

Cisco UCS X210c 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>



OVERVIEW	3
DETAILED VIEWS	5
Cisco UCS X210c Compute Node Front View	5
COMPUTE NODE STANDARD CAPABILITIES and FEATURES	6
CONFIGURING the Cisco UCS X210c COMPUTE NODE	8
STEP 1 CHOOSE BASE Cisco UCS X210c COMPUTE NODE SKU	9
STEP 2 CHOOSE CPU(S)	10
STEP 3 CHOOSE MEMORY	13
STEP 4 CHOOSE REAR mLOM ADAPTER	20
STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS	22
STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER	24
STEP 7 CHOOSE OPTIONAL DRIVES	25
STEP 8 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE	29
STEP 9 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE	30
STEP 10 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT	34
SUPPLEMENTAL MATERIAL	35
Simplified Block Diagram	35
System Board	36
Memory Configuration	37
Memory Support for 3rd Generation Intel® Xeon® Scalable Processors (Ice Lake)	39
PMEM Support	39
App Direct Mode	39
Memory Mode	39
SPARE PARTS	40
UPGRADING or REPLACING CPUs	46
UPGRADING or REPLACING MEMORY	47
TECHNICAL SPECIFICATIONS	48
Dimensions and Weight	48
Environmental Specifications	48

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 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.
- mLOM virtual interface card: 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.
- Optional Mezzanine virtual interface 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 that is planned for future I/O expansion. 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).
- Security: The server supports an optional trusted platform module (TPM). Additional features include a secure boot FPGA and ACT2 anti-counterfeit provisions.

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

Figure 1 Cisco UCS X210c Compute Node



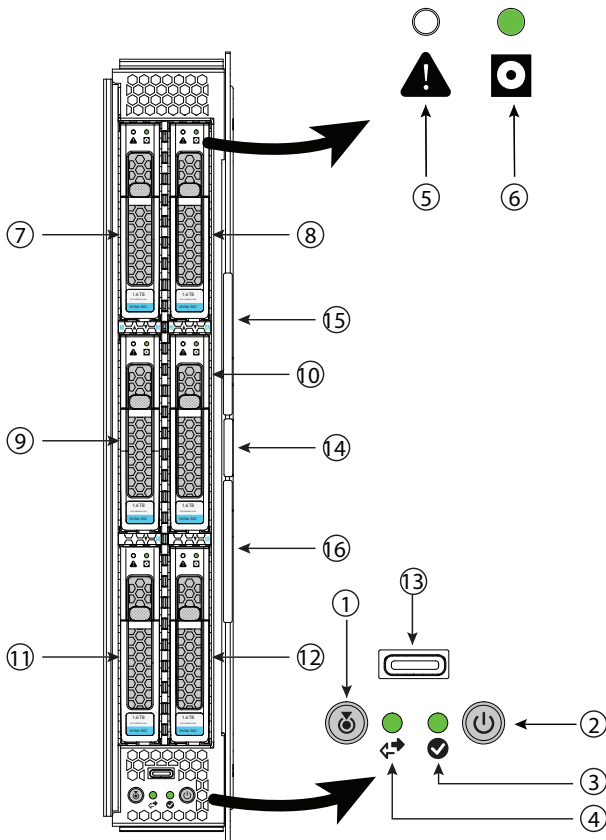
DETAILED VIEWS

Cisco UCS X210c Compute Node Front View

Figure 2 is a front view of the Cisco UCS X210c Compute Node.

Figure 2 Cisco UCS X210c Compute Node Front View

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.


COMPUTE NODE STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base Cisco UCS X210c 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 COMPUTE NODE on page 8*.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	The Cisco UCS X210c Compute Node mounts in a Cisco UCS X9508 chassis.
CPU	One or two 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake). Each CPU has 8 channels with up to 2 DIMMs per socket, for up to 16 DIMMs per CPU.
Chipset	Intel® C620 series chipset (Lewisburg)
Memory	<ul style="list-style-type: none"> ■ 32 total 3200-MHz DIMM slots (16 per CPU) ■ Support for Advanced ECC ■ Support for registered ECC DIMMs (RDIMMs) ■ Support for load-reduced DIMMs (LR DIMMs) ■ Support for Intel® Optane™ Persistent Memory Modules (PMEMs), only in designated slots ■ Up to 8 TB DDR4 DIMM memory capacity (32x 256 GB DIMMs) ■ Up to 12 TB memory capacity (16x 256 GB DIMMs and 16x 512 GB PMEMs)
Mezzanine Adapter (Rear)	<ul style="list-style-type: none"> ■ An optional Cisco UCS Virtual Interface Card 14825 can occupy the server's mezzanine slot at the bottom of the chassis. This card's I/O connectors link to Cisco UCS X-Fabric technology that is planned for future I/O expansion. 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.
mLOM	<ul style="list-style-type: none"> ■ A modular LAN on motherboard (mLOM) card (the Cisco UCS VIC 14425) is located at the rear of the compute node. It 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.

Table 1 Capabilities and Features (*continued*)

Capability/Feature	Description
Mezzanine Adapters (Front)	<p>One front mezzanine connector that supports:</p> <ul style="list-style-type: none"> ■ Up to 6 x 2.5-inch SAS and SATA RAID-compatible SSDs ■ Up to 6 x 2.5-inch NVMe PCIe drives ■ A mixture of up to six SAS/SATA or NVMe drives  <p>Note: Drives require a RAID or pass-through controller in the front mezzanine module slot.</p>
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	<p>Video uses a Matrox G200e video/graphics controller.</p> <ul style="list-style-type: none"> ■ Integrated 2D graphics core with hardware acceleration ■ DDR4 memory interface supports up to 512 MB of addressable memory (16 MB is allocated by default to video memory) ■ Supports display resolutions up to 1920 x 1200 32 bpp@ 60Hz ■ 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 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 (CIMC) GUI or CLI interface enables monitoring of Cisco UCS X210c Compute Node inventory, health, and system event logs.
Baseboard Management Controller (BMC)	ASPEED Pilot IV
ACPI	Advanced Configuration and Power Interface (ACPI) 4.0 Standard Supported. ACPI states S0 and S5 are supported. There is no support for states S1 through S4.
Front Indicators	<ul style="list-style-type: none"> ■ Power button and indicator ■ System activity indicator ■ Location button and indicator
Management	Cisco Intersight software (SaaS, Virtual Appliance and Private Virtual Appliance)
Fabric Interconnect	Compatible with the Cisco UCS 6454 and 64108 fabric interconnects
Chassis	Compatible with the Cisco UCS 9508 X-Series Server Chassis

