Specification Sheet

Cisco UCS X410c M8 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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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 X410c M8 Compute Node is the second-generation of 4-socket compute node purpose-built for the Cisco UCS X-Series Modular System. Powered by Intel® Xeon® 6 Scalable Processors, it delivers outstanding performance and efficiency for a wide range of mission-critical enterprise applications, memory-intensive workloads, and both bare-metal and virtualized environments. Up to four X410c M8 Compute Nodes can reside in the 7-Rack-Unit (7RU) Cisco UCS X9508 Server Chassis, offering you the flexibility to adapt to diverse workloads.

The Cisco UCS X410c M8 Compute Node harnesses the power of the latest Intel® Xeon® 6 Scalable Processors, offering robust processing capabilities, extensive memory, flexible storage, and advanced networking options to meet the demands of diverse and evolving IT requirements. Refer to ***COMPUTE NODE STANDARD CAPABILITIES and FEATURES on page 5***.

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 shows a front view of the Cisco UCS X410c M8 Compute Node.

Figure 1 Cisco UCS X410c M8 Compute Node

Front View with Drives



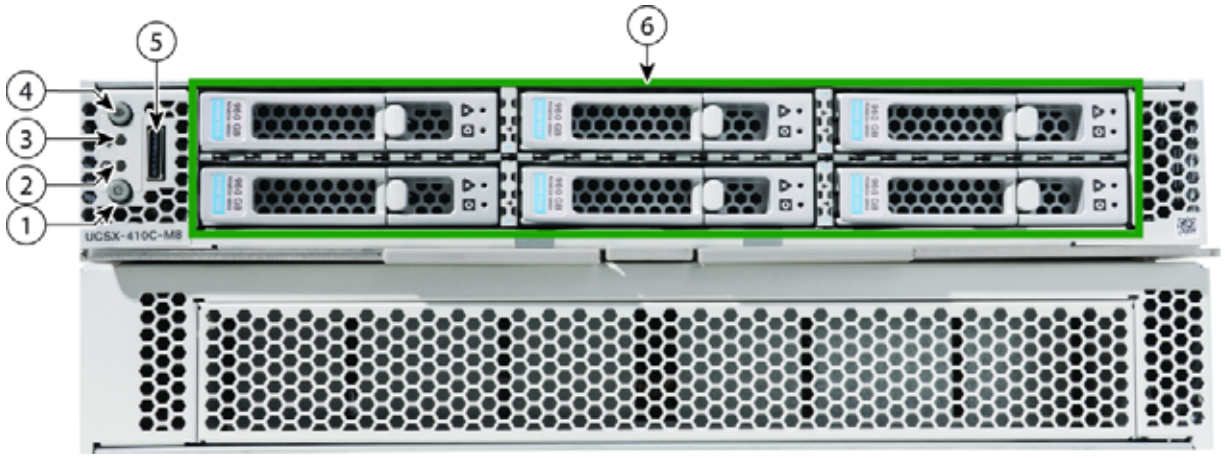
DETAILED VIEWS

Cisco UCS X410c M8 Compute Node Front View

Figure 2 shows a front view of the Cisco UCS X410c M8 Compute Node.

Figure 2 Cisco UCS X410c M8 Compute Node Front View

Storage Drives Option



1	Power button/LED	**4**	Locater LED/Switch
2	System Activity LED	**5**	External Optical Connector (OCuLink) that supports local console functionality.
3	System Health LED	**6**	Drive Bay slots 1-6

COMPUTE NODE STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base Cisco UCS X410c M8 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 X410C M8 COMPUTE NODE on page 7*

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	The Cisco UCS X410c M8 Compute Node mounts in a Cisco UCS X9508 chassis.
CPU	■ Four Intel® Xeon® 6 Scalable Processors with up to 86 cores per processor ■ Each CPU has 8 channels with up to 2 DIMMs per channel, for up to 16 DIMMs per CPU. ■ UPI Links: Up to 3 at up to 24GT/s
Memory	■ 64 total DDR5-6400 MT/s DIMM slots (16 per CPU) with Intel® Xeon® 6 Scalable Processors ■ Up to 16TB of main memory with 64x 256 GB DDR5-6400 Memory DIMMs
Rear Mezzanine Adapter (Optional)	■ Cisco UCS 5th Gen VIC 15422 can occupy the server's mezzanine slot at the bottom rear of the chassis. An included bridge card extends this VIC's two 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) with secure boot capability.
mLOM virtual interface cards	The modular LAN on motherboard (mLOM) cards is located at the rear of the compute node. ■ Cisco UCS VIC (Virtual Interface Card) 15420 occupies the server's modular LAN on motherboard (mLOM) slot, enabling up to 50 Gbps (two 25Gbps) of unified fabric connectivity to each of the chassis' Intelligent Fabric Modules (IFMs) for 100 Gbps connectivity per server with secure boot technology. ■ Cisco UCS 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 200 Gbps connectivity per server with secure boot technology.
Front Mezzanine Adapters	One front mezzanine connector that supports: ■ EDSFF E3.S NVMe pass-through controller ■ NVMe pass-through controller for U.3 NVMe drives ■ RAID controller with 4GB cache for SSD and mix of SSD and NVMe drives ■ No front mezzanine **Note:** Drives require a RAID or pass-through controller in the front mezzanine module slot

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Storage	■ Up to nine hot-pluggable EDSFF E3.S NVMe drives with a new pass-through front mezzanine controller option ■ Up to six 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 (RAIDs). ■ Up to two M.2 SATA drives or two M.2 NVMe drives for flexible boot and local storage capabilities.
Security	The server supports an optional Trusted Platform Module (TPM). Additional features include a secure boot FPGA and ACT2 anti-counterfeit provisions.
Video	The Cisco Integrated Management Controller (CIMC) provides video using the ASPEED AST2600 video/graphics controller.
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.
Fans	Integrated in the Cisco UCS X9508 chassis.
Integrated management processor	The built-in Cisco Integrated Management Controller enables monitoring of Cisco UCS X410c M8 Compute Node inventory, health, and system event logs.
Firmware standards	■ UEFI Spec 2.9 ■ ACPI 6.5 ■ SMBIOS Ver 3.7
Baseboard Management Controller (BMC)	ASPEED Pilot IV
ACPI	Advanced Configuration and Power Interface (ACPI) 6.5 Standard Supported. ACPI states S0 and S5 are supported. There is no support for states S1 through S4.
Front Indicators	■ 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, 64108, 6536, 6664 and UCSX-S9108-100G fabric interconnects.

