This product has been discontinued

Spec Sheet

# Cisco UCS X210c M6 Compute Node

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**https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-x-series-modular-system/datasheet-listing.html**


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**PUBLICATION HISTORY**

REV A.49 OCTOBER 16, 2026

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# OVERVIEW

The Cisco UCS X-Series Modular System simplifies your data center, adapting to the unpredictable needs of modern applications while also providing for traditional scale-out and enterprise workloads. It reduces the number of server types to maintain, helping to improve operational efficiency and agility as it helps reduce complexity. Powered by the Cisco Intersight™ cloud operations platform, it shifts your thinking from administrative details to business outcomes with hybrid cloud infrastructure that is assembled from the cloud, shaped to your workloads, and continuously optimized.

The Cisco UCS X210c M6 Compute Node is the first computing device to integrate into the Cisco UCS X-Series Modular System. Up to eight compute nodes can reside in the 7-Rack-Unit (7RU) Cisco UCS X9508 Chassis, offering one of the highest densities of compute, IO, and storage per rack unit in the industry.

The Cisco UCS X210c M6 Compute Node harnesses the power of the latest 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake), and offers the following:

- CPU: Up to 2x 3rd Gen Intel® Xeon® Scalable Processors with up to 40 cores per processor and 1.5 MB Level 3 cache per core.
- Memory: Up to 32x 256 GB DDR4-3200 DIMMs for up to 8 TB of main memory. Configuring up to 16x 512-GB Intel Optane™ persistent memory DIMMs can yield up to 12 TB of memory.
- Storage: Up to 6 hot-pluggable, Solid-State Drives (SSDs), or Non-Volatile Memory Express (NVMe) 2.5-inch drives with a choice of enterprise-class Redundant Array of Independent Disks (RAID) or pass-through controllers with four lanes each of PCIe Gen 4 connectivity and up to 2 M.2 SATA drives for flexible boot and local storage capabilities.
- Optional Front Mezzanine GPU module: The Cisco UCS Front Mezzanine GPU module is a passive PCIe Gen 4 front mezzanine option with support for up to two U.2/U.3 NVMe drives and two GPUs.
- mLOM virtual interface cards:
    - Cisco UCS Virtual Interface Card (VIC) 14425 occupies the server's Modular LAN on Motherboard (mLOM) slot, enabling up to 50 Gbps of unified fabric connectivity to each of the chassis Intelligent Fabric Modules (IFMs) for 100 Gbps connectivity per server.
    - Cisco UCS Virtual Interface Card (VIC) 15230 occupies the server's modular LAN on motherboard (mLOM) slot, enabling up to 100 Gbps of unified fabric connectivity to each of the chassis Intelligent Fabric Modules (IFMs) for 100 Gbps connectivity per server with secure boot capability.
    - Cisco UCS Virtual Interface Card (VIC) 15420 occupies the server's Modular LAN on Motherboard (mLOM) slot, enabling up to 50Gbps (2 x25Gbps) of unified fabric connectivity to each of the chassis Intelligent Fabric Modules (IFMs) for 100Gbps connectivity per server with secure boot capability
- Optional Mezzanine card:
    - Cisco UCS Virtual Interface Card (VIC) 14825 can occupy the server's mezzanine slot at the bottom rear of the chassis. This card's I/O connectors link to Cisco UCS X-Fabric technology. An included bridge card extends this VIC's 2x 50 Gbps of network connections through IFM connectors, bringing the total bandwidth to 100 Gbps per fabric (for a total of 200 Gbps per server).
    - Cisco UCS PCI Mezz card for X-Fabric can occupy the server's mezzanine slot at the bottom rear of the chassis. This card's I/O connectors link to Cisco UCS X-Fabric modules and enable connectivity to the X440p PCIe Node.

- Cisco UCS Virtual Interface Card (VIC) 15422 can occupy the server's mezzanine slot at the bottom rear of the chassis. An included bridge card extends this VIC's 100Gbps (4 x 25Gbps) of network connections through IFM connectors, bringing the total bandwidth to 100Gbps per VIC 15420 and 15422 (for a total of 200Gbps per server). In addition to IFM connectivity, the VIC 15422 I/O connectors link to Cisco UCS X-Fabric technology.

- Security: Includes secure boot silicon root of trust FPGA, ACT2 anti-counterfeit provisions, and optional Trusted Platform Model (TPM).

**NOTE:** All options listed in the Spec Sheet are compatible with Intersight Managed Mode and UCSM Managed Mode configurations. To see the most recent list of components that are supported in Intersight Managed Mode, see Supported Systems.

*Figure 1 on page 5* shows a front view of the Cisco UCS X210c M6 Compute Node.

**Figure 1 Cisco UCS X210c M6 Compute Node**

Front View with Drives




Front View with Drives and GPU



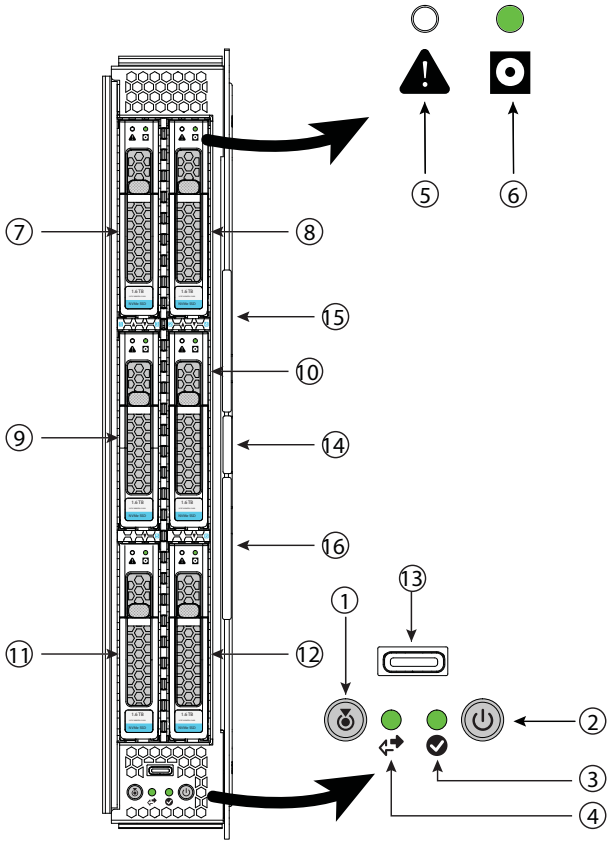
# DETAILED VIEWS

## Cisco UCS X210c M6 Compute Node Front View

*Figure 2* & *Figure 3* is a front view of the Cisco UCS X210c M6 Compute Node.

**Figure 2 Cisco UCS X210c M6 Compute Node Front View (Drives option)**

**Storage Drives Option**



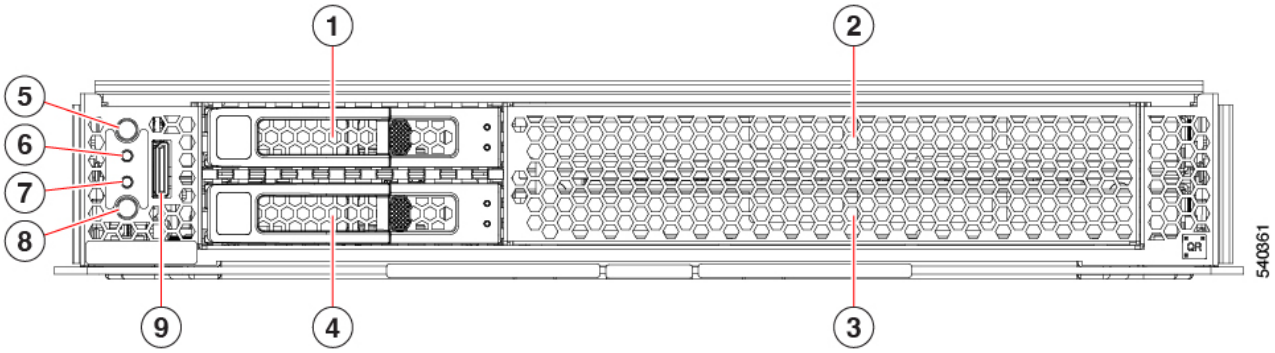

| | | | |
|---|---|---|---|
| **1** | Locate button/LED | **9** | Drive Bay 3 (shown populated) |
| **2** | Power button/LED | **10** | Drive Bay 4 (shown populated) |
| **3** | Status LED | **11** | Drive Bay 5 (shown populated) |
| **4** | Network activity LED | **12** | Drive Bay 6 (shown populated) |
| **5** | Warning LED (one per drive) | **13** | OCuLink console port[1] |
| **6** | Disk drive activity LED (one per drive) | **14** | Ejector handle retention button |
| **7** | Drive Bay 1 (shown populated) | **15** | Upper ejector handle |
| **8** | Drive Bay 2 (shown populated) | **16** | Lower ejector handle |

**Notes:**

1. An adapter cable (PID UCSX-C-DEBUGCBL) is required to connect the OCuLink port to the transition serial USB and video (SUV) octopus cable.

**Figure 3 Cisco UCS X210c M6 Compute Node Front View (Drives and GPU option)**

**Storage Drives and GPU Option**




| | | | |
|---|---|---|---|
| **1** | U.2/U.3 drive slot 1 | **6** | Activity LED |
| **2** | GPU slot 1 | **7** | Health LED |
| **3** | GPU slot 2 | **8** | Locator LED |
| **4** | U.2/U.3 drive slot 2 | **9** | Console port |
| **5** | Power Button/LED | **-** | - |

# COMPUTE NODE STANDARD CAPABILITIES and FEATURES

*Table 1* lists the capabilities and features of the base Cisco UCS X210c M6 Compute Node. Details about how to configure the compute node for a listed feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the Cisco UCS X210c M6 Compute Node on page 10*.

**Table 1 Capabilities and Features**

| Capability/Feature | Description |
|---|---|
| Chassis | The Cisco UCS X210c M6 Compute Node mounts in a Cisco UCS X9508 chassis. |
| CPU | ■ One or two 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake).<br>■ Each CPU has 8 channels with up to 2 DIMMs per socket, for up to 16 DIMMs per CPU. |
| Chipset | Intel® C621A series chipset |
| Memory | ■ 32 total 3200-MHz DIMM slots (16 per CPU)<br>■ Support for Advanced ECC<br>■ Support for registered ECC DIMMs (RDIMMs)<br>■ Support for load-reduced DIMMs (LR DIMMs)<br>■ Support for Intel® Optane™ Persistent Memory Modules (PMem), only in designated slots<br>■ Up to 8 TB DDR4 DIMM memory capacity (32x 256 GB DIMMs)<br>■ Up to 12 TB memory capacity (16x 256 GB DIMMs and 16x 512 GB PMem) |
| Mezzanine Adapter (Rear) | ■ An optional Cisco UCS Virtual Interface Card 14825 can occupy the server's mezzanine slot at the bottom of the chassis. A bridge card extends this VIC's 2x 50 Gbps of network connections up to the mLOM slot and out through the mLOM's IFM connectors, bringing the total bandwidth to 100 Gbps per fabric—a total of 200 Gbps per server.<br>■ An optional UCS PCIe Mezz card for X-Fabric is also supported in the server's mezzanine slot. This card's I/O connectors link to the Cisco UCS X-Fabric modules for UCS X-series Gen4 PCIe node access. |
| mLOM | The modular LAN on motherboard (mLOM) cards (the Cisco UCS VIC 14425/15420 and 15230) is located at the rear of the compute node.<br>■ The Cisco UCS VIC 14225/15420 is a Cisco designed PCI Express (PCIe) based card that supports two 2x25G-KR network interfaces to provide Ethernet communication to the network by means of the Intelligent Fabric Modules (IFMs) in the Cisco UCS X9508 chassis. The Cisco UCS VIC 14425 mLOM can connect to the rear mezzanine adapter card with a bridge connector.<br>■ The Cisco UCS VIC 15230 is a Cisco designed PCI Express (PCIe) based card that supports two 2x100G-KR network interfaces to provide Ethernet communication to the network by means of the Intelligent Fabric Modules (IFMs) in the Cisco UCS X9508 chassis |

**Table 1 Capabilities and Features** *(continued)*

| Capability/Feature | Description |
|---|---|
| Mezzanine Adapters (Front) | One front mezzanine connector that supports:<br>■ Up to 6 x 2.5-inch SAS and SATA RAID-compatible SSDs<br>■ Up to 6 x 2.5-inch NVMe PCIe drives<br>■ A mixture of up to six SAS/SATA **or** NVMe drives<br>■ A mixture of up to two GPUs and up to two NVMe drives<br><br>**Note:** Drives require a RAID or pass-through controller in the front mezzanine module slot or a front mezzanine GPU module. |
| Additional Storage | Dual 80 mm SATA 3.0 M.2 cards (up to 960 GB per card) on a boot-optimized hardware RAID controller |
| Video | Video uses a Matrox G200e video/graphics controller.<br>■ Integrated 2D graphics core with hardware acceleration<br>■ DDR4 memory interface supports up to 512 MB of addressable memory (16 MB is allocated by default to video memory)<br>■ Supports display resolutions up to 1920 x 1200 32 bpp@ 60Hz<br>■ Video is available with an Oculink connector on the front panel. An adapter cable (PID UCSX-C-DEBUGCBL) is required to connect the OCuLink port to the transition serial USB and video (SUV) octopus cable. |
| Front Panel Interfaces | OCuLink console port. Note that an adapter cable is required to connect the OCuLink port to the transition serial USB and video (SUV) octopus cable. |
| Power subsystem | Power is supplied from the Cisco UCS X9508 chassis power supplies. The Cisco UCS X210c M6 Compute Node consumes a maximum of 1300 W. |
| Fans | Integrated in the Cisco UCS X9508 chassis. |
| Integrated management processor | The built-in Cisco Integrated Management Controller enables monitoring of Cisco UCS X210c M6 Compute Node inventory, health, and system event logs. |
| Baseboard Management Controller (BMC) | ASPEED Pilot IV |
| ACPI | Advanced Configuration and Power Interface (ACPI) 6.2 Standard Supported. ACPI states S0 and S5 are supported. There is no support for states S1 through S4. |
| Front Indicators | ■ Power button and indicator<br>■ System activity indicator<br>■ Location button and indicator |
| Management | ■ **Cisco Intersight software** (SaaS, Virtual Appliance and Private Virtual Appliance)<br>■ Starting with UCS Manager (UCSM) 4.3(2) or later |
| Fabric Interconnect | Compatible with the Cisco UCS 6454, 64108 and 6536 fabric interconnects |

**Table 1 Capabilities and Features** *(continued)*

| Capability/Feature | Description |
|---|---|
| Chassis | Compatible with the Cisco UCS 9508 X-Series Server Chassis |

# CONFIGURING the Cisco UCS X210c M6 Compute Node

Follow these steps to configure the Cisco UCS X210c M6 Compute Node:


- *STEP 1 CHOOSE BASE Cisco UCS X210c M6 Compute Node SKU, page 11*
- *STEP 2 CHOOSE CPU(S), page 12*
- *STEP 3 CHOOSE MEMORY, page 16*
- *STEP 4 CHOOSE REAR mLOM ADAPTER, page 23*
- *STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS, page 27*
- *STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER, page 30*
- *STEP 7 CHOOSE OPTIONAL GPU PCIe NODE, page 31*
- *STEP 8 CHOOSE OPTIONAL GPUs, page 32*
- *STEP 9 CHOOSE OPTIONAL DRIVES, page 33*
- *STEP 10 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE, page 39*
- *STEP 11 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 40*
- *STEP 12 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT, page 43*
- *SUPPLEMENTAL MATERIAL, page 44*

## STEP 1 CHOOSE BASE Cisco UCS X210c M6 Compute Node SKU

Verify the product ID (PID) of the Cisco UCS X210c M6 Compute Node as shown in *Table 2*.