CONFIGURING the Cisco UCS X210c COMPUTE NODE

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

- *STEP 1 CHOOSE BASE Cisco UCS X210c COMPUTE NODE SKU, page 9*
- *STEP 2 CHOOSE CPU(S), page 10*
- *STEP 3 CHOOSE MEMORY, page 14*
- *STEP 4 CHOOSE REAR mLOM ADAPTER, page 21*
- *STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS, page 23*
- *STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER, page 25*
- *STEP 7 CHOOSE OPTIONAL DRIVES, page 26*
- *STEP 8 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE, page 30*
- *STEP 9 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 31*
- *STEP 10 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT, page 35*
- *SUPPLEMENTAL MATERIAL, page 36*

STEP 1 CHOOSE BASE Cisco UCS X210c COMPUTE NODE SKU

Verify the product ID (PID) of the Cisco UCS X210c Compute Node as shown in [Table 2](#).

Table 2 PID of the Base Cisco UCS X210c Compute Node

Product ID (PID)	Description
UCSX-210C-M6	Cisco UCS X210c 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 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 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, M.2, or U.2 drives
- Cisco adapters (such as the 14000 series VIC or Bridge)

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

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

Select CPUs

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

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz) ²
8000 Series Processors						
UCSX-CPU-I8380	2.3	270	60	40	3 at 11.2	3200
UCSX-CPU-I8368	2.4	270	57	38	3 at 11.2	3200
UCSX-CPU-I8360Y	2.4	250	54	36	3 at 11.2	3200
UCSX-CPU-I8358P	2.6	240	54	32	3 at 11.2	3200
UCSX-CPU-I8358	2.6	250	48	32	3 at 11.2	3200
UCSX-CPU-I8352Y	2.2	205	48	32	3 at 11.2	3200
UCSX-CPU-I8352V	2.1	195	54	36	3 at 11.2	2933
UCSX-CPU-I8352S	2.2	205	48	32	3 at 11.2	3200
UCSX-CPU-I8351N ³	2.4	225	54	36	0	2933
6000 Series Processors						
UCSX-CPU-I6354	3.0	205	39	18	3 at 11.2	3200
UCSX-CPU-I6348	2.6	235	42	28	3 at 11.2	3200
UCSX-CPU-I6346	3.1	205	36	16	3 at 11.2	3200
UCSX-CPU-I6342	2.8	230	36	24	3 at 11.2	3200
UCSX-CPU-I6338T	2.1	165	36	24	3 at 11.2	3200
UCSX-CPU-I6338N	2.2	185	48	32	3 at 11.2	2666
UCSX-CPU-I6338	2.0	205	48	32	3 at 11.2	3200
UCSX-CPU-I6336Y	2.4	185	36	24	3 at 11.2	3200
UCSX-CPU-I6334	3.6	165	18	8	3 at 11.2	3200
UCSX-CPU-I6330N	2.2	165	48	28	3 at 11.2	2666
UCSX-CPU-I6330	2.0	205	42	28	3 at 11.2	2933
UCSX-CPU-I6326	2.9	185	24	16	3 at 11.2	3200
UCSX-CPU-I6312U ⁴	2.4	185	36	24	0	3200

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
UCSX-CPU-I6314U ⁵	2.3	205	48	32	0	3200
5000 Series Processors						
UCSX-CPU-I5320T	2.3	150	30	20	3 at 11.2	2933
UCSX-CPU-I5320	2.2	185	39	26	3 at 11.2	2933
UCSX-CPU-I5318Y	2.1	165	36	24	3 at 11.2	2933
UCSX-CPU-I5318S	2.1	165	36	24	3 at 11.2	2933
UCSX-CPU-I5318N	2.1	150	36	24	3 at 11.2	2666
UCSX-CPU-I5317	3.0	150	18	12	3 at 11.2	2933
UCSX-CPU-I5315Y	3.2	150	12	8	3 at 11.2	2933
4000 Series Processors						
UCSX-CPU-I4316	2.3	150	30	20	2 at 10.4	2666
UCSX-CPU-I4314	2.4	135	24	16	2 at 10.4	2666
UCSX-CPU-I4310T	2.3	105	15	10	2 at 10.4	2666
UCSX-CPU-I4310	2.1	120	18	12	2 at 10.4	2666
UCSX-CPU-I4309Y	2.8	105	12	8	2 at 10.4	2666

Notes:

1. UPI = Ultra Path Interconnect
2. If higher or lower speed DIMMs are selected than what is shown in [Table 5 on page 15](#) 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

Table 4 CPU Suffixes

CPU Suffix	Description	Features
U	1-socket Optimized	Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity available from a single processor
S	Max SGX enclave size	Supports Max SGX enclave size (512GB) to enhance and protect the most sensitive portions of a workload or service
M	Media and AI optimized	Media, AI and HPC Segment Optimized for lower TDP & higher frequencies delivering better perf/w
Y	Speed Select - Performance Profile	Intel® Speed Select Technology provides the ability to set a guaranteed base frequency for a specific number of cores, and assign this performance profile to a specific application/workload to guarantee performance requirements. It also provides the ability to configure settings during runtime and provide additional frequency profile configuration opportunities.

Supported Configurations

(1) DIMM only configurations:

- Select one or two identical CPUs listed in [Table 3 on page 10](#)

(2) DIMM/PMEM Mixed Configurations:

- You must select two identical CPUs listed in [Table 3 on page 10](#)

(3) Configurations with NVMe PCIe drives:

- You must select two identical CPUs listed in [Table 3 on page 10](#)

(4) One-CPU Configuration

- Choose one CPU from any one of the rows of [Table 3 Available CPUs, page 10](#)

(5) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of [Table 3 Available CPUs, page 10](#)



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.

