 90-125VAC 12A NEMA 5-15 Plug, 2.4m | Image not available |
| CAB-48DC-40A-INT | C-Series -48VDC PSU PWR Cord, 3.5M, 3 Wire, 8AWG, 40A (INT) | Image not available |
| CAB-48DC-40A-AS | C-Series -48VDC PSU PWR Cord, 3.5M, 3Wire, 8AWG, 40A (AS/NZ) | Image not available |

**Notes:**

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

**Table 23  Available Power Cords (for servers with 2300 W PSUs)**

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

## STEP 14 ORDER TOOL-LESS RAIL KIT AND OPTIONAL REVERSIBLE CABLE MANAGEMENT ARM

**Select a Tool-less Rail Kit**

Select a tool-less rail kit (or no rail kit) from *Table 24*.

**Table 24  Tool-less Rail Kit Options**

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

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

**Select an Optional Reversible Cable Management Arm**

The reversible cable management arm mounts on either the right or left slide rails at the rear of the server and is used for cable management. Use *Table 25* to order a cable management arm.

**Table 25  Cable Management Arm**

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

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

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

**NOTE:** If you plan to rackmount your HyperFlex HX240C 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 15  ORDER SECURITY DEVICES (OPTIONAL)

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

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

The security device ordering information is listed in *Table 26*.

**Table 26  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 16  SELECT LOCKING SECURITY BEZEL (OPTIONAL)

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

Select the locking bezel from *Table 27*.

**Table 27  Locking Bezel Option**

| Product ID (PID) | Description |
|---|---|
| HXAF240C-BZL-M5SN | HXAF240C M5 All NVMe Security Bezel |
| HXAF240C-BZL-M5SX | HXAF240C M5 Security Bezel |
| HX240C-BZL-M5S | HX240C M5 Security Bezel |

# STEP 17 SELECT HOST OPERATING SYSTEM

Select Microsoft Windows operating system as desired from *Table 28*

---

**NOTE:**

■ **VMware ESXi Hypervisor** - We no longer ship VMWare ESXi from the factory. Refer to this link for the further details.
https://www.cisco.com/c/en/us/td/docs/hyperconverged_systems/HyperFlex_HX_DataPlatformSoftware/BroadcomAgreementNotice/b-broadcom-terminated-vmware-embedded-agreement.html

■ **Microsoft operating system** - Optional guest OS licenses that may be purchased to run on top of the hypervisor.

---

**Table 28  Host Operation System**

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

## STEP 18 SELECT HYPERFLEX DATA PLATFORM (HXDP) SOFTWARE

HyperFlex Data Platform Edition & Subscription Period options are available as follows. Select as desired from *Table 29*

**Table 29  HX Data Platform Software**

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

## STEP   19   CISCO INTERSIGHT

Cisco Intersight™ is a Software-as-a-Service (SaaS) hybrid cloud operations platform which delivers intelligent automation, observability, and optimization to customers for traditional and cloud-native applications and infrastructure. Select as desired from *Table 30*.

**Table 30  Cisco Intersight**

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

Cisco HyperFlex HX240C M6 All NVMe, All Flash and Hybrid Server Nodes

# STEP 20  SELECT INSTALLATION SERVICE

Customers can purchase Cisco Advanced Services (AS). Select as desired from *Table 31*

**Table 31  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 21  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 32*.

**Table 32  SNTC Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-PREM-HXAF240C | C2P | Yes | SNTC 24X7X2OS |
| CON-UCSD8-HXAF240C | UCSD8 | Yes | UC SUPP DR |
| CON-C2PL-HXAF240C | C2PL | Yes | LL 24X7X2OS** |
| CON-OSP-HXAF240C | C4P | Yes | SNTC 24X7X4OS |
| CON-UCSD7-HXAF240C | UCSD7 | Yes | UCS DR 24X7X4OS* |
| CON-C4PL-HXAF240C | C4PL | Yes | LL 24X7X4OS** |
| CON-USD7L-HXAF240C | USD7L | Yes | LLUCS HW DR 24X7X4OS*** |
| CON-OSE-HXAF240C | C4S | Yes | SNTC 8X5X4OS |
| CON-UCSD6-HXAF240C | UCSD6 | Yes | UC SUPP DR 8X5X4OS* |

**Table 32  SNTC Service (PID HXAF240C-M6SN)**

| CON-SNCO-HXAF240C | SNCO | Yes | SNTC 8x7xNCDOS**** |
|---|---|---|---|
| CON-OS-HXAF240C | CS | Yes | SNTC 8X5XNBDOS |
| CON-UCSD5-HXAF240C | UCSD5 | Yes | UCS DR 8X5XNBDOS* |
| CON-S2P-HXAF240C | S2P | No | SNTC 24X7X2 |
| CON-S2PL-HXAF240C | S2PL | No | LL 24X7X2** |
| CON-SNTP-HXAF240C | SNTP | No | SNTC 24X7X4 |
| CON-SNTPL-HXAF240C | SNTPL | No | LL 24X7X4** |
| CON-SNTE-HXAF240C | SNTE | No | SNTC 8X5X4 |
| CON-SNC-HXAF240C | SNC | No | SNTC 8x7xNCD |
| CON-SNT-HXAF240C | SNT | No | SNTC 8X5XNBD |
| CON-SW-HXAF240C | SW | No | SNTC NO RMA |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-OSP-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-OSP-HX240CMX) | | | |
| *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 33*.

**Table 33  SNTC Onsite Troubleshooting Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-OSPT-HXAF240C | OSPT | Yes | 24X7X4OS Trblshtg |
| CON-OSPTD-HXAF240C | OSPTD | Yes | 24X7X4OS TrblshtgDR* |
| CON-OSPTL-HXAF240C | OSPTL | Yes | 24X7X4OS TrblshtgLL** |
| CON-OPTLD-HXAF240C | OPTLD | Yes | 24X7X4OS TrblshtgLLD*** |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-OSPT-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-OSPT-HX240CMX) | | | |

**Table 33  SNTC Onsite Troubleshooting Service (PID HXAF240C-M6SN)**

| |
|---|
| *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 34*.

**Table 34  Solution Support Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-SSC2P-HXAF240C | SSC2P | Yes | SOLN SUPP 24X7X2OS |
| CON-SSC4P-HXAF240C | SSC4P | Yes | SOLN SUPP 24X7X4OS |
| CON-SSC4S-HXAF240C | SSC4S | Yes | SOLN SUPP 8X5X4OS |
| CON-SSCS-HXAF240C | SSCS | Yes | SOLN SUPP 8X5XNBDOS |
| CON-SSDR7-HXAF240C | SSDR7 | Yes | SSPT DR 24X7X4OS* |
| CON-SSDR5-HXAF240C | SSDR5 | Yes | SSPT DR 8X5XNBDOS* |
| CON-SSS2P-HXAF240C | SSS2P | No | SOLN SUPP 24X7X2 |
| CON-SSSNP-HXAF240C | SSSNP | No | SOLN SUPP 24X7X4 |
| CON-SSSNE-HXAF240C | SSSNE | No | SOLN SUPP 8X5X4 |
| CON-SSSNC-HXAF240C | SSSNC | No | SOLN SUPP NCD |
| CON-SSSNT-HXAF240C | SSSNT | No | SOLN SUPP 8X5XNBD |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-SSC4P-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-SSC4P-HX240CMX) | | | |
| *Includes Drive Retention (see below for full description) | | | |

Solution Support for Service Providers

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

Table 35  Solution Support for Service Providers Service (PID HXAF240C-M6SN)

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| SP-SSC2P-HXAF240C | SPSSC2P | Yes | SP SOLN SUPP |
| SP-SSC4P-HXAF240C | SPSSC4P | Yes | SP SOLN SUPP |
| SP-SSC4S-HXAF240C | SPSSC4S | Yes | SP SOLN SUPP |
| SP-SSCS-HXAF240C | SPSSCS | Yes | SP SOLN SUPP |
| SP-SSS2P-HXAF240C | SPSSS2P | Yes | SP SOLN SUPP 24X7X2 |
| SP-SSS4P-HXAF240C | SPSSS4P | Yes | SP SOLN SUPP 24X7X4 |
| SP-SSSNE-HXAF240C | SPSSSNE | No | SP SOLN SUPP 8X5X4 |
| SP-SSSNT-HXAF240C | SPSSSNT | No | SP SOLN SUPP |
| SP-SSSPB-HXAF240C | SPSSSPB | No | SP SOLN SUPP NO HW |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: SP-SSC4P-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: SP-SSC4P-HX240CMX) | | | |

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 36*.

Table 36  SNTC Hardware Only Service (PID HXAF240C-M6SN)

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-UCW7-HXAF240C | UCW7 | Yes | UCS HW 24X7X4OS |
| CON-UCWD7-HXAF240C | UCWD7 | Yes | UCS HW+DR 24X7X4OS* |
| CON-UCW7L-HXAF240C | UCW7L | Yes | LL UCS 24X7X4OS** |
| CON-UWD7L-HXAF240C | UWD7L | Yes | LL UCS DR 24X7X4OS*** |
| CON-UCW5-HXAF240C | UCW5 | Yes | UCS HW 8X5XNBDOS |
| CON-UCWD5-HXAF240C | UCWD5 | Yes | UCS HW+DR 8X5XNBDOS* |

**Table 36  SNTC Hardware Only Service (PID HXAF240C-M6SN)**

| |
|---|
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-UCW7-HXAF24CX) |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-UCW7-HX240CMX) |
| *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 37*.

**Table 37  PSS Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-PSJ8-HXAF240C | PSJ8 | Yes | UCS PSS 24X7X2 OS |
| CON-PSJ7-HXAF240C | PSJ7 | Yes | UCS PSS 24X7X4 OS |
| CON-PSJD7-HXAF240C | PSJD7 | Yes | UCS PSS 24X7X4 DR* |
| CON-PSJ6-HXAF240C | PSJ6 | Yes | UCS PSS 8X5X4 OS |
| CON-PSJD6-HXAF240C | PSJD6 | Yes | UCS PSS 8X5X4 DR* |
| CON-PSJ4-HXAF240C | PSJ4 | No | UCS SUPP PSS 24X7X2 |

**Table 37  PSS Service (PID HXAF240C-M6SN)**

| CON-PSJ3-HXAF240C | PSJ3 | No | UCS SUPP PSS 24X7X4 |
|---|---|---|---|
| CON-PSJ2-HXAF240C | PSJ2 | No | UCS SUPP PSS 8X5X4 |
| CON-PSJ1-HXAF240C | PSJ1 | No | UCS SUPP PSS 8X5XNBD |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-PSJ7-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-PSJ7-HX240CMX) | | | |
| *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 38*.