**Table 2 PID of the Base Cisco UCS X210c M6 Compute Node**

| Product ID (PID) | Description |
|---|---|
| UCSX-210C-M6 | Cisco UCS X210c M6 Compute Node 2S Intel 3rd Gen CPU without CPU, memory, drive bays, drives, VIC adapter, or mezzanine adapters (ordered as a UCS X9508 chassis option) |
| UCSX-210C-M6-U | Cisco UCS X210c M6 Compute Node 2S Intel 3rd Gen CPU without CPU, memory, drive bays, drives, VIC adapter, or mezzanine adapters (ordered standalone) |

A base Cisco UCS X210c M6 Compute Node ordered in *Table 2* does not include any components or options. They must be selected during product ordering.

Please follow the steps on the following pages to order components such as the following, which are required in a functional compute node:

- CPUs
- Memory
- Cisco storage RAID or passthrough controller with drives (or blank, for no local drive support)
- SAS, SATA, NVMe or M.2 drives.
- Cisco adapters (such as the 14000 series VIC or 15000 series VIC or Bridge)

## STEP 2 CHOOSE 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 3*. See *Table 4 on page 14* for CPU suffix notations.

**Table 3 Available CPUs**

| Product ID (PID) | Clock Freq (GHz) | Power (W) | Cache Size (MB) | Cores | UPI[1] Links (GT/s) | Highest DDR4 DIMM Clock Support (MHz)[2] | PMem Support |
|---|---|---|---|---|---|---|---|
| **8000 Series Processors** | | | | | | | |
| UCSX-CPU-I8380 | 2.3 | 270 | 60 | 40 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8368 | 2.4 | 270 | 57 | 38 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8362 | 2.8 | 265 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8360Y | 2.4 | 250 | 54 | 36 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8358P | 2.6 | 240 | 54 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8358 | 2.6 | 250 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8352M | 2.3 | 185 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8352Y | 2.2 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8352V | 2.1 | 195 | 54 | 36 | 3 at 11.2 | 2933 | Yes |
| UCSX-CPU-I8352S | 2.2 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I8351N[3] | 2.4 | 225 | 54 | 36 | 0 | 2933 | Yes |
| **6000 Series Processors** | | | | | | | |
| UCSX-CPU-I6354 | 3.0 | 205 | 39 | 18 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6348 | 2.6 | 235 | 42 | 28 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6346 | 3.1 | 205 | 36 | 16 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6342 | 2.8 | 230 | 36 | 24 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6338T | 2.1 | 165 | 36 | 24 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6338N | 2.2 | 185 | 48 | 32 | 3 at 11.2 | 2666 | Yes |
| UCSX-CPU-I6338 | 2.0 | 205 | 48 | 32 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6336Y | 2.4 | 185 | 36 | 24 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6334 | 3.6 | 165 | 18 | 8 | 3 at 11.2 | 3200 | Yes |
| UCSX-CPU-I6330N | 2.2 | 165 | 48 | 28 | 3 at 11.2 | 2666 | Yes |
| UCSX-CPU-I6330 | 2.0 | 205 | 42 | 28 | 3 at 11.2 | 2933 | Yes |
| UCSX-CPU-I6326 | 2.9 | 185 | 24 | 16 | 3 at 11.2 | 3200 | Yes |

**Table 3 Available CPUs**

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

**Notes:**

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

**Table 4 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 only | 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 3 on page 12*

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

- You must select two identical CPUs listed in *Table 3 on page 12*

**(3) Configurations with NVMe PCIe drives:**

- Select one or two identical CPUs listed in *Table 3 on page 12*

**(4) Configurations with GPUs:**

- Select one or two identical CPUs listed in *Table 3 on page 12*

**(5) One-CPU Configuration**

— Choose one CPU from any one of the rows of *Table 3 Available CPUs, page 12*

**(6) Two-CPU Configuration**

— Choose two identical CPUs from any one of the rows of *Table 3 Available CPUs, page 12*



**NOTE:** You cannot have two I8351N or two I6314U or two I6314U CPUs in a two-CPU configuration.



**NOTE:** If you configure a server with one I8351N CPU or one I6314U CPU or one I6314U, you cannot later upgrade to a 2-CPU system with two of these CPUs.

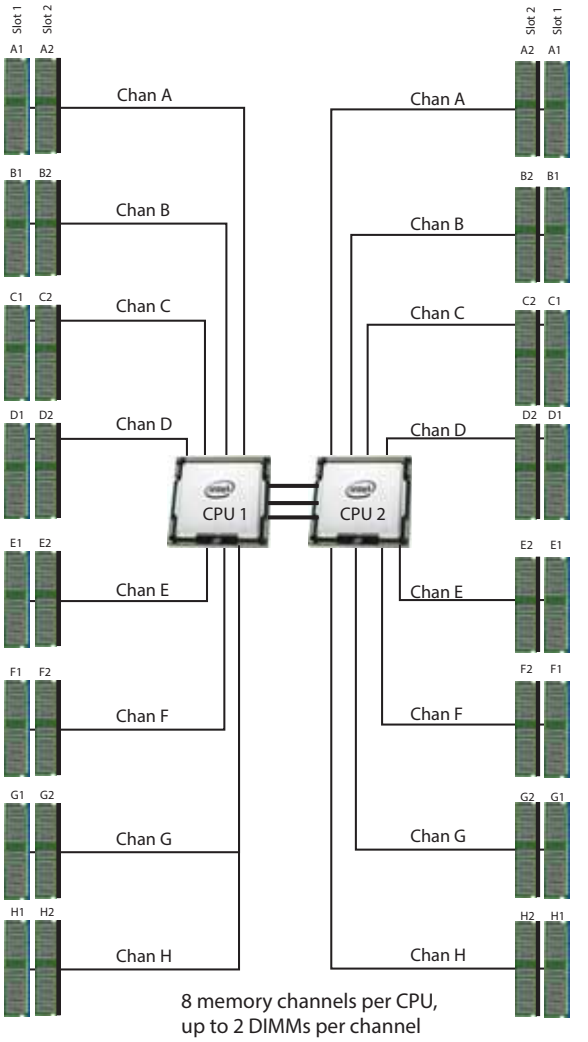
## STEP 3 CHOOSE MEMORY

The available memory for the Cisco UCS X210c M6 Compute Node is as follows:

- Clock speed: 3200 MHz
- Ranks per DIMM: 1, 2, 4, or 8
- Operational voltage: 1.2 V
- Registered ECC DDR4 DIMMS (RDIMMs), Load-reduced DIMMs (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 4*.

**Figure 4 Cisco UCS X210c M6 Compute Node Memory Organization**




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

32 DIMMS total (16 DIMMs per CPU)
8 TB maximum memory (with 256 GB DIMMs)

2 CPUs, 8 memory channels per CPU, up to 2 DIMMs per channel, up to 32 DIMMs total

### Select DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The available memory DIMMs and mirroring option are listed in *Table 5*.

**NOTE:** When memory mirroring is enabled, the memory subsystem simultaneously writes identical data to two channels. If a memory read from one of the channels returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the data from the other channel. A transient or soft error in one channel does not affect the mirrored data, and operation continues unless there is a simultaneous error in exactly the same location on a DIMM and its mirrored DIMM. Memory mirroring reduces the amount of memory available to the operating system by 50% because only one of the two populated channels provides data.

**Table 5 Available DDR4 DIMMs**

| Product ID (PID) | PID Description | Voltage | Ranks /DIMM |
|---|---|---|---|
| **3200-MHz DIMMs** | | | |
| UCSX-MR-X16G1RW | 16 GB RDIMM SRx4 3200 (8Gb) | 1.2 V | 1 |
| UCSX-MR-X32G1RW | 32GB RDIMM SRx4 3200 (16Gb) | 1.2 V | 1 |
| UCSX-MR-X32G2RW | 32 GB RDIMM DRx4 3200 (8Gb) | 1.2 V | 2 |
| UCSX-MR-X64G2RW | 64 GB RDIMM DRx4 3200 (16Gb) | 1.2 V | 2 |
| UCSX-ML-128G4RW | 128 GB LRDIMM QRx4 3200 (16Gb) | 1.2 V | 4 |
| UCSX-ML-256G8RW | 256 GB LRDIMM 8Rx4 3200 (16Gb) | 1.2 V | 8 |
| **Intel® Optane™ Persistent Memory (PMem)[1]** | | | |
| UCSX-MP-128GS-B0 | Intel® Optane™ Persistent Memory, 128GB, 3200 MHz | | |
| UCSX-MP-256GS-B0 | Intel® Optane™ Persistent Memory, 256 GB, 3200 MHz | | |
| UCSX-MP-512GS-B0 | Intel® Optane™ Persistent Memory, 512 GB, 3200 MHz | | |
| **DIMM Blank[2]** | | | |
| UCS-DIMM-BLK | UCS DIMM Blank | | |
| **Intel® Optane™ Persistent Memory (PMem) Operational Modes** | | | |
| UCS-DCPMM-AD | App Direct Mode | | |
| UCS-DCPMM-MM | Memory Mode | | |
| **Memory Mirroring Option** | | | |
| N01-MMIRROR | Memory mirroring option | | |

**Notes:**

1. All 3rd Generation Intel® Xeon® Scalable Processors (Ice Lake) support PMem products, except 4309Y, 4310, 4310T, and 4316 processor.
2. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.

### Approved Configurations

**(1) 1-CPU configuration without memory mirroring:**

- 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) 1-CPU configuration with memory mirroring:**

- Select 2, 4, 8, 12, or 16 DIMMs per CPU (DIMMs for all CPUs must be configured identically). In addition, the memory mirroring option (N01-MMIRROR) as shown in *Table 5 on page 17* must be selected.

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

| # DIMMs Per CPU | CPU 1 DIMM Placement in Channels (for identical ranked DIMMs) |
|---|---|
| 2 | (A1, E1) |
| 4 | (A1, C1); (E1, G1) |
| 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) |

- Select the memory mirroring option (N01-MMIRROR) as shown in *Table 5 on page 17*.

**(3) 2-CPU configuration without memory mirroring:**

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

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

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

**(4) 2-CPU configuration with memory mirroring:**

- Select 2, 4, 8, 12, or 16 DIMMs per CPU (DIMMs for all CPUs must be configured identically). In addition, the memory mirroring option (N01-MMIRROR) as shown in *Table 5 on page 17* must be selected.

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

| # DIMMs Per CPU | CPU 1 DIMM Placement in Channels (for identical ranked DIMMs) | CPU 2 DIMM Placement in Channels (for identically ranked DIMMs) |
|---|---|---|
| 2 | (A1, E1) | (A1, E1) |
| 4 | (A1, C1); (E1, G1) | (A1, C1); (E1, G1) |
| 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) |

- Select the memory mirroring option (N01-MMIRROR) as shown in *Table 5 on page 17*.



**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 6 3200-MHz DIMM Memory Speeds with Different 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)**

| DIMM and CPU Frequencies (MHz) | DPC | LRDIMM (8Rx4)- 256 GB (MHz) | LRDIMM (QRx4) - 128 GB (MHz) | RDIMM (2Rx4) - 64 GB (MHz) | RDIMM (DRx4) - 32 GB (MHz) | RDIMM (SRx4) - 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
**Cisco UCS X210c M6 Compute Node Memory Guide**

See *Table 7* for PMem memory modes.

**Table 7 Intel® Optane™ Persistent Memory Modes**

| Intel® Optane™ Persistent Memory Modes | |
|---|---|
| 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. |
| Memory Mode: | PMem operates as a 100% memory module. Data is volatile and DRAM acts as a cache for PMem. Only the PMem capacity counts towards the CPU capacity limit. This is the factory default mode. |

**Table 8 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake) DIMM and PMem[1] Physical Configuration**

| DIMM + PMem Count | CPU 1 or CPU 2 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICX: IMC2 | | | | ICX: IMC3 | | | | ICX: IMC1 | | | | ICX: IMC0 | | | |
| | Chan 0 (E) | | Chan 1 (F) | | Chan 0 (G) | | Chan 1 (H) | | Chan 0 (C) | | Chan 1 (D) | | Chan 0 (A) | | Chan 1 (B) | |
| | Slot 1 | Slot 2 | Slot 1 | Slot 2 | Slot 1 | Slot 2 | Slot 1 | Slot 2 | Slot 2 | Slot 1 | Slot 2 | Slot 1 | Slot 2 | Slot 1 | Slot 2 | Slot 1 |
| 4 + 4[2] | PMem | | DIMM | | PMem | | DIMM | | | DIMM | | PMem | | DIMM | | PMem |
| 8 + 1[3] | DIMM | | DIMM | | DIMM | | DIMM | | | DIMM | | DIMM | PMem | DIMM | | DIMM |
| 8 + 4[4] | DIMM | | DIMM | PMem | DIMM | | DIMM | PMem | PMem | DIMM | | DIMM | PMem | DIMM | | DIMM |
| 8 + 8[5] | DIMM | PMem | DIMM | PMem | DIMM | PMem | DIMM | PMem | PMem | DIMM | PMem | DIMM | PMem | DIMM | PMem | DIMM |
| NOTE: AD = App Direct Mode, MM = Memory Mode | | | | | | | | | | | | | | | | |

**Notes:**

1. All systems must be fully populated with two CPUs when using PMem at this time.
2. AD, MM
3. AD
4. AD, MM
5. AD, MM

For detailed Intel PMem configurations, refer to

**https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html**

For detailed DIMM/PMem informations, refer to

**Cisco UCS X210c M6 Compute Node Memory Guide**

## STEP 4 CHOOSE REAR mLOM ADAPTER

The Cisco UCS X210c M6 Compute Node must be ordered with a Cisco VIC mLOM Adapter. The adapter is located at the back and can operate in a single-CPU or dual-CPU configuration. *Table 9* shows the mLOM adapter choices.

**Table 9 mLOM Adapters**

| Product ID (PID) | Description | Connection type |
|---|---|---|
| UCSX-V4-Q25GML | UCS VIC 14425 4x25G mLOM for X Compute Node | mLOM |
| UCSX-ML-V5D200GV2 | Cisco UCS VIC 15230 modular LOM w/Secure Boot X Compute Node | mLOM |
| UCSX-ML-V5Q50G | UCS VIC 15420 4x25G secure boot mLOM for X Compute Node | mLOM |

**NOTE:**

- VIC 14425, 15420, or 15230 are supported with both X9108-IFM-25G and X9108-IFM-100G. VIC 14425 and VIC 15420 will operate at 4x 25G with both X9108-IFM-25G and X9108-IFM-100G. While, VIC 15231 will operate at 4x 25G with X9108-IFM-25G and at 2x 100G with X9108-IFM-100G.
- The mLOM adapter is mandatory for the Ethernet connectivity to the network by means of the IFMs and has x16 PCIe Gen3 connectivity with Cisco UCS VIC 14425, x16 Gen4 connectivity with Cisco UCS VIC 15230, and x16 Gen4 connectivity with Cisco UCS VIC 15420 towards the CPU1.
- There is no backplane in the Cisco UCS X9508 chassis; thus the compute nodes directly connect to the IFMs using Orthogonal Direct connectors.
- *Figure 5* shows the location of the mLOM and rear mezzanine adapters on the Cisco UCS X210c M6 Compute Node. The bridge adapter connects the mLOM adapter to the rear mezzanine adapter.

