Spec Sheet

Cisco Compute Hyperconverged with vSAN

HCIXVS210c M8 All-NVMe vSAN ReadyNode

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https://www.cisco.com/c/en/us/products/hyperconverged-infrastructure/compute-hyperconverged/datasheet-listing.html

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OVERVIEW

VMware vSAN Express Storage Architecture (ESA) is a software-defined storage solution that runs natively as part of ESXi hypervisor. It aggregates local storage from multiple hosts to create a shared storage pool for virtual machines that can then be accessed by all hosts in the vSAN cluster.

Cisco Compute Hyperconverged with vSAN solutions are purpose-built platforms that unify compute, storage, and networking into a single, software-defined infrastructure. Cisco and VMware by Broadcom have partnered to deliver a robust, scalable, and high-performance hyperconverged infrastructure (HCI) solution for modern workloads.

VMware vSAN ReadyNode is pre-configured, tested, and jointly certified by Broadcom and Cisco to deliver enterprise-grade storage performance and reliability for IT customers. When deployed on Cisco UCS® servers qualified as vSAN ReadyNodes customers can confidently build a robust hyperconverged infrastructure stack that maximizes hardware utilization, simplifies operations, and scales linearly with business growth.

The Cisco Compute Hyperconverged 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 Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode is integrated into the Cisco Compute Hyperconverged X-Series Modular System. Up to eight Cisco Compute Hyperconverged Nodes can reside in the 7-Rack-Unit (7RU) Cisco Compute Hyperconverged 9508 Chassis, offering one of the highest densities of compute, IO, and storage per rack unit in the industry.

The Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode harnesses the power of the latest Intel® Xeon® 6 Scalable Processors with up to 4TB with 32 x 128GB DDR5-6400 DIMMs. refer to the *vSAN ReadyNode STANDARD CAPABILITIES and FEATURES on page 5* for more details.

Figure 1 on page 4 shows a front view of the Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode

Figure 1 Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode

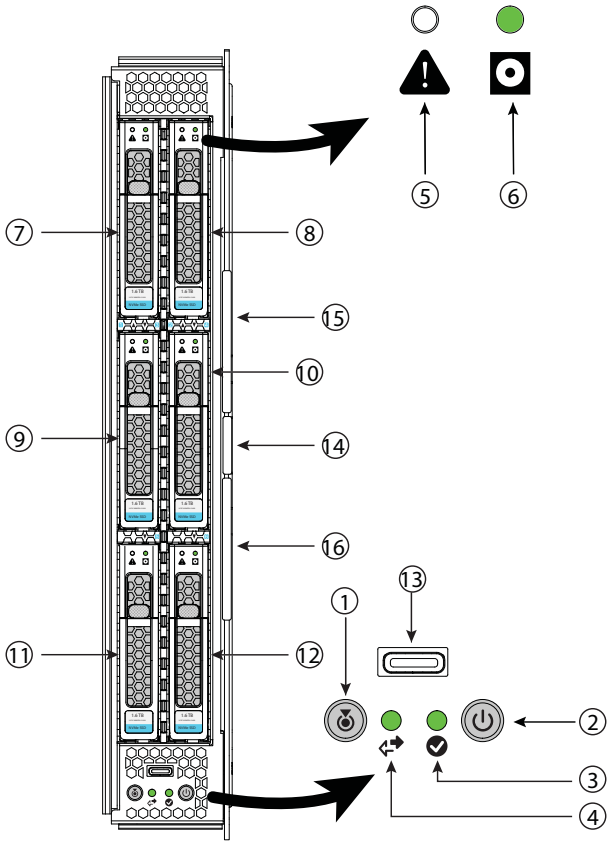
DETAILED VIEWS

Front View

Figure 2 shows a front view of the vSAN ReadyNode.

Figure 2 vSAN ReadyNode Front View (Drives option)

Storage Drives Option



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

Notes:

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

vSAN ReadyNode STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode Details about how to configure the vSAN ReadyNode for a listed feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING THE CISCO COMPUTE HYPERCONVERGED HCIXVS210c M8 vSAN ReadyNode on page 7*.