CONFIGURING THE CISCO UCS X410C M8 COMPUTE NODE

Follow these steps to configure the Cisco UCS X410c M8 Compute Node:

- *STEP 1 CHOOSE BASE SYSTEM, page 8*
- *STEP 2 CHOOSE CPU(S), page 9*
- *STEP 3 CHOOSE MEMORY, page 10*
- *STEP 4 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER, page 13*
- *STEP 5 CHOOSE REAR MEZZANINE ADAPTER, page 14*
- *STEP 6 CHOOSE OPTIONAL DRIVES, page 19*
- *STEP 7 CHOOSE M.2 MODULE SSDs AND OPTIONAL DRIVES, page 21*
- *STEP 8 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE, page 23*
- *STEP 9 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE, page 24*
- *STEP 10 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT, page 27*
- *SUPPLEMENTAL MATERIAL, page 28*

STEP 1 CHOOSE BASE SYSTEM

Select MLB

Top-level ordering product ID (PID) is shown in ***Table 2***

Table 2 Top-Level Major Line Bundle ordering PIDs (MLB)

Product ID (PID)	Description
UCSX-M8-MLB	UCSX M8 Modular Server and Chassis MLB

Select Base Compute Node

Base compute node shown in ***Table 3***.



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

Table 3 PID of the Base Compute Node

Product ID (PID)	Description
UCSX-410C-M8	UCSX 410c M8 Compute Node without CPU, Memory, Storage, VIC adapter, or mezzanine adapters. (ordered as a UCS X9508 chassis option)
UCSX-410C-M8-U (standalone)	UCSX 410c M8 Compute Node without CPU, Memory, Storage, VIC adapter, or mezzanine adapters. (ordered standalone)



NOTE:

- A base Cisco UCS X410c M8 Compute Node ordered in ***Table 3*** does not include any components or options. These must be selected during product ordering.
- Please follow the ***CONFIGURING THE CISCO UCS X410C M8 COMPUTE NODE on page 7***, which are required in a functional compute node.

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Up to 86 cores
- Cache size of up to 336 MB
- Power: Up to 350 Watts
- UPI Links: Up to 3 at up to 24GT/s

Select CPUs

The available CPUs are listed in ***Table 4***.

Table 4 Available Intel® Xeon® 6 Scalable CPUs

Product ID	Cores	Clock Frequency	Power	Cache Size	Highest DDR5 DIMM Clock
(PID)	(C)	(GHz)	(W)	(MB)	(MT/s)
UCSX-CPU-I6788P	86	2.00	350	336	6400
UCSX-CPU-I6768P	64	2.40	330	336	6400
UCSX-CPU-I6748P	48	2.50	300	192	6400
UCSX-CPU-I6738P	32	2.90	270	144	6400
UCSX-CPU-I6728P	24	2.70	210	144	6400
UCSX-CPU-I6724P	16	3.60	210	72	6400
UCSX-CPU-I6714P	8	4.00	165	48	6400

Approved Configurations

— For all configurations (DRAM and NVMe PCIe drives), select four identical CPUs listed in ***Table 4***

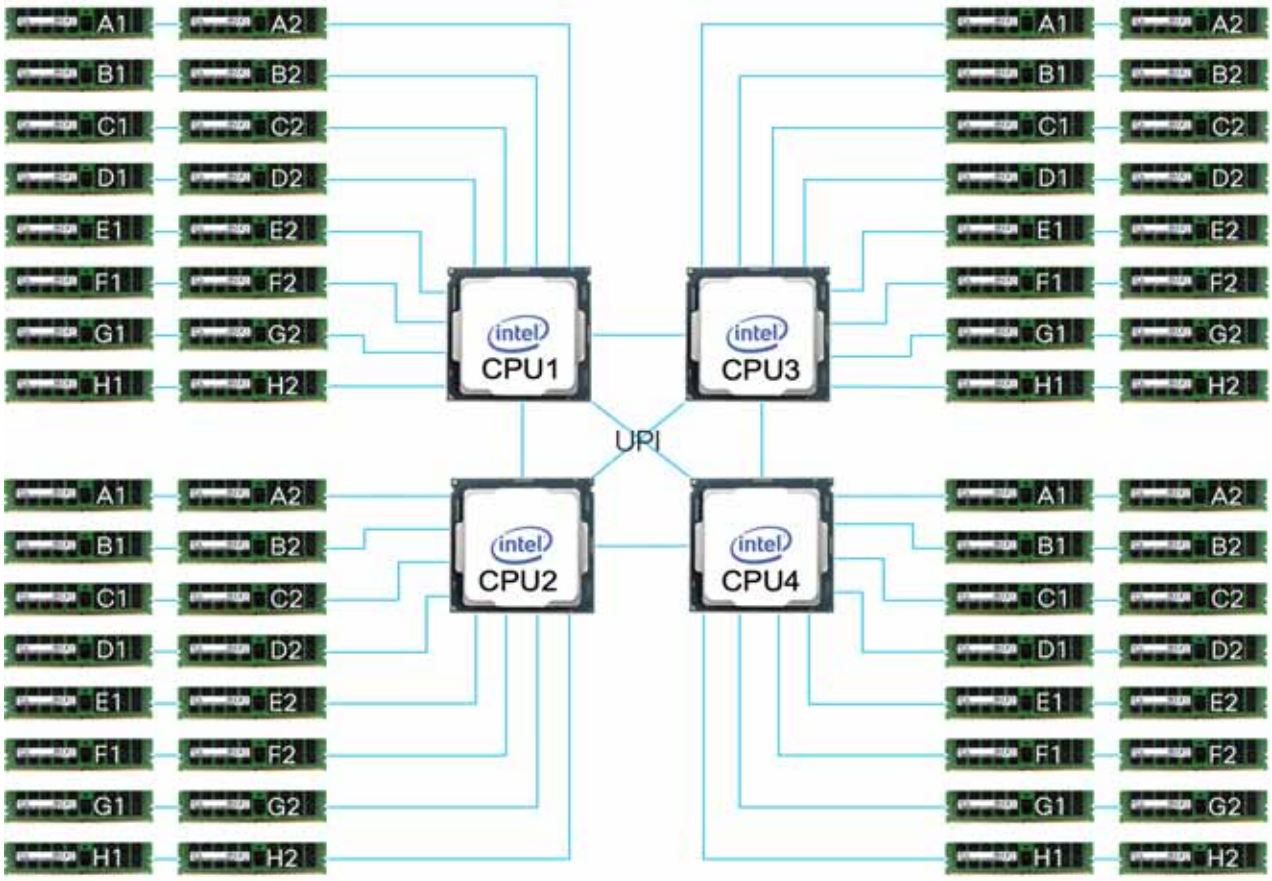
STEP 3 CHOOSE MEMORY

The ***Table 5*** below describes the main memory DIMM features supported on the server.

Table 5 Server Main Memory Features

Memory server technologies	Description
	DIMM
Intel® Xeon® CPU generation	Intel® Xeon® 6 CPUs
DDR5 memory clock speed	Up to 6400 MT/s 1DPC; Up to 5200 MT/s 2DPC
Operational voltage	1.1 Volts
DRAM fab density	16Gb, 24Gb and 32Gb
Memory type	RDIMM (Registered DDR5 DIMM)
Memory DRAM DIMM organization	Eight memory DIMM channels per CPU; up to 2 DIMMs Per Channel
Maximum number of DRAM DIMM per server	64 (4-Socket)
DRAM DIMM Densities and Ranks	64GB 2Rx4, 96GB 2Rx4, 128GB 2Rx4, 256GB 4Rx4
Maximum system memory capacity	16TB (64x256GB)

Figure 3 Cisco UCS X410c M8 Compute Node Memory Organization



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 6***.