**Table 38  PSS Hardware Only Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-PSW7-HXAF240C | PSW7 | Yes | UCS W PSS 24X7X4 OS |
| CON-PSWD7-HXAF240C | PSWD7 | Yes | UCS W PSS 24X7X4 DR* |
| CON-PSW6-HXAF240C | PSW6 | Yes | UCS W PSS 8X5X4 OS |
| CON-PSWD6-HXAF240C | PSWD6 | Yes | UCS W PSS 8X5X4 DR* |
| CON-PSW4-HXAF240C | PSW4 | No | UCS W PL PSS 24X7X2 |
| CON-PSW3-HXAF240C | PSW3 | No | UCS W PL PSS 24X7X4 |
| CON-PSW2-HXAF240C | PSW2 | No | UCS W PL PSS 8X5X4 |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-PSW7-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-PSW7-HX240CMX) | | | |
| *Includes Drive Retention (see below for full description) | | | |

### Distributor Support Service (DSS)

You can choose a desired service listed in *Table 39*.

**Table 39  DSS Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|
| CON-DSCO-HXAF240C | DSCO | Yes | DSS CORE 24X7X2OS |
| CON-DSO-HXAF240C | DSO | Yes | DSS CORE 24X7X4 |
| CON-DSNO-HXAF240C | DSNO | Yes | DSS CORE 8X5XNBDOS |
| CON-DSCC-HXAF240C | DSCC | No | DSS CORE 24X7X2 |
| CON-DCP-HXAF240C | DCP | No | DSS CORE 24X7X4 |
| CON-DSE-HXAF240C | DSE | No | DSS CORE 8X5X4 |
| CON-DSN-HXAF240C | DSN | No | DSS CORE 8X5XNBD |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-DSO-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-DSO-HX240CMX) | | | |

**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 40*.

**Table 40  Combined Support Service (PID HXAF240C-M6SN)**

| Service SKU | Service Level GSP | On Site? | Description |
|---|---|---|---|

**Table 40  Combined Support Service (PID HXAF240C-M6SN)**

| CON-NCF2P-HXAF240C | NCF2P | Yes | CMB SVC 24X7X2OS |
|---|---|---|---|
| CON-NCF4P-HXAF240C | NCF4P | Yes | CMB SVC 24X7X4OS |
| CON-NCF4S-HXAF240C | NCF4S | Yes | CMB SVC 8X5X4OS |
| CON-NCFCS-HXAF240C | NCFCS | Yes | CMB SVC 8X5XNBDOS |
| CON-NCF2-HXAF240C | NCF2 | No | CMB SVC 24X7X2 |
| CON-NCFP-HXAF240C | NCFP | No | CMB SVC 24X7X4 |
| CON-NCFE-HXAF240C | NCFE | No | CMB SVC 8X5X4 |
| CON-NCFT-HXAF240C | NCFT | No | CMB SVC 8X5XNBD |
| CON-NCFW-HXAF240C | NCFW | No | CMB SVC SW |
| Note: For PID HXAF240C-M6SX, select Service SKU with HXAF24CX suffix (Example: CON-NCF4P-HXAF24CX) | | | |
| For PID HX240C-M6SX, select Service SKU with HX240CMX suffix (Example: CON-NCF4P-HX240CMX) | | | |

**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)

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

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**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* & *Figure 10* show a small footprint cluster.

**Figure 9      Small Footprint Cluster Using HX240C M6 All NVMe/All Flash/Hybrid Server Nodes With Data Center Fabric Interconnect Deployment Mode**
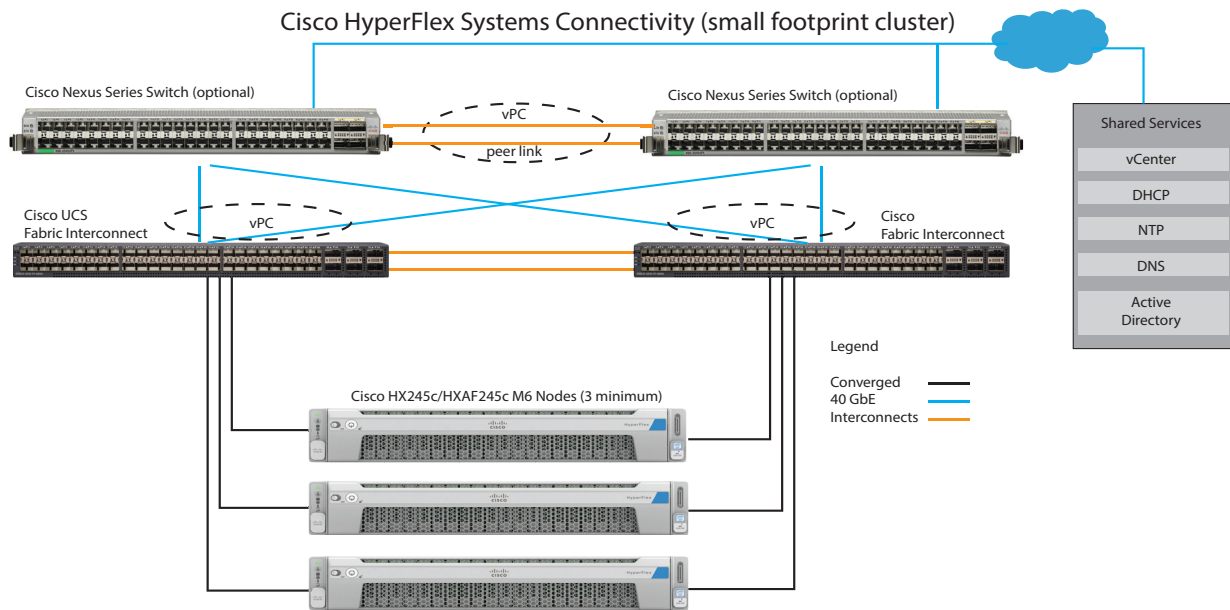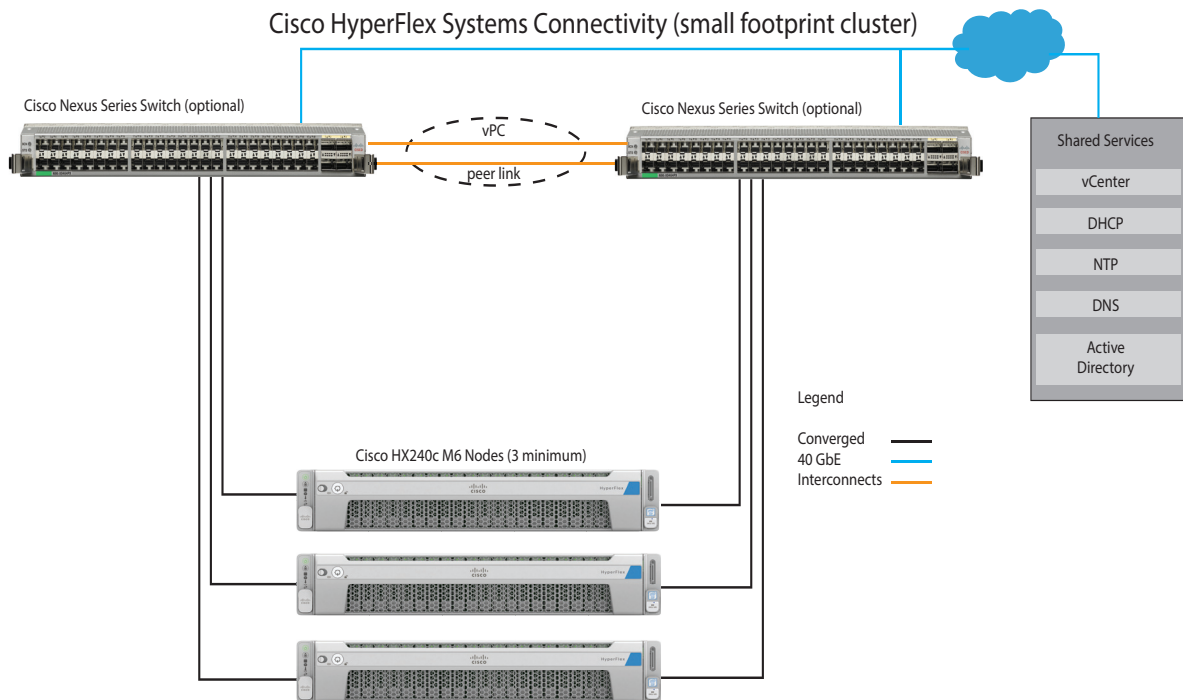
**Figure 10      Small Footprint Cluster Using HX240C M6 All Flash/Hybrid Server Nodes Data Center Without Fabric Interconnect Deployment Mode**
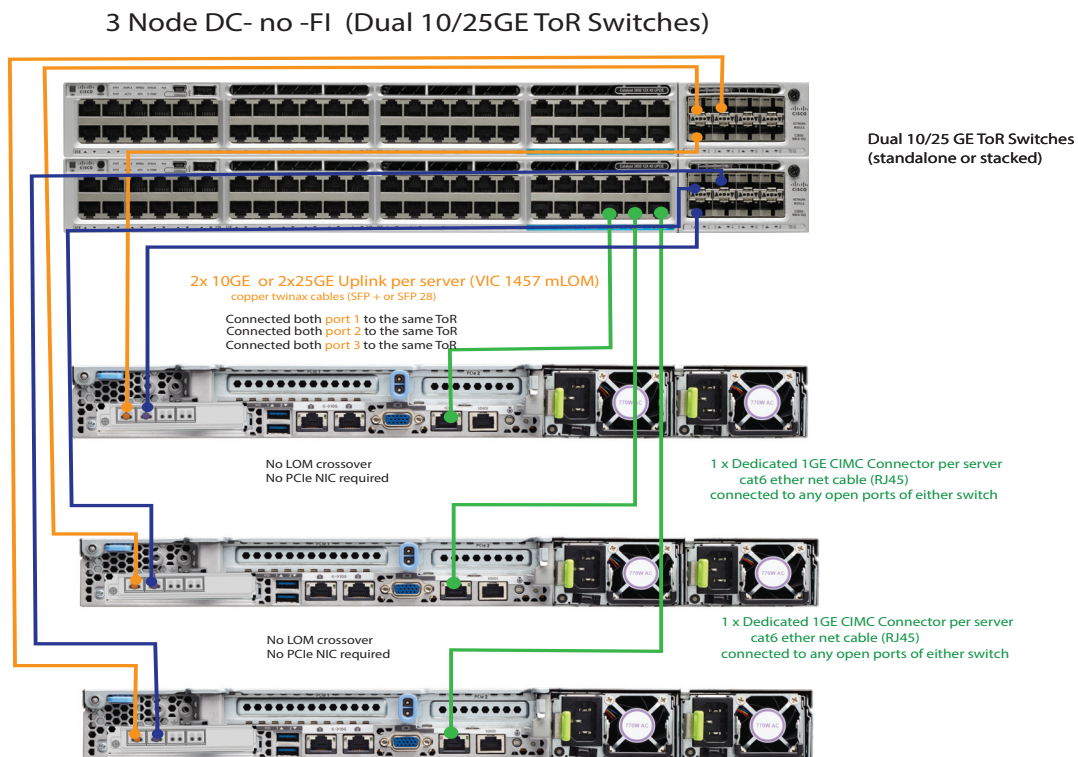
Cisco HyperFlex Systems Connectivity (small footprint cluster)