**Figure 5 Location of mLOM and Rear Mezzanine Adapters**

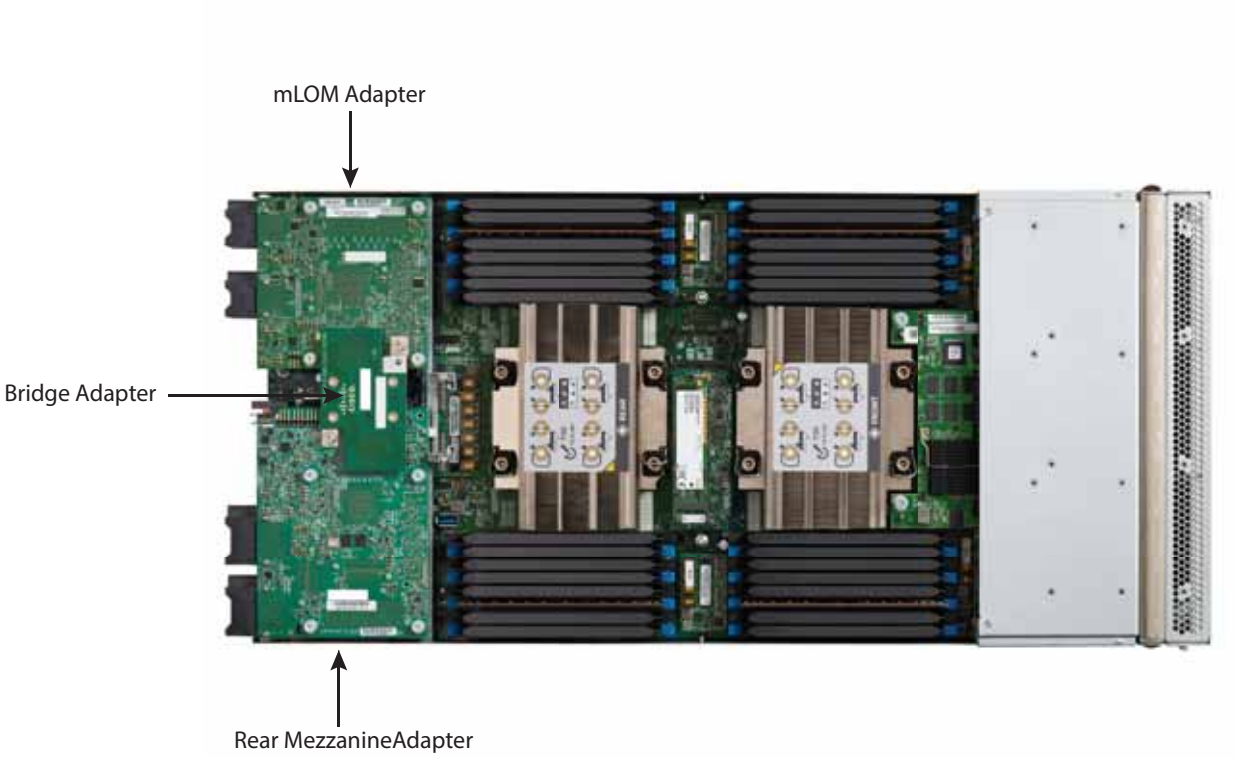


*Figure 6* shows the network connectivity from the mLOM out to the 25G IFMs.

**Figure 6 Network Connectivity 25G IFMs**

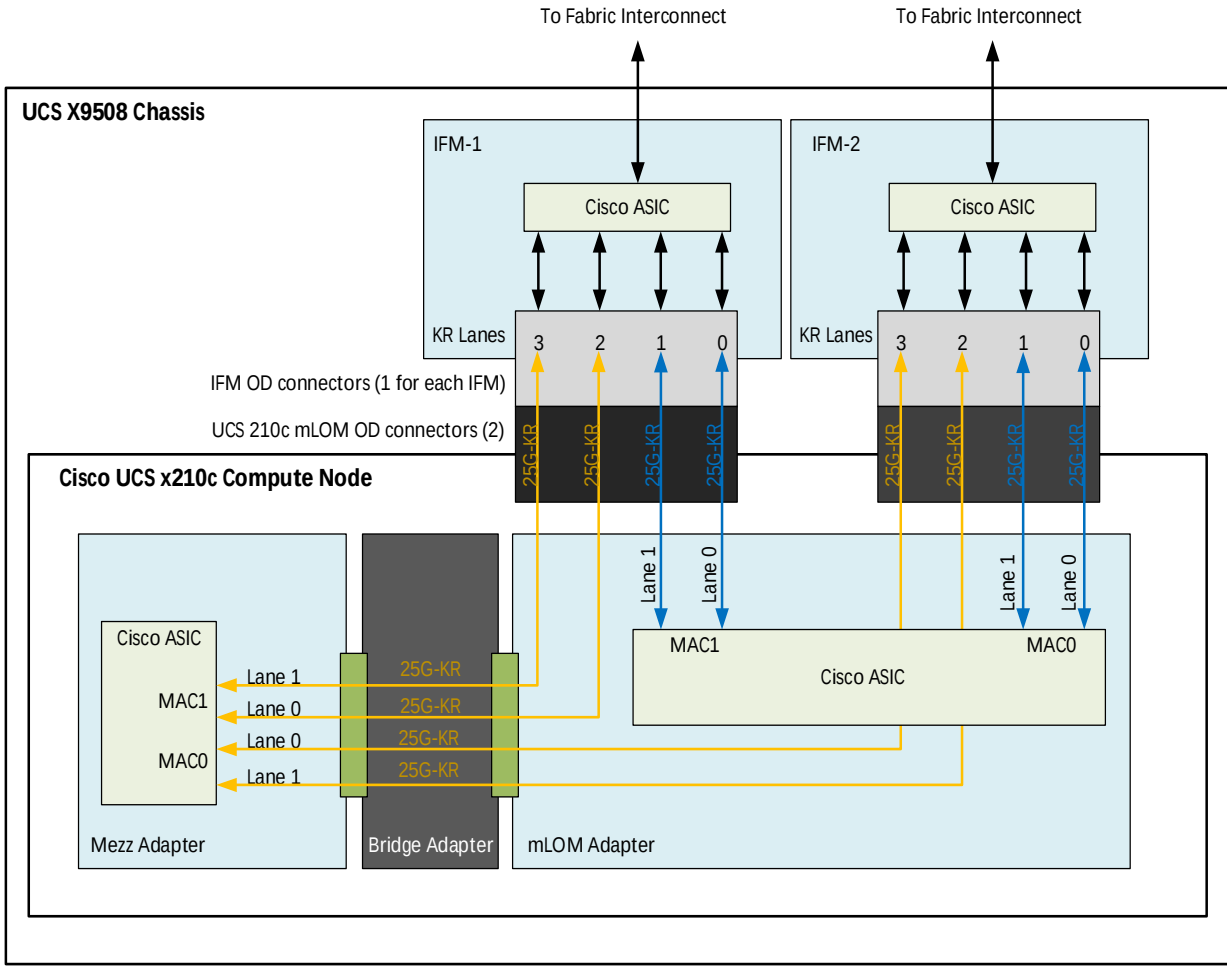
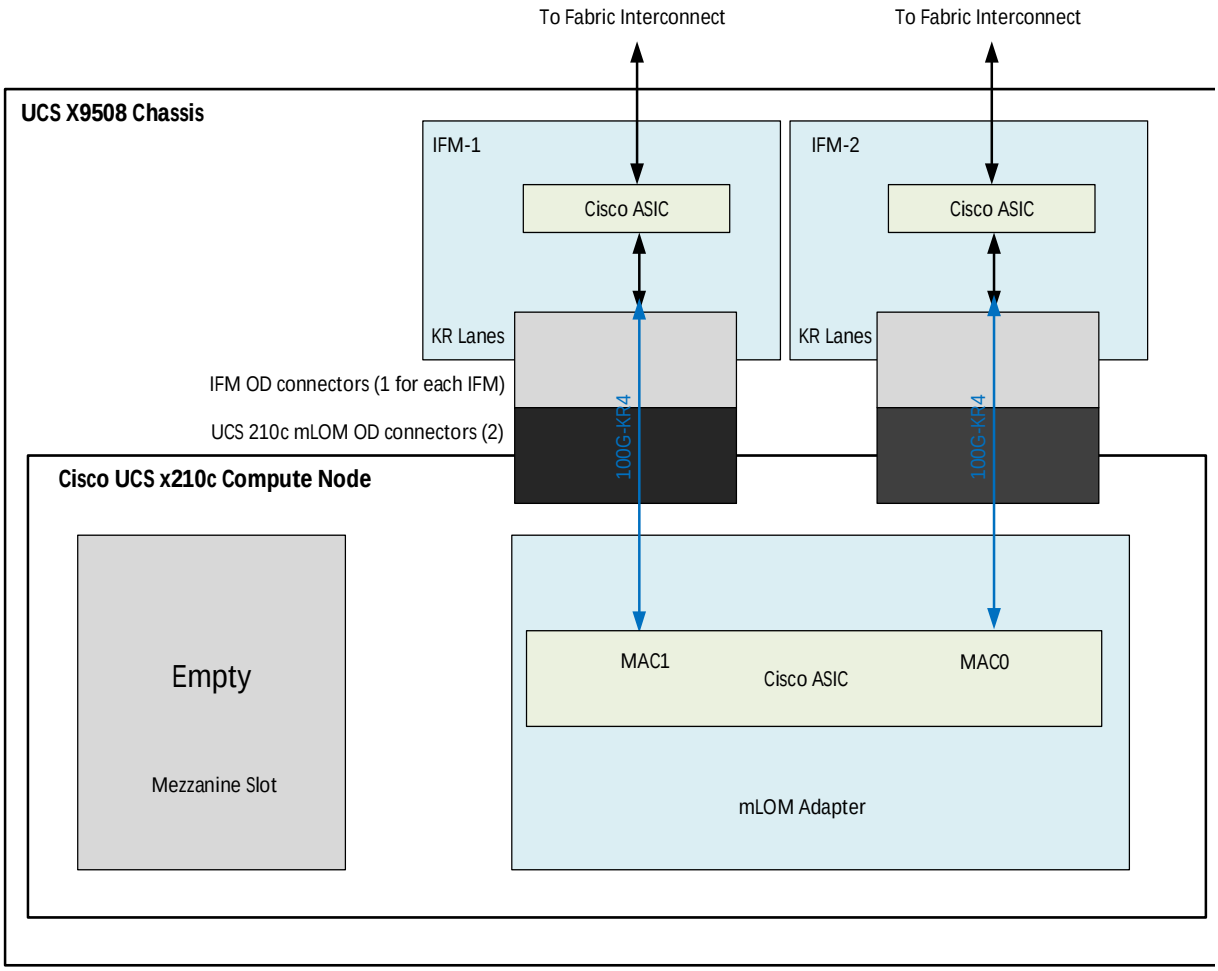


*Figure 7* shows the network connectivity from the mLOM out to the 100G IFMs.

**Figure 7 Network Connectivity 100G IFMs**



## STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS

The Cisco UCS X210c M6 Compute Node has one rear mezzanine adapter connector which can have a UCS VIC 14825/15422 Mezz card that can be used as a second VIC card on the compute node for network connectivity or as a connector to the X440p PCIe node via X-Fabric modules. The same mezzanine slot on the compute node can also accommodate a pass-through mezzanine adapter for X-Fabric which enables compute node connectivity to the X440p PCIE node. Refer to *Table 10* for supported adapters.

**Table 10 Available Rear Mezzanine Adapters**

| Product ID(PID) | PID Description | CPUs Required | Connector Type |
|---|---|---|---|
| **Cisco VIC Card** | | | |
| UCSX-V4-Q25GME | UCS VIC 14825[1] 4x25G mezz for X Compute Node | 2 CPUs required | Rear Mezzanine connector on motherboard |
| UCSX-ME-V5Q50G | UCS VIC 15420[2] 4x25G secure boot mLOM for X Compute Node | 2 CPUs required | Rear Mezzanine connector on motherboard |
| UCSX-V4-PCIME | UCS PCI Mezz Card for X-Fabric | 2 CPUs required | Rear Mezzanine connector on motherboard |
| **Cisco VIC Bridge Card** | | | |
| UCSX-V4-BRIDGE[3] | UCS VIC 14000 bridge connect mLOM and mezz X Compute Node | 2 CPUs required | One connector on Mezz card and one connector on mLOM card |
| UCSX-V5-BRIDGE[4] | UCS VIC 15000 bridge to connect mLOM and mezz X Compute Node<br>(This bridge to connect the Cisco VIC 15420 mLOM and Cisco VIC 15422 Mezz for the X210c M6 Compute Node) | 2 CPUs required | One connector on Mezz card and one connector on mLOM card |

**Notes:**

1. Cisco UCS VIC 14825 can only be used with the Cisco UCS VIC 14425 mLOM
2. Cisco UCS VIC 15420 can only be used with the Cisco UCS VIC 15422 mLOM
3. Included with the Cisco VIC 14825
4. Included with the Cisco VIC 15422



**NOTE:** The UCSX-V4-PCIME rear mezzanine card for X-Fabric has PCIE Gen4 x16 connectivity towards each CPU1 and CPU2. Additionally, the UCSX-V4-PCIME also provides two PCIE Gen4 x16 to each X-fabric. This rear mezzanine card enables connectivity from the X210c M6 Compute Node to the X440p PCIe node.

**Table 11 Throughput Per UCS X210c M6 Server**

| X210c M6 Compute Node | FI-6536 + X9108-IFM-100G | FI-6536/6400 + X9108-IFM-25G | FI-6536 + X9108-IFM-25G/100G or FI-6400 + X9108-IFM-25G | FI-6536 + X9108-IFM-25G/100G or FI-6400 + X9108-IFM-25G | |
|---|---|---|---|---|---|
| x210c configuration | VIC 15230 | VIC 15230 | VIC 14425/15420 | VIC 14425 + VIC 14825 | |
| Throughput per node | 200G (100G per IFM) | 100G (50G per IFM) | 100G (50G per IFM) | 200G (100G per IFM) | |
| vNICs needed for max BW | 2 | 2 | 2 | 4 | |
| KR connectivity from VIC to each IFM | 1x 100GKR | 2x 25GKR | 2x 25GKR | 4x 25GKR | |
| Single vNIC throughput on VIC | 100G (1x100GKR) | 50G (2x25G KR) | 50G (2x25G KR) | 50G (2x25G KR) | 50G (2x25G KR) |
| Max Single flow BW per vNIC | 100G | 25G | 25G | 25G | 25G |
| Single vHBA throughput on VIC | 100G | 50G | 50G | 50G | 50G |

### Supported Configurations

- One of the mLOM VIC from *Table 9* is always required .
- If a UCSX-V4-Q25GME rear mezzanine VIC card is installed, a UCSX-V4-BRIDGE VIC bridge card is included and connects the mLOM to the mezzanine adapter.
- If a UCSX-ME-V5Q50G rear mezzanine VIC card is installed, a UCSX-V5-BRIDGE VIC bridge card is included and connects the mLOM to the mezzanine adapter.
- The UCSX-V4-Q25GME rear mezzanine card has Ethernet connectivity to the IFM using the UCSX-V4-BRIDGE and has a PCIE Gen3 x16 connectivity towards CPU2. Additionally, the UCSX-V4-Q25GME also provides two PCIE Gen4 x16 to each X-fabric.
- The UCSX-ME-V5Q50G rear mezzanine card has Ethernet connectivity to the IFM using the UCSX-V5-BRIDGE and has a PCIE Gen4 x16 connectivity towards CPU2. Additionally, the UCSX-ME-V5Q50G also provides two PCIe Gen4 x16 to each X-fabric.