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	■ vSAN ReadyNode mounts in a Cisco UCS X9508 chassis.
CPU	■ One or two Intel® Xeon® 6 Scalable Processors ■ Each CPU has 8 channels with up to 2 DIMMs per channel, for up to 16 DIMMs per CPU ■ UPI Links: Up to 4 at 24GT/s
Memory	■ 32 slots for registered DIMMs (RDIMMs)
Mezzanine Adapters (Front)	One front mezzanine connector that supports: ■ U.3 NVMe passthrough controller
Internal Storage	■ Front mezzanine storage options (hot-swappable): • Up to 6 U.3 NVMe drives • Drives require a passthrough controller in the front mezzanine module slot.
Additional Storage	■ Dual 80 mm SATA 3.0 M.2 cards on a boot-optimized hardware RAID controller
Mezzanine Adapter (Rear)	■ Cisco UCS 15422 Mezzanine Card with the UCS VIC 15000 Bridge Connector is compatible with the Cisco UCS VIC 15420 ■ UCS PCI Mezz Card for X-Fabric ■ mLOM slot for Cisco UCS VIC 15420 or Cisco VIC 15230
Video	Video uses a Matrox G200e video/graphics controller. ■ 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 Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode consumes a maximum of 1300 W.
Fans	■ Integrated in the Cisco UCS X9508 chassis.

Table 1 Capabilities and Features *(continued)*

Capability/Feature	Description
Integrated management processor	■ The built-in Cisco Integrated Management Controller enables monitoring of Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode inventory, health, and system event logs. ■ ASPEED Pilot IV BMC
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 and 6536 fabric interconnects
Chassis	■ Compatible with the Cisco UCS 9508 X-Series Server Chassis

CONFIGURING THE CISCO COMPUTE HYPERCONVERGED HCIXVS210c M8 vSAN ReadyNode

Follow these steps to configure the Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode

STEP 1 CHOOSE BASE vSAN ReadyNode SKU

Top Level ordering product ID (PID) shown in *Table 2*

Table 2 Top level ordering PID

Product ID (PID)	Description
HCIX-M8-VSAN-MLB	Cisco Compute Hyperconverged X-Series M8 with vSAN MLB

Select the base product ID (PID) from the *Table 3*.

Table 3 PID of the Base Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode

Product ID (PID)	Description
HCIXVS210C-M8SN	210cM8 All NVMe Hyperconverged vSAN Node w/o CPU, Memory,Storage
HCIXVS210C-M8SN-U	210cM8 All NVMe Hyperconverged vSAN Node w/o CPU, Memory,Storage

A base Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode ordered in *Table 3* 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 vSAN ReadyNode:

- CPUs
- Memory
- Passthrough controller with drives (or blank, for no local drive support)
- Drives
- Cisco adapters (such as VIC or Bridge)

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Up to 86 cores
- Cache size of up to 336 MB
- Power: Up to 350Watts
- UPI Links: Up to 4 at 24GT/s

Select CPUs

CAUTION:

- Normal operating temperature is limited to 35º C [95º F], and is lowered to 28º C [82.4º F], with a fan fault.

Table 4 Available Intel® Xeon® 6 Scalable CPUs

Product ID (PID)	Segment/ Workload	Maximum Socket (S)	Cores (C)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Highest DDR5 DIMM Clock (MT/s)
UCSX-CPU-I6787P	Performance	2S	86	2.00	350	336	6400
UCSX-CPU-I6767P	Performance	2S	64	2.40	350	336	6400
UCSX-CPU-I6760P	Mainline	2S	64	2.20	330	320	6400
UCSX-CPU-I6747P	Performance	2S	48	2.70	330	288	6400
UCSX-CPU-I6745P	Performance	2S	32	3.10	300	336	6400
UCSX-CPU-I6740P	Mainline	2S	48	2.10	270	288	6400
UCSX-CPU-I6736P	Performance	2S	36	2.00	205	144	6400
UCSX-CPU-I6737P	Performance	2S	32	2.90	270	144	6400
UCSX-CPU-I6730P	Performance	2S	32	2.50	250	288	6400
UCSX-CPU-I6530P	Mainline	2S	32	2.30	225	144	6400
UCSX-CPU-I6728P	Socket scalable	4S	24	2.70	210	144	6400
UCSX-CPU-I6527P	Performance	2S	24	3.00	255	144	6400
UCSX-CPU-I6520P	Mainline	2S	24	2.40	210	144	6400
UCSX-CPU-I6724P	Performance	4S	16	3.60	210	72	6400
UCSX-CPU-I6517P	Performance	2S	16	3.20	190	72	6400
UCSX-CPU-I6515P	Mainline	2S	16	2.40	150	72	6400
UCSX-CPU-I6505P	Mainline	2S	12	2.20	150	48	6400
UCSX-CPU-I6714P	Performance	4S	8	4.00	165	48	6400

Table 4 Available Intel® Xeon® 6 Scalable CPUs

Product ID (PID)	Segment/ Workload	Maximum Socket (S)	Cores (C)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Highest DDR5 DIMM Clock (MT/s)
UCSX-CPU-I6507P	Performance	2S	8	3.50	150	48	6400
Accessories/spare included with CPU configuration: ■ UCSC-HSLP-C220M8 **NOTE:** if you are adding a second CPU later, you may need to order accessories spares with it.							