Cisco Nexus Series Switch (optional)

vPC

peer link

Cisco Nexus Series Switch (optional)

Shared Services

vCenter

DHCP

NTP

DNS

Active Directory

Legend

Cisco HX240c M6 Nodes (3 minimum)

Converged
40 GbE
Interconnects

# 10 or 25 Gigabit Ethernet Dual Switch Topology

Dual switch configuration provides a slightly more complex topology with full redundancy that protects against: switch failure, link failure, and port failure. It requires two switches that may be standalone or stacked, and two 10/25GE ports, one 1GE port for CIMC management, and one Cisco VIC 1467 per server. Trunk ports are the only supported network port configuration. refer **10/25 Gigabit Ethernet Switch Configuration Guidelines** for more information.

**To deploy this topology, select connectivity mode from *Table 14*.**

**Figure 11** **Physical cabling for the 10/25GE Dual Switch Topology. Detailed diagrams for network topologies can be found in the pre-installation checklist.**

3 Node DC- no -FI  (Dual 10/25GE ToR Switches)



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

2x 10GE  or 2x25GE Uplink per server (VIC 1457 mLOM)
copper twinax cables (SFP + or SFP 28)

Connected both port 1 to the same ToR
Connected both port 2 to the same ToR
Connected both port 3 to the same ToR

No LOM crossover
No PCIe NIC required

1 x Dedicated 1GE CIMC Connector per server
cat6 ether net cable (RJ45)
connected to any open ports of either switch

No LOM crossover
No PCIe NIC required

1 x Dedicated 1GE CIMC Connector per server
cat6 ether net cable (RJ45)
connected to any open ports of either switch

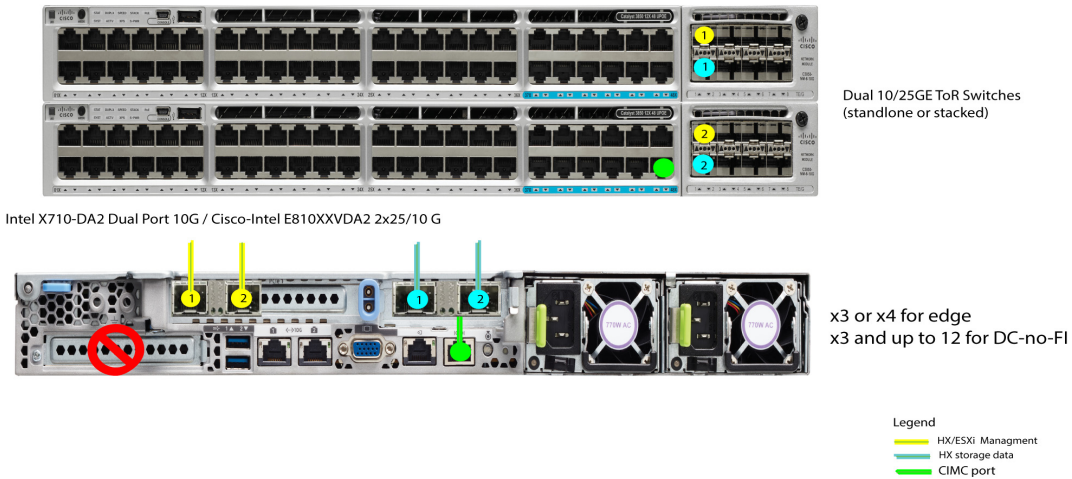Cisco HyperFlex HX240C M6 All NVMe, All Flash and Hybrid Server Nodes

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

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

**To deploy this topology, select connectivity mode from *Table 14*.**

**Figure 12      Physical cabling for the Quad Port NIC Based 10/25GE Dual Switch Topology.**



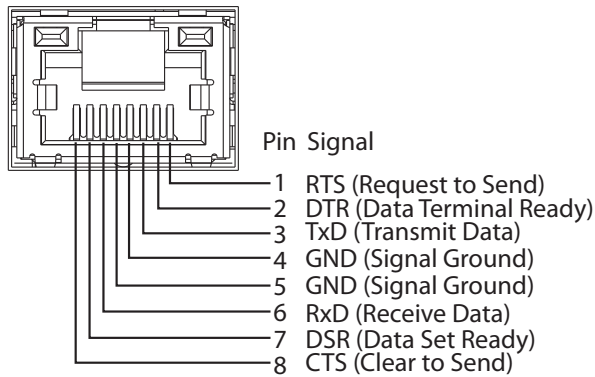3 or greater Node Edge/DC-no-FI - Dual 10/25GE

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

Intel X710 quad-port 10G / Cisco-Intel E810XXVDA4L 4x25/10G

x3 or x4 for edge
x3 and up to 12 for DC-no-FI

Legend
— HX/ESXi  Managment
— HX storage data
— CIMC port

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

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

**To deploy this topology, select from *Table 4*.**

**Figure 13     Physical cabling for the Dual Port NIC Based 10/25GE Dual Switch Topology.**



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

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

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

x3 or x4 for edge
x3 and up to 12 for DC-no-FI

Legend
HX/ESXi Managment
HX storage data
CIMC port

# Serial Port Details

The pinout details of the rear RJ-45 serial port connector are shown in *Figure 14*.

**Figure 14      Serial Port (Female RJ-45 Connector) Pinout**

Serial Port (RJ-45 Female Connector)

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

# KVM Cable

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

The KVM cable ordering information is listed in *Table 41*.

**Table 41  KVM Cable**

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

**Figure 15      KVM Cable**
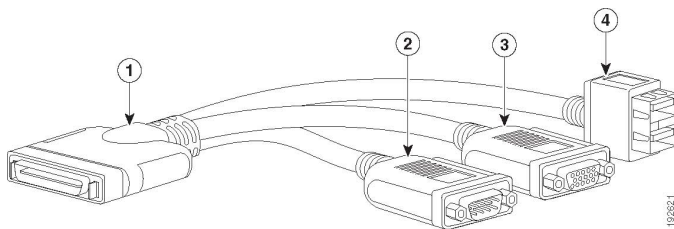


| 1 | Connector (to server front panel) | 3 | VGA connector (for a monitor) |
| --- | --- | --- | --- |
| 2 | DB-9 serial connector | 4 | Two-port USB 2.0 connector (for a mouse and keyboard) |

## Chassis

An internal view of the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes chassis with the top cover removed is shown in *Figure 16*.

**Figure 16    HX240C M6 All NVMe/All Flash/Hybrid Server Nodes With Top Cover Off**



| 1 | Front-loading drive bays | 2 | Cooling fan modules (six, hot-swappable) |
|---|---|---|---|
| 3 | DIMM sockets on motherboard (16 per CPU)<br><br>An air baffle rests on top of the DIMMs and CPUs when the server is operating. The air baffle is not displayed in this illustration. | 4 | CPU sockets<br><br>CPU 2 is at the top and CPU 1 is at the bottom. |
| 5 | PCIe riser 3 (PCIe slots 7 and 8 numbered from bottom to top), with the following options:<br><br>■ 3A (Default Option)—Slots 7 (x24 mechanical, x8 electrical), and 8 (x24 mechanical, x8 electrical). Both slots can accept a full height, full length GPU card.<br><br>■ 3B (Storage Option)—Slots 7 (x24 mechanical, x4 electrical) and 8 (x24 mechanical, x4 electrical). Both slots can accept 2.5-inch SFF universal HDDs.<br><br>■ 3C (GPU Option)—Slots 7 (x24 mechanical, x16 electrical) and 8 empty (NCSI support limited to one slot at a time). Slot 7 can support a full height, full length, double-wide GPU card. | 6 | PCIe riser 2 (PCIe slots 4, 5, 6 numbered from bottom to top), with the following options:<br><br>■ 2A (Default Option)—Slot 4 (x24 mechanical, x8 electrical) supports full height, ¾ length card; Slot 5 (x24 mechanical, x16 electrical) supports full height, full length GPU card; Slot 6 (x24 mechanical, x8 electrical) supports full height, full length card. |

| 7 | PCIe riser 1 (PCIe slot 1, 2, 3 numbered bottom to top), with the following options:<br><br>■ 1A (Default Option)—Slot 1 (x24 mechanical, x8 electrical) supports full height, ¾ length card; Slot 2 (x24 mechanical, x16 electrical) supports full height, full length GPU card; Slot 3 (x24 mechanical, x8 electrical) supports full height, full length card.<br><br>■ 1B (Storage Option)—Slot 1 is reserved; Slot 2 (x4 electrical), supports 2.5-inch SFF universal HDD; Slot 3 (x4 electrical), supports 2.5-inch SFF universal HDD | - | |

## Risers

*Figure 17* shows the locations of the PCIe riser connectors on the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes motherboard.