- All the connections to Cisco UCS X-Fabric 1 and Cisco UCS X-Fabric 2 are through the Molex Orthogonal Direct (OD) connector on the mezzanine card.
- The rear mezzanine card has 32 x16 PCIe lanes to each Cisco UCS X-Fabric for I/O expansion to enable resource consumption from the PCIe resource nodes.

## STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER

The Cisco UCS X210c M6 Compute Node has one front mezzanine connector that can accommodate one of the following mezzanine cards:

- Pass-through controller for up to 6 U.2/U.3 NVMe drives
- RAID controller (RAID levels 0, 1, 5, 6, 10, and 50) for 6 SAS/SATA/U.3 NVMe drives or up to 4 U.2 NVMe drives (drive slots 1-4) and SAS/SATA/U.3 NVMe (drive slots 5-6)
- GPU Front Mezz to Support up to 2 U.2/U.3 NVMe drives and 2 NVIDIA T4 GPUs

The Cisco UCS X210c M6 Compute Node can be ordered with or without the front mezzanine adapter. Refer to *Table 12 Available Front Mezzanine Adapters*.

**Table 12 Available Front Mezzanine Adapters**

| Product ID(PID) | PID Description | Connector Type |
|---|---|---|
| UCSX-X10C-PT4F | Cisco UCS X210c M6 Compute Node compute pass through controller for up to 6 NVMe drives | Front Mezzanine |
| UCSX-X10C-RAIDF | Cisco UCS X210c M6 Compute Node RAID controller w/4GB Cache, with LSI 3900 for up to 6 SAS/SATA drives or up to 4 NVMe drives (SAS/SATA and NVMe drives can be mixed). | Front Mezzanine |
| UCSX-X10C-GPUFM | UCS X210c M6 Compute Node Front Mezz to support up to 2 NVIDIA T4 GPUs and 2 NVMe drives | Front Mezzanine |



**NOTE:** Only one Front Mezzanine connector or Front GPU can be selected per Server

## STEP 7 CHOOSE OPTIONAL GPU PCIe NODE

Refer to *Table 13* for GPU PCIe Node

**Table 13 GPU PCIe Node**

| Product ID(PID) | PID Description |
|---|---|
| UCSX-440P | UCS X-Series Gen4 PCIe node |



**NOTE:**

- If UCSX-440P-D is selected, then rear mezzanine is required.

## STEP 8 CHOOSE OPTIONAL GPUs

### Select GPU Options

The available Compute node GPU options are listed in *Table 14*.

**Table 14 Available PCIe GPU Card supported on the Compute Node Front Mezz**

| GPU Product ID (PID) | PID Description |
|---|---|
| UCSX-GPU-T4-MEZZ | NVIDIA T4 GPU PCIE 75W 16GB, MEZZ form factor |

The available PCIe node GPU options are listed in *Table 15*.

**Table 15 Available PCIe GPU Cards supported on the PCIe Node**

| GPU Product ID (PID) | PID Description |
|---|---|
| UCSX-GPU-T4-16[1] | NVIDIA T4 PCIE 75W 16GB |
| UCSX-GPU-A16[2] | NVIDIA A16 PCIE 250W 4X16GB |
| UCSX-GPU-A100-80[2] | TESLA A100, PASSIVE, 300W, 80GB |
| UCSC-GPU-L40S | NVIDIA L40S: 350W, 48GB, 2-slot FHFL GPU |

**Notes:**

1. The maximum number of GPUs per node is 4
2. The maximum number of GPUs per node is 2
3. Required power cables are included with the riser cards

## STEP 9 CHOOSE OPTIONAL DRIVES

The Cisco UCS X210c M6 Compute Node can be ordered with or without drives. The drive options are:

- One to six 2.5-inch small form factor SAS/SATA SSDs or PCIe U.2/U.3 NVMe drives
  - Hot-pluggable
  - Sled-mounted
- Up to two SATA M.2 RAID modules can be selected to be installed in the 6GB/s SATA boot-optimized M.2 RAID controller. The boot-optimized RAID controller plugs into the motherboard.



**NOTE:** It is recommended that M.2 SATA SSDs be used as boot-only devices.

Select one or two drives from the list of supported drives available in *Table 16*.

**Table 16 Available Drive Options**

| Product ID (PID) | Description | Drive Type | Speed | Performance/ Endurance/ Value | Size |
|---|---|---|---|---|---|
| **SAS/SATA SSDs[1,2,3]** | | | | | |
| **Self-Encrypted Drives (SED)** | | | | | |
| UCSX-SD38TBKNK9 | 3.8 TB Enterprise value SAS SSD (1X DWPD, SED) | SAS/ SED | | Ent. Value 1X | 3.8 TB |
| UCSX-SD76TBKANK9 | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) | SAS/ SED | | Ent. Value 1X | 7.6 TB |
| UCSX-SD38TBKANK9 | 3.8TB 2.5in Enterprise value 12G SAS SSD (1DWPD, SED-FIPS) | SAS/ SED | | Ent. Value 1X | 3.8 TB |
| UCSX-SD960GM2NK9 | 960GB Enterprise value SATA SSD (1X , SED) | SAS/ SED | | Ent. Perf 3X | 960 GB |
| UCSX-SD76TEM2NK9 | 7.6TB Enterprise value SATA SSD (1X, SED) | SAS/ SED | | Ent. Perf 3X | 7.6 TB |
| UCSX-SD16TBKANK9 | 1.6TB 2.5 Enterprise performance 12GSAS SSD(3DWPD,SED-FIPS) | SAS/ SED | | Ent. Perf 3X | 1.6 TB |
| **Enterprise Performance SSDs (high endurance, supports up to 3X DWPD (drive writes per day))** | | | | | |
| UCSX-SD19T63X-EP | 1.9 TB 2.5 inch Enterprise performance 6G SATA SSD(3X endurance) | SATA | 6G | Ent. Perf 3X | 1.9 TB |
| UCSX-SD480G63X-EP | 480 GB 2.5in Enterprise performance 6G SATA SSD (3X endurance) | SATA | 6G | Ent. Perf 3X | 480 GB |
| UCSX-SD19TBM3X-EP | 1.9TB 2.5in Enterprise performance 6GSATA SSD(3X endurance) | SATA | 6G | Ent. Perf 3X | 1.9 TB |
| UCSX-SD960GBM3XEP | 960GB 2.5in Enterprise performance 6GSATA SSD(3X endurance) | SATA | 6G | Ent. Perf 3X | 960 GB |

**Table 16 Available Drive Options** *(continued)*

| Product ID (PID) | Description | Drive Type | Speed | Performance/ Endurance/ Value | Size |
|---|---|---|---|---|---|
| UCSX-SD480GBM3XEP | 480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance) | SATA | 6G | Ent. Perf 3X | 480 GB |
| UCSX-SDB960OA1PM6 | 960GB 2.5in 15mm Solidigm S4620 Enter Perf 6G SATA 3X SSD | SATA | 6G | Ent. Perf 3X | 960 GB |
| UCSX-SDB3T8OA1PM6 | 3.8TB 2.5in 15mm Solidigm S4620 Enter Perf 6G SATA 3X SSD | SATA | 6G | Ent. Perf 3X | 3.8 TB |
| UCSX-SDB1T9OA1PM6 | 1.9TB 2.5in 15mm Solidigm S4620 Enter Perf 6G SATA 3X SSD | SATA | 6G | Ent. Perf 3X | 1.9 TB |
| UCSX-SDB3T8OA1VM6 | 3.8TB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD | SATA | 6G | Ent. Perf 1X | 3.8 TB |
| UCSX-SDB480OA1VM6 | 480GB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD | SATA | 6G | Ent. Perf 1X | 480 GB |
| UCSX-SDB960OA1VM6 | 960GB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD | SATA | 6G | Ent. Perf 1X | 960 GB |
| UCSX-SD32TKA3X-EP | 3.2TB 2.5in Enter Perf 12G SAS Kioxia G2 SSD (3X) | SAS | 12G | Ent. Perf 3X | 3.2 TB |
| UCSX-SD16TKA3X-EP | 1.6TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) | SAS | 12G | Ent. Perf 3X | 1.6 TB |
| **Enterprise Value SSDs (Low endurance, supports up to 1X DWPD (drive writes per day))** | | | | | |
| UCSX-SD960GK1X-EV | 960 GB 2.5 inch Enterprise Value 12G SAS SSD | SAS | 12G | Ent. Value | 960 GB |
| UCSX-SD15TKA1X-EV | 15.3TB 2.5in Enter Value 12G SAS Kioxia G2 SSD | SAS | 12G | Ent. Value | 15.3 TB |
| UCSX-SD76TKA1X-EV | 7.6TB 2.5 inch Enterprise Value 12G SAS SSD | SAS | 12G | Ent. Value | 7.6 TB |
| UCSX-SD38TKA1X-EV | 3.8TB 2.5in Enter Value 12G SAS Kioxia G2 SSD | SAS | 12G | Ent. Value | 3.8 TB |
| UCSX-SD19TKA1X-EV | 1.9TB 2.5 inch Enterprise Value 12G SAS SSD | SAS | 12G | Ent. Value | 1.9 TB |
| UCSX-SD480G6I1XEV | 480 GB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 480 GB |
| UCSX-SD960G6I1XEV | 960 GB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 960 GB |
| UCSX-SD19T61X-EV | 1.9 TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 1.9 TB |
| UCSX-SD38T61X-EV | 3.8 TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 3.8 TB |
| UCSX-SD960G6S1XEV | 960GB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 960 GB |
| UCSX-SD76TBM1X-EV | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 7.6 TB |
| UCSX-SD38TBM1X-EV | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 3.8 TB |
| UCSX-SD19TBM1X-EV | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 1.9 TB |
| UCSX-SD16TBM1X-EV | 1.6TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 1.6 TB |
| UCSX-SD960GBM1XEV | 960GB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 960 GB |
| UCSX-SD480GBM1XEV | 480 GB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 480 GB |
| UCSX-SD240GBM1XEV | 240GB 2.5in Enter Value 6G SATA Micron G2 SSD | SATA | 6G | Ent. Value | 240 GB |
| UCSX-SDB960SA1V | 960GB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD | SATA | 6G | Ent. Value | 960 GB |

**Table 16 Available Drive Options** *(continued)*

| Product ID (PID) | Description | Drive Type | Speed | Performance/ Endurance/ Value | Size |
|---|---|---|---|---|---|
| UCSX-SDB1T9SA1V | 1.9TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD | SATA | 6G | Ent. Value | 1.9 TB |
| UCSX-SDB3T8SA1V | 3.8TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD | SATA | 6G | Ent. Value | 3.8 TB |
| UCSX-SDB7T6SA1V | 7.6TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD | SATA | 6G | Ent. Value | 7.6 TB |
| UCSX-SD19T61X-EV | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 1.9 TB |
| UCSX-SD38T61X-EV | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD | SATA | 6G | Ent. Value | 3.8 TB |
| **NVMe[4, 5,6]** | | | | | |
| UCSX-NVME4-6400 | 6.4TB 2.5in U.2 15mm P5620 Hg Perf Hg End NVMe (3X) | NVMe | U.2 | High Perf High End. | 6.4 TB |
| UCSX-NVMEM6-W3200 | 3.2TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance | NVMe | U.2 | Ext Perf High End. | 3.2 TB |
| UCSX-NVMEM6-W6400 | 6.4TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance | NVMe | U.2 | Ext Perf High End. | 6.4 TB |
| UCSX-NVMEM6-W7680 | 7.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance | NVMe | U.2 | Ext Perf Value End. | 7.6 TB |
| UCSX-NVMEM6W15300 | 15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance | NVMe | U.2 | Ext Perf Value End. | 15.3 TB |
| UCSX-NVMEXP-I400 | 400GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) | NVMe | U.2 | Ext Perf | 400 GB |
| UCSX-NVMEXP-I800 | 800GB 2.5in U.2 15mm P5800X Optane Ext Perf NVMe (30/100X) | NVMe | U.2 | Ext Perf | 800 GB |
| UCSX-NVME4-1920 | 1.9TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe | NVMe | U.2 | High. Perf Med End. | 1.9 TB |
| UCSX-NVB15TO1VM6 | 15.3TB 2.5in U.2 15mm Solidigm P5520 Hg Perf Med End 1X NVMe | NVMe | U.2 | High. Perf Med End. | 15.3 TB |
| UCSX-NVB3T2O1PM6 | 3.2TB 2.5in U.2 15mm Solidigm P5620 Hg Perf Hg End 3X NVMe | NVMe | U.2 | High. Perf High End. | 1.9 TB |
| UCSX-NVB6T4O1PM6 | 6.4TB 2.5in U.2 15mm Solidigm P5620 Hg Perf Hg End 3X NVMe | NVMe | U.2 | High. Perf High End. | 6.4 TB |
| UCSX-NVB1T9O1VM6 | 1.9TB 2.5in U.2 15mm Solidigm P5520 Hg Perf Med End 1X NVMe | NVMe | U.2 | High. Perf Med End. | 3.2 TB |
| UCSX-NVMEG4-M1536 | 15.3TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe | NVMe | U.3 | High. Perf Med End. | 15.3 TB |
| UCSX-NVMEG4-M1600 | 1.6TB 2.5in U.3 15mm P7450 Hg Perf Hg End NVMe (3X) | NVMe | U.3 | High. Perf High End. | 1.6 TB |
| UCSX-NVMEG4-M1920 | 1.9TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe | NVMe | U.3 | High. Perf Med End. | 1.9 TB |
| UCSX-NVMEG4-M3200 | 3.2TB 2.5in U.3 15mm P7450 Hg Perf Hg End NVMe (3X) | NVMe | U.3 | High Perf High End. | 3.2 TB |
| UCSX-NVMEG4-M3840 | 3.8TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe | NVMe | U.3 | High Perf Med End. | 3.8 TB |

**Table 16 Available Drive Options** *(continued)*

| Product ID (PID) | Description | Drive Type | Speed | Performance/ Endurance/ Value | Size |
|---|---|---|---|---|---|
| UCSX-NVMEG4-M6400 | 6.4TB 2.5in U.3 15mm P7450 Hg Perf Hg End NVMe (3X) | NVMe | U.3 | High Perf High End. | 6.4 TB |
| UCSX-NVMEG4-M7680 | 7.6TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe | NVMe | U.3 | High Perf Med End. | 7.6 TB |
| UCSX-NVMEG4-M960 | 960GB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe | NVMe | U.3 | High. Perf Med End. | 960 GB |
| **SATA M.2 Storage Modules (plug into Boot-Optimized RAID controller on motherboard)** | | | | | |
| UCSX-M2-240G | 240GB SATA M.2 | SATA | M.2 | | 240 GB |
| UCSX-M2-480G | 480GB M.2 SATA SSD | SATA | M.2 | | 480 GB |
| UCSX-M2-960G | 960GB SATA M.2 | SATA | M.2 | | 960 GB |
| UCSX-M2-I240GB | 240GB M.2 Boot SATA Intel SSD | SATA | M.2 | | 240 GB |
| UCSX-M2240OA1VM6 | 240GB M.2 Boot Solidigm S4520 SATA 1X SSD | SATA | M.2 | | 240 GB |
| UCSX-M2480OA1VM6 | 480GB M.2 Boot Solidigm S4520 SATA 1X SSD | SATA | M.2 | | 480 GB |
| **NOTE:** Cisco uses solid state drives from a number of vendors. All solid state drives 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 that have exceeded any maximum usage specifications set by Cisco or the manufacturer, as determined solely by Cisco. | | | | | |

**Notes**:

1. SSD drives require the UCSX-X10C-RAIDF front mezzanine adapter
2. For SSD drives to be in a RAID group, two identical SSDs must be used in the group.
3. If SSDs are in JBOD Mode, the drives do not need to be identical.
4. NVMe drives require a front mezzanine the UCSX-X10C-PT4F pass through controller or UCSX-X10C-RAIDF RAID controller or the X10c Front Mezzanine GPU module.
5. A maximum of 4x NVMe drives can be ordered with RAID controller.
6. A maximum of 2x NVMe drives can be ordered with Front Mezzanine GPU module.