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 6 Available Memory Options

Product ID (PID)	PID Description	Ranks/DIMM
DDR5-6400 MT/s Cisco Memory PIDs list		
UCSX-MRX64G2RE5	64GB RDIMM 2Rx4 1.1Volts (16Gb)	2
UCSX-MRX96G2RF5	96GB RDIMM 2Rx4 1.1Volts (24Gb)	2
UCSX-MR128G2RG5	128GB RDIMM 2Rx4 1.1Volts (32Gb)	2
UCSX-MR256G4RG5	256GB DDR5-6400 RDIMM 4Rx4 (32Gb)	4
Memory Mirroring Option[1]		
N01-MMIRRORD	Memory mirroring option	
Accessories/spare included with Memory configuration: ■ UCS-DDR5-BLK[2] is auto included for the unpopulated DIMMs slots		

Notes:

1. If N01-MMIRROR is selected and Processor quantity is 4, then the total memory DIMMs must be 16, 32, or 64 identical DIMMs per CPU.
2. Any empty DIMM slot must be populated with a DIMM blank to maintain proper cooling airflow.

Memory configurations and mixing rules

- **Golden Rule:** Memory on every CPU socket shall be configured identically.
- For full details on supported memory configurations, count rules, population rules and mixing rules see the **Intel M8 Memory guide**.

STEP 4 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER

The Cisco UCS X410c M8 Compute Node has one front mezzanine connector that can accommodate one of the following mezzanine cards from the ***Table 7***

Table 7 Available Front Mezzanine Adapters

Product ID (PID)	PID Description	Connector Type
UCSX-X10C-PT4F-D	UCS X10c Compute Pass-Through Controller (Front) ■ Supports up to 6 NVMe drives only ■ Does not support RAID controller	Front Mezzanine
UCSX-RAID-M1L6	24G Tri-Mode M1 RAID Controller w/4GB FBWC 6 Drives ■ If SAS/SATA is selected, then this controller must be selected ■ Supports up to 6 U.3 NVMe drives ■ RAID levels (0, 1, 5, 6, 10, and 50) for 6 SAS/SATA/U.3 NVMe drives**, or optionally up to 2 U.3 NVMe drives (drive slots 5-6) in pass-through mode	Front Mezzanine
UCSX-X10C-PTE3	UCS X10c Compute Pass Through Controller for E3.S (Front) ■ Supports a maximum of 9 E3.S drives ■ Cannot mix with SATA/SAS/NVMe drives	Front Mezzanine

Approved Configurations

— Only one Front Mezzanine connector per Server

— The Front Mezzanine Adapter from ***Table 7*** is optional

STEP 5 CHOOSE REAR MEZZANINE ADAPTER

- The Cisco UCS X410c M8 Compute Node must be ordered with a Cisco VIC mLOM Adapter. The adapter is located at the back.

Select Rear mLOM Adapter from *Table 8* (Required)

Table 8 mLOM Adapters

Product ID (PID)	Description	Connection type
UCSX-MLV5D200GV2D	Cisco UCS VIC 15230 modular LOM w/Secure Boot X Compute Node ■ Supported with both IFM 25G and IFM 100G ■ Operates at 4x 25G with both IFM 25G and IFM 100G	mLOM
UCSX-ML-V5Q50G-D	Cisco UCS VIC 15420 modular LOM for X Compute Node ■ Supported with both IFM 25G and IFM 100G ■ Operates at 4x 25G with both IFM 25G ■ Operates at 2x 25G with IFM 100G	mLOM

NOTE:

- There is no backplane in the Cisco UCS X9508 chassis; thus, the compute nodes directly connect to the IFMs using Orthogonal Direct connectors.
- ***Figure 8*** shows the location of the mLOM and rear mezzanine adapters on the Cisco UCS X410c M8 Compute Node. The bridge adapter connects the mLOM adapter to the rear mezzanine adapter.

Approved Configurations

— One mLOM VIC from ***Table 8*** is always required.

- The Cisco UCS X410c M8 Compute Node has one rear mezzanine adapter connector which can accommodate a UCS VIC 15422 Mezz card that can be used as a second VIC card on the compute node for network connectivity.

Select Rear Mezzanine Adapter from *Table 9* (Optional)

Table 9 Available Rear Mezzanine Adapters

Product ID(PID)	PID Description	Connector Type
Cisco VIC Card		
UCSX-ME-V5Q50G-D	UCS VIC 15422 4x25G secure boot mezz for X Compute Node	Rear Mezzanine connector on motherboard
Cisco VIC Bridge Card		
UCSX-V5-BRIDGE-D	UCS VIC 15000 bridge to connect mLOM and mezz X Compute Node ■ Included with the Cisco VIC 15422 mezzanine adapter. ■ This bridge connects the Cisco VIC 15420 mLOM and Cisco VIC 15422 Mezz for the compute node, and has PCIe Gen4 x16 connectivity towards CPU2. ■ **UCSX-V5-BRIDGE-D** and has a PCIe Gen4 x16 connectivity towards CPU2	One connector on Mezz card and one connector on mLOM card



NOTE:

■ If a **UCSX-ME-V5Q50G-D** rear mezzanine VIC card is installed, a **UCSX-V5-BRIDGE-D** VIC bridge card is included and connects the mLOM to the mezzanine adapter.

■ The **UCSX-ME-V5Q50G-D** rear mezzanine card has Ethernet connectivity to the IFM using the **UCSX-V5-BRIDGE-D** and has a PCIe Gen4 x16 connectivity towards CPU2.

Approved Configurations

— UCS VIC adapter from ***Table 9*** is optional.

Table 10 Throughput Per UCS X410c M8 Server

X410c M8 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	
X410c configuration	VIC 15231/15230	VIC 15231/15230	VIC 15420	VIC 15420 + VIC 15422	
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

Figure 4 shows the network connectivity from the mLOM out to the 25G IFMs.