Caveats

- The selection of 1 or 2 CPUs depends on the desired server functionality. See the following sections:
 - [STEP 3 CHOOSE MEMORY, page 14](#)
 - [STEP 7 CHOOSE OPTIONAL DRIVES, page 26](#)

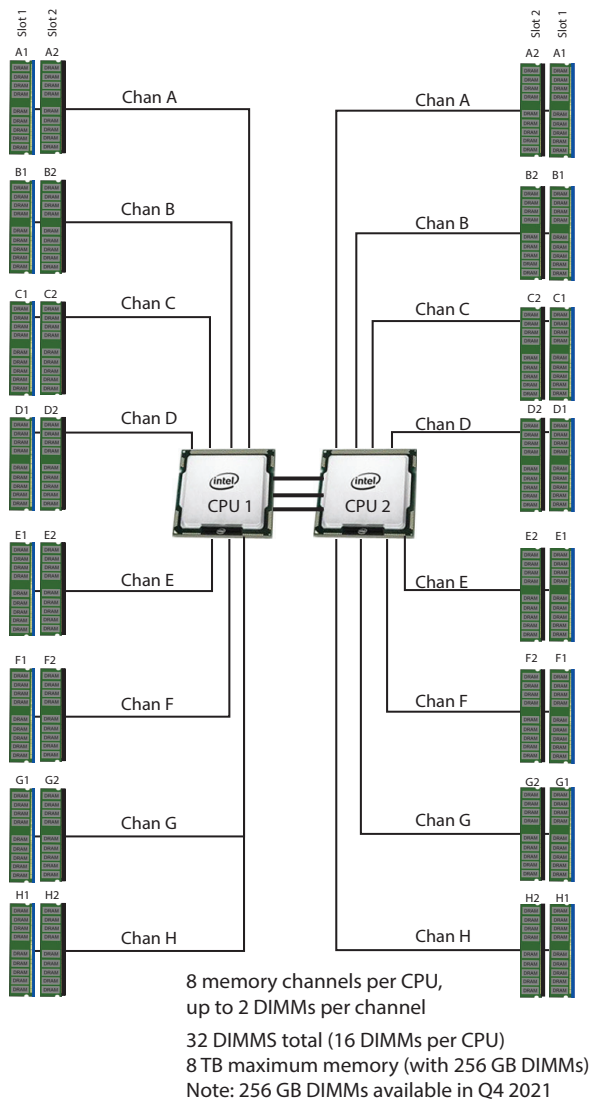
STEP 3 CHOOSE MEMORY

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

- Clock speed: 3200
- 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 (PMEMs).

Memory is organized with eight memory channels per CPU, with up to two DIMMs per channel, as shown in [Figure 3](#).

Figure 3 Cisco UCS X210c Compute Node Memory Organization



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-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 ¹	256 GB LRDIMM 8Rx4 3200 (16Gb)	1.2 V	8
Intel® Optane™ Persistent Memory (PMEM)			
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 Blank²			
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. 256 GB DRAMS are available in Q4 of CY2021
2. Any empty DIM M 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 15](#) 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 15](#).

(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 15](#) 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 15](#).



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:
 - LRDIMMs cannot be mixed with RDIMMs.
 - RDIMMs can be mixed with RDIMMs, and LRDIMMs can be mixed with LRDIMMs, but mixing of non-3DS and 3DS RDIMMs is not allowed in the same channel, across different channels, or across different sockets.



NOTE: The 128 GB LRDIMM is non-3DS and the 256GB LRDIMM is 3DS so these two LRDIMMs cannot be mixed.

- Allowed mixing has be in pairs of similar quantities (for example, 8x32GB and 8x64GB, 8x16GB and 8x64GB, 8x32GB and 8x64GB, or 8x16GB and 8x32GB). Mixing of 10x32GB and 6x64GB, for example, is not allowed.
-



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

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 PMEMs. 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 PMEM¹ Physical Configuration

DIMM + PMEM Count	CPU 1 or CPU 2															
	ICX: IMC2				ICX: IMC3				ICX: IMC1				ICX: IMC0			
	Chan 0 (F)		Chan 1 (E)		Chan 0 (H)		Chan 1 (G)		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 PMEMs 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 C220/C240/B200 M6 Memory Guide](#)

STEP 4 CHOOSE REAR mLOM ADAPTER

The Cisco UCS X210c 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 BX Compute Node	mLOM

The mLOM adapter is mandatory for Ethernet connectivity to the network by means of the IFMs and has x16 PCIe Gen3 connectivity towards 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 4 shows the location of the mLOM and rear mezzanine adapters on the Cisco UCS X210c Compute Node. The bridge adapter connects the mLOM adapter to the rear mezzanine adapter.