### Cisco 6GB/s SATA Boot-Optimized M.2 RAID Controller

You can optionally select the Boot-Optimized RAID controller (UCS-M2-HWRAID) for hardware RAID across two SATA M.2 storage modules. The Boot-Optimized RAID controller plugs into the motherboard and the M.2 SATA drives plug into the Boot-Optimized RAID controller.

**Note:** The Boot-Optimized RAID controller supports VMware, Windows and Linux Operating Systems.

**Table 17 Boot-Optimized RAID controller**

| Product ID (PID) | PID Description |
|---|---|
| UCS-M2-HWRAID | Cisco Boot optimized M.2 RAID controller |



**NOTE:**

- The UCS-M2-HWRAID controller supports RAID 1 and JBOD mode and is available only with 240 GB,480GB and 960 GB M.2 SATA SSDs.
- Cisco IMM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives
- The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported
- Hot-plug replacement is not supported. The compute node must be powered off to replace.

## Intel® Virtual RAID on CPU (Intel® VROC)

The server supports Intel® Virtual RAID on CPU (Intel® VROC). VROC is an enterprise RAID solution used with Intel NVMe SSDs (see *Table 16* for supported Intel NVMe SSDs). The Intel® Volume Management Device (Intel® VMD) is a controller integrated into the CPU PCIe root complex. Intel® VMD NVMe SSDs are connected to the CPU, which allows the full performance potential of fast Intel® Optane™ SSDs to be realized. Intel® VROC, when implemented, replaces traditional hardware RAID host bus adapter (HBA) cards placed between the drives and the CPU.

**NOTE:**

- Intel® VROC is only supported with Intel drives
- Intel® VROC enablement key factory pre-provisioned to BIOS - no additional licensing required.

VROC has the following features:

- Small Form Factor (SFF) drive support (only)
- No battery backup (BBU) or external SuperCap needed
- Software-based solution utilizing Intel SFF NVMe direct connected to Intel CPU
- RAID 0/1/5/10 support
- Windows, Linux, VMware OS support.
- Host Tools- Windows GUI/CLI, Linux CLI.
- UEFI Support- HII Utility, OBSE.
- Intel VROC NVMe operates in UEFI mode only

See the **instructions on setting up and managing VROC for Intel NVMe SSDs** for more information.

## STEP 10 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE

Trusted Platform Module (TPM) is a computer chip or microcontroller that can securely store artifacts used to authenticate the platform or Cisco UCS X210c M6 Compute Node. 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.

**Table 18 Available TPM Option**

| Product ID (PID) | Description |
|---|---|
| UCSX-TPM-002C | Trusted Platform Module 2.0, FIPS140-2 Compliant, UCS M6 server |
| UCSX-TPM-002D | TPM 2.0 TCG FIPS140-2 CC+ Cert M6 Intel MSW2022 Compliant |
| UCSX-TPM-OPT-OUT | OPT OUT, TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified |



**NOTE:**

- The TPM module used in this system conforms to TPM v2.0 as defined by the Trusted Computing Group (TCG).

  TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced, upgraded, or moved to another compute node. If a Cisco UCS X210c M6 Compute Node with a TPM is returned, the replacement Cisco UCS X210c M6 Compute Node must be ordered with a new TPM. If there is no existing TPM in the Cisco UCS X210c M6 Compute Node, you can install a TPM 2.0. Refer to the following document for Installation location and instructions:

  **https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html**

## STEP 11 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

**NOTE:**

- See this link for operating system guidance: https://ucshcltool.cloudapps.cisco.com/public/
- VMware is on Compliance Hold. Contact the **Compute-Vmware-Hold@cisco.com** mailer to see if you are allowed to receive VMware Licenses

**Select**

- Cisco Software (*Table 19*)
- Operating System (*Table 20*)

**Table 19 OEM Software**

| Product ID (PID) | PID Description |
|---|---|
| **VMware vCenter** | |
| VMW-VCS-STD-1A | VMware vCenter 7 Server Standard, 1 yr support required |
| VMW-VCS-STD-3A | VMware vCenter 7 Server Standard, 3 yr support required |
| VMW-VCS-STD-5A | VMware vCenter 7 Server Standard, 5 yr support required |
| VMW-VCS-FND-1A | VMware vCenter 7 Server Foundation (4 Host), 1 yr supp reqd |
| VMW-VCS-FND-3A | VMware vCenter 7 Server Foundation (4 Host), 3 yr supp reqd |
| VMW-VCS-FND-5A | VMware vCenter 7 Server Foundation (4 Host), 5 yr supp reqd |

**Table 20 Operating System**

| Product ID (PID) | PID Description |
|---|---|
| **Microsoft Windows Server** | |
| MSWS-19-DC16C | Windows Server 2019 Data Center (16 Cores/Unlimited VMs) |
| MSWS-19-DC16C-NS | Windows Server 2019 DC (16 Cores/Unlim VMs) - No Cisco SVC |
| MSWS-19-ST16C | Windows Server 2019 Standard (16 Cores/2 VMs) |
| MSWS-19-ST16C-NS | Windows Server 2019 Standard (16 Cores/2 VMs) - No Cisco SVC |
| MSWS-22-DC16C | Windows Server 2022 Data Center (16 Cores/Unlimited VMs) |
| MSWS-22-DC16C-NS | Windows Server 2022 DC (16 Cores/Unlim VMs) - No Cisco SVC |

**Table 20 Operating System** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| MSWS-22-DCA2C | Windows Server 2022 Data Center - Additional 2 Cores |
| MSWS-22-DCA2C-NS | Windows Server 2022 DC - Additional 2 Cores - No Cisco SVC |
| MSWS-22-ST16C | Windows Server 2022 Standard (16 Cores/2 VMs) |
| MSWS-22-ST16C-NS | Windows Server 2022 Standard (16 Cores/2 VMs) - No Cisco SVC |
| MSWS-22-STA2C | Windows Server 2022 Standard - Additional 2 Cores |
| MSWS-22-STA2C-NS | Windows Server 2022 Stan - Additional 2 Cores - No Cisco SVC |
| **Red Hat** | |
| RHEL-2S2V-1A | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 1-Yr Support Req |
| RHEL-2S2V-3A | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req |
| RHEL-2S2V-5A | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 5-Yr Support Req |
| RHEL-VDC-2SUV-1A | RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 1 Yr Supp Req |
| RHEL-VDC-2SUV-3A | RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 3 Yr Supp Req |
| RHEL-VDC-2SUV-5A | RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 5 Yr Supp Req |
| **Red Hat Ent Linux/ High Avail/ Res Strg/ Scal** | |
| RHEL-2S2V-1S | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 1-Yr SnS |
| RHEL-2S2V-3S | Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 3-Yr SnS |
| RHEL-2S-HA-1S | RHEL High Availability (1-2 CPU); Premium 1-yr SnS |
| RHEL-2S-HA-3S | RHEL High Availability (1-2 CPU); Premium 3-yr SnS |
| RHEL-2S-RS-1S | RHEL Resilent Storage (1-2 CPU); Premium 1-yr SnS |
| RHEL-2S-RS-3S | RHEL Resilent Storage (1-2 CPU); Premium 3-yr SnS |
| RHEL-VDC-2SUV-1S | RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 1 Yr SnS Reqd |
| RHEL-VDC-2SUV-3S | RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 3 Yr SnS Reqd |
| **Red Hat SAP** | |
| RHEL-SAP-2S2V-1S | RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 1-Yr SnS |
| RHEL-SAP-2S2V-3S | RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 3-Yr SnS |
| **VMware** | |
| VMW-VSP-STD-1A | VMware vSphere 6 Standard (1 CPU), 1-yr, Support Required |
| VMW-VSP-STD-3A | VMware vSphere 6 Standard (1 CPU), 3-yr, Support Required |
| VMW-VSP-STD-5A | VMware vSphere 6 Standard (1 CPU), 5-yr, Support Required |

**Table 20 Operating System** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| VMW-VSP-EPL-3A | VMware vSphere 6 Ent Plus (1 CPU), 3-yr, Support Required |
| VMW-VSP-EPL-1A | VMware vSphere 6 Ent Plus (1 CPU), 1-yr, Support Required |
| VMW-VSP-EPL-5A | VMware vSphere 6 Ent Plus (1 CPU), 5-yr, Support Required |
| **SUSE** | |
| SLES-2S2V-1A | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 1-Yr Support Req |
| SLES-2S2V-3A | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req |
| SLES-2S2V-5A | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req |
| SLES-2S2V-1S | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS |
| SLES-2S2V-3S | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS |
| SLES-2S2V-5S | SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS |
| SLES-2S-HA-1S | SUSE Linux High Availability Ext (1-2 CPU); 1yr SnS |
| SLES-2S-HA-3S | SUSE Linux High Availability Ext (1-2 CPU); 3yr SnS |
| SLES-2S-HA-5S | SUSE Linux High Availability Ext (1-2 CPU); 5yr SnS |
| SLES-2S-GC-1S | SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Sns |
| SLES-2S-GC-3S | SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr SnS |
| SLES-2S-GC-5S | SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr SnS |
| SLES-2S-LP-1S | SUSE Linux Live Patching Add-on (1-2 CPU); 1yr SnS Required |
| SLES-2S-LP-3S | SUSE Linux Live Patching Add-on (1-2 CPU); 3yr SnS Required |
| SLES-2S-LP-1A | SUSE Linux Live Patching Add-on (1-2 CPU); 1yr Support Req |
| SLES-2S-LP-3A | SUSE Linux Live Patching Add-on (1-2 CPU); 3yr Support Req |
| **SLES and SAP** | |
| SLES-SAP-2S2V-1A | SLES for SAP Apps (1-2 CPU, 1-2 VM); 1-Yr Support Reqd |
| SLES-SAP-2S2V-3A | SLES for SAP Apps (1-2 CPU, 1-2 VM); 3-Yr Support Reqd |
| SLES-SAP-2S2V-5A | SLES for SAP Apps (1-2 CPU, 1-2 VM); 5-Yr Support Reqd |
| SLES-SAP-2S2V-1S | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 1-Yr SnS |
| SLES-SAP-2S2V-3S | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS |
| SLES-SAP-2S2V-5S | SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS |

## STEP 12 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in *Table 21*.

**Table 21 OS Media**

| Product ID (PID) | PID Description |
|---|---|
| MSWS-19-ST16C-RM | Windows Server 2019 Stan (16 Cores/2 VMs) Rec Media DVD Only |
| MSWS-19-DC16C-RM | Windows Server 2019 DC (16Cores/Unlim VM) Rec Media DVD Only |
| MSWS-22-ST16C-RM | Windows Server 2022 Stan (16 Cores/2 VMs) Rec Media DVD Only |
| MSWS-22-DC16C-RM | Windows Server 2022 DC (16Cores/Unlim VM) Rec Media DVD Only |

# SUPPLEMENTAL MATERIAL

## Simplified Block Diagram

A simplified block diagram of the Cisco UCS X210c M6 Compute Node system board is shown in *Figure 8*.