Figure 4 Network Connectivity 25G IFMs

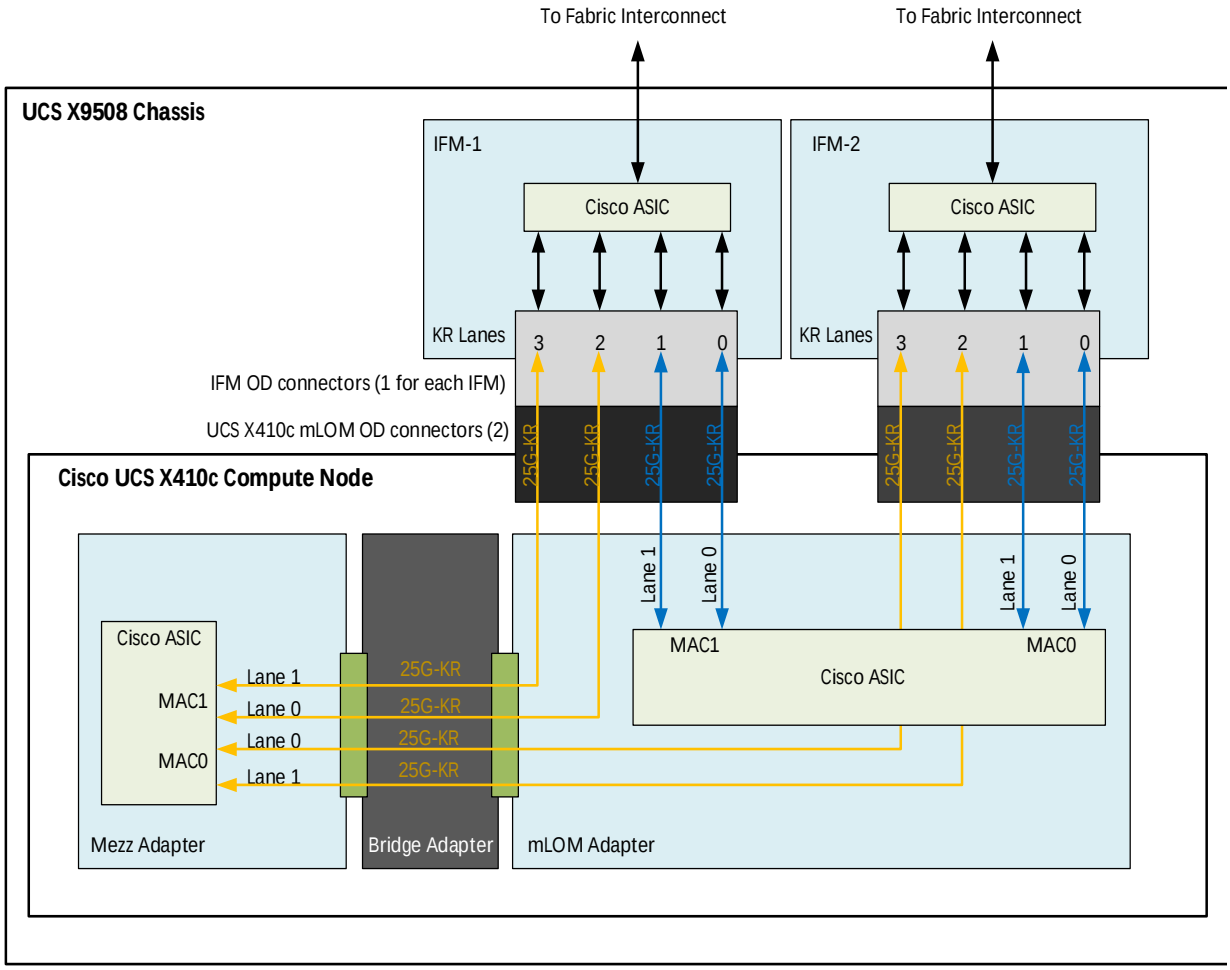
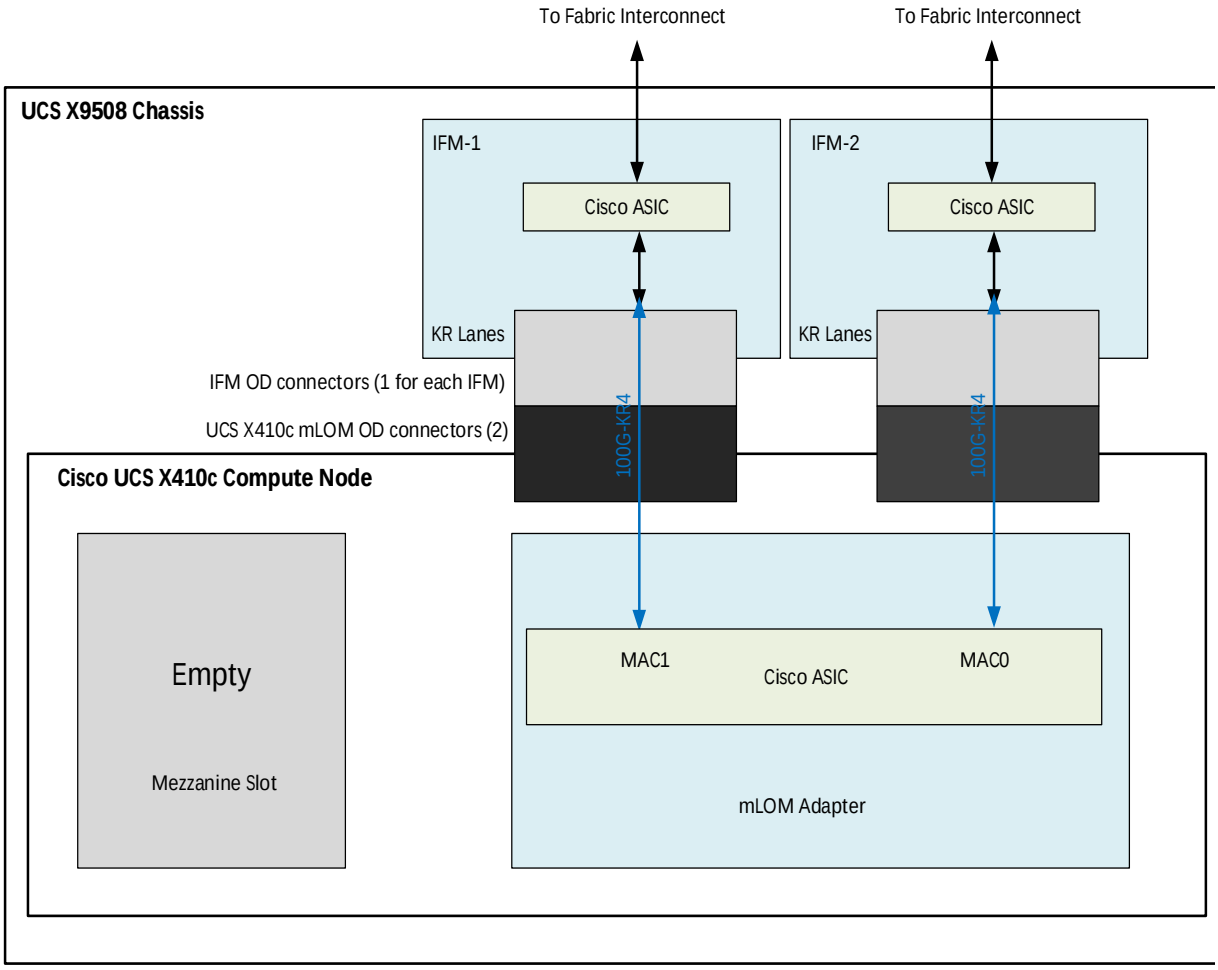


Figure 5 shows the network connectivity from the mLOM out to the 100G IFMs.

Figure 5 Network Connectivity 100G IFMs



STEP 6 CHOOSE OPTIONAL DRIVES

The standard storage drive features are:

- 2.5-inch small form factor drives or E3.S 1T NVMe drives
- Hot-pluggable
- Drives come mounted in sleds

Select Drives

Select drives from the list of supported drives available in ***Table 11***.

NOTE: The Cisco UCS X410c M8 Compute Node can be ordered with or without drives.

CAUTION: 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.