Figure 4 Location of mLOM and Rear Mezzanine Adapters

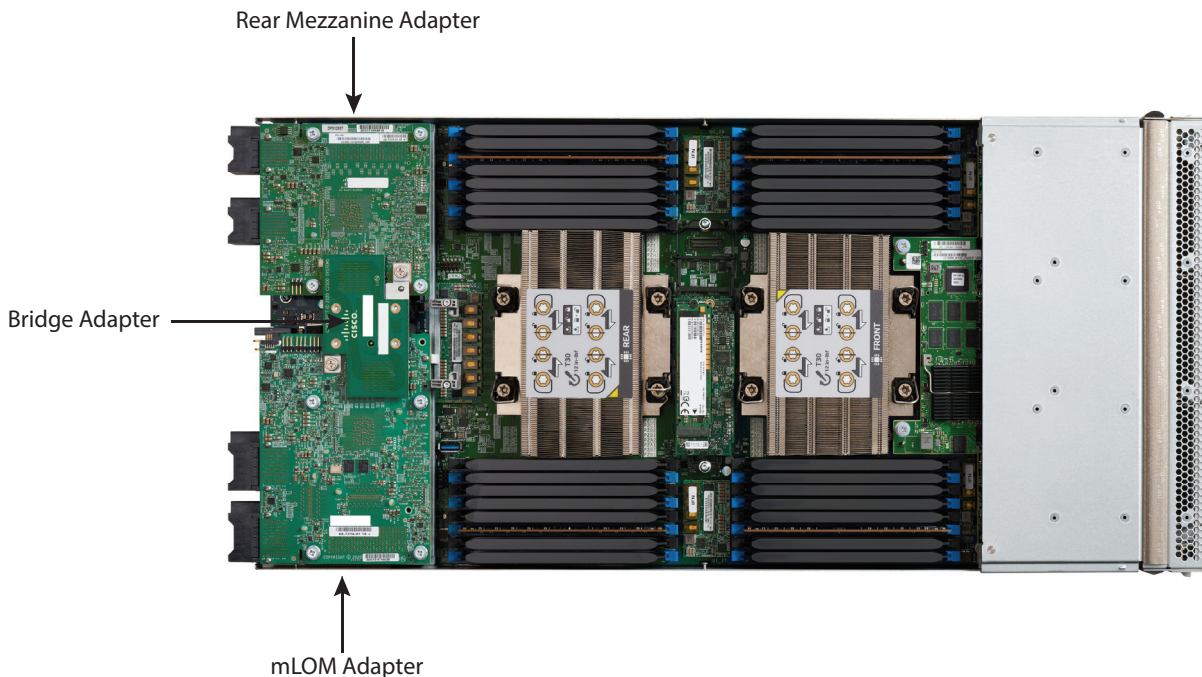
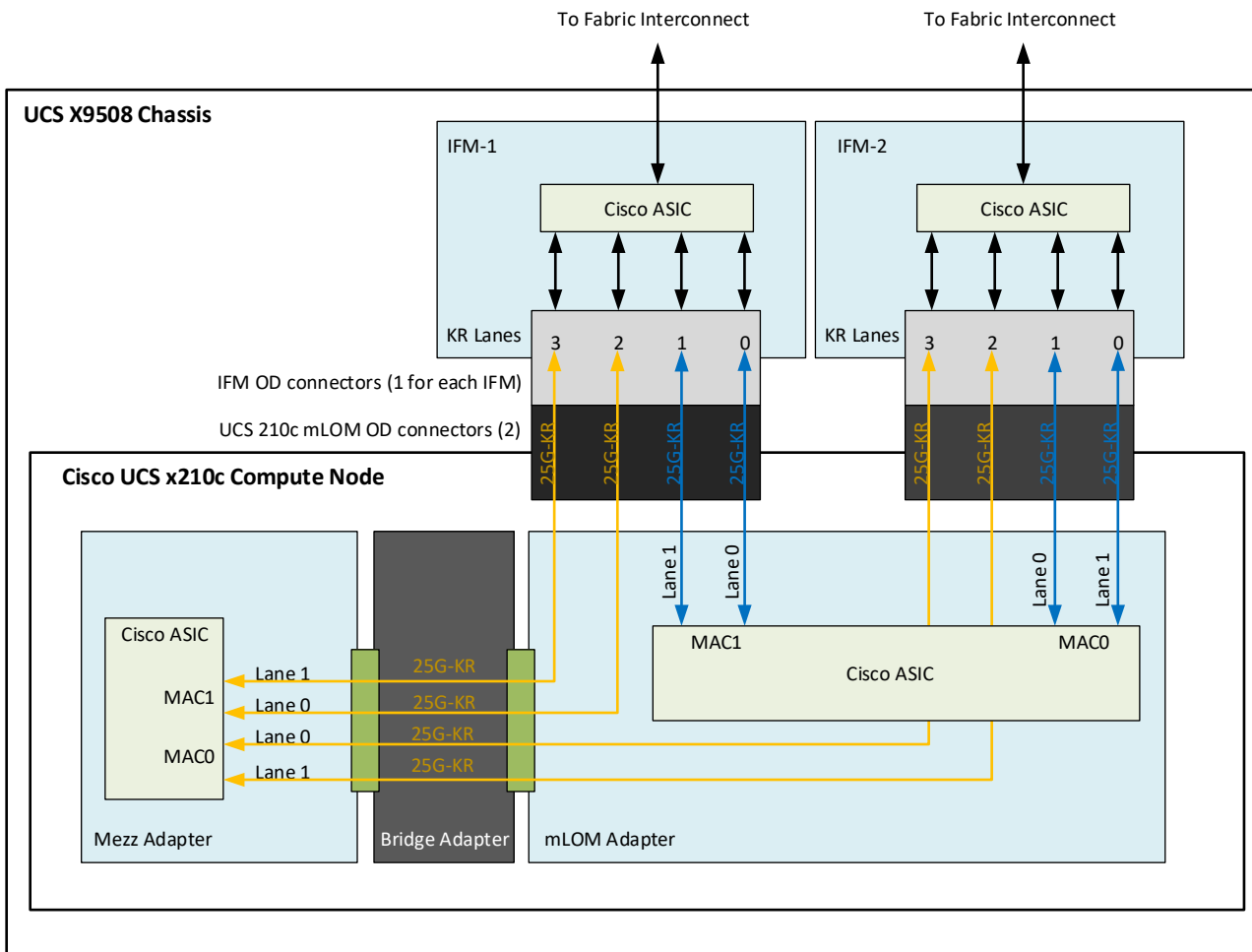


Figure 5 shows the network connectivity from the mLOM out to the IFMs.

Figure 5 Network Connectivity



STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS

The Cisco UCS X210c Compute Node has one rear mezzanine adapter connector. 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 4x25G Mezz card for the X210c Compute Node	2 CPUs required	Rear Mezzanine connector on motherboard
Cisco VIC Bridge Card¹			
UCSX-V4-BRIDGE	UCS VIC 14000 bridge to connect mLOM and Mezz for the X210c Compute Node	2 CPUs required	One connector on Mezz card and one connector on mLOM card

Notes:

1. Included with the Cisco VIC 14825

Table 11 Aggregate Bandwidth on a X210c Compute Node

VIC Adapter	IFM in UCS 9508 Chassis Aggregate Bandwidth per X210c (Gb/s)	Fabric Interconnect Support
	2x 9108 25G IFM	2x 6400
14425	100 ^{1, 2}	Yes
14425 + 14825	200 ^{1, 3}	Yes

Notes:

1. Each vNIC on a VIC 14000 provides an aggregate bandwidth of 50 Gbps across multiple flows and a single-flow maximum of 25 Gbps
2. 100 Gbps across both IFMs with two vNICs
3. 200 Gbps across both IFMs with four vNICs

Supported Configurations

- An mLOM VIC (UCSX-V4-Q25GML) 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.