Table 5 CPU PID Decoder

Identifier#1	Identifier#2	Identifier#3	Identifier#4	Identifier#5	Identifier#6	Identifier#7
Cisco Product Family UCSX	**CPU supplier** **I:** Intel	**CPU Generation** **6:** 6th Generation	**SKU Tier** **5:** GNR-SP Mid Tier **7:** GNR-SP High Tier	**CPU SKU (2 digits)** **Examples:** 20, 34, 48 See detailed SKUs stack from supplier **11, 21, 31, 41, 61, 81:** single-socket	**Core Architecture** **P:** P-Core	**Option/Spare CPU** **Blank:** Option **=:** Spare

Supported Configurations

(1) One-CPU Configuration

- Choose one CPU from any one of the rows of *Table 4 on page 9*

(2) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of *Table 4 on page 9*

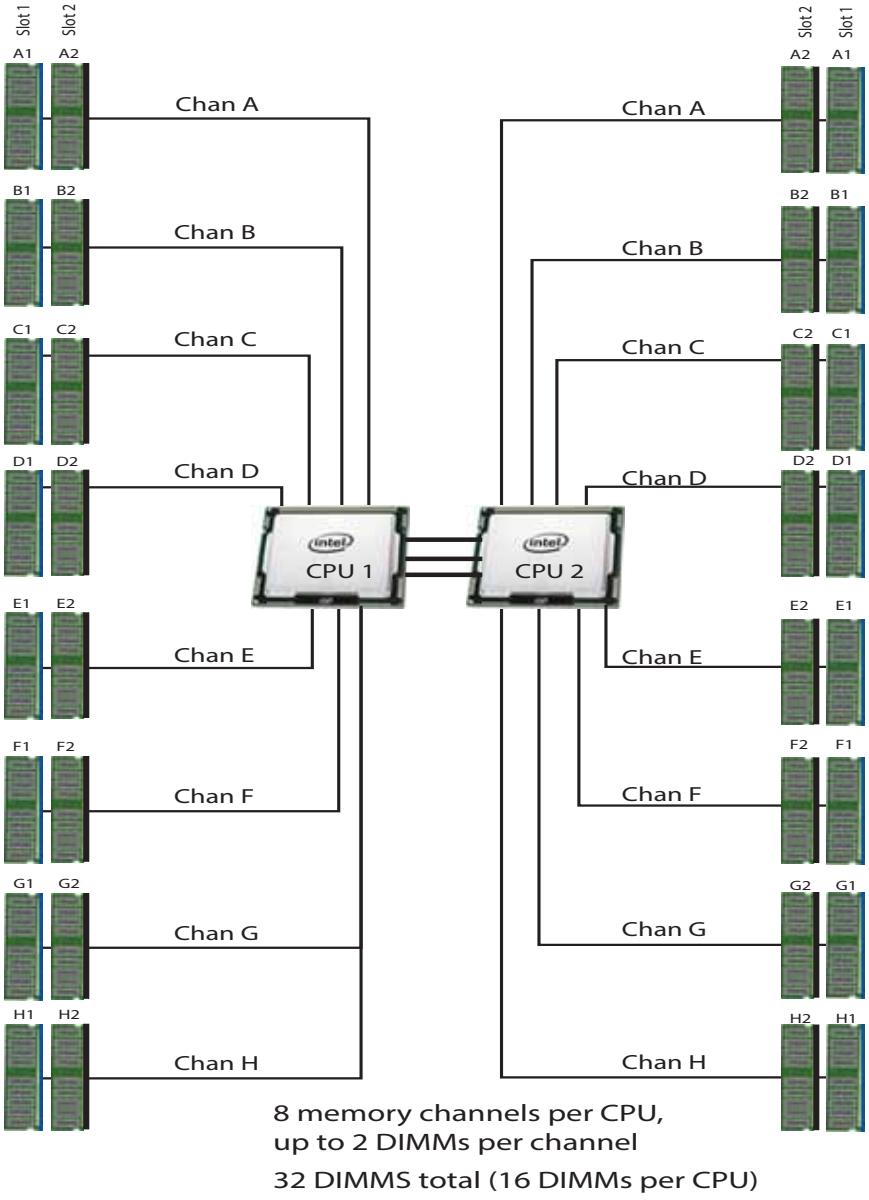
STEP 3 SELECT MEMORY

The *Table 6* below describes the main memory DIMM features supported on the server.