Table 11 Available Drive Options

Product ID (PID)	Description	Drive Type	Speed	Size
SAS/SATA SSDs[1,2]				
Self-Encrypted Drives (SED)				
UCSX-SD960GM2NK9D	960GB 2.5in Enter Value 6G SATA Micron G2 SSD (SED)	SATA	6G	960GB
Enterprise Performance SSDs (high endurance, supports up to 3X DWPD (drive writes per day))				
UCSX-SDB480OA1P	480GB 2.5in 15mm Solidigm S4620 Enter Perf 6G SATA 3X SSD	SATA	6G	480GB
UCSX-SDB960OA1P	960GB 2.5in 15mm Solidigm S4620 Enter Perf 6G SATA 3X SSD	SATA	6G	960GB
UCSX-SDB3T8OA1V	3.8TB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD	SATA	6G	3.8TB
UCSX-SDB480OA1V	480GB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD	SATA	6G	480GB
UCSX-SDB960OA1V	960GB 2.5in 15mm Solidigm S4520 Enter Perf 6G SATA 1X SSD	SATA	6G	960GB
Enterprise Value SSDs (Low endurance, supports up to 1X DWPD (drive writes per day))				
UCSXSD240GBM1XEVD	240GB 2.5in Enter Value 6G SATA Micron G2 SSD	SATA	6G	240GB
UCSX-SD19TBM1XEVD	1.9TB 2.5in Enter Value 6G SATA Micron G2 SSD	SATA	6G	1.9TB
E3.S				
UCSX-NVE112T8K1P	12.8TB E3.S1T KCD8XPJE HgPerf HgEnd Gen5 3X NVMe (SIE SCEF)	NVMe	E3.S	12.8TB
UCSX-NVE11T6K1P	1.6TB E3.S1T KCD8XPJE HgPerf HgEnd Gen5 3X NVMe (SIE SCEF)	NVMe	E3.S	1.6TB
UCSX-NVE13T2K1P	3.2TB E3.S1T KCD8XPJE HgPerf HgEnd Gen5 3X NVMe (SIE SCEF)	NVMe	E3.S	3.2TB
UCSX-NVE16T4K1P	6.4TB E3.S1T KCD8XPJE HgPerf HgEnd Gen5 3X NVMe (SIE SCEF)	NVMe	E3.S	6.4TB
UCSX-NVE11T6S1P	1.6TB E3.S1T PM1745 HgPerf HgEnd Gen5 3X NVMe (TCG OPAL)	NVMe	E3.S	1.6TB
UCSX-NVE13T2S1P	3.2TB E3.S1T PM1745 HgPerf HgEnd Gen5 3X NVMe (TCG OPAL)	NVMe	E3.S	3.2TB

Table 11 Available Drive Options *(continued)*

Product ID (PID)	Description	Drive Type	Speed	Size
UCSX-NVE16T4S1P	6.4TB E3.S1T PM1745 HgPerf HgEnd Gen5 3X NVMe (TCG OPAL)	NVMe	E3.S	6.4TB
UCSX-NVE112T8S1P	12.8TB E3.S1T PM1745 HgPerf HgEnd Gen5 3X NVMe (TCG OPAL)	NVMe	E3.S	12.8TB
UCSX-NVE11T9K2V9	1.9TB E3.S1T Kioxia CM7-R Gen 5 1DWPD NVMe (SED FIPS)	NVMe	E3.S	1.9TB
UCSX-NVE13T8K2V9	3.8TB E3.S1T Kioxia CM7-R Gen 5 1DWPD NVMe (SED FIPS)	NVMe	E3.S	3.8 TB
UCSX-NVE17T6K2V9	7.6TB E3.S1T Kioxia CM7-R Gen 5 1DWPD NVMe (SED FIPS)	NVMe	E3.S	7.6TB
UCSX-NVE115T3K2V9	15.3TB E3.S1T Kioxia CM7-R Gen 5 1DWPD NVMe (SED FIPS)	NVMe	E3.S	15.3TB
NVMe 2.5				
UCSX-NVB1T6M2P	1.6TB 2.5in U.3 15mm Micron 7500 Hg Perf Hg End 3X NVMe	NVMe	U.3	1.6TB
UCSX-NVB3T2M2P	3.2TB 2.5in U.3 15mm Micron 7500 Hg Perf Hg End 3X NVMe	NVMe	U.3	3.2TB
UCSX-NVB1T9M2V	1.9TB 2.5in U.3 15mm Micron 7500 Hg Perf Med End 1X NVMe	NVMe	U.3	1.9TB
UCSX-NVB3T8M2V	3.8TB 2.5in U.3 15mm Micron 7500 Hg Perf Med End 1X NVMe	NVMe	U.3	3.8TB
UCSX-NVB7T6M2V	7.6TB 2.5in U.3 15mm Micron 7500 Hg Perf Med End 1X NVMe	NVMe	U.3	7.6TB
UCSX-NVB1T9M2V9	1.9TB 2.5in U.3 15mm Micron 7500 HgPerf MedEnd 1X NVMe FIPS	NVMe	U.3	1.9TB
UCSX-NVB3T8M2V9	3.8TB 2.5in U.3 15mm Micron 7500 HgPerf MedEnd 1X NVMe FIPS	NVMe	U.3	3.8TB
UCSX-NVB7T6M2V9	7.6TB 2.5in U.3 15mm Micron 7500 HgPerf MedEnd 1X NVMe FIPS	NVMe	U.3	7.6TB
UCSX-NVB15T3M2V9[3]	15.3TB 2.5in U.3 15mm Micron 7500 HgPerf MedEnd 1X NVMe FIPS	NVMe	U.3	15.3 TB
Accessories/spare included with drives: Drive blanks, either UCSC-BBLKD-M7 for 2.5" modules or UCSC-E3S1T-F for the E3.S mezzanine are included for unpopulated drive slots on configured systems. They must be ordered separately when ordering a front mezzanine as a spare.				

Notes:

1. For SSD drives to be in a RAID group, two or more identical SSDs must be used in the group.
2. If SSDs are in JBOD Mode, the drives do not need to be identical.
3. Ordering UCSX-NVB15T3M2V9 as an option with UCSX-410C-M8/UCSX-410C-M8-U is under hold until September 2026, leading to longer lead times. As an alternative, this drive can be ordered using the spare PID UCSX-NVB15T3M2V9=

Approved Configuration

- Up to nine hot-pluggable EDSFF E3.S NVMe drives with a new pass-through front mezzanine controller
- Up to six 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 (RAIDs).