**Figure 8 Cisco UCS X210c M6 Compute Node Simplified Block Diagram (IFMs 25G with Drives)**

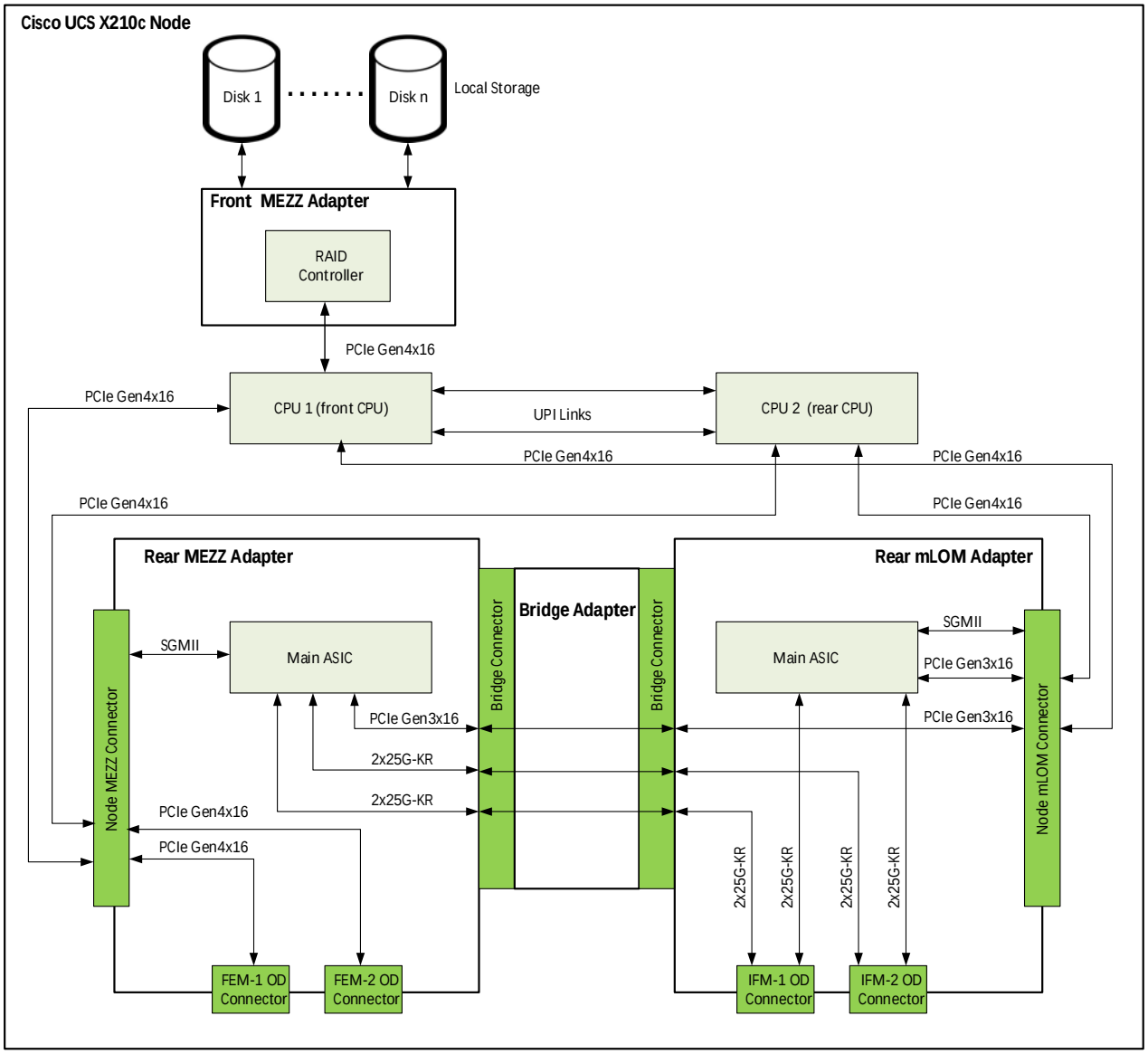


**Figure 9 Cisco UCS X210c M6 Compute Node Simplified Block Diagram (IFMs 100G with Drives)**

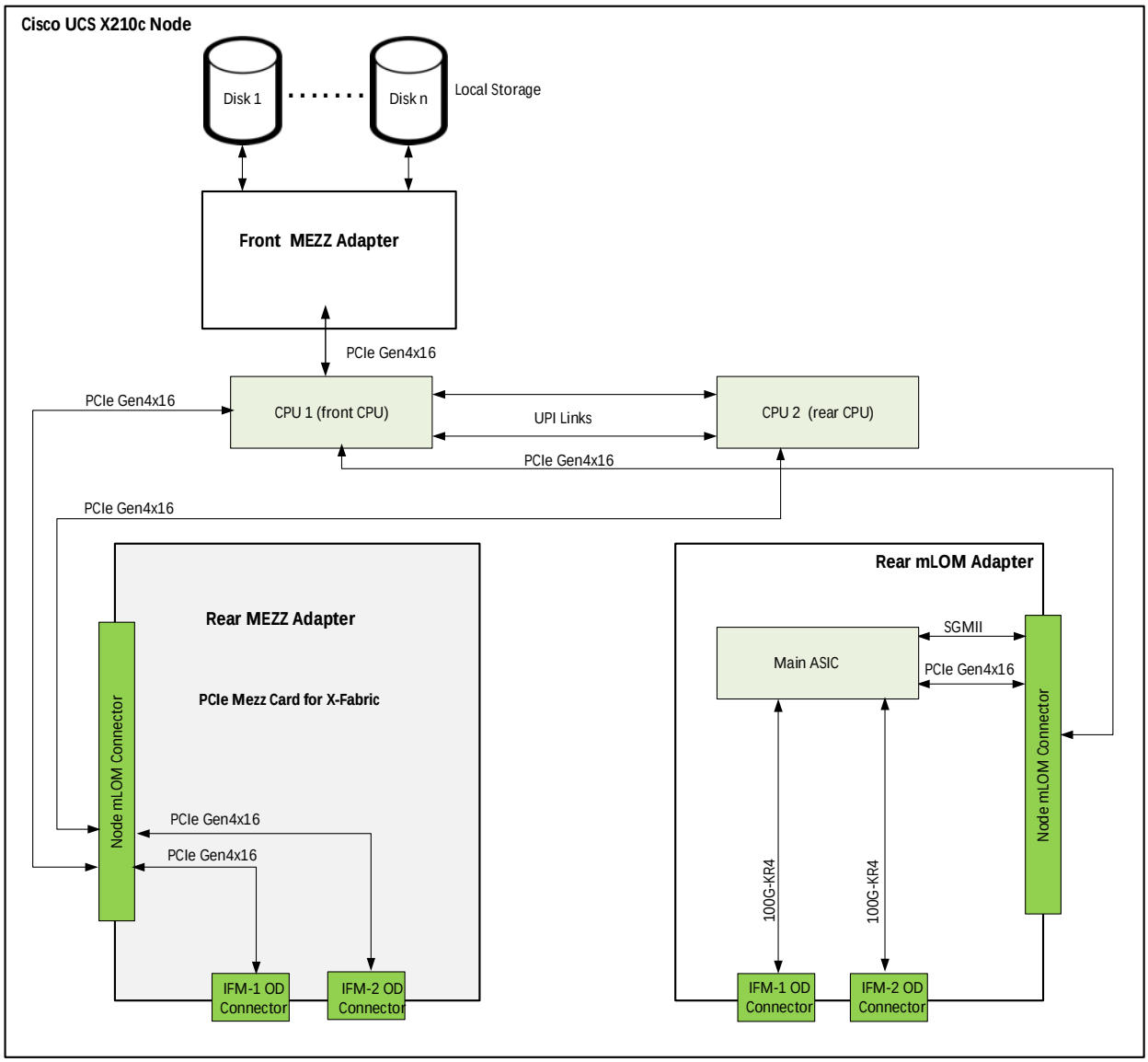


**Figure 10 Cisco UCS X210c M6 Compute Node Simplified Block Diagram (IFMs 25G with Drives and GPUs)**

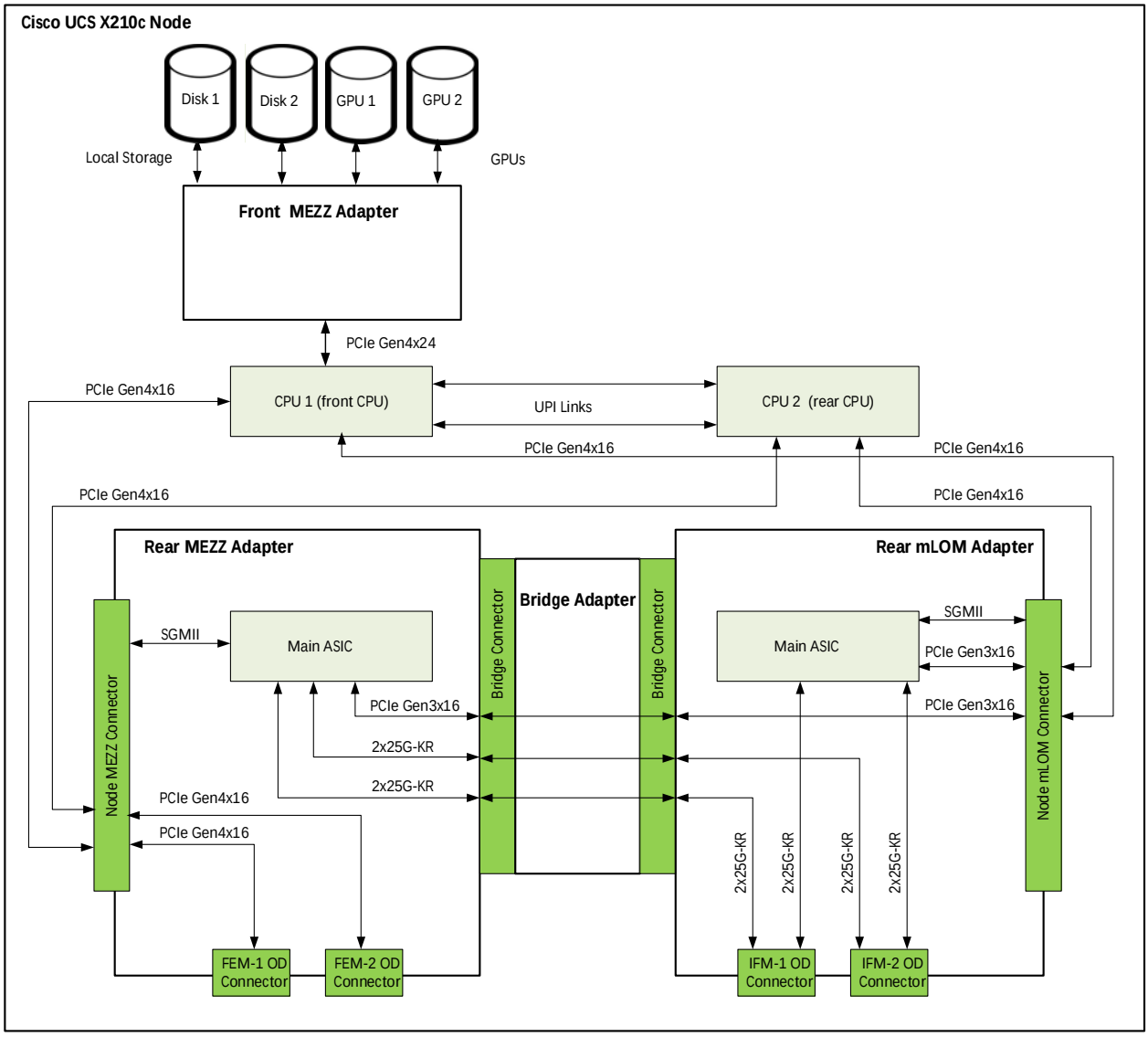
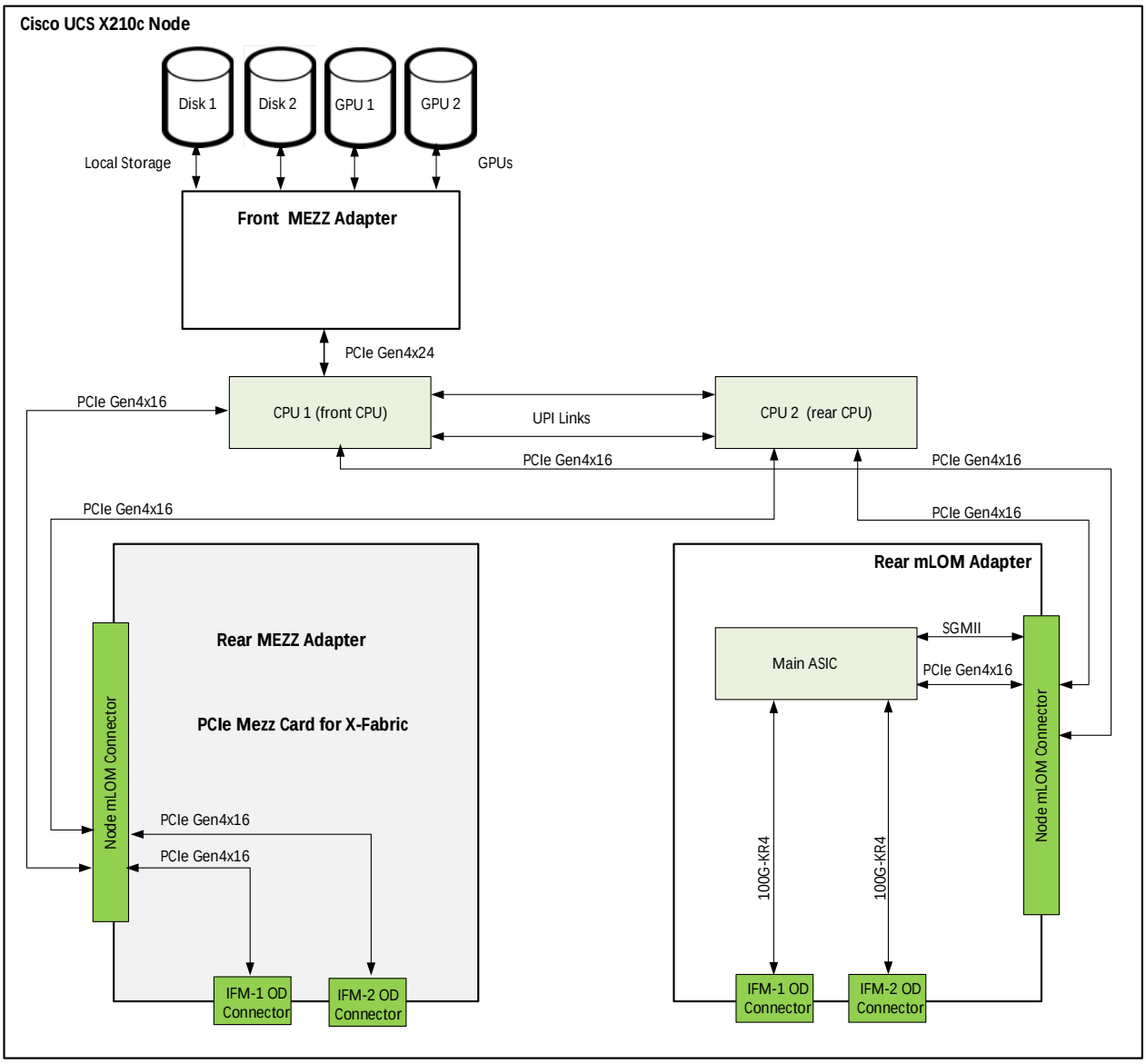


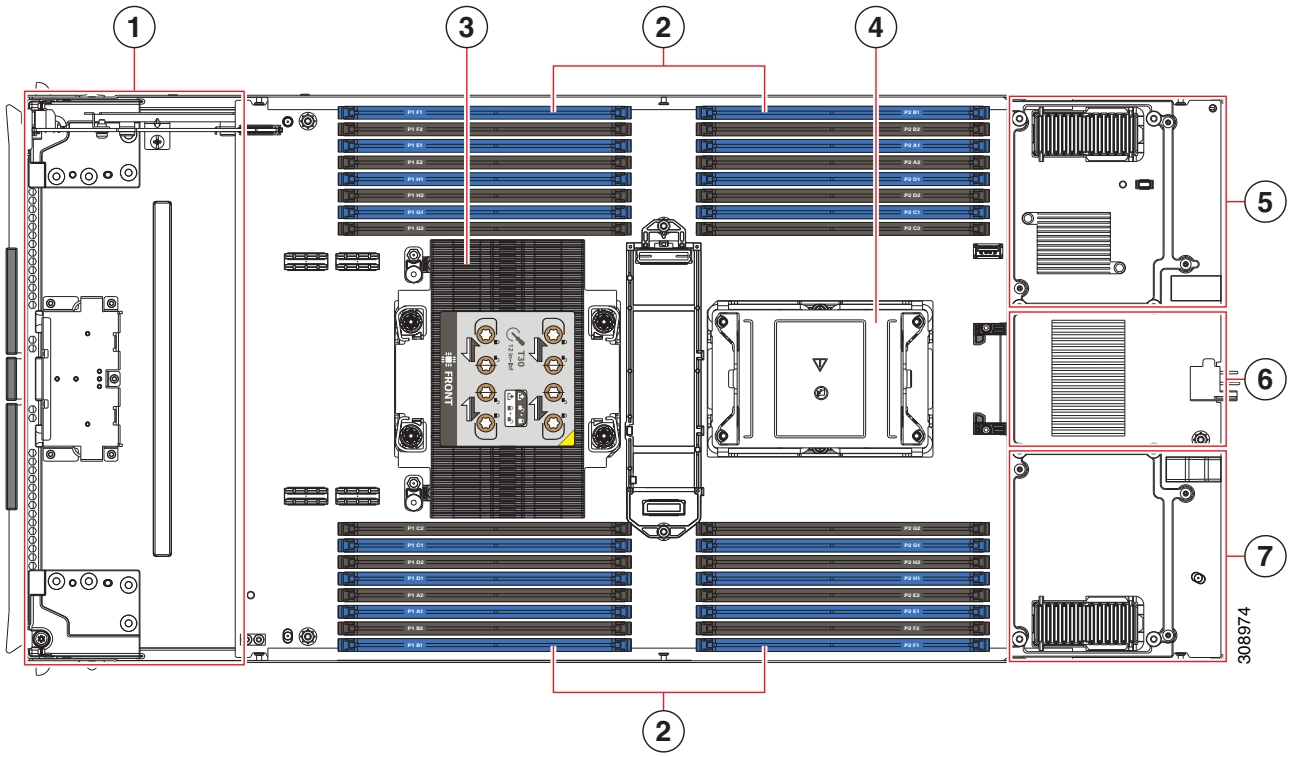
**Figure 11 Cisco UCS X210c M6 Compute Node Simplified Block Diagram (IFMs 100G with Drives and GPUs)**



## System Board

A top view of the Cisco UCS X210c M6 Compute Node system board is shown in *Figure 12*.

**Figure 12 Cisco UCS X210c M6 Compute Node System Board**




| | | | |
|---|---|---|---|
| 1 | Front mezzanine slot for SAS/SATA or NVMe drives. | 5 | Rear mezzanine slot, which supports a mezzanine card with standard or extended mLOM.<br>If an extended mLOM slot is used, it occupies this slot, such that no rear mezzanine card can be installed. |
| 2 | DIMM slots (32 maximum) | 6 | Bridge adapter (for connecting the mLOM to the rear mezzanine card) |
| 3 | CPU 1 slot (shown populated) | 7 | mLOM slot for a standard or extended mLOM |
| 4 | CPU 2 slot (shown unpopulated) | - | - |

## Memory Configuration

Each CPU has eight DIMM channels:

- CPU1 (P1) has channels A, B, C, D, E, F, G, and H
- CPU2 (P2) has channels A, B, C, D, E, F, G, and H

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

*Figure 12 on page 48* shows how slots and channels are physically laid out on the motherboard. The DIMM slots on the left are for channels A, B, C, D, E, F, G, and H and are associated with CPU 1 (P1), while the DIMM slots on the right are for channels A, B, C, D, E, F, G, and H and are associated with CPU 2 (P2). The slot 1 (blue) DIMM slots are always located farther away from a CPU than the corresponding slot 2 (black) slots.