Table 6 Server Main Memory Features

Memory server technologies	Description
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/MRDIMM organization	Eight memory DIMM channels per CPU; up to 2 DIMMs Per Channel
Maximum number of DRAM DIMM/MRDIMM per server	32 (2-Socket)
DRAM DIMM/MRDIMM Densities and Ranks	16GB 1Rx8, 32GB 1Rx4, 64GB 2Rx4, 96GB 2Rx4, 128GB 2Rx4
Maximum system memory capacity	8TB (32x256GB)

Figure 3 Memory Organization



Select DIMMs

The available memory DIMMs option are listed in *Table 7*.

Table 7 Memory Options

Product ID (PID)	PID Description	Ranks/DIMM
DDR5-6400 MT/s Cisco Memory PIDs list		
UCSX-MRX16G1RE5	16GB DDR5-6400 RDIMM 1Rx4 (16Gb)	1
UCSX-MRX32G1RE5	32GB DDR5-6400 RDIMM 1Rx4 (16Gb)	1
UCSX-MRX48G1RF5	48GB DDR5-6400RDIMM 1Rx4 (24Gb)	1
UCSX-MRX64G2RE5	64GB DDR5-6400 RDIMM 2Rx4 (16Gb)	2
UCSX-MRX96G2RF5	96GB DDR5-6400 RDIMM 2Rx4 (24Gb)	2
UCSX-MR128G2RG5	128GB DDR5-6400 RDIMM 2Rx4 (32Gb)	2
Accessories/spare included with Memory configuration: ■ UCS-DDR5-BLK[1] is auto included for the unselected DIMMs slots		

Notes:

1. 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 REAR mLOM ADAPTER

The Cisco Compute Hyperconverged HCIXVS210c M8 AII-NVMe vSAN ReadyNode 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 8* shows the mLOM adapter choices.

Table 8 mLOM Adapters

Product ID (PID)	Description	Connection Type	Compatibility/Functionality
UCSX-ML-V5D200GV2D	Cisco UCS VIC 15230 modular LOM w/Secure Boot X vSAN ReadyNode	mLOM	■ Supported with both IFM 25G and IFM 100G ■ Operates at 4x 25G with both IFM 25G and IFM 100G
UCSX-ML-V5Q50G-D	UCS VIC 15420 4x25G secure boot mLOM for X vSAN ReadyNode	mLOM	■ Supported with both IFM 25G and IFM 100G ■ Operates at 4x 25G with both IFM 25G ■ Operates at 2x 25G with IFM 100G

NOTE:

- The mLOM adapter is mandatory for the Ethernet connectivity to the network by means of the IFMs and has x16 PCIe Gen4 connectivity to CPU1 with Cisco UCS VIC 15420 or x16 Gen4 connectivity with Cisco UCS VIC 15230 towards the CPU1.
- There is no backplane in the Cisco UCS X9508 chassis; thus, the vSAN ReadyNodes directly connect to the IFMs using orthogonal direct connectors.
- *Figure 4* shows the location of the mLOM and rear mezzanine adapters on the Cisco Compute Hyperconverged HCIXVS210c M8 AII-NVMe vSAN ReadyNode The bridge adapter connects the mLOM adapter to the rear mezzanine adapter.