**Figure 17      HX240C M6 All NVMe/All Flash/Hybrid Server Nodes Riser Connector Locations**
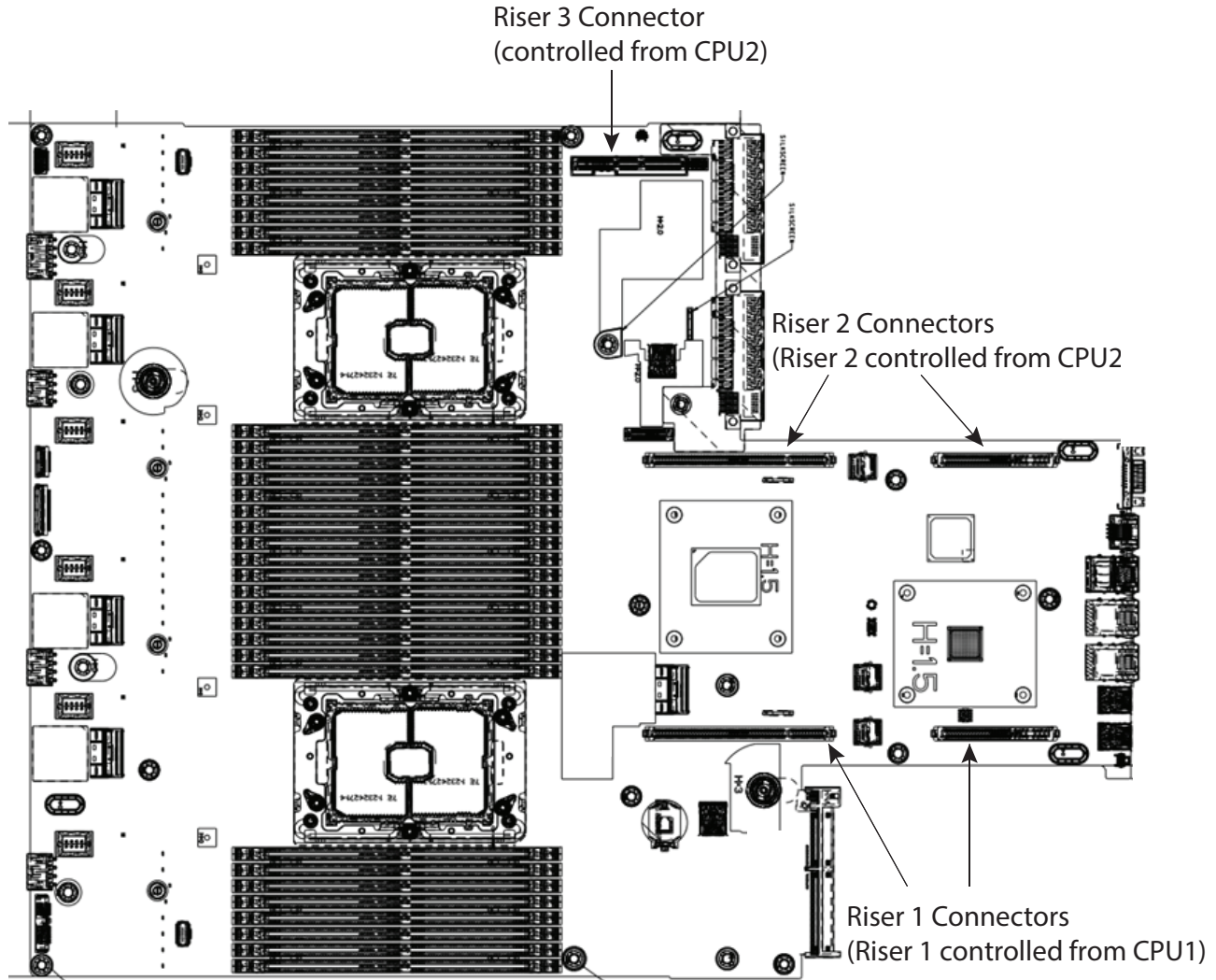
*Figure 18* shows the locations of the PCIe riser connectors on the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes motherboard.

**Figure 18    HX240C M6 All NVMe/All Flash/Hybrid Server Nodes Riser Connector Locations**
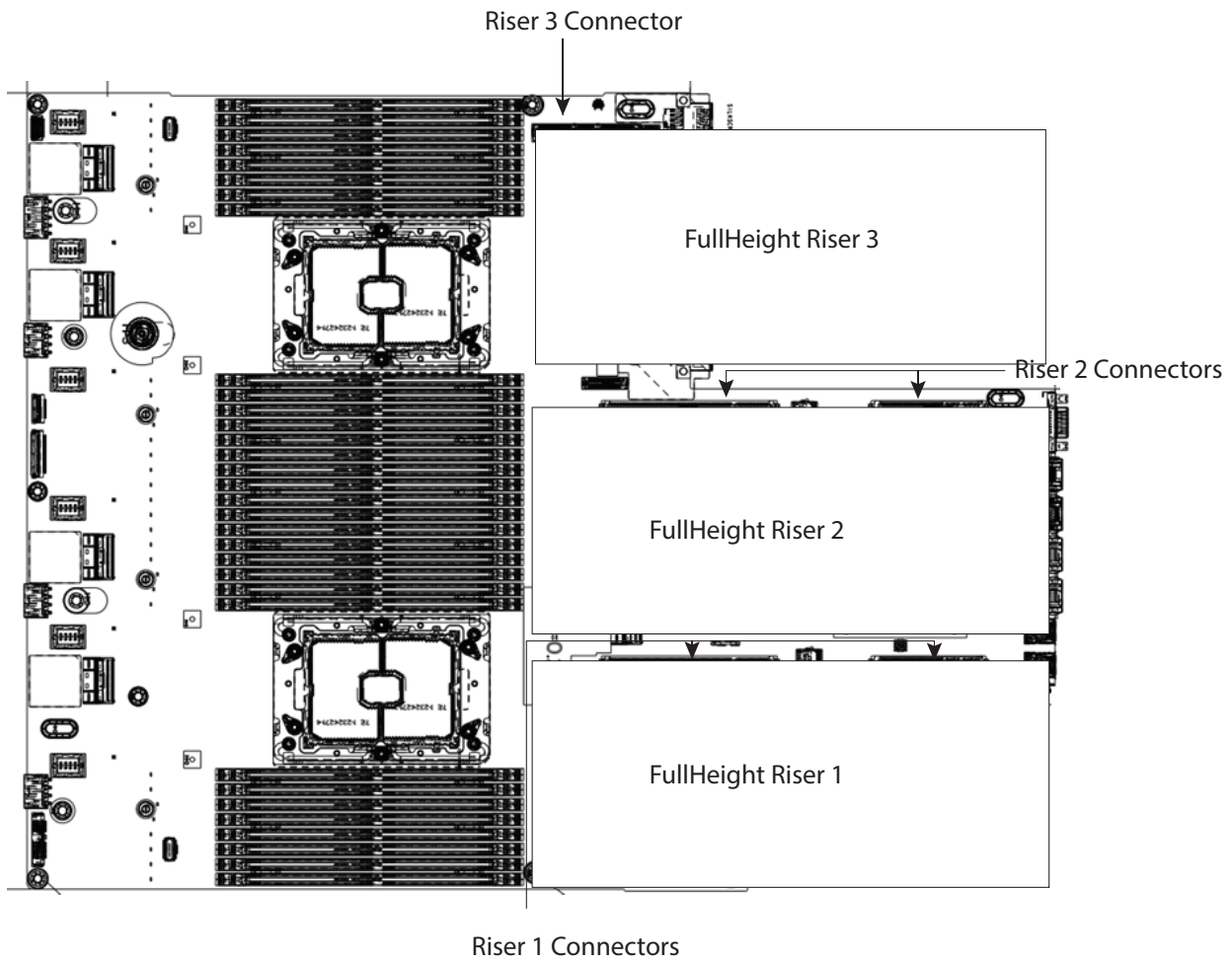
# Riser Card Configuration and Options

The riser card locations are shown in *Figure 19*.

**Figure 19     Riser Card Locations**
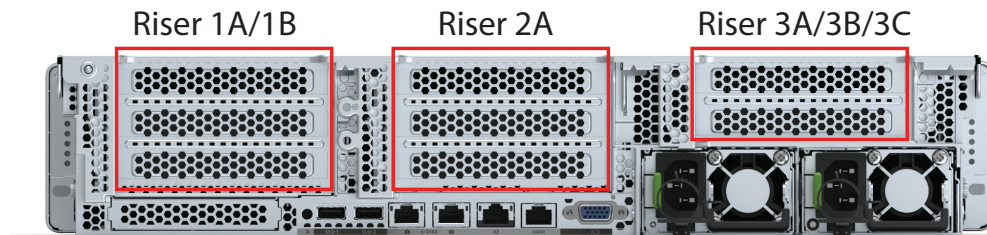


## Riser 1A

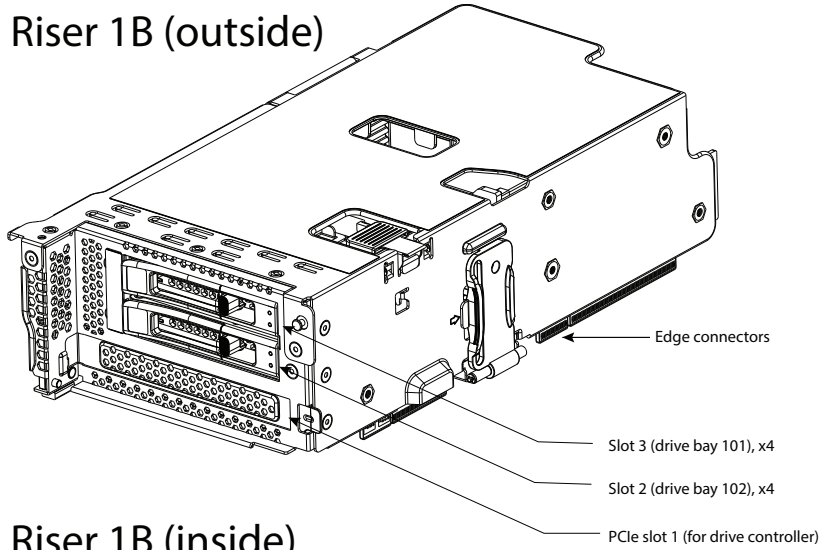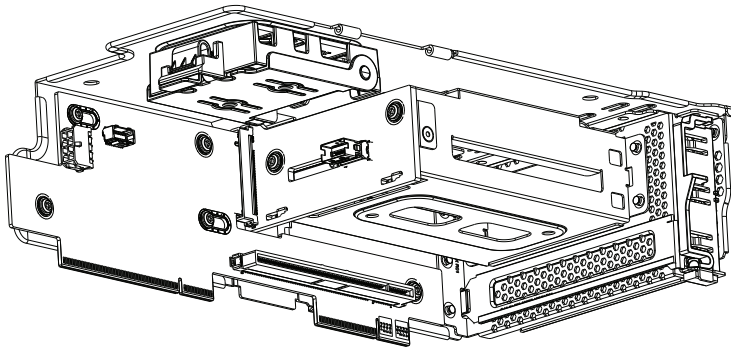Riser 1A mechanical information is shown in *Figure 20*.