STEP 7 CHOOSE M.2 MODULE SSDs AND OPTIONAL DRIVES

- **Cisco 6 GB/s SATA Boot-Optimized M.2 RAID Controller (included):** Boot-Optimized RAID controller (UCSX-M2I-HWRD-FPS) 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.
- **Instead of RAID Controller**:

NOTE:

- The UCSX-M2-HWRD-FPS is automatically included with the server configuration
- The UCSX-M2-HWRD-FPS controller supports RAID 1 and JBOD mode and is available only with 240GB, 480GB, and 960GB M.2 SATA SSDs.
- Cisco IMM is supported for configuring volumes and monitoring of the controller and installed SATA M.2 drives
- Hot-plug replacement is not supported. The compute node must be powered off to replace.
- If selected, the M.2 NVMe module replaces the M.2 RAID Controller.
- The NVMe module does not support RAID

Table 12 Front Panel with M.2 options

Product ID (PID)	PID Description
UCSX-M2I-HWRD-FPS	UCSX Front Panel w/M.2 RAID controller Included for SATA drive
UCSX-M2-PT-FPN	UCSX Front Panel w/M.2 Pass Through Controller for NVME drive

- **Select Cisco M.2 drives:** Order one or two matching M.2 drives. This connector accepts the boot-optimized RAID controller (see ***Table 12***). Each boot-optimized RAID controller can accommodate up to two M.2 drives shown in ***Table 13***.

NOTE:

- Each boot-optimized RAID controller can accommodate up to two M.2 drives shown in ***Table 13***. The boot-optimized RAID controller plugs into the motherboard.
- It is recommended that M.2 drives be used as boot-only devices.
- The M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.

Table 13 M.2 Drives

Product ID (PID)	PID Description	Protocol
UCSX-M2-240G-D	240GB M.2 SATA Micron G2 SSD	SATA
UCSX-M2-480G-D	480GB M.2 SATA Micron G2 SSD	SATA
UCSX-M2-960G-D	960GB M.2 SATA Micron G2 SSD	SATA
UCSX-M2240OA1V	240GB M.2 Boot Solidigm S4520 SATA 1X SSD	SATA
UCSX-M2480OA1V	480GB M.2 Boot Solidigm S4520 SATA 1X SSD	SATA

Table 13 M.2 Drives

Product ID (PID)	PID Description	Protocol
UCSX-NVM2-400GB	400GB M.2 Boot NVMe	NVMe
UCSX-NVM2-960GB	960GB M.2 Boot NVMe	NVMe

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 X410c M8 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 14 Available TPM Option

Product ID (PID)	Description
UCSX-TPM-002D-D	TPM 2.0 TCG FIPS140-2 CC+ Cert M7 Intel MSW2022 Compliant
UCSX-TPM-OPT-OUT[1]	OPT OUT, TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified

Notes:

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



NOTE:

- The TPM module used in this system conforms to TPM v2.0 as defined by the Trusted Computing Group (TCG).
- TPM installation is supported after factory. However, a TPM is installed with a one-way screw and cannot be replaced, upgraded, or moved to another compute node.
- If a Cisco UCS X410c M8 Compute Node with a TPM is returned, the replacement Cisco UCS X410c M8 Compute Node must be ordered with a new TPM. If there is no existing TPM in the Cisco UCS X410c M8 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/x410c-M8/install/b-cisco-ucs-x410c-M8-install-guide.html

STEP 9 CHOOSE OPERATING SYSTEM AND VALUE-ADDED SOFTWARE

- Operating System (***Table 15***)

NOTE:

- See this link for operating system guidance: **https://ucshcltool.cloudapps.cisco.com/public/**

Table 15 Operating System

Product ID (PID)	PID Description
Microsoft Options	
MSWS-25-ST16C	Windows Server 2025 Standard, 16 Cores
MSWS-25-ST16C-NS	Windows Server 2025 Standard, 16 Cores - No Cisco SVC
MSWS-25-ST24C	Windows Server 2025 Standard, 24 Cores
MSWS-25-ST24C-NS	Windows Server 2025 Standard, 24 Cores - No SVC
MSWS-25-DC16C	Windows Server 2025 Datacenter, 16 Cores
MSWS-25-DC16C-NS	Windows Server 2025 Datacenter, 16 Cores - No SVC
MSWS-25-DC24C	Windows Server 2025 Datacenter, 24 Cores
MSWS-25-DC24C-NS	Windows Server 2025 Datacenter, 24 Cores - No SVC
Red Hat	
RHEL-2S2V-D1A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 1-Yr Support Req
RHEL-2S2V-D3A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req
RHEL-2S2V-D5A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 5-Yr Support Req
RHEL-VDC-2SUV-D1A	RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 1 Yr Supp Req
RHEL-VDC-2SUV-D3A	RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 3 Yr Supp Req
RHEL-VDC-2SUV-D5A	RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 5 Yr Supp Req
Red Hat Ent Linux/ High Avail/ Res Strg/ Scal	
RHEL-2S2V-D1S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 1Yr SnS Reqd
RHEL-2S2V-D3S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 3Yr SnS Reqd
RHEL-2S-HA-D1S	RHEL High Availability (1-2 CPU); Premium 1-yr SnS Reqd
RHEL-2S-HA-D3S	RHEL High Availability (1-2 CPU); Premium 3-yr SnS Reqd
RHEL-2S-RS-D1S	RHEL Resilent Storage (1-2 CPU); Premium 1-yr SnS Reqd
RHEL-2S-RS-D3S	RHEL Resilent Storage (1-2 CPU); Premium 3-yr SnS Reqd

Table 15 Operating System *(continued)*

Product ID (PID)	PID Description
RHEL-VDC-2SUV-D1S	RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 1 Yr SnS Reqd
RHEL-VDC-2SUV-D3S	RHEL for Virt Datacenters (1-2 CPU, Unlim VN) 3 Yr SnS Reqd
Red Hat SAP	
RHEL-SAP-2S2V-D1S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 1-Yr SnS Reqd
RHEL-SAP-2S2V-D3S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 3-Yr SnS Reqd
RHEL-SAPSP-D3S	RHEL SAP Solutions Premium - 3 Years
RHEL-SAPSS-D3S	RHEL SAP Solutions Standard - 3 Years
SUSE	
SLES-2S2V-D1A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 1-Yr Support Req
SLES-2S2V-D3A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req
SLES-2S2V-D5A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req
SLES-2SUVM-D1A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; 1Y Supp Req
SLES-2SUVM-D3A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; 3Y Supp Req
SLES-2SUVM-D5A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; 5Y Supp Req
SLES-2S-LP-D1A	SUSE Linux Live Patching Add-on (1-2 CPU); 1yr Support Req
SLES-2S-LP-D3A	SUSE Linux Live Patching Add-on (1-2 CPU); 3yr Support Req
SLES-2S2V-D1S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS
SLES-2S2V-D3S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS
SLES-2S2V-D5S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS
SLES-2SUVM-D1S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; Prio 1Y SnS
SLES-2SUVM-D3S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; Prio 3Y SnS
SLES-2SUVM-D5S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM) LP; Prio 5Y SnS
SLES-2S-HA-D1S	SUSE Linux High Availability Ext (1-2 CPU); 1yr SnS
SLES-2S-HA-D3S	SUSE Linux High Availability Ext (1-2 CPU); 3yr SnS
SLES-2S-HA-D5S	SUSE Linux High Availability Ext (1-2 CPU); 5yr SnS
SLES-2S-GC-D1S	SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Sns
SLES-2S-GC-D3S	SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr SnS
SLES-2S-GC-D5S	SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr SnS
SLES-2S-LP-D1S	SUSE Linux Live Patching Add-on (1-2 CPU); 1yr SnS Required

Table 15 Operating System *(continued)*

Product ID (PID)	PID Description
SLES-2S-LP-D3S	SUSE Linux Live Patching Add-on (1-2 CPU); 3yr SnS Required
SLES and SAP	
SLES-SAP-2S2V-D1S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 1-Yr SnS
SLES-SAP-2S2V-D3S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS
SLES-SAP-2S2V-D5S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS
SLES-SAP-2S2V-D1A	SLES for SAP Apps w/ HA (1-2 CPU, 1-2 VM); 1-Yr Support Reqd
SLES-SAP-2S2V-D3A	SLES for SAP Apps w/ HA (1-2 CPU, 1-2 VM); 3-Yr Support Reqd
SLES-SAP-2S2V-D5A	SLES for SAP Apps w/ HA (1-2 CPU, 1-2 VM); 5-Yr Support Reqd

STEP 10 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in ***Table 16***.