Figure 4 Location of mLOM and Rear Mezzanine Adapters

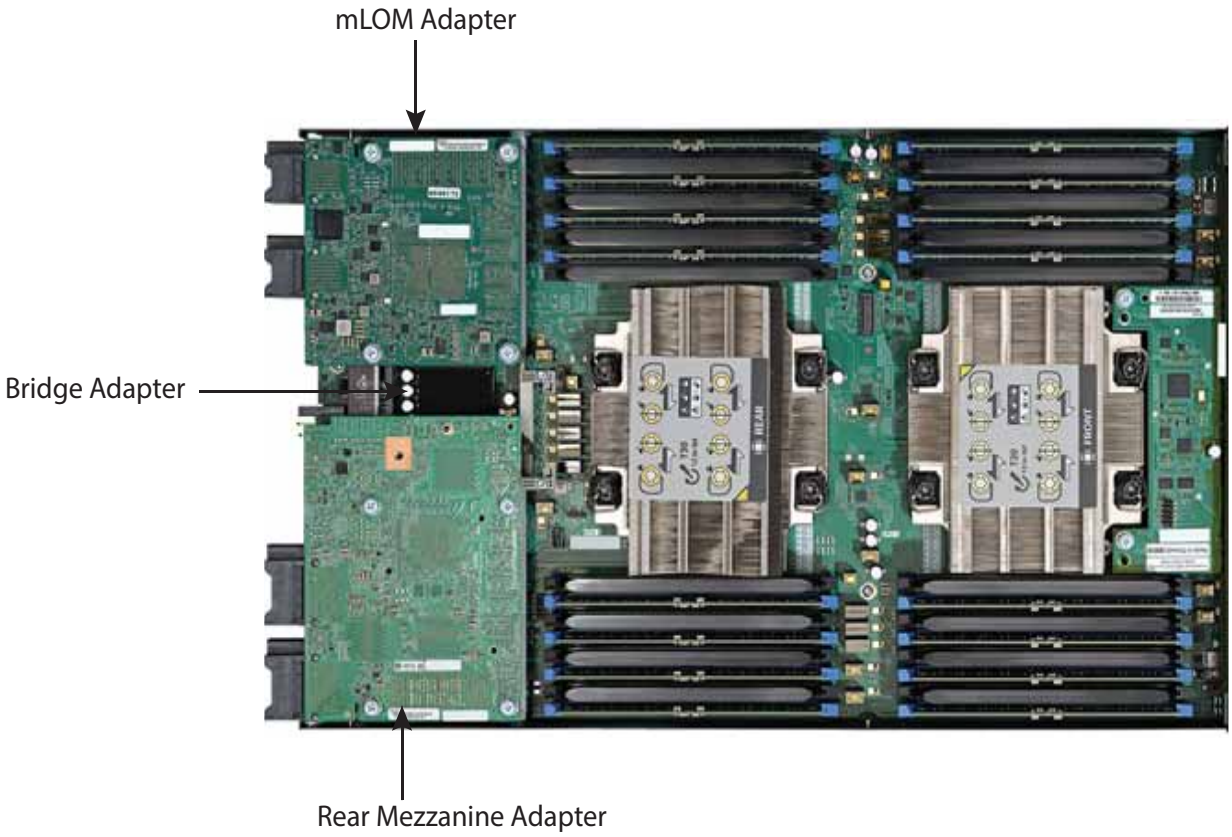
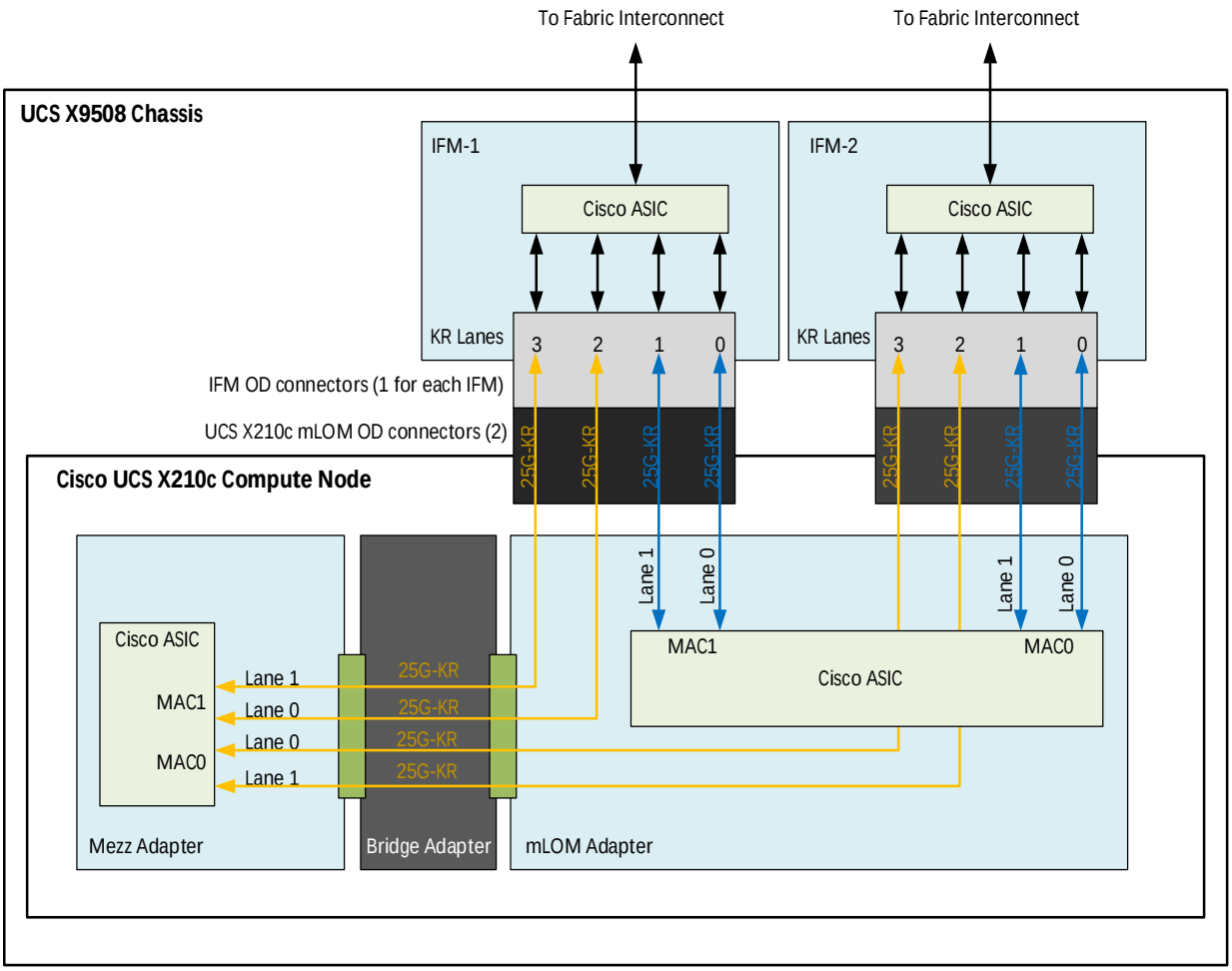