**Figure 20     Riser Card 1A**



PCIe Riser 1A (outside)

Edge connectors

PCIe slot 3 (full-height, full-length, x8, no NCSI)

PCIe slot 2 (full-height, full-length, x16, NCSI, GPU)

PCIe slot 1 (full-height, 3/4 length, x8, NCSI)

PCIe Riser 1A (inside)
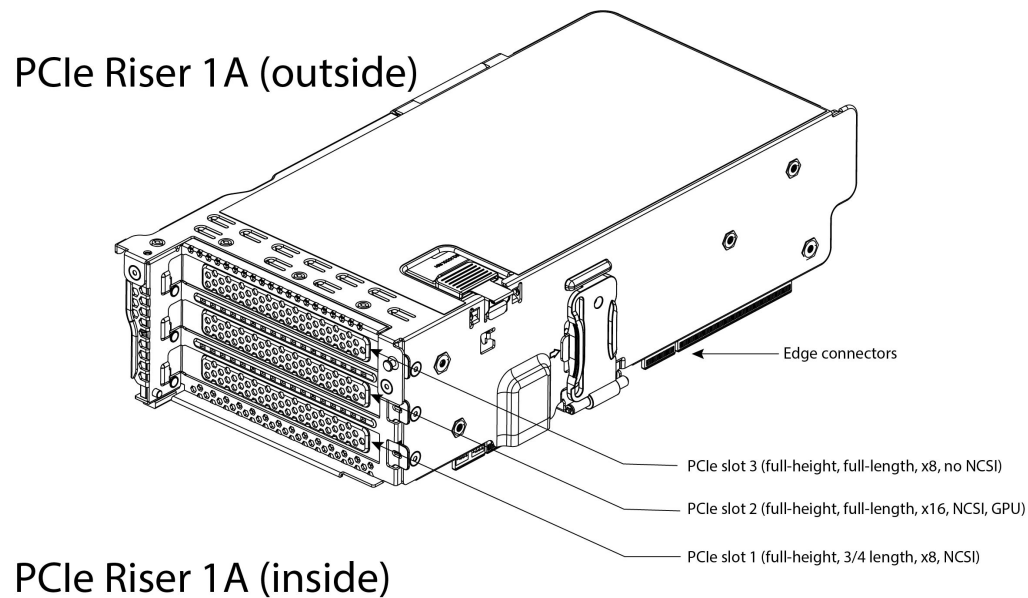
## Riser 1B

Riser 1B mechanical information is shown in *Figure 21*.

**Figure 21      Riser Card 1B**

PCIe Riser 1B (outside)

Edge connectors

Slot 3 (drive bay 101), x4

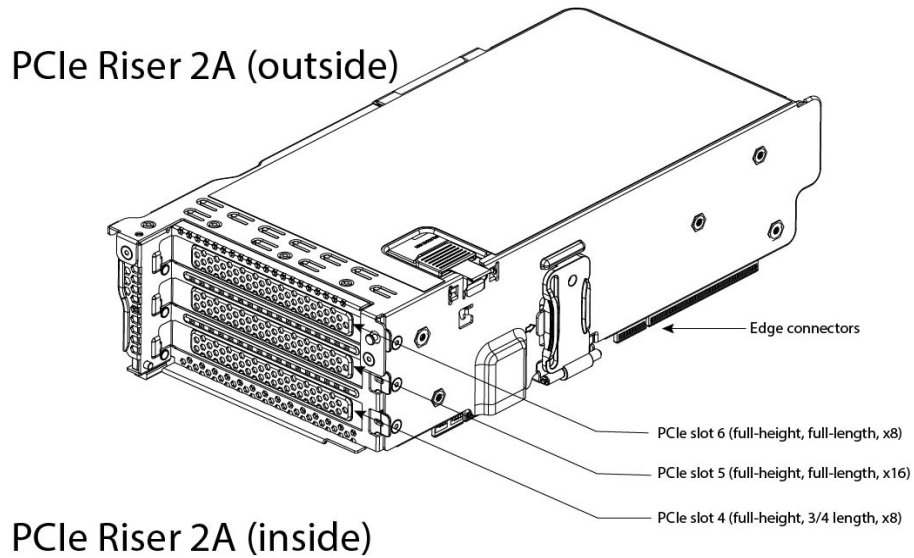Slot 2 (drive bay 102), x4

PCIe slot 1 (for drive controller)

PCIe Riser 1B (inside)

## Riser 2A

Riser 2A mechanical information is shown in *Figure 22*.
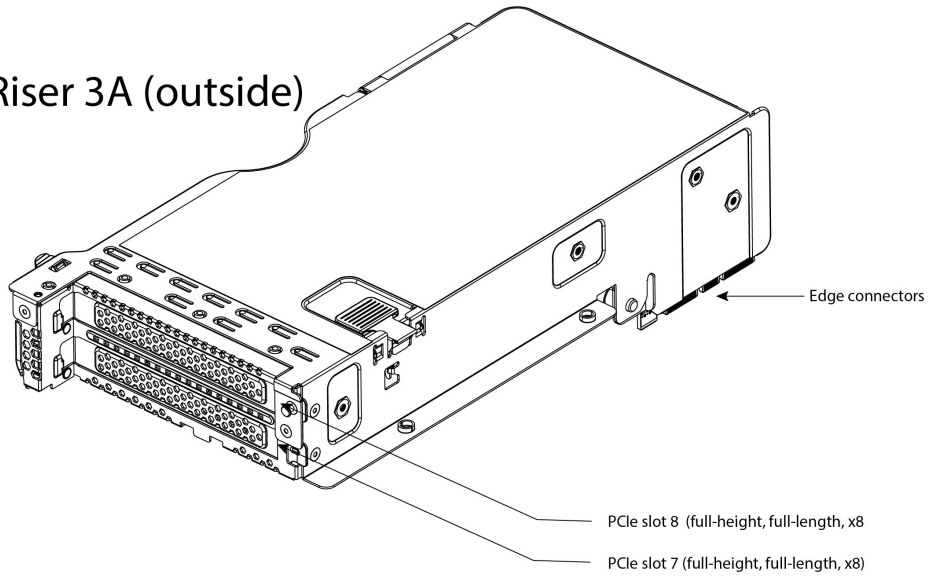
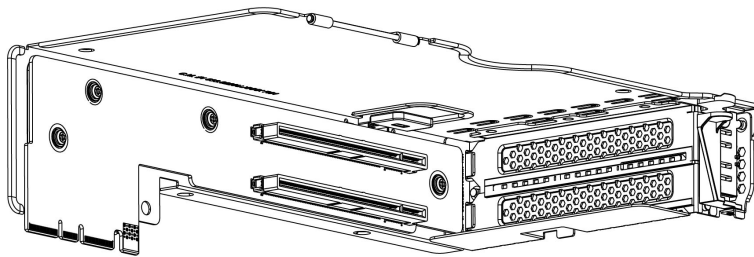**Figure 22      Riser Card 2A**

PCIe Riser 2A (outside)

Edge connectors

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

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

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

PCIe Riser 2A (inside)
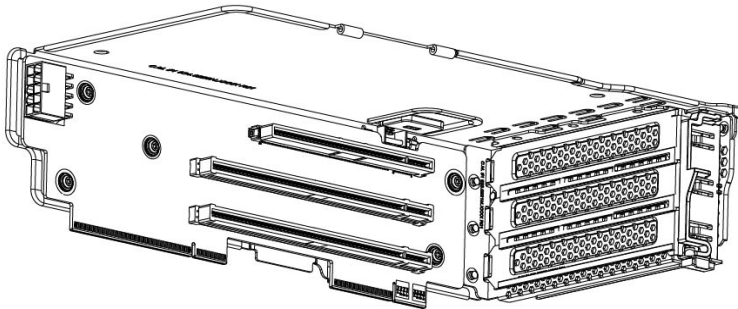
## Riser 3A

Riser 3A mechanical information is shown in *Figure 23*.

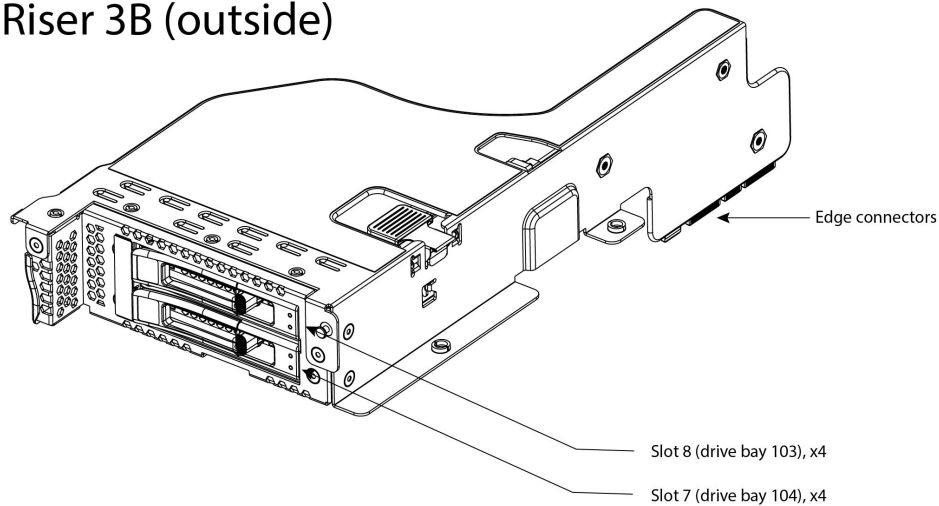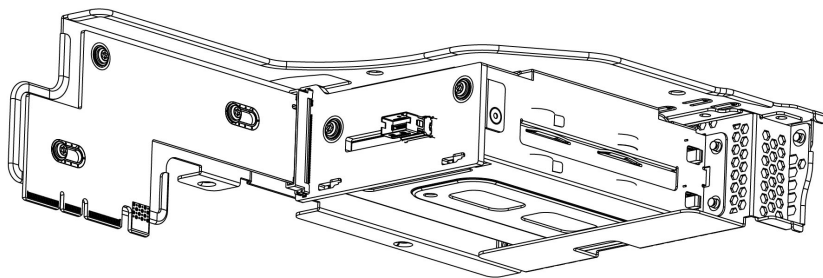**Figure 23    Riser Card 3A**



PCIe Riser 3A (outside)

Edge connectors

PCIe slot 8  (full-height, full-length, x8

PCIe slot 7 (full-height, full-length, x8)

PCIe Riser 3A (inside)

## Riser 3B

Riser 3B mechanical information is shown in *Figure 24*.