Table 16 OS Media

Product ID (PID)	PID Description
MSWS-22-ST16CD-RM	Windows Server 2022 Stan (16 Cores/2 VMs) Rec Media DVD Only
MSWS-22-DC16CD-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 X410c M8 Compute Node system board is shown in ***Figure 6***.

Figure 6 Cisco UCS X410c M8 Compute Node Simplified Block Diagram (IFMs 25G with Drives)

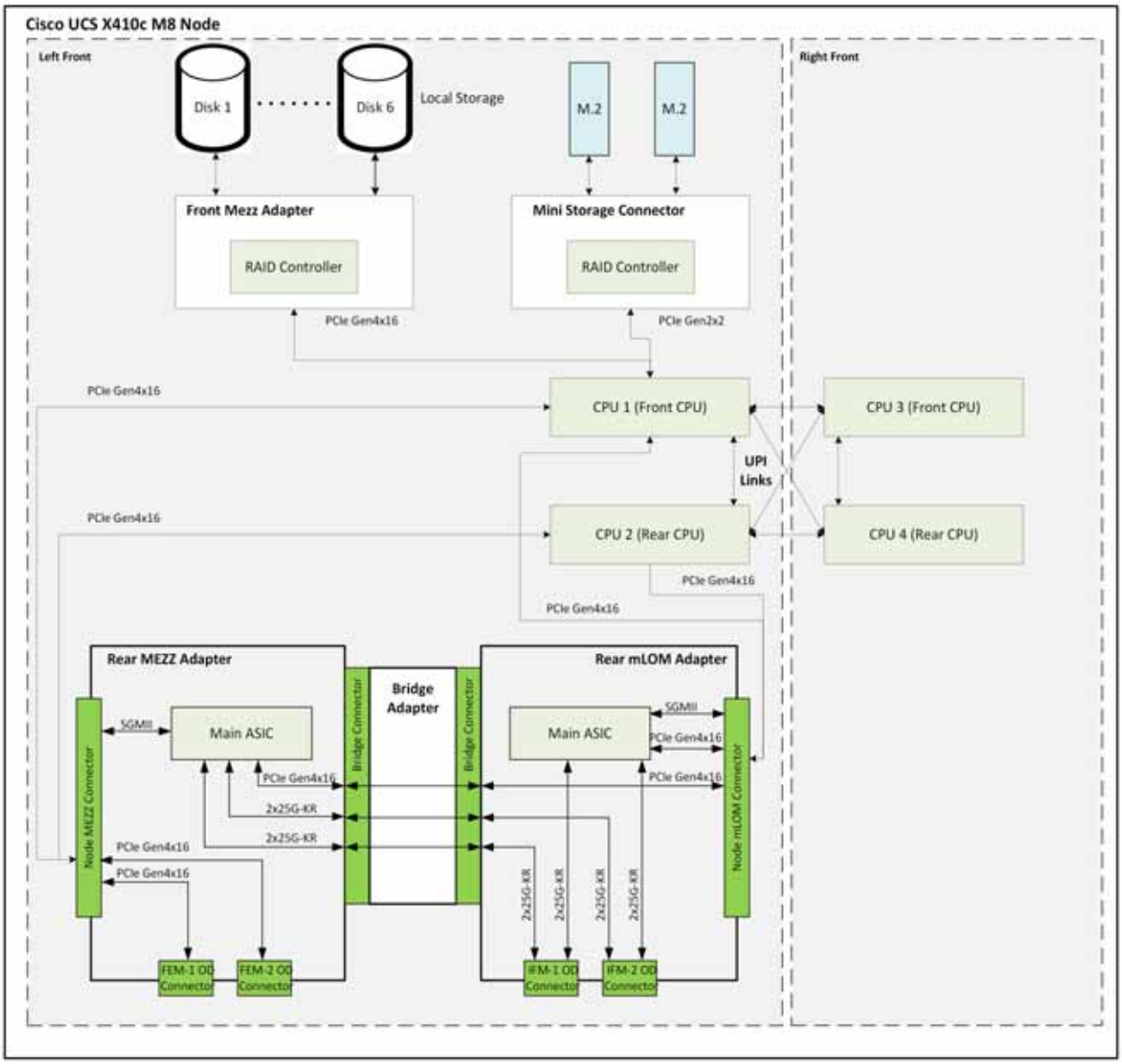
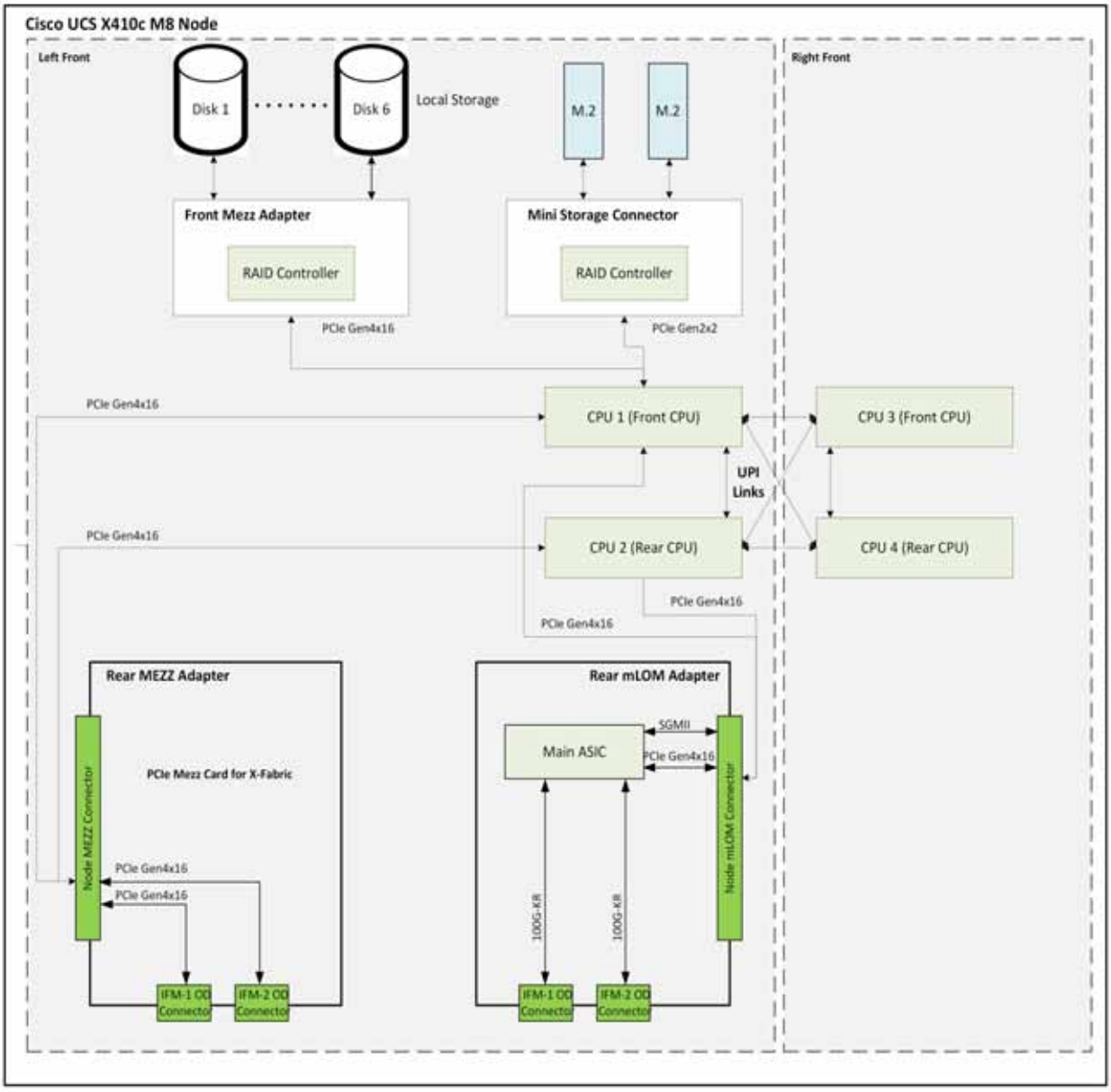