Figure 5 shows the network connectivity from the mLOM out to the 25G IFMs.

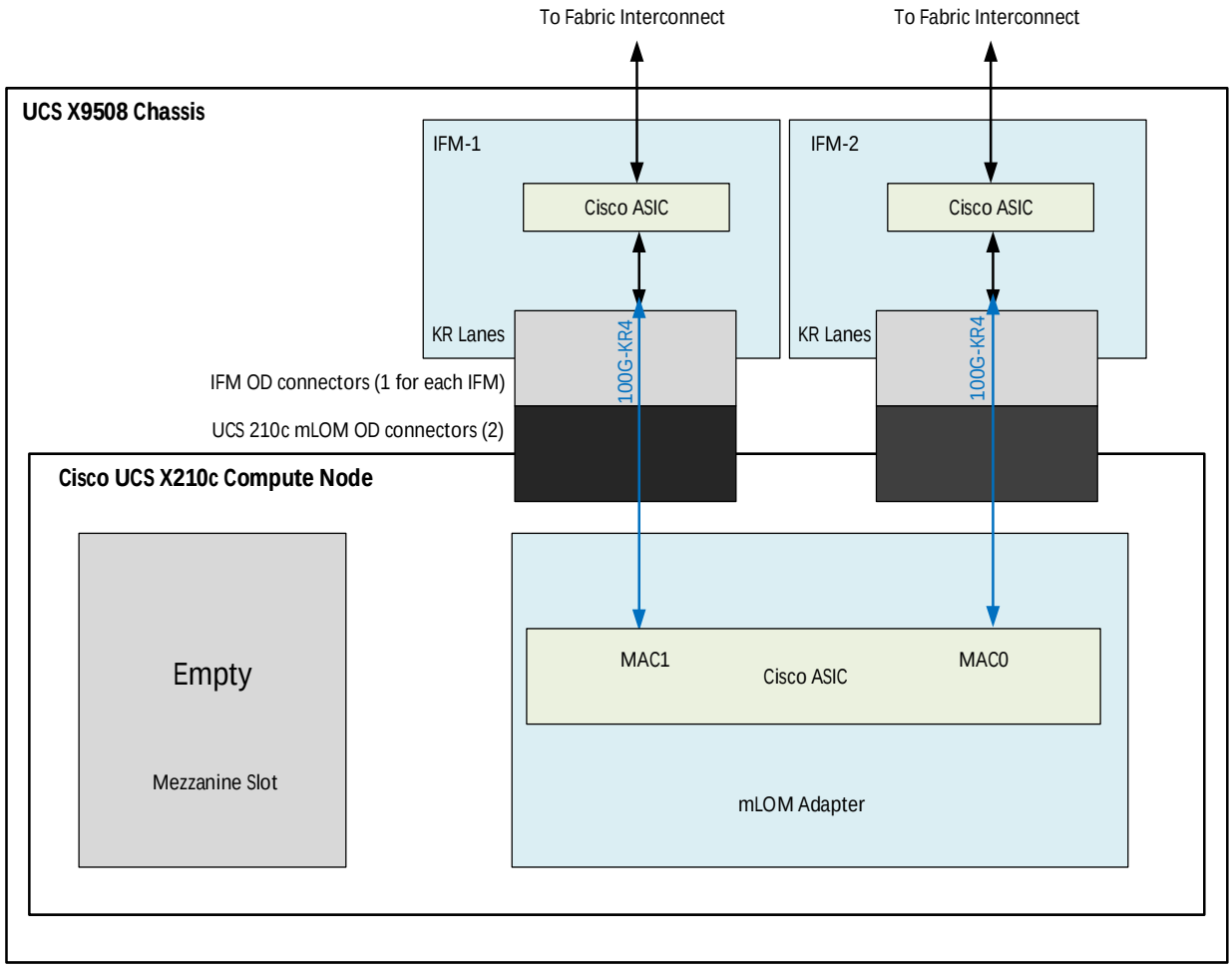
Figure 5 Network Connectivity 25G IFMs



NOTE: The 25G-KR traces from the Mezz Adapter do not go through the mLOM adapter ASIC

Figure 6 shows the network connectivity from the mLOM out to the 100G IFMs.

Figure 6 Network Connectivity 100G IFMs



STEP 5 CHOOSE OPTIONAL REAR MEZZANINE VIC/BRIDGE ADAPTERS

The Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode has one rear mezzanine adapter connector which can have a UCS VIC 15422 Mezz card that can be used as a second VIC card on the vSAN ReadyNode for network connectivity or as a connector to the X-Series PCIe Nodes via X-Fabric modules. The same mezzanine slot on the vSAN ReadyNode can also accommodate a pass-through mezzanine adapter for X-Fabric which enables vSAN ReadyNode connectivity to the X-Series PCIe Nodes.

Refer to *Table 9* for supported adapters.

NOTE: The rear mezzanine card for X-Fabric provides PCIe Gen4 x16 connectivity to both CPU1 and CPU2. Additionally, it offers two PCIe Gen4 x16 connections to each X-Fabric. All mezzanine adapters enable connectivity between the vSAN ReadyNode and the X-Series PCIe Nodes.

Table 9 Available Rear Mezzanine Adapters

Product ID(PID)	PID Description	CPUs Required	Connector Type
Cisco VIC Card			
UCSX-V4-PCIME-D	UCS PCI Mezz Card for X-Fabric	2 CPUs required	Rear Mezzanine connector on motherboard
UCSX-ME-V5Q50G-D	UCS VIC 15422 4x25G secure boot mezz for X vSAN ReadyNode	2 CPUs required	Rear Mezzanine connector on motherboard
Cisco VIC Bridge Card[1,2]			