**Figure 24     Riser Card 3B**

# PCIe Riser 3B (outside)

Edge connectors

Slot 8 (drive bay 103), x4
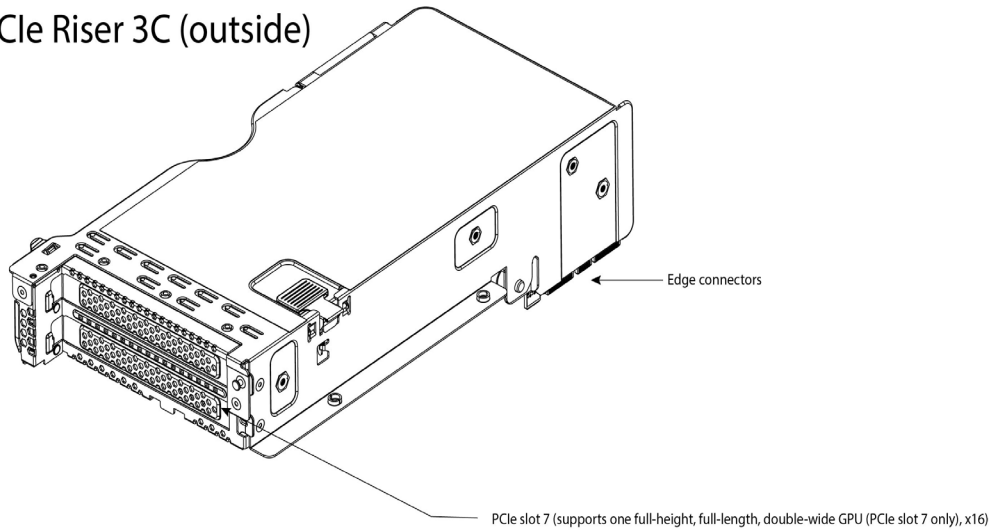
Slot 7 (drive bay 104), x4

# PCIe Riser 3B (inside)

## Riser 3C

Riser 3C mechanical information is shown in *Figure 25*.

**Figure 25     Riser Card 3C**

PCIe Riser 3C (outside)

Edge connectors

PCIe slot 7 (supports one full-height, full-length, double-wide GPU (PCIe slot 7 only), x16)

PCIe Riser 3C (inside)
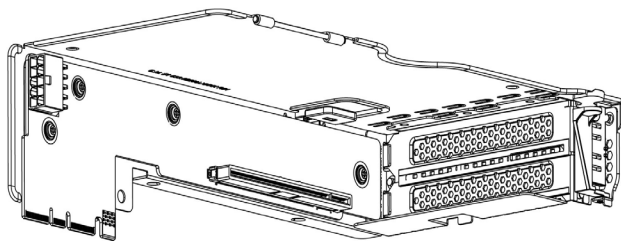
# SPARE PARTS

This section lists the upgrade and service-related parts for the HyperFlex HX240C 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 42*.

**Table 42  Spare Parts**

| Product ID (PID) | PID Description |
|---|---|
| **KVM Cable** | |
| N20-BKVM= | KVM local IO cable for UCS servers console port |
| **Risers** | |
| HX-RIS1A-240M6= | C240 M6 Riser1A; (x8;x16x, x8); StBkt; (CPU1) |
| HX-RIS1B-240M6= | C240 M6 Riser1B; 2xHDD; x16; StBkt; (CPU1) |
| UCSC-RIS2A-240M6= | C240 M6 Riser2A; (x8;x16;x8);StBkt; (CPU2) |
| HX-RIS3A-240M6= | C240 M6 Riser3A (x8;x8); StBkt; (CPU2) |
| HX-RIS3B-240M6= | C240 M6 Riser 3B; 2xHDD; StBkt; (CPU2) |
| HX-RIS3C-240M6= | C240 M6 Riser 3C |
| UCSC-FBRS2-C240M6= | C240M6 2U Riser2 Filler Blank |
| UCSC-FBRS3-C240M6= | C240M6 2U Riser3 Filler Blank |
| **CPUs** | |
| **Note:** If you are ordering a second CPU, see the **CPU Accessories** section in this table for additional parts you may need to order for the second CPU. | |
| **8000 Series Processors** | |
| HX-CPU-I8380= | Intel 8380 2.3GHz/270W 40C/60MB DDR4 3200MHz |
| HX-CPU-I8368= | Intel 8368 2.4GHz/270W 38C/57MB DDR4 3200MHz |
| HX-CPU-I8362= | Intel 8362 2.8GHz/265W 32C/48MB DDR4 3200MHz- |
| HX-CPU-I8360Y= | Intel 8360Y 2.4GHz/250W 36C/54MB DDR4 3200MHz |

**Table 42  Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| HX-CPU-I8358P= | Intel 8358P 2.6GHz/240W 32C/48MB DDR4 3200MHz |
| HX-CPU-I8358= | Intel 8358 2.6GHz/250W 32C/48MB DDR4 3200MHz |
| HX-CPU-I8352Y= | Intel 8352Y 2.2GHz/205W 32C/48MB DDR4 3200MHz |
| HX-CPU-I8352V= | Intel 8352V 2.1GHz/195W 36C/54MB DDR4 2933MHz |
| HX-CPU-I8352M= | Intel 8352M 2.3GHz/185W 32C/48MB DDR4 3200MHz |
| HX-CPU-I8352S= | Intel 8352S 2.2GHz/205W 32C/48MB DDR4 3200MHz |
| HX-CPU-I8351N= | Intel 8351N 2.4GHz/225W 36C/54MB DDR4 2933MHz |
| **6000 Series Processors** | |
| HX-CPU-I6354= | Intel 6354 3.0GHz/205W 18C/39MB DDR4 3200MHz |
| 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 |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| 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** | |
| UCS-CPU-TIM=<br><br>**Note:** This part is included with the purchase of spare CPU.Can be ordered separately. | Single CPU thermal interface material syringe for M5 server HS seal[1] |
| UCS-M6-CPU-CAR=<br><br>**Note:** This part is included with the purchase of spare CPU.Can be ordered separately. | Spare CPU Carrier for M6 |
| UCSX-HSCK=<br><br>**Note:** This part is included with the purchase of spare CPU.Can be ordered separately. | UCS CPU/Heatsink Cleaning Kit, for up to 4 CPU/heatsink sets |
| UCS-CPUAT=<br><br>**Note:** This part is included with the purchase of spare CPU.Can be ordered separately. | CPU Assembly Tool for Servers |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCSC-HSHP-240M6=<br><br><br><br>**Note:** Order this Heatsink, if you are adding additional CPU/spare CPU | Heatsink for 2U SFF M6 PCIe SKU |
| UCSC-FAN-C240M6= | C240M6 2U Fan |
| **Memory** | |
| HX-MR-X16G1RW= | 16 GB RDIMM SRx4 3200 (8Gb) |
| HX-MR-X32G1RW= | 32 GB RDIMM SRx4 3200 (16Gb) |
| HX-MR-X32G2RW= | 32 GB RDIMM DRx4 3200 (8Gb) |
| HX-MR-X64G2RW= | 64 GB RDIMM DRx4 3200 (16Gb) |
| HX-ML-128G4RW= | 128 GB LRDIMM QRx4 3200 (16Gb) |
| HX-ML-256G8RW= | 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**<br><br><br><br>**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. | |
| **HXAF240M6SN (All NVMe)** | |
| **Front Capacity Drive** | |
| 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-NVMEI4-I7680= | 7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance |
| HX-NVMEM6-W15300= | 15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0 (2a) and later** |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| HX-NVME4-15360= | 15.3TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0 (2b + Catalog) and later)** |
| HX-NVME4-1920= | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| HX-NVME4-3840= | 3.8TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| HX-NVME4-7680= | 7.6TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| **Rear Capacity Drive** | |
| 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-NVMEI4-I7680= | 7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance |
| HX-NVMEM6-W15300= | 15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0 (2a) and later** |
| HX-NVME4-15360= | 15.3TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0 (2b + Catalog) and later)** |
| HX-NVME4-1920= | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| HX-NVME4-3840= | 3.8TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| HX-NVME4-7680= | 7.6TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe (HyperFlex Release 5.0(2b) and later) |
| **Front Cache Drive** | |
| HX-NVMEXPB-I375= | 375GB 2.5in Intel Optane NVMe Extreme Performance SSD **(Mixed drive support with HyperFlex Release 5.0(2b))** |
| HX-NVMEXP-I400= | 400GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) **(HyperFlex Release 5.0(2b) and later)** |
| HX-NVMEM6-W1600= | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0(2b); Mixed drive support available)** |
| **Front System Drive** | |
| HX-NVME2H-I1000= | Cisco 2.5" U.2 1,0 TB Intel P4510 NVMe High Perf. Value Endurance |
| HX-NVME4-1920= | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe **(HyperFlex Release 5.0(2b) and later)** |
| **Boot Drive** | |
| HX-M2-240GB= | 240GB SATA M.2 |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| HX-M2-HWRAID= | Cisco Boot optimized M.2 Raid controller |
| **HXAF240M6SX (All flash)** | |
| **Front Capacity Drive** | |
| 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 |
| HX-SD960G6S1X-EV= | 960GB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD19T6S1X-EV= | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD38T6S1X-EV= | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD76T6S1X-EV= | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD |
| **Rear Capacity Drive** | |
| 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 |
| HX-SD960G6S1X-EV= | 960GB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD19T6S1X-EV= | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD38T6S1X-EV= | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD |
| HX-SD76T6S1X-EV= | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD |
| **Front 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) |
| HX-SD76TBKNK9= | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) |
| **Rear 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) |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| HX-SD960GBKNK9= | 960GB Enterprise Value SAS SSD (1X FWPD, SED) |
| HX-SD38TBKNK9= | 3.8TB Enterprise Value SAS SSD (1X FWPD, SED) |
| HX-SD76TBKNK9= | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) |
| **Front Cache Drive** | |
| HX-SD800GK3X-EP= | 800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) |
| HX-NVMEXPB-I375= | 375GB 2.5in Intel Optane NVMe Extreme Performance SSD **(Mixed drive support with HyperFlex Release 5.0(2b))** |
| HX-NVMEXP-I400= | 400GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) **(HyperFlex Release 5.0(2b) and later)** |
| HX-NVMEM6-W1600= | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance **(HyperFlex Release 5.0(2b); Mixed drive support available)** |
| **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 |
| **HX240M6SX (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) |
| **Rear 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= | 2.4 TB 12G SAS 10K RPM SFF HDD (4K) SED |