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.

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. Depending on the different rear mezzanine daughter cards and Cisco UCS X-Fabrics, these 32 lanes add additional network, storage, or I/O capabilities to the system. The actual protocols run on the x16 PCIe lanes are dependent on the different mezzanine types and Cisco UCS X-Fabric types.

STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER

The Cisco UCS X210c 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 NVMe drives
- RAID controller (RAID 0, 1, 5, 10) for 6 SAS/SATA drives or up to 4 U.2 NVMe drives

The Cisco UCS X210c 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 Compute Node compute pass through controller for up to 6 NVMe drives	Front Mezzanine
UCSX-X10C-RAIDF	Cisco UCS X210c Compute Node RAID controller 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

STEP 7 CHOOSE OPTIONAL DRIVES

The Cisco UCS X210c 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 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 13](#).

Table 13 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-SD38TBEM2NK9	3.8 TB Enterprise value SATA SSD (1X, SED)	SATA SED		Ent. Value 1X	3.8 TB
UCSX-SD960GBM2NK9	960 GB Enterprise value SATA SSD (1X, SED)	SATA/SED		Ent. Value 1X	960 GB
UCSX-SD960GBKNK9	960 GB Enterprise value SAS SSD (1X FWPD, SED)	SAS/SED		Ent. Value 1X	960 GB
UCSX-SD38TBKNK9	3.8 TB Enterprise value SAS SSD (1X FWPD, SED)	SAS/SED		Ent. Value 1X	3.8 TB
UCSX-SD800GBKNK9	800 GB Enterprise performance SAS SSD (3X FWPD, SED)	SAS/SED		Ent. Perf 3X	800 GB
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-SD19TM3X-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-SD480GM3X-EP	480 GB 2.5in Enterprise performance 6G SATA SSD(3X endurance)	SATA	6G	Ent. Perf 3X	480 GB
UCSX-SD960G63X-EP	960 GB 2.5 inch Enterprise performance 6G SATA SSD (3X endurance)	SATA	6G	Ent. Perf 3X	960 GB

Table 13 Available Drive Options (continued)

Product ID (PID)	Description	Drive Type	Speed	Performance/ Endurance/ Value	Size
UCSX-SD960GM3X-EP	960 GB 2.5 inch Enterprise performance 6G SATA SSD (3X endurance)	SATA	6G	Ent. Perf 3X	960 GB
UCSX-SD800GK3X-EP	800 GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	12G	Ent. Perf 3X	800 GB
UCSX-SD16TK3X-EP	1.6 TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	12G	Ent. Perf 3X	1.6 TB
UCSX-SD32TK3X-EP	3.2 TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)	SAS	12G	Ent. Perf 3X	3.2 TB
Enterprise Value SSDs (Low endurance, supports up to 1X DDPD (drive writes per day))					
UCSX-SD960GK1X-EV	960 GB 2.5 inch Enterprise Value 12G SAS SSD	SAS	12G	Ent. Value	960 GB
UCSX-SD19TK1X-EV	1.9 TB 2.5 inch Enterprise Value 12G SAS SSD	SAS	12G	Ent. Value	1.9 TB
UCSX-SD38TK1X-EV	3.8 TB 2.5 inch Enterprise Value 12G SAS SSD	SAS	12G	Ent. Value	3.8 TB
UCSX-SD76TK1X-EV	7.6 TB 2.5 inch Enterprise Value 12G SAS SSD	SAS	12G	Ent. Value	7.6 TB
UCSX-SD15TK1X-EV	15.3 TB 2.5 inch Enterprise Value 12G SAS SSD	SAS	12G	Ent. Value	15.3 TB
UCSX-SD120GM1X-EV	120 GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	120 GB
UCSX-SD76TM1X-EV	7.6 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	7.6 TB
UCSX-SD240GM1X-EV	240 GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	240 GB
UCSX-SD480GM1X-EV	480 GB 2.5 inch Enterprise Value 6G SATA SSD	SAS	6G	Ent. Value	480 GB
UCSX-SD960GM1X-EV	960 GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	960 GB
UCSX-SD16TM1X-EV	1.6 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	1.6 TB
UCSX-SD19TM1X-EV	1.9 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	1.9 TB
UCSX-SD38TM1X-EV	3.8 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	3.8 TB
UCSX-SD480G611XEV	480 GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	480 GB
UCSX-SD960G611XEV	960 GB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	960 GB
UCSX-SD38T611X-EV	3.8 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	3.8 TB
UCSX-SD960G61X-EV	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-SD76T61X-EV	7.6 TB 2.5 inch Enterprise Value 6G SATA SSD	SATA	6G	Ent. Value	7.6 TB
NVMe^{4, 5}					
UCSB-NVMEXPB-I375	Cisco 2.5in U.2 375 GB Intel P4800 NVMe Med. Perf	NVMe	U.2	Med. Perf	375 GB
UCSC-NVMEXP-I750	750 GB 2.5in Intel Optane NVMe Extreme Perf.	NVMe	U.2	Ext Perf	750 GB
UCSX-NVMEI4-I1920	1.9TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	U.2	High. Perf Med End.	1.9 TB
UCSX-NVMEI4-I3840	3.8TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	U.2	High. Perf Med End.	3.8 TB
UCSX-NVMEI4-I7680	7.6TB 2.5in U.2 Intel P5500 NVMe High Perf Medium Endurance	NVMe	U.2	High. Perf Med End.	7.6 TB
UCSX-NVMEI4-I1600	1.6TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance	NVMe	U.2	High. Perf High End.	1.6 TB

Table 13 Available Drive Options (continued)