For all allowable DIMM populations, please refer to the “Memory Population Guidelines” section of the Cisco UCS X210c M6 Compute Node Installation Guide, at the following link: **https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html**

For more details, see the Cisco UCS C220/C240/B200 M6 memory Guide at the following link: **Cisco UCS X210c M6 Compute Node Memory Guide**

When considering the memory configuration, consider the following items:

- Each channel has two DIMM slots (for example, channel A = slots A1 and A2) and a channel can operate with one or two DIMMs installed.
- When both CPUs are installed, populate the DIMM slots of each CPU identically.
- Any DIMM installed in a DIMM socket for which the CPU is absent is not recognized.
- For further details, see *STEP 3 CHOOSE MEMORY, page 16*.

**Table 22 DIMM Rules for Cisco UCS X210c M6 Compute Nodes**

| DIMM Parameter | DIMMs in the Same Channel | DIMM in the Same Slot[1] |
|---|---|---|
| DIMM Capacity<br>RDIMM = 16, 32, or 64 GB<br>LRDIMM = 128 or 256 GB | DIMMs in the same channel (for example, A1 and A2) can have different capacities.<br><br>Do not mix RDIMMS with LRDIMMs | For best performance, DIMMs in the same slot (for example, A1, B1, C1, D1, E1, F1, G1, H1) should have the same capacity.<br><br>Do not mix RDIMMS with LRDIMMs |
| DIMM Speed 3200-MHz | DIMMs will run at the highest memory speed supported by the CPU installed | DIMMs will run at the highest memory speed supported by the CPU installed |
| DIMM Type<br>RDIMMs or LRDIMMs | Do not mix DIMM types in a channel | Do not mix DIMM types in a slot |

**Notes:**

1. Although different DIMM capacities can exist in the same slot, this will result in less than optimal performance. For optimal performance, all DIMMs in the same slot should be identical.

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

## PMem Support

The Ice Lake CPUs support two memory modes:

- App Direct Mode
- Memory Mode

## App Direct Mode

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

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

## Memory Mode

PMem operates as a 100% memory module. Data is volatile and DRAM acts as a cache for PMem. Only the PMem capacity counts towards the CPU capacity limit. This is the factory default mode.

For example, if Memory mode is configured and the DIMM sockets for a CPU are populated with 8 x 256 GB DRAMs (2 TB total DRAM) and 8 x 512 GB PMem (4 TB total PMem), then only 4 TB total (the PMem memory) counts towards the CPU capacity limit. All of the DRAM capacity (2 TB) is used as cache and does not factor into CPU capacity. The recommended Intel DRAM:PMem ratio for Memory Mode is 1:4, 1:8, or 1:16.

For 3rd Generation Intel® Xeon® Ice Lake® Processors:

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

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

- 4 DRAMs and 4 PMem, or 8 DRAMs and 4 PMem, or 8 DRAMs and 1 PMem, or 8 DRAMs and 8 PMem

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

The available PMem capacities are 128 GB, 256 GB, or 512 GB

For further details see the following link:

**Cisco UCS X210c M6 Compute Node Memory Guide**

# SPARE PARTS

This section lists the upgrade and service-related parts for the Cisco UCS X210c M6 Compute Node. Some of these parts are configured with every compute node or with every Cisco UCS X9508 chassis.

**Table 23 Spare Parts**

| Product ID (PID) | PID Description |
|---|---|
| **Debug Cable** | |
| UCSX-C-DEBUGCBL= | UCSX Compute Node Debug Cable |
| **CPUs**<br><br>**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** | |
| UCSX-CPU-I8380= | |
| UCSX-CPU-I8368= | |
| UCSX-CPU-I8362= | |
| UCSX-CPU-I8360Y= | |
| UCSX-CPU-I8358P= | |
| UCSX-CPU-I8358= | |
| UCSX-CPU-I8352M= | |
| UCSX-CPU-I8352Y= | |
| UCSX-CPU-I8352V= | |
| UCSX-CPU-I8352S= | |
| UCSX-CPU-I8351N=[1] | |
| **6000 Series Processors** | |
| UCSX-CPU-I6354= | |
| UCSX-CPU-I6348= | |
| UCSX-CPU-I6346= | |
| UCS-CPU-I6342= | |
| UCS-CPU-I6338T= | |
| UCSX-CPU-I6336Y= | |
| UCSX-CPU-I6334= | |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCS-CPU-I6334= | |
| UCSX-CPU-I6330N= | |
| UCSX-CPU-I6330= | |
| UCSX-CPU-I6326= | |
| UCSX-CPU-I6312U=[2] | |
| UCS-CPU-I6326= | |
| UCSX-CPU-I6314U=[3] | |
| **5000 Series Processors** | |
| UCSX-CPU-I5320T= | |
| UCSX-CPU-I5320= | |
| UCSX-CPU-I5318Y= | |
| UCSX-CPU-I5318S= | |
| UCSX-CPU-I5318N= | |
| UCSX-CPU-I5317= | |
| UCSX-CPU-I5315Y= | |
| **4000 Series Processors** | |
| UCSX-CPU-I4316= | |
| UCSX-CPU-I4314= | |
| UCSX-CPU-I4310T= | |
| UCSX-CPU-I4310= | |
| UCSX-CPU-I4309Y= | |
| **CPU Accessories** | |
| UCSX-C-M6-HS-F= | CPU Heat Sink for UCS B-Series M6 CPU socket (Front) |
| UCSX-C-M6-HS-R= | CPU Heat Sink for UCS B-Series M6 CPU socket (Rear) |
| UCSX-CPU-TIM= | Single CPU thermal interface material syringe for M6 server HS seal |
| UCSX-HSCK= | UCS Processor Heat Sink Cleaning Kit (when replacing a CPU) |
| UCSX-CPUAT= | CPU Assembly Tool for M6 Servers |
| UCSX-M6-CPU-CAR= | UCS M6 CPU Carrier |
| UCSX-CPUATI-4= | CPX-4 CPU Assembly tool for M6 Servers |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCSX-CPUATI-3= | ICX CPU Assembly Tool for M6 Servers |
| **Memory** | |
| UCSX-MR-X16G1RW= | 16 GB RDIMM SRx4 3200 (8Gb) |
| UCSX-MR-X32G1RW | 32GB RDIMM SRx4 3200 (16Gb) |
| UCSX-MR-X32G2RW= | 32 GB RDIMM DRx4 3200 (8Gb) |
| UCSX-MR-X64G2RW= | 64 GB RDIMM DRx4 3200 (16Gb) |
| UCSX-ML-128G4RW= | 128 GB LRDIMM QRx4 3200 (16Gb) |
| UCSX-MP-128GS-B0= | Intel® Optane™ Persistent Memory, 128GB, 2666-MHz |
| UCSX-MP-256GS-B0= | Intel® Optane™ Persistent Memory, 256GB, 2666-MHz |
| UCSX-MP-512GS-B0= | Intel® Optane™ Persistent Memory, 512GB, 2666-MHz |
| **DIMM Blank** | |
| UCSX-DIMM-BLK= | Cisco UCS DIMM Blank |
| **Rear Mezzanine Adapters** | |
| UCSX-V4-Q25GML= | UCS VIC 14425 4x25G mLOM for X Compute Node |
| UCSX-V4-Q25GME= | UCS VIC 14825 4x25G mezz for X Compute Node |
| UCSX-V4-PCIME= | UCS PCI Mezz Card for X-Fabric |
| UCSX-ML-V5D200GV2= | Cisco UCS VIC 15230 modular LOM w/Secure Boot X Compute Node |
| **Front Mezzanine Adapters** | |
| UCSX-X10C-PT4F= | UCS X10c Compute Pass Through Controller (Front) |
| UCSX-X10C-RAIDF= | UCS X10c Compute RAID Controller with LSI 3900 (Front) |
| UCSX-X10C-FMBK= | UCS X10c Compute Node Front Mezz Blank |
| **GPUs** | |
| UCSX-X10C-GPUFM= | UCS X210c M6 Compute Node Front Mezz to support up to 2 NVIDIA T4 GPUs and 2 NVMe drives |
| UCSX-GPUFM-BLK= | UCSX GPU Front Mezz slot blank |
| UCSX-GPU-T4-MEZZ= | NVIDIA T4 GPU PCIE 75W 16GB, MEZZ form factor |
| **SSD Enterprise Performance Drives** | |
| UCSX-SD19T63X-EP= | 1.9TB 2.5in Enterprise performance 6GSATA SSD(3X endurance) |
| UCSX-SD480G63X-EP= | 480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance) |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCSX-SD19TBM3X-EP= | 1.9TB 2.5in Enterprise performance 6GSATA SSD(3X endurance) |
| UCSX-SD960GBM3XEP= | 960GB 2.5in Enterprise performance 6GSATA SSD(3X endurance) |
| UCSX-SD480GBM3XEP= | 480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance) |
| UCSX-SD32TKA3X-EP= | 3.2TB 2.5in Enter Perf 12G SAS Kioxia G2 SSD (3X) |
| UCSX-SD16TKA3X-EP= | 1.6TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance) |
| **SSD Enterprise Value Drives** | |
| UCSX-SD960GK1X-EV= | 960 GB 2.5 inch Enterprise Value 12G SAS SSD |
| UCSX-SD15TKA1X-EV= | 15.3TB 2.5in Enter Value 12G SAS Kioxia G2 SSD |
| UCSX-SD76TKA1X-EV= | 7.6TB 2.5 inch Enterprise Value 12G SAS SSD |
| UCSX-SD38TKA1X-EV= | 3.8TB 2.5in Enter Value 12G SAS Kioxia G2 SSD |
| UCSX-SD19TKA1X-EV= | 1.9TB 2.5 inch Enterprise Value 12G SAS SSD |
| UCSX-SD480G6I1XEV= | 480 GB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD960G6I1XEV= | 960 GB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD19T61X-EV= | 1.9 TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD38T61X-EV= | 3.8 TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD38T6S1X-EV= | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD76TBM1X-EV= | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD38TBM1X-EV= | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD19TBM1X-EV= | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD16TBM1X-EV= | 1.6TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD960GBM1XEV= | 960GB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD480GBM1XEV= | 480 GB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD240GBM1XEV= | 240GB 2.5in Enter Value 6G SATA Micron G2 SSD |
| UCSX-SDB960SA1V= | 960GB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD |
| UCSX-SDB1T9SA1V = | 1.9TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD |
| UCSX-SDB3T8SA1V= | 3.8TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD |
| UCSX-SDB7T6SA1V= | 7.6TB 2.5in 6G SATA Enter Value 1X Samsung G1PM893A SSD |
| UCSX-SD19T61X-EV= | 1.9TB 2.5 inch Enterprise Value 6G SATA SSD |
| UCSX-SD38T61X-EV= | 3.8TB 2.5 inch Enterprise Value 6G SATA SSD |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCSX-SD960G6S1XEV= | 960GB 2.5 inch Enterprise Value 6G SATA SSD |
| **Self-Encrypted Drives (SED)** | |
| UCSX-SD38TBKNK9= | 3.8TB Enterprise Value SAS SSD (1X DWPD, SED) |
| UCSX-SD960GM2NK9= | 960GB Enterprise value SATA SSD (1X , SED) |
| UCSX-SD76TEM2NK9= | 7.6TB Enterprise value SATA SSD (1X, SED) |
| UCSX-SD76TBKANK9= | 7.6TB Enterprise value SAS SSD (1 DWPD, SED-FIPS) |
| UCSX-SD38TBKANK9= | 3.8TB 2.5in Enterprise value 12G SAS SSD (1DWPD, SED-FIPS) |
| UCSX-SD16TBKANK9= | 1.6TB 2.5 Enterprise performance 12GSAS SSD(3DWPD,SED-FIPS) |
| **NVME Drives** | |
| UCSX-NVMEI4-I3840= | 3.8TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance |
| UCSX-NVMEXP-I400= | 400GB 2.5in U.2 Intel P5800X Optane NVMe Extreme Perform SSD |
| UCSX-NVMEXP-I800= | 800GB 2.5in U.2Intel P5800X Optane NVMe Extreme Perform SSD |
| UCSX-NVME4-6400= | 6.4TB 2.5in U.2 15mm P5620 Hg Perf Hg End NVMe (3X) |
| UCSX-NVMEM6-W3200= | 3.2 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| UCSX-NVMEM6-W7680= | 7.6 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance |
| UCSX-NVMEM6W15300= | 15.3 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance |
| UCSX-NVMEM6-W1600= | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| UCSX-NVMEM6-W6400= | 6.4TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| UCSX-NVMEG4-M1536= | 15.3TB 2.5in U.3 Micron 7450 NVMe High Perf Medium Endurance |
| UCSX-NVMEG4-M1600= | 1.6TB 2.5in U.3 Micron 7450 NVMe High Perf High Endurance |
| UCSX-NVMEG4-M1920= | 1.9TB 2.5in U.3 Micron 7450 NVMe High Perf Medium Endurance |
| UCSX-NVMEG4-M3200= | 3.2TB 2.5in U.3 Micron 7450 NVMe High Perf High Endurance |
| UCSX-NVMEG4-M3840= | 3.8TB 2.5in U.3 Micron 7450 NVMe High Perf Medium Endurance |
| UCSX-NVMEG4-M6400= | 6.4TB 2.5in U.3 Micron 7450 NVMe High Perf High Endurance |
| UCSX-NVMEG4-M7680= | 7.6TB 2.5in U.3 Micron 7450 NVMe High Perf Medium Endurance |
| UCSX-NVMEG4-M960= | 960GB 2.5in U.3 Micron 7450 NVMe High Perf Medium Endurance |
| **SATA M.2 Storage Modules** | |
| UCSX-M2-240G= | 240GB SATA M.2 |
| UCSX-M2-480G= | 480GB M.2 SATA SSD |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| UCSX-M2-960G= | 960GB SATA M.2 |
| UCSX-M2-I240GB= | 240GB M.2 Boot SATA Intel SSD |
| **Boot-Optimized RAID Controller** | |
| UCS-M2-HWRAID= | Cisco Boot optimized M.2 RAID controller |
| **Drive Blank** | |
| UCSC-BBLKD-S2= | Cisco UCS X210c M6 Compute Node 7mm Front Drive Blank |
| **TPM** | |
| UCSX-TPM-002C= | Trusted Platform Module 2.0, FIPS140-2 Compliant, UCS M6 svr |
| UCSX-TPM-002D= | TPM 2.0 TCG FIPS140-2 CC+ Cert M6 Intel MSW2022 Compliant |
| **Software/Firmware** | |
| **Windows Server Recovery Media** | |
| MSWS-19-ST16C-RM= | Windows Server 2019 Stan (16 Cores/2 VMs) Rec Media DVD Only |
| MSWS-19-DC16C-RM= | Windows Server 2019 DC (16Cores/Unlim VM) Rec Media DVD Only |
| MSWS-22-ST16C-RM= | Windows Server 2022 Stan (16 Cores/2 VMs) Rec Media DVD Only |
| MSWS-22-DC16C-RM= | Windows Server 2022 DC (16Cores/Unlim VM) Rec Media DVD Only |
| **RHEL SAP** | |
| RHEL-SAPSP-3S= | RHEL SAP Solutions Premium - 3 Years |
| RHEL-SAPSS-3S= | RHEL SAP Solutions Standard - 3 Years |
| RHEL-SAPSP-R-1S= | Renew RHEL SAP Solutions Premium - 1 Year |
| RHEL-SAPSS-R-1S= | Renew RHEL SAP Solutions Standard - 1 Year |
| RHEL-SAPSP-R-3S= | Renew RHEL SAP Solutions Premium - 3 Years |
| RHEL-SAPSS-R-3S= | Renew RHEL SAP Solutions Standard -3 Years |
| **VMware vSphere** | |
| VMW-VSP-STD-1A= | VMware vSphere 7 Std (1 CPU, 32 Core) 1-yr, Support Required |
| VMW-VSP-STD-3A= | VMware vSphere 7 Std (1 CPU, 32 Core) 3-yr, Support Required |
| VMW-VSP-STD-5A= | VMware vSphere 7 Std (1 CPU, 32 Core) 5-yr, Support Required |
| VMW-VSP-EPL-1A= | VMware vSphere 7 Ent Plus (1 CPU, 32 Core) 1Yr, Support Reqd |
| VMW-VSP-EPL-3A= | VMware vSphere 7 Ent Plus (1 CPU, 32 Core) 3Yr, Support Reqd |
| VMW-VSP-EPL-5A= | VMware vSphere 7 Ent Plus (1 CPU, 32 Core) 5Yr, Support Reqd |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| VMW-VSP-STD-1S= | VMware vSphere 7 Std (1 CPU, 32 Core), 1-yr Vmware SnS Reqd |
| VMW-VSP-STD-3S= | VMware vSphere 7 Std (1 CPU, 32 Core), 3-yr Vmware SnS Reqd |
| VMW-VSP-STD-1YR | VMware vSphere 7 Std SnS - 1 Year (reports to PID VMW-VSP-STD-1S=) |
| VMW-VSP-STD-3YR | VMware vSphere 7 Std SnS - 3 Year (reports to PID VMW-VSP-STD-3S=) |
| VMW-VSP-EPL-1S= | VMware vSphere 7 EntPlus (1 CPU 32 Core) 1Yr VMware SnS Reqd |
| VMW-VSP-EPL-3S= | VMware vSphere 7 EntPlus (1 CPU 32 Core) 3Yr VMware SnS Reqd |
| VMW-VSP-EPL-1YR | VMware vSphere 7 Enterprise Plus SnS - 1 Year (reports to PID VMW-VSP-EPL-1S=) |
| VMW-VSP-EPl-3YR | VMware vSphere 7 Enterprise Plus SnS - 3 Year (reports to PID VMW-VSP-EPL-3S=) |
| **VMware vCenter** | |
| VMW-VCS-STD-1A= | VMware vCenter 7 Server Standard, 1 yr support required |
| VMW-VCS-STD-3A= | VMware vCenter 7 Server Standard, 3 yr support required |
| VMW-VCS-STD-5A= | VMware vCenter 7 Server Standard, 5 yr support required |
| VMW-VCS-STD-1S= | VMware vCenter 7 Server Standard, 1-yr Vmware SnS Reqd |
| VMW-VCS-STD-3S= | VMware vCenter 7 Server Standard, 3-yr Vmware SnS Reqd |
| VMW-VCS-STD-1YR | VMware vCenter 6 Server Standard SnS - 1 Year (reports to PID VMW-VCS-STD-1S=) |
| VMW-VCS-STD-3YR | VMware vCenter 6 Server Standard SnS - 3 Year (reports to PID VMW-VCS-STD-3S=) |
| VMW-VCS-FND-1A= | VMware vCenter Server 7 Foundation (4 Host), 1 yr supp reqd |
| VMW-VCS-FND-3A= | VMware vCenter Server 7 Foundation (4 Host), 3 yr supp reqd |
| VMW-VCS-FND-5A= | VMware vCenter Server 7 Foundation (4 Host), 5 yr supp reqd |
| VMW-VCS-FND-1S= | VMware vCenter Server 7 Foundation (4 Host), 1yr VM SnS Reqd |
| VMW-VCS-FND-3S= | VMware vCenter Server 7 Foundation (4 Host), 3yr VM SnS Reqd |
| VMW-VCS-FND-1YR | VMware vCenter Server 6 Foundation (4 Host) SnS - 1 Year (reports to PID VMW-VCS-FND-1S=) |
| VMW-VCS-FND-3YR | VMware vCenter Server 6 Foundation (4 Host) SnS - 3 Year (reports to PID VMW-VCS-FND-3S=) |
| **VMware vSphere Upgrades** | |
| VMW-VSS2VSP-1A= | Upgrade: vSphere 7 Std to vSphere 7 Ent Plus (1 yr Supp Req) |