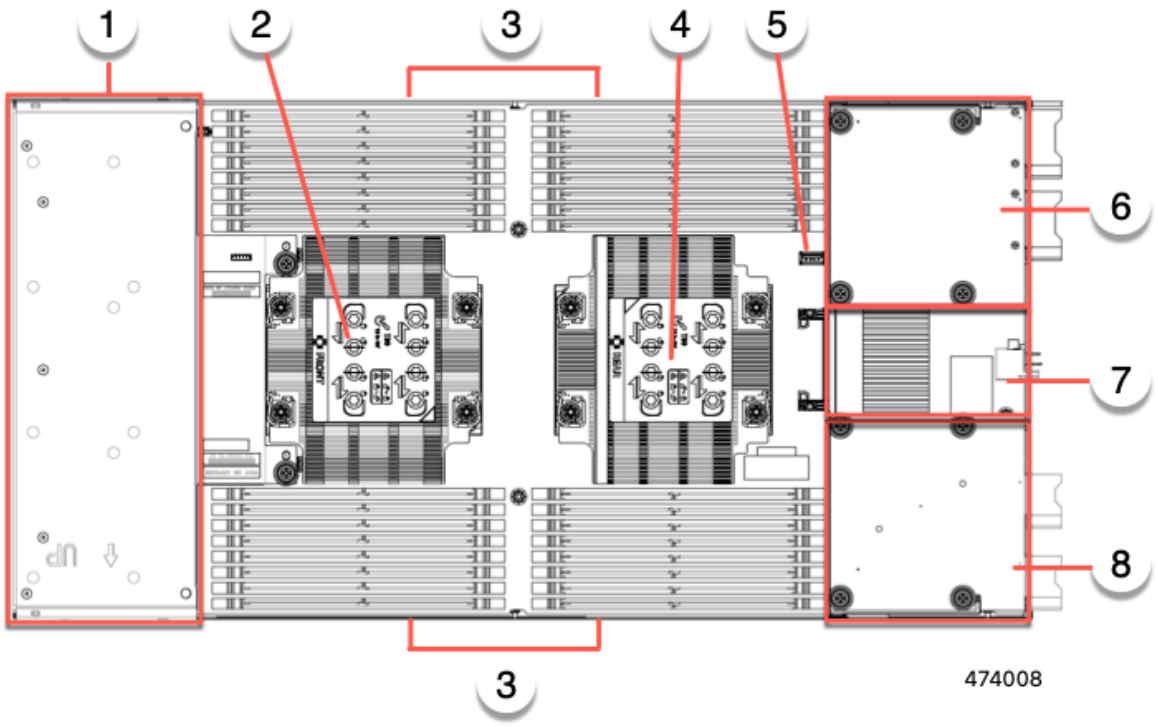
Figure 7 Cisco UCS X410c M8 Compute Node Simplified Block Diagram (IFMs 100G with Drives)



System Board

A top view of the Cisco UCS X410c M8 Compute Node system board is shown in ***Figure 8***.

Figure 8 Cisco UCS X410c M8 Compute Node System Board



1	Front mezzanine module slot	5	Motherboard USB connector
2	CPU 1 slot	6	Rear mezzanine slot, which supports X-Series mezzanine cards, such as VIC 15422.
3	DIMM slots	7	Bridge Card slot, which connects the 8 rear mezzanine slot and the mLOM/VIC slot
4	CPU 2 slot	8	mLOM/VIC slot that supports zero or one Cisco VIC or Cisco X-Series 100 Gbps mLOM

Please refer to the Cisco UCS X410c M8 Compute Node Installation Guide for installation procedures.

UPGRADING or REPLACING CPUs and MEMORY

- Refer to Cisco UCS X410c M8 Server Installation and Service Guide to upgrading or replacing CPUs.
- Refer to Cisco UCS X410c M8 Server Installation and Service Guide to upgrading or replacing Memory.

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 17 Cisco UCS X410c M8 Compute Node Dimensions and Weight

Parameter	Value
Height	3.67 inches (93.22 mm)
Width	11.28 inches (286.52 mm)
Depth	23.8 inches (604.52 mm)
Weight	The weight depends on the components installed: ■ Minimally configured compute node weight: 29 lb (13.1 kg) ■ Fully configured compute node weight: 36 lb (16.32 kg)

Environmental Specifications

Table 18 Cisco UCS X410c M8 Compute Node Environmental Specifications

Parameter	Value
Operating temperature	Supported operating temperatures depend on the compute node's memory: ■ For 256GB DDR5 DIMMs: 50° to 89.6° F (10° to 32° C) at 0 to 10,000 ■ All other memory configurations: 50° to 95° F (10° to 35° C) at 0 to 10,000 ■ For Granite Rapids CPUs: • With full HDDs installed, 50° to 95°F(10°to 35° C) all CPU SKUs, except for 330W and 350W XCC SKUs: 50° to 90° F (10°to 32° C) • With less than full HDDs installed, and for all CPU SKUs: 50° to 95° F (10° to 35° C)
Non-operating temperature	-40° to 149°F (–40° to 65°C)
Operating humidity	5% to 93% non-condensing
Non-operating humidity	5% to 93% non-condensing
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



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