Product ID (PID)	Description	Drive Type	Speed	Performance/Endurance/Value	Size
UCSX-NVMEI4-I3200	3.2TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance	NVMe	U.2	High. Perf High End.	3.2 TB
UCSX-NVMEI4-I6400	6.4TB 2.5in U.2 Intel P5600 NVMe High Perf High Endurance	NVMe	U.2	High. Perf High End.	6.4 TB
UCSX-NVMEM6-W1600	1.6 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance	NVMe	U.2	Ext Perf High End.	1.6 TB
UCSX-NVMEM6-W3200	3.2 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance	NVMe	U.2	Ext Perf High End.	3.2 TB
UCSX-NVMEM6-W6400	6.4 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance	NVMe	U.2	Ext Perf High End.	6.4 TB
UCSX-NVMEM6-W7680	7.6 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance	NVMe	U.2	Ext Perf Value End.	7.6 TB
UCSX-NVMEM6-W15300	15.3 TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance	NVMe	U.2	Ext Perf High End.	15.3 TB
SATA M.2 Storage Modules (plug into Boot-Optimized RAID controller on motherboard)					
UCSX-M2-240GB	Micron 5100 240 G SATA M.2	SATA	M.2		240 GB
UCSX-M2-960GB	Micron 5100 960 G SATA M.2	SATA	M.2		960 GB

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.
5. A maximum of 4x NVMe drives can be ordered with RAID controller.



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

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 14 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 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.

STEP 8 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 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 15 Available TPM Option

Product ID (PID)	Description
UCSX-TPM-002C	Trusted Platform Module 2.0, FIPS140-2 Compliant, UCS M6 server



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 Compute Node with a TPM is returned, the replacement Cisco UCS X210c Compute Node must be ordered with a new TPM. If there is no existing TPM in the Cisco UCS X210c 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 9 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE



NOTE: See this link for operating system guidance:
<https://ucshcltool.cloudapps.cisco.com/public/>

Select

- Cisco Software ([Table 16](#))
- Operating System ([Table 17](#))

Table 16 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 17 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
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

Table 17 Operating System (continued)

Product ID (PID)	PID Description
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-2S-SFS-1S	RHEL Scalable File System (1-2 CPU); Premium 1-yr SnS
RHEL-2S-SFS-3S	RHEL Scalable File System (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
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-2SUV-1A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 1-Yr Support Req
SLES-2S2V-3A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req

Table 17 Operating System (continued)

Product ID (PID)	PID Description
SLES-2SUV-3A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 3-Yr Support Req
SLES-2S2V-5A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req
SLES-2SUV-5A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 5-Yr Support Req
SLES-2S2V-1S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS
SLES-2SUV-1S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 1-Yr SnS
SLES-2S2V-3S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS
SLES-2SUV-3S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 3-Yr SnS
SLES-2S2V-5S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS
SLES-2SUV-5S	SUSE Linux Enterprise Svr (1-2 CPU,Unl 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-2SUV-1A	SLES for SAP Apps (1-2 CPU, Unl 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-2SUV-3A	SLES for SAP Apps (1-2 CPU, Unl 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-2SUV-5A	SLES for SAP Apps (1-2 CPU, Unl 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-2SUV-1S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 1-Yr SnS
SLES-SAP-2S2V-3S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS

Table 17 Operating System *(continued)*

Product ID (PID)	PID Description
SLES-SAP-2SUV-3S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 3-Yr SnS
SLES-SAP-2S2V-5S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS
SLES-SAP-2SUV-5S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 5-Yr SnS

STEP 10 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in [Table 18](#).

Table 18 OS Media

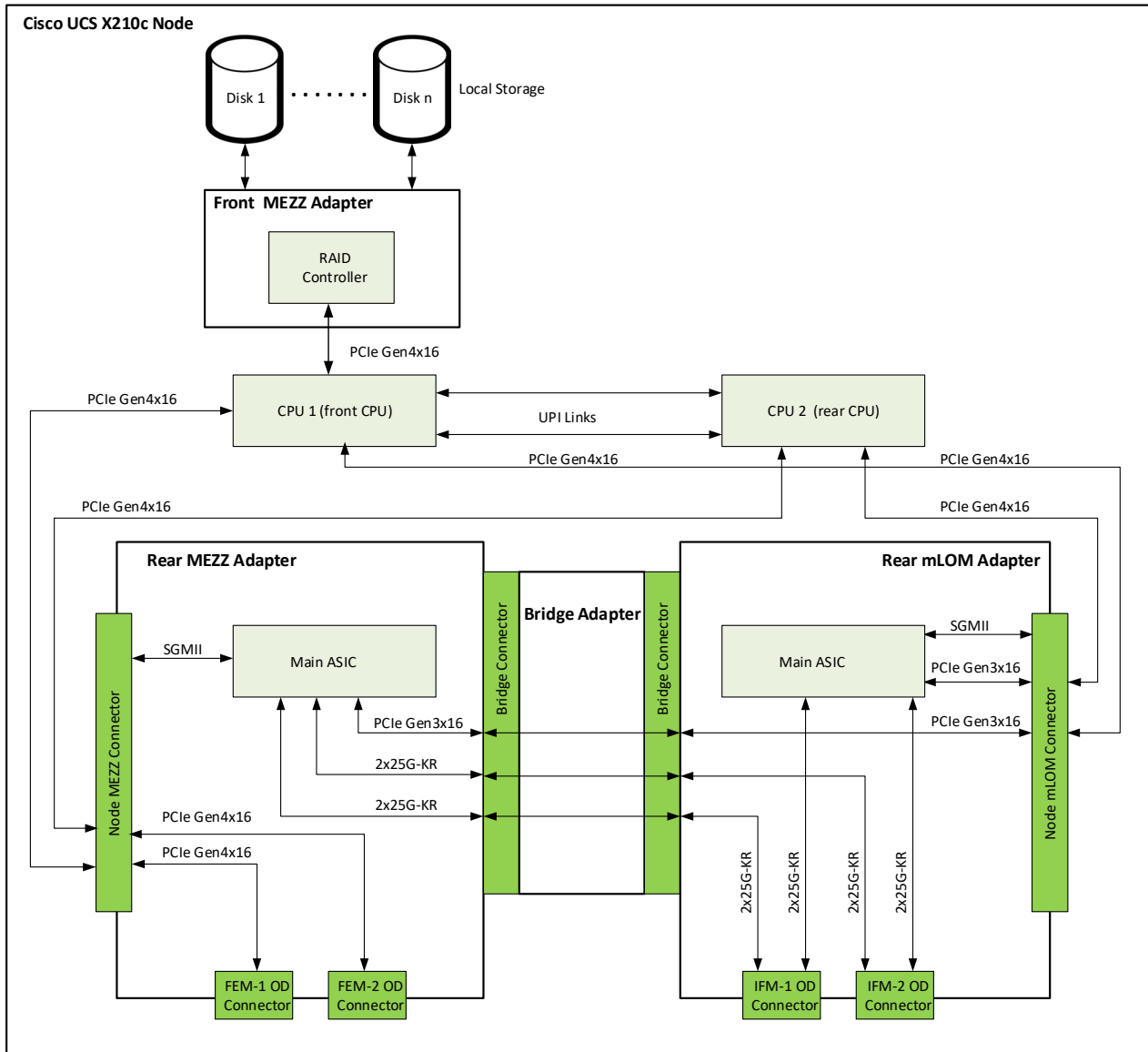
Product ID (PID)	PID Description
MSWS-19-ST16C-RM	Windows Server 2019 Stan (16 Cores/2 VMs) Rec Media DVD Only
MSWS-19-DC16C-RM	Windows Server 2019 DC (16Cores/Unlim VM) Rec Media DVD Only