**Table 23 Spare Parts** *(continued)*

| Product ID (PID) | PID Description |
|---|---|
| VMW-VSS2VSP-3A= | Upgrade: vSphere 7 Std to vSphere 7 Ent Plus (1 yr Supp Req) |

**Notes:**

1. The maximum number of UCSX-CPU-I8351N CPUs is one
2. The maximum number of UCSX-CPU-I6312U CPUs is one
3. The maximum number of UCSX-CPU-I6314U CPUs is one

**Please refer to the Cisco UCS X210c M6 Compute Node Installation Guide for installation procedures.**

# UPGRADING or REPLACING CPUs

**NOTE:** Before servicing any CPU, do the following:

- Decommission and power off the compute node.
- Slide the Cisco UCS X210c M6 Compute Node out from its chassis.
- Remove the top cover.

**To replace an existing CPU, follow these steps:**

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

- T-30 Torx driver—Supplied with replacement CPU.
- #1 flat-head screwdriver—Supplied with replacement CPU.
- CPU assembly tool—Supplied with replacement CPU. Can be ordered separately as Cisco PID UCSX-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 UCSX-CPU-TIM=.

**(2) Order the appropriate replacement CPU from** *Available CPUs on page 12***.**

**Carefully remove and replace the CPU and heatsink in accordance with the instructions found in "Cisco UCS X210c M6 Compute Node Installation and Service Note," found at: https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html.**

(3) .

**To add a new CPU, follow these steps:**

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

- T-30 Torx driver—Supplied with new CPU.
- #1 flat-head screwdriver—Supplied with new CPU
- CPU assembly tool—Supplied with new CPU.Can be ordered separately as Cisco PID UCSX-CPUAT=
- Thermal interface material (TIM)—Syringe supplied with replacement CPU.Can be ordered separately as Cisco PID UCSX-CPU-TIM=

**(2) Order the appropriate new CPU from** *Table 3 on page 12***.**

**(3) Order one heat sink for each new CPU. Order PID UCSX-C-M6-HS-F= for the front CPU socket and PID UCSX-C-M6-HS-R= for the rear CPU socket.**

**Carefully install the CPU and heatsink in accordance with the instructions found in "Cisco UCS X210c M6 Compute Node Installation and Service Note," found at:**
**https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html.**

# UPGRADING or REPLACING MEMORY

**NOTE:** Before servicing any DIMM or PMem, do the following:

- Decommission and power off the compute node.
- Slide the Cisco UCS X210c M6 Compute Node out from its chassis.
- Remove the top cover.

**To add or replace DIMMs or PMem, follow these steps:**

**To add or replace DIMMs or PMem, follow these steps:**

Step 1 Open both DIMM connector latches.

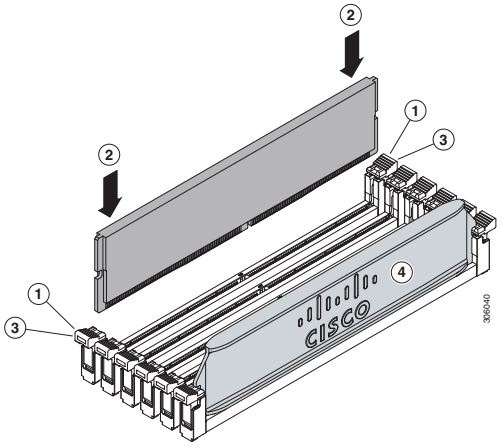
Step 2 Press evenly on both ends of the DIMM until it clicks into place in its slot

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 13 Replacing Memory**




For additional details on replacing or upgrading DIMMs, see "**Cisco UCS X210c M6 Compute Node Installation and Service Note**," found at
**https://www.cisco.com/content/en/us/td/docs/unified_computing/ucs/x/hw/210c-m6/install/b-cisco-ucs-x210c-m6-install.html.**

# DISCONTINUED EOL PRODUCTS

Below is the list of parts were previously available for this product and are no longer sold. Please refer to the EOL Bulletin Links via the Table 36 below to determine if still supported.

**Table 24 EOS**

| Product ID | Description | EOL/EOS link |
|---|---|---|
| **Operating system** | | |
| SLES-2SUV-1A | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 1-Yr Support Req | |
| SLES-2SUV-1S | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 1-Yr SnS | |
| SLES-2SUV-3A | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 3-Yr Support Req | |
| SLES-2SUV-3S | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 3-Yr SnS | |
| SLES-2SUV-5A | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 5-Yr Support Req | |
| SLES-2SUV-5S | SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 5-Yr SnS | |
| SLES-SAP-2SUV-1A | SLES for SAP Apps w/ HA (1-2 CPU, Unl VM); 1-Yr Support Reqd | |
| SLES-SAP-2SUV-1S | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 1-Yr SnS | |
| SLES-SAP-2SUV-3A | SLES for SAP Apps w/ HA (1-2 CPU, Unl VM); 3-Yr Support Reqd | |
| SLES-SAP-2SUV-3S | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 3-Yr SnS | |
| SLES-SAP-2SUV-5A | SLES for SAP Apps w/ HA (1-2 CPU, Unl VM); 5-Yr Support Reqd | |
| SLES-SAP-2SUV-5S | SLES for SAP Apps (1-2 CPU, Unl VM); Priority 5-Yr SnS | |
| | | |
| UCSX-NVMEI4-I3840 | 3.8TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-access-eol-15074.html |
| UCSX-NVMEI4-I7680 | 7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-access-eol-15074.html |
| UCSX-SD76T61X-EV | 7.6TB 2.5 inch Enterprise Value 6G SATA SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hyperflex-accessories-eol2.html |
| UCSX-SD76TBEM2NK9 | 7.6TB 2.5in Enter Value 6G SATA Micron G1 SSD (SED) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hyperflex-accessories-eol2.html |

**Table 24 EOS**

| | | |
|---|---|---|
| UCSX-SD960GBM2NK9 | 960GB 2.5in Enter Value 6G SATA Micron G1 SSD (SED) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD16TM1X-EV | 1.6TB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD240GM1X-EV | 240GB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD38TM1X-EV | 3.8TB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD480GM1X-EV | 480 GB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD76TM1X-EV | 7.6TB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/unified-computing-accessories-eol.html |
| UCSX-SD960G61X-EV | 960GB 2.5 inch Enterprise Value 6G SATA SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hyperflex-accessories-eol2.html |
| UCSX-NVMEI4-I6400 | 6.4TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD32TK3X-EP | 3.2TB 2.5in Enter Perf 12G SAS Kioxia G1 SSD (3X) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD38TK1X-EV | 3.8TB 2.5in Enter Value 12G SAS Kioxia G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD76TBKNK9 | 7.6TB 2.5in Enter Value 12G SAS Kioxia G1 SSD (SED-FIPS) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD76TK1X-EV | 7.6TB 2.5in Enter Value 12G SAS Kioxia G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD15TK1X-EV | 15.3TB 2.5in Enter Value 12G SAS Kioxia G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD16TBKNK9 | 1.6TB 2.5in Enter Perf 12G SAS Kioxia G1 SSD (3X SED-FIPS) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |

**Table 24 EOS**

| | | |
|---|---|---|
| UCSX-SD16TK3X-EP | 1.6TB 2.5in Enter Perf 12G SAS Kioxia G1 SSD (3X) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD19TK1X-EV | 1.9TB 2.5in Enter Value 12G SAS Kioxia G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-NVMEI4-I1920 | 1.9TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-access-eol-15074.html |
| UCSX-ML-V5D200G | Cisco VIC 15231 2x 100G mLOM X-Series | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-ucsx-accessories-eol.html |
| UCSX-NVMEI4-I3200 | 3.2TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-NVMEXP-I750 | 750GB 2.5in Intel Optane NVMe Extreme Perf | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hci-accessories-eol.html |
| UCSX-NVMEXPB-I375 | 375GB 2.5in Intel Optane NVMe Extreme Performance SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hci-accessories-eol.html |
| UCSX-SD120GM1X-EV | 120 GB 2.5 inch Enterprise Value 6G SATA SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD38T6S1X-EV | 3.8TB 2.5in Enter Value 6G SATA Samsung SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hci-accessories-eol.html |
| UCSX-SD800GBKNK9 | 800GB 2.5in Enter Perf 12G SAS Kioxia G1 SSD (3X SED-FIPS) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15420.html |
| UCSX-SD960G63X-EP | 960GB 2.5in Enter Perf 6G SATA Intel SSD (3X) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |
| UCSX-SD800GS3X-EP | 800GB 2.5in Enter Perf 12G SAS Seagate SSD (3X) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hci-accessories-eol.html |
| UCSX-SD800GK3X-EP | 800GB 2.5in Enter Perf 12G SAS Kioxia G1 SSD (3X) | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |
| UCSX-SD76T6S1X-EV | 7.6TB 2.5in Enter Value 6G SATA Samsung SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-hci-accessories-eol.html |
| UCSX-SD38T6I1X-EV | 3.8TB 2.5in Enter Value 6G SATA Intel SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |
| UCSX-SD19TM1X-EV | 1.9TB 2.5in Enter Value 6G SATA Micron G1 SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-SD19T6S1X-EV | 1.9TB 2.5in Enter Value 6G SATA Samsung SSD | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |

**Table 24 EOS**

| | | |
|---|---|---|
| UCSX-NVMEQ-1536 | 15.3TB 2.5in U.2 15mm P5316 Hg Perf Low End NVMe | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |
| UCSX-NVMEI4-I1600 | 1.6TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-b-series-blade-servers/select-ucs-accessories-eol.html |
| UCSX-NVME4-7680 | 7.6TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |
| UCSX-NVME4-3840 | 3.8TB 2.5in U.2 15mm P5520 Hg Perf Med End NVMe | https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15502.html |

# TECHNICAL SPECIFICATIONS

## Dimensions and Weight

**Table 25 Cisco UCS X210c M6 Compute Node Dimensions and Weight**

| Parameter | Value |
|---|---|
| Height | 1.80 in. (45.7 mm) |
| Width | 11.28 in.(286.5 mm) |
| Depth | 23.7 in. (602 mm) |
| Weight | ■ Minimally configured node weight = 12.84 lbs (5.83 kg)<br>■ Fully configured compute node weight = 25.1 lbs (11.39 kg) |

## Environmental Specifications

**Table 26 Cisco UCS X210c M6 Compute Node Environmental Specifications**

| Parameter | Value |
|---|---|
| Operating temperature | 50° to 95°F (10° to 35°C) |
| Non-operating temperature | -40° to 149°F (-40° to 65°C) |
| Operating humidity | 5% to 90% noncondensing |
| Non-operating humidity | 5% to 93% noncondensing |
| Operating altitude | 0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m |
| Non-operating altitude | 40,000 ft (12,000m) |

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

http://ucspowercalc.cisco.com



**NOTE:** The Cisco UCS X210c Server Node has a power cap of 1300 Watts for all combinations of components (CPUs, DIMMs, drives, and so on). Also, the ambient temperature must be less than 35 ºC (95 ºF).



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