**Table 42  Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| **Rear SED Capacity Drive** | |
| HX-HD12T10NK9= | 1.2TB 12G SAS 10K RPM SFF HDD (SED) |
| HX-HD24T10NK9= | 2.4 TB 12G SAS 10K RPM SFF HDD (4K) SED |
| **Front Cache Drive** | |
| HX-SD16TK3X-EP= | 1.6TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) |
| **Front SED Cache Drive** | |
| HX-SD16TBKNK9= | 1.6TB 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 |
| **Extender Board[2]** | |
| UCSC-M2EXT-240M6= | C240M6 2U M.2 Extender board |
| **Drive Cables** | |
| CBL-SATA-C240M6= | SATA cable C240M6 (2U) |
| CBL-RSASR1B-240M6= | C240M6 2U x2 Rear SAS/SATA cable; (Riser1B) |
| CBL-RSASR3B-240M6= | C240M6 2U x2 Rear SAS/SATA cable; (Riser3B) |
| CBL-FNVME-240M6= | C240M6 2U x4 Front NVMe cable (two cables) |
| **Drive Blanking Panel** | |
| UCS-BBLKD-S2= | HX-Series M5 SFF drive blanking panel |
| **RAID Controllers**<br><br>ⓘ<br><br>**Note:** When ordering additional RAID controllers, you may need to order a cable/supercap to connect from the RAID controller to the motherboard. See the **RAID Controller Accessories** section in this table. | |
| HX-SAS-240M6= | Cisco 12G SAS HBA |
| **RAID Controller Accessories** | |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
| --- | --- |
| CBL-SAS24-240M6=<br><br>*(info icon)*<br><br>**Note:** This cable set may required, if you are adding SAS Drive and HX-SAS-240M6 (quantity 2) | C240M6 SAS cable 24 (2U); Pismo Rock |
| CBL-SAS12-240M6=<br><br>*(info icon)*<br><br>**Note:** This cable set may required, if you are adding SAS Drive and HX-SAS-240M6 (quantity 1) | C240M6 SAS cable 12 (2U); (Pismo Rock/Beach) |
| **PCI cards** | |
| **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 PCIe Cards**<br><br>*(info icon)*<br><br>**Note:** If you are adding a GPU, you may need to add cables and other accessories for the GPU. See the **GPU accessories** and **NVIDIA GPU Licenses** section of this table. | |
| HX-GPU-A10= | TESLA A10, PASSIVE, 150W, 24GB |
| HX-GPU-A30= | Tesla A30 |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
| --- | --- |
| HX-GPU-A40= | TESLA A40 RTX, PASSIVE, 300W, 48GB |
| HX-GPU-A100-80[5]= | TESLA A100, PASSIVE, 300W, 80GB |
| HX-GPU-A16= | NVIDIA A16 PCIE 250W 4X16GB |
| **GPU accessories** | |
| UCS-M10CBL-C240M5<br><br>**Note:** You may need to order this cable if you are adding an A10/M10 GPU | C240M5 NVIDIA M10/A10 Cable |
| UCS-P100CBL-240M5<br><br>**Note:** You may need to order this cable if you are adding an A100 /A40/ A16/A30 GPU | C240M5 NVIDIA P100 /RTX /A100 /A40/ A16 /A30 Cable |
| CBL-GPU-C240M6<br><br>**Note:** You may need to order this power cable if you are adding an A10 GPU | Y TYPE GPU POWER Cable for A10 GPU, C240M6 and C245M6 |
| UCSC-HSLP-M6=<br><br>**Note:** You may need to order this Heatsink if you are adding an GPUs | Heatsink for 1U/2U LFF/SFF GPU SKU |
| UCSC-ADGPU-240M6=<br><br>**Note:** You may need to order this Air Duct if you are adding an GPUs | C240M6 GPU Air Duct 2U (for DW only) |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| **NVIDIA GPU Licenses** | |
| **Note:** Order the GPU licenses if are adding the NVDIA GPUs<br><br>• If you already have a NVDIA GPU and adding another one, or if you are replacing NVDIA GPUs, then existing license should be fine.<br>• if you don't have a GPU already installed, and you are adding the first one or two, you may need to order the license. | |
| NV-VCS-1YR= | NVIDIA vCompute Server Subscription - 1 GPU - 1 Year |
| NV-VCS-3YR= | NVIDIA vCompute Server Subscription - 1 GPU - 3 Year |
| NV-VCS-5YR= | NVIDIA vCompute Server Subscription - 1 GPU - 5 Year |
| NV-VCS-R-1Y= | Renew NVIDIA vCompute Server Subscription - 1 GPU - 1 Year |
| NV-VCS-R-3Y= | Renew NVIDIA vCompute Server Subscription - 1 GPU - 3 Year |
| NV-VCS-R-5Y= | Renew NVIDIA vCompute Server Subscription - 1 GPU - 5 Year |
| NV-GRDWK-1-5S= | Quadro Perpetual Lic - NVIDIA vDWS 1CCU; 5Yr SUMS Req |
| NV-GRDVA-1-5S= | GRID Perpetual Lic - NVIDIA VDI APPs 1CCU; 5Yr SUMS Reqd |
| NV-GRDPC-1-5S= | GRID Perpetual Lic - NVIDIA VDI PC 1CCU; 5Yr SUMS Reqd |
| NV-GRD-EDP-5S= | EDU - Quadro Perpetual Lic - NVIDIA vDWS 1CCU; 5Yr SUMS Reqd |
| NV-GRID-WKP-5YR= | NVIDIA Quadro Production SUMS - vDWS 1CCU - 5 Year |
| NV-GRID-VAP-5YR= | NVIDIA GRID Production SUMS - VDI Apps 1CCU - 5 Year |
| NV-GRID-PCP-5YR= | NVIDIA GRID Production SUMS - VDI PC 1CCU - 5 Year |
| NV-GRID-EDP-5YR= | EDU - NVIDIA Quadro vDWS Production SUMS - 1CCU - 5 Year |
| NV-GRID-WKS-1YR= | NVIDIA Quadro SW Subscription - vDWS 1CCU - 1 Year |
| NV-GRID-WKS-3YR= | NVIDIA Quadro SW Subscription - vDWS 1CCU - 3 Year |
| NV-GRID-WKS-4YR= | NVIDIA Quadro SW Subscription - vDWS 1CCU - 4 Year |
| NV-GRID-WKS-5YR= | NVIDIA Quadro SW Subscription - vDWS 1CCU - 5 Year |
| NV-GRID-PCS-1YR= | NVIDIA GRID Software Subscription - VDI PC 1CCU - 1 Year |
| NV-GRID-PCS-3YR= | NVIDIA GRID Software Subscription - VDI PC 1CCU - 3 Year |
| NV-GRID-PCS-4YR= | NVIDIA GRID Software Subscription - VDI PC 1CCU - 4 Year |
| NV-GRID-PCS-5YR= | NVIDIA GRID Software Subscription - VDI PC 1CCU - 5 Year |
| NV-GRID-VAS-1YR= | NVIDIA GRID Software Subscription - VDI Apps 1CCU - 1 Year |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| NV-GRID-VAS-3YR= | NVIDIA GRID Software Subscription - VDI Apps 1CCU - 3 Year |
| NV-GRID-VAS-4YR= | NVIDIA GRID Software Subscription - VDI Apps 1CCU - 4 Year |
| NV-GRID-VAS-5YR= | NVIDIA GRID Software Subscription - VDI Apps 1CCU - 5 Year |
| NV-GRID-EDS-1YR= | EDU - NVIDIA Quadro vDWS SW Subscription - 1CCU - 1 Year |
| NV-GRID-EDS-3YR= | EDU - NVIDIA Quadro vDWS SW Subscription - 1CCU - 3 Year |
| NV-GRID-EDS-4YR= | EDU - NVIDIA Quadro vDWS SW Subscription - 1CCU - 4 Year |
| NV-GRID-EDS-5YR= | EDU - NVIDIA Quadro vDWS SW Subscription - 1CCU - 5 Year |
| NV-GRID-VAP-R-4Y= | Renew NVIDIA GRID vApps SUMS 1CCU 4 Year |
| NV-GRID-PCP-R-4Y= | Renew NVIDIA GRID vPC SUMS 1CCU 4 Year |
| NV-QUAD-WKP-R-4Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU 4 Year |
| NV-QUAD-WKPE-R-4Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU EDU 4 Year |
| NV-QUAD-WKS-R-1Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU 1 Year |
| NV-QUAD-WKS-R-3Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU 3 Year |
| NV-QUAD-WKS-R-4Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU 4 Year |
| NV-QUAD-WKS-R-5Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU 5 Year |
| NV-QUAD-WKSE-R-1Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU EDU 1 Year |
| NV-QUAD-WKSE-R-3Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU EDU 3 Year |
| NV-QUAD-WKSE-R-4Y= | Renew NVIDIA Quadro vDWS Subscr 1CCU EDU 4 Year |
| NV-GRID-VAS-R-1Y= | Renew NVIDIA GRID vApps Subscr 1CCU 1 Year |
| NV-GRID-VAS-R-3Y= | Renew NVIDIA GRID vApps Subscr 1CCU 3 Year |
| NV-GRID-VAS-R-4Y= | Renew NVIDIA GRID vApps Subscr 1CCU 4 Year |
| NV-GRID-VAS-R-5Y= | Renew NVIDIA GRID vApps Subscr 1CCU 5 Year |
| NV-GRID-PCS-R-1Y= | Renew NVIDIA GRID vPC Subscr 1CCU 1 Year |
| NV-GRID-PCS-R-3Y= | Renew NVIDIA GRID vPC Subscr 1CCU 3 Year |
| NV-GRID-PCS-R-4Y= | Renew NVIDIA GRID vPC Subscr 1CCU 4 Year |
| NV-GRID-PCS-R-5Y= | Renew NVIDIA GRID vPC Subscr 1CCU 5 Year |
| NV-QUAD-WKP-R-1Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU 1 Year |
| NV-QUAD-WKP-R-3Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU 3 Year |
| NV-QUAD-WKP-R-5Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU 5 Year |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| NV-QUAD-WKPE-R-1Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU EDU 1 Year |
| NV-QUAD-WKPE-R-3Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU EDU 3 Year |
| NV-QUAD-WKPE-R-5Y= | Renew NVIDIA Quadro vDWS SUMS 1CCU EDU 5 Year |
| NV-GRID-VAP-R-1Y= | Renew NVIDIA GRID vApps SUMS 1CCU 1 Year |
| NV-GRID-VAP-R-3Y= | Renew NVIDIA GRID vApps SUMS 1CCU 3 Year |
| NV-GRID-VAP-R-5Y= | Renew NVIDIA GRID vApps SUMS 1CCU 5 Year |
| NV-GRID-PCP-R-1Y= | Renew NVIDIA GRID vPC SUMS 1CCU 1 Year |
| NV-GRID-PCP-R-3Y= | Renew NVIDIA GRID vPC SUMS 1CCU 3 Year |
| NV-GRID-PCP-R-5Y= | Renew NVIDIA GRID vPC SUMS 1CCU 5 Year |
| NV-GRD-VA2WKP-5S= | Upgrade NVIDIA VDI APPs to Quadro vDWS 1CCU; 5Yr SUMS Reqd |
| NV-GRD-VA2PCP-5S= | Upgrade NVIDIA VDI APPs to vPC 1CCU; 5Yr SUMS Reqd |
| NV-GRD-VA2WKPE-5S= | Upgrade NVIDIA VDI to Quadro vDWS 1CCU; 5Yr SUMS Reqd |
| NV-GRD-PC2WKP-5S= | Upgrade NVIDIA vPC to Quadro vDWS 1CCU; 5Yr SUMS Reqd |
| NV-GRD-PC2WKPE-5S= | Upgrade NVIDIA vPC to Quadro vDWS 1CCU; 5Yr SUMS Reqd |
| **Power Supply** | |
| **PSU (Input High Line 210VAC)** | |
| HX-PSU1-1050W= | 1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSUV2-1050DC= | 1050W -48V DC Power Supply for Rack Server |
| HX-PSU1-1600W= | 1600W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSU1-2300W= | 2300W AC Power Supply for Rack Servers Titanium |
| **PSU (Input Low Line 110VAC)** | |
| HX-PSU1-1050W= | 1050W AC PSU Platinum (Not EU/UK Lot 9 Compliant) |
| HX-PSUV2-1050DC= | 1050W -48V DC Power Supply for Rack Server |
| HX-PSU1-2300W= | 2300W AC Power Supply for Rack Servers Titanium |
| HX-PSU1-1050ELV | 1050W AC PSU Enhanced Low Line (Not EU/UK Lot 9 Compliant) |
| **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 |