UCSX-V5-BRIDGE-D=	UCS VIC 15000 bridge to connect mLOM and mezz X vSAN ReadyNode	2 CPUs required	One connector on Mezz card and one connector on mLOM card

Notes:

1. Included with the Cisco VIC 15422 mezzanine adapter.
2. This bridge connects the Cisco VIC 15420 mLOM and Cisco VIC 15422 Mezzanine adapters for the vSAN ReadyNode

Table 10 Throughput Per Node

X210c M8 All-NVMe vSAN ReadyNode	FI-6536 + X9108-IFM-100G	FI-6536/6400 + X9108-IFM-25G	FI-6536 + X9108-IFM-25G/100G or FI-6400 + X9108-IFM-25G	FI-6536 + X9108-IFM-25G/100G or FI-6400 + X9108-IFM-25G	
X210c configuration	VIC 15230	VIC 15230	VIC 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

Supported Configurations

- A mLOM VIC from *Table 8* is always required.
- If a rear mezzanine VIC card is installed, a VIC bridge card is included and connect the mLOM to the mezzanine adapter.
- The rear mezzanine card has Ethernet connectivity to the IFM using the VIC bridge card and has a PCIE Gen4 x16 connectivity towards CPU2. Additionally, the VIC card 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 x16PCIe lanes to each Cisco UCS X-Fabric for I/O expansion to enable resource consumption from the PCIe resource nodes.

STEP 6 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER

The Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode has one front mezzanine connector that can accommodate one of the following mezzanine cards:

The available Mezzanine Adapters are listed in *Table 11*.

Table 11 Available Front Mezzanine Adapters

Product ID(PID)	PID Description	Connector Type
UCSX-X10C-PT4F-D	HCI X10c Compute Pass Through Controller (Front)	Front Mezzanine

Supported Configurations

- Supports up to six NVMe U.2/U.3 drives.