SUPPLEMENTAL MATERIAL

Simplified Block Diagram

A simplified block diagram of the Cisco UCS X210c Compute Node system board is shown in [Figure 6](#).

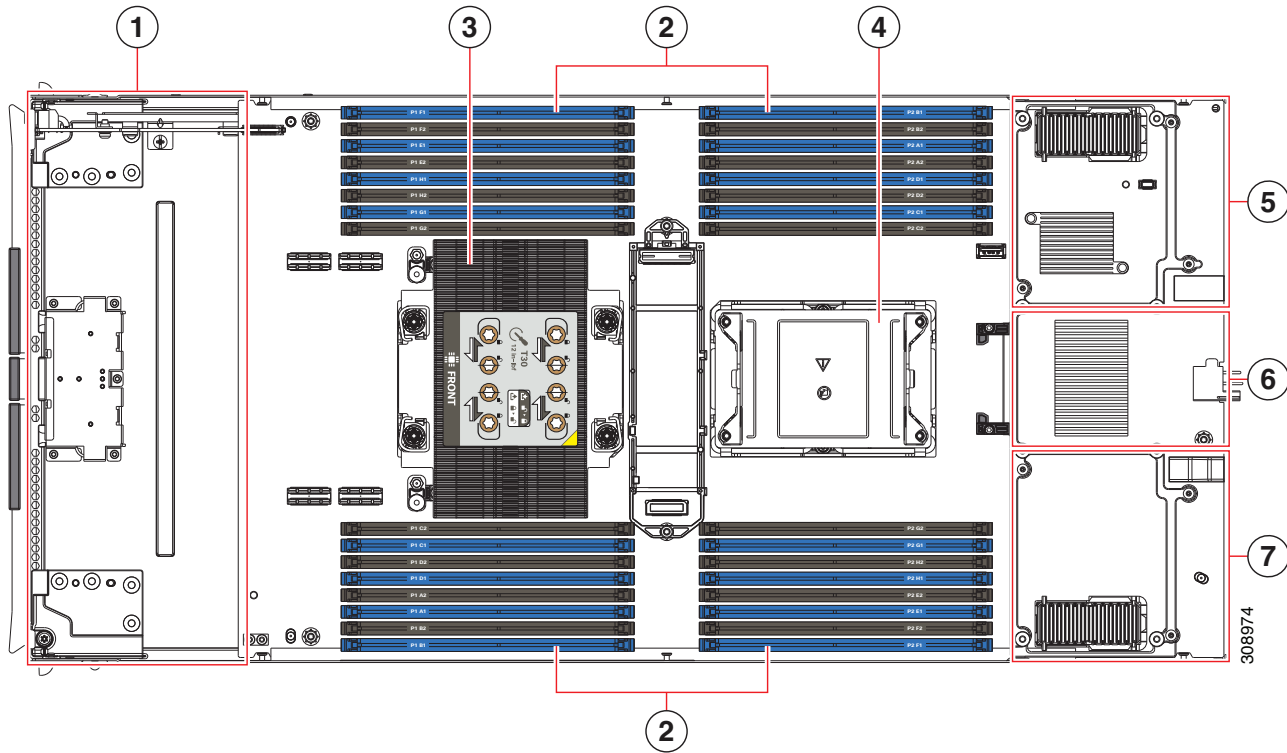
Figure 6 Cisco UCS X210c Compute Node Simplified Block Diagram



System Board

A top view of the Cisco UCS X210c Compute Node system board is shown in [Figure 7](#).

Figure 7 Cisco UCS X210c Compute Node System Board



1	Front drive slot for SAS/SATA or NVMe drives	5	Rear mezzanine slot, which supports a mezzanine card with standard or extended mLOM. 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 7 on page 37 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 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:

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

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 14*.

Table 19 DIMM Rules for Cisco UCS X210c Compute Nodes

DIMM Parameter	DIMMs in the Same Channel	DIMM in the Same Slot ¹
DIMM Capacity RDIMM = 16, 32, or 64 GB LRDIMM = 128 or 256 GB	DIMMs in the same channel (for example, A1 and A2) can have different capacities. 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. 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 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 PMEMs (4 TB total PMEM), then 6 TB total counts towards the CPU capacity limit. Follow the Intel recommended DRAM:PMEM ratio for App Direct Mode.

Memory Mode

PMEM operates as a 100% memory module. Data is volatile and DRAM acts as a cache for PMEMs. 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 PMEMs (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 1:2, 1:4, 1:8, or 1:16.