**Table 42  Spare Parts**  *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| 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 & C240 M6 rack servers |
| **CMA** | |
| HX-CMA-240M6= | Reversible CMA for C240 M6 ball bearing rail kit |
| **Security** | |
| HX-TPM-002C= | TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers |
| HX-INT-SW02= | C220 and C240 M6 Chassis Intrusion Switch |
| **Bezel** | |
| HXAF240C-BZL-M5SN | HXAF240C M5 All NVMe Security Bezel |
| HXAF240C-BZL-M5SX | HXAF240C M5 Security Bezel |
| HX240C-BZL-M5S | HX240C M5 Security Bezel |

**Notes:**

1. This part is included with the purchase of option or spare CPU or CPU processor kits.

2. Order an extender board and two matching M.2 SATA SSDs along with a boot-optimized RAID controller (see *STEP 7 SELECT DRIVES*). See *Figure 16 on page 83* for the location of the extender board connector on the motherboard. The motherboard extender board connector accepts the extender board and the extender board accepts the boot-optimized RAID controller.

# UPGRADING or REPLACING CPUs

> **NOTE:** Before servicing any CPU, do the following:
>
> - Decommission and power off the server.
> - Slide the HX240C M6 All NVMe/All Flash/Hybrid Server Nodes out from the rack.
> - Remove the top cover.

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

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

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

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

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

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

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

**(2) Order the appropriate replacement CPU from *Table 6 on page 27*:**

Carefully remove and replace the CPU and heatsink in accordance with the instructions found in "M5 server Installation and Service Guide" found at:
https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html?bookSearch=true#concept_bfk_kwp_hz

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

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

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

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

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

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

**(2) Order the appropriate new CPU from *Table 6 on page 27***

**(3) Order one heat sink for each new CPU. Order PID UCSC-HSHP-240M6= for servers with no GPU. Order PID UCSC-HSLP-M6= for servers with GPUs.**

Carefully install the CPU and heatsink in accordance with the instructions found in "M5 server Installation and Service Guide," found at:
https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_010.html?bookSearch=true#concept_bfk_kwp_hz

# UPGRADING or REPLACING MEMORY

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

**To add or replace DIMMs or PMem, 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 26 Replacing Memory**
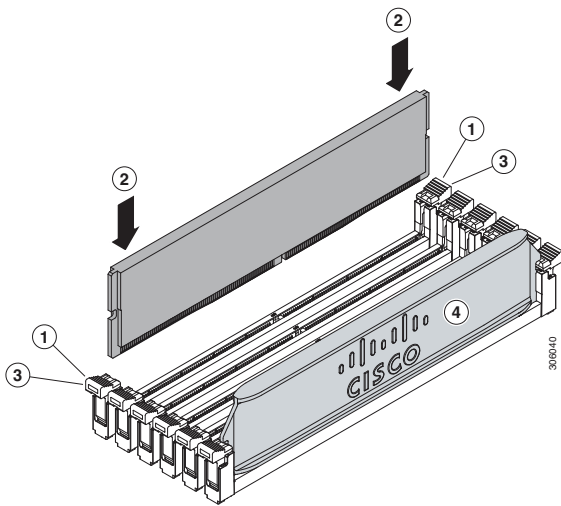


For additional details on replacing or upgrading DIMMs and PMem, see "Cisco M5 Server Installation and Service Guide" found at this link:

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

# TECHNICAL SPECIFICATIONS

## Dimensions and Weight

**Table 43  HX240C M6 All NVMe/All Flash/Hybrid Server Nodes Dimensions and Weight**

| Parameter | Value |
|---|---|
| Height | 3.42 in. (8.7 cm) |
| Width (Not including slam latches) | 16.9 in.(42.9 cm) |
| Width (including slam latches) | 18.9 in.(48.0 cm) |
| Depth | 30 in. (76.2 cm) |
| Front Clearance | 3 in. (76 mm) |
| Side Clearance | 1 in. (25 mm) |
| Rear Clearance | 6 in. (152 mm) |
| Weight | |
| Weight with following options and no rail kit:<br>0 HDD, 0 CPU, 0 DIMM, and 1 2300 W power supply | 35.7 lbs (16.2 kg) |
| Weight with following options and including rail kit:<br>0 HDD, 0 CPU, 0 DIMM, and 1 2300 W power supply | 44 lbs (20 kg) |
| Weight with following options and no rail kit:<br>1 HDD, 1 CPU, 1 DIMM, and 1 2300 W power supply | 37.6 lbs (17 kg) |
| Weight with following options and including rail kit:<br>1 HDD, 1 CPU, 1 DIMM, and 1 2300 W power supply | 45.9 lbs (20.8 kg) |
| Weight with following options and no rail kit:<br>8 HDDs, 2 CPUs, 32 DIMMs, and 2 2300 W power supplies | 44.71 lbs (20.28 kg) |
| Weight with following options and including rail kit:<br>8 HDDs, 2 CPUs, 32 DIMMs, and 2 2300 W power supplies | 49.2 lbs (22.32 kg) |
| Weight with following options and no rail kit:<br>0 HDD, 0 CPU, 0 DIMM, and 1 2300 W power supply | 33.14 lbs (15 kg) |
| Weight with following options and including rail kit:<br>0 HDD, 0 CPU, 0 DIMM, and 1 2300 W power supply | 41.45 lbs (18.8 kg) |
| Weight with following options and no rail kit:<br>1 HDD, 1 CPU, 1 DIMM, and 1 2300 W power supply | 40.55 lbs (18.4kg) |
| Weight with following options and including rail kit:<br>1 HDD, 1 CPU, 1 DIMM, and 1 2300 W power supply | 48.86 lbs (22.2 kg) |
| Weight with following options and no rail kit:<br>24 HDDs, 2 CPUs, 32 DIMMs, and 2 2300 W power supplies | 58.8 lbs (26.7 kg) |

**Table 43  HX240C M6 All NVMe/All Flash/Hybrid Server Nodes Dimensions and Weight**

| Parameter | Value |
|---|---|
| Weight with following options and including rail kit:<br><br>24 HDDs, 2 CPUs, 32 DIMMs, and 2 2300 W power supplies | 61.7 lbs (28 kg) |

# Power Specifications

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

- 1050 W (AC) power supply (see *Table 44*).
- 1050 W V2 (DC) power supply (see *Table 45*)
- 1600 W (AC) power supply (see *Table 46*)
- 2300 W (AC) power supply (see *Table 47*)

**Table 44  HX240C 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 45  HX240C 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 46  HX240C 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) | 1600 | | | |
| Maximum Rated Standby Output (W) | 36 | | | |
| Nominal Input Voltage (V rms) | 100 | 120 | 208 | 230 |
| Nominal Input Current (A rms) | NA | NA | 8.8 | 7.9 |
| Maximum Input at Nominal Input Voltage (W) | NA | NA | 1778 | 1758 |
| Maximum Input at Nominal Input Voltage (VA) | NA | NA | 1833 | 1813 |
| Minimum Rated Efficiency (%)[1] | NA | NA | 90 | 91 |
| Minimum Rated Power Factor[2] | NA | NA | 0.97 | 0.97 |
| Maximum Inrush Current (A peak) | 30 | | | |
| Maximum Inrush Current (ms) | 0.2 | | | |
| Minimum Ride-Through Time (ms)[2] | 12 | | | |

**Notes:**

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

**Table 47  HX240C 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 HX240C M6 All NVMe/All Flash/Hybrid Server Nodes are listed in *Table 48*.

**Table 48  Environmental Specifications**

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

# Extended Operating Temperature Hardware Configuration Limits

**Table 49   HX240C 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<br>NVMe SSDs | M.2 SATA SSDs<br>NVMe SSDs<br>HDDs or SSDs (Rear Bays) |
| Peripherals: | PCIe NVMe SSDs<br>GPUs | PCIe NVMe SSDs<br>GPUs<br>VICs (Slots 1 and 4)<br>NICs (Slots 1 and 4)<br>HBAs (Slots 1 and 4) |

**Notes:**

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

# Compliance Requirements

The regulatory compliance requirements for HX-Series servers are listed in *Table 50*

**Table 50  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<br>CAN/CSA-C22.2 No. 60950-1 Second Edition<br>EN 60950-1 Second Edition<br>IEC 60950-1 Second Edition<br>AS/NZS 60950-1<br>GB4943 2001 |
| EMC - Emissions | 47CFR Part 15 (CFR 47) Class A<br>AS/NZS CISPR32 Class A<br>CISPR32 Class A<br>EN55032 Class A<br>ICES003 Class A<br>VCCI Class A<br>EN61000-3-2<br>EN61000-3-3<br>KN32 Class A<br>CNS13438 Class A |
| EMC - Immunity | EN55024<br>CISPR24<br>EN300386<br>KN35 |

**Cisco HyperFlex HX240C M6 All NVMe, All Flash and Hybrid Server Nodes**