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

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

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

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

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

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

For further details see the following link:

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

SPARE PARTS

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

Table 20 Spare Parts


Product ID (PID)	PID Description
Debug Cable	
UCSX-C-DEBUGCBL=	UCSX Compute Node Debug Cable
CPUs	
 <p>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.</p>	
8000 Series Processors	
UCSX-CPU-I8380=	
UCSX-CPU-I8368=	
UCSX-CPU-I8360Y=	
UCSX-CPU-I8358P=	
UCSX-CPU-I8358=	
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=	
UCS-CPU-I6334=	
UCSX-CPU-I6330=N	

Table 20 Spare Parts (continued)

Product ID (PID)	PID Description
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
UCSX-CPUATI-3=	ICX CPU Assembly Tool for M6 Servers
Memory	

Table 20 Spare Parts (continued)

Product ID (PID)	PID Description
UCSX-MR-X16G1RW=	16 GB RDIMM SRx4 3200 (8Gb)
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
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)
SSD Enterprise Performance Drives	
UCSX-SD19T63X-EP=	1.9TB 2.5in Enterprise performance 6GSATA SSD(3X endurance)
UCSX-SD19TM3X-EP=	1.9TB 2.5in Enterprise performance 6GSATA SSD(3X endurance)
UCSX-SD480G63X-EP=	480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance)
UCSX-SD480GM3X-EP=	480GB 2.5in Enterprise Performance 6GSATA SSD(3X endurance)
UCSX-SD960G63X-EP=	960GB 2.5in Enterprise performance 6GSATA SSD(3X endurance)
UCSX-SD960GM3X-EP=	960GB 2.5in Enterprise performance 6GSATA SSD(3X endurance)
UCSX-SD800GK3X-EP=	800GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
UCSX-SD16TK3X-EP=	1.6TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
UCSX-SD32TK3X-EP=	3.2TB 2.5in Enterprise Performance 12G SAS SSD(3X endurance)
SSD Enterprise Value Drives	
UCSX-SD120GM1X-EV=	120 GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD16TM1X-EV=	1.6TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD19T61X-EV=	1.9TB 2.5 inch Enterprise Value 6G SATA SSD

Table 20 Spare Parts (continued)

Product ID (PID)	PID Description
UCSX-SD19TM1X-EV=	1.9TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD240GM1X-EV=	240GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD38T61X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD38T6I1X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD38TM1X-EV=	3.8TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD480G6I1XEV=	480GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD480GM1X-EV=	480 GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD76T61X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD76TM1X-EV=	7.6TB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD960G61X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD960G6I1XEV=	960GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD960GM1X-EV=	960GB 2.5 inch Enterprise Value 6G SATA SSD
UCSX-SD960GK1X-EV=	960GB 2.5 inch Enterprise Value 12G SAS SSD
UCSX-SD19TK1X-EV=	1.9TB 2.5 inch Enterprise Value 12G SAS SSD
UCSX-SD38TK1X-EV=	3.8TB 2.5 inch Enterprise Value 12G SAS SSD
UCSX-SD76TK1X-EV=	7.6TB 2.5 inch Enterprise Value 12G SAS SSD
UCSX-SD15TK1X-EV=	15.3TB 2.5 inch Enterprise Value 12G SAS SSD
Self-Encrypted Drives (SED)	
UCSX-SD38TBEM2NK9=	3.8TB Enterprise value SATA SSD (1X, SED)
UCSX-SD960GBM2NK9=	960GB Enterprise value SATA SSD (1X, SED)
UCSX-SD960GBKNK9=	960GB Enterprise Value SAS SSD (1X FWPD, SED)
UCSX-SD38TBKNK9=	3.8TB Enterprise Value SAS SSD (1X FWPD, SED)
UCSX-SD800GBKNK9=	800GB Enterprise Performance SAS SSD (3X FWPD, SED)
NVME Drives	
UCSC-NVMEXPB-I375=	375GB 2.5in Intel Optane NVMe Extreme Performance SSD
UCSC-NVMEXP-I750=	750GB 2.5in Intel Optane NVMe Extreme Perf.
UCSX-NVMEM6-W1600=	1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance
UCSX-NVMEM6-W3200=	3.2TB 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

Table 20 Spare Parts (continued)

Product ID (PID)	PID Description
UCSX-NVMEM6-W7680=	7.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance
UCSX-NVMEM6-W15300=	15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance
SATA M.2 Storage Modules	
UCSX-M2-240GB=	Micron 5100 240G SATA M.2
UCS-M2-960GB=	Micron 5100 960G SATA M.2
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
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
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 20 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 20 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 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 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 10](#).

Carefully remove and replace the CPU and heatsink in accordance with the instructions found in “Cisco UCS X210c 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 10](#).

(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 Cisco UCS X9508 Chassis.
- Slide the compute node out from the Cisco UCS X9508 Chassis.
- Remove the top cover from the compute node

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

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

Step 1 Open both DIMM connector latches.

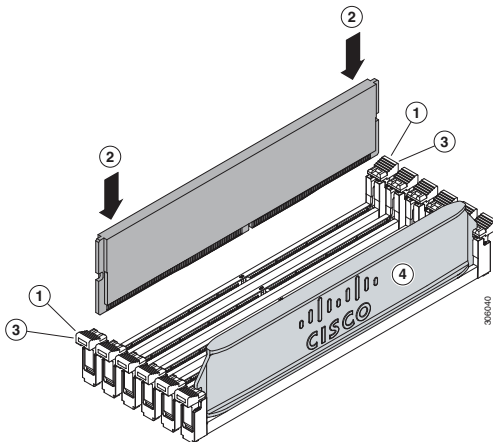
Step 2 Press evenly on both ends of the DIMM until it clicks into place in its slot

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

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

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

Figure 8 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.

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 21 Cisco UCS X210c 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	<ul style="list-style-type: none"> ■ Minimally configured node weight = 12.84 lbs (5.83 kg) ■ Fully configured compute node weight = 25.1 lbs (11.39 kg)

Environmental Specifications

Table 22 Cisco UCS X210c 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 °C (95 °F).



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

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

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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