STEP 7 CHOOSE OPTIONAL GPU PCIe NODE

Refer to the *Table 12* for GPU PCIe Node

Table 12 GPU PCIe Node

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

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

The available PCIe node GPU options are listed in *Table 13*.

Table 13 Available PCIe GPU Cards supported on the PCIe Node (UCSX-440P)

GPU Product ID (PID)	PID Description	Maximum number of GPUs per node
UCSX-GPU-A16	NVIDIA A16 PCIE 250W 4X16GB	2
UCSX-GPU-L4	NVIDIA L4 Tensor Core, 70W, 24GB	4
UCSX-GPU-L40S	NVIDIA L40S: 350W, 48GB, 2-slot FHFL GPU	2
UCSX-GPU-H100-NVL	NVIDIA H100 NVL, 400W, 94GB, 2-slot FHFL GPU	2
UCSX-GPU-MI210	AMD Instinct MI210:300W, 64GB, 2-slot FHFL GPU	2

STEP 8 CHOOSE DRIVES (REQUIRED)

The available drives are listed in *Table 14*.

Table 14 Available Capacity Drives

Product ID (PID)	PID Description	Drive Type	Capacity
Capacity Drive			
UCSX-NVMEG4M1920D	1.9TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe	U.3 NVMe	1.9 TB
UCSX-NVMEG4M3840D	3.8TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe	U.3 NVMe	3.8 TB
UCSX-NVMEG4M7680D	7.6TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe	U.3 NVMe	7.6 TB
UCSX-NVMEG4M1536D	15.3TB 2.5in U.3 15mm P7450 Hg Perf Med End NVMe	U.3 NVMe	15.3 TB

Approved Configurations

- Up to six U.3 NVMe capacity drives

STEP 9 ORDER M.2 BOOT RAID CONTROLLER and SATA SSDs

- **Cisco 6GB/s SATA Boot-Optimized M.2 RAID Controller (included):** Boot-Optimized RAID controller (UCSX-M2-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.

NOTE:

- The UCSX-M2-HWRD-FPS is auto included with the server configuration
- The UCSX-M2-HWRD-FPS controller supports RAID 1 and JBOD mode and is available only with M.2 SATA SSDs Shown in *Table 16*.
- Cisco IMM is supported for configuring of volumes and monitoring of the controller and installed SATA M.2 drives
- Hot-plug replacement is not supported. The Cisco Compute Hyperconverged Node must be powered off to replace.
- The Boot-Optimized RAID controller supports Windows and Linux Operating Systems

Table 15 Boot-Optimized RAID controller (auto included)

Product ID (PID)	PID Description
UCSX-M2I-HWRD-FPS	UCSX Front panel w/M.2 RAID controller Included for SATA drive

- **Select Cisco M.2 SATA SSDs:** Order two matching M.2 SATA SSDs. This connector accepts the boot-optimized RAID controller (see *Table 15*). Each boot-optimized RAID controller can accommodate two SATA M.2 SSDs shown in *Table 16*.

NOTE:

- Each boot-optimized RAID controller can accommodate up to two SATA M.2 SSDs shown in *Table 16*. The boot-optimized RAID controller plugs into the motherboard.
- It is recommended that M.2 SATA SSDs be used as boot-only devices.
- The SATA M.2 drives can boot in UEFI mode only. Legacy boot mode is not supported.

Table 16 M.2 SATA SSDs

Product ID (PID)	PID Description	Drive Type	Capacity
UCSX-M2-480G-D	480GB M.2 SATA SSD	SATA	480GB
UCSX-M2-960G-D	960GB M.2 SATA SSD	SATA	960GB
UCSX-M2480OA1V	480GB M.2 Boot Solidigm S4520 SATA 1X SSD	SATA	480GB

STEP 10 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE

- **Trusted Platform Module (TPM) is a computer chip or microcontroller that can securely store artifacts used to authenticate the platform or Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode 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 17 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 installs with a one-way screw and cannot be replaced, upgraded, or moved to another vSAN ReadyNode. If a vSAN ReadyNode with a TPM is returned, the replacement vSAN ReadyNode must be ordered with a new TPM. If there is no existing TPM in the vSAN ReadyNode you can install a TPM 2.0. Refer to the following document for Installation location and instructions:

SUPPLIMENT MATERIAL

Simplified Block Diagram

A simplified block diagram of the Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode system board is shown in *Figure 7* thorough *Figure 10*.

Figure 7 vSAN ReadyNode Simplified Block Diagram (VIC 25G with drives and pass through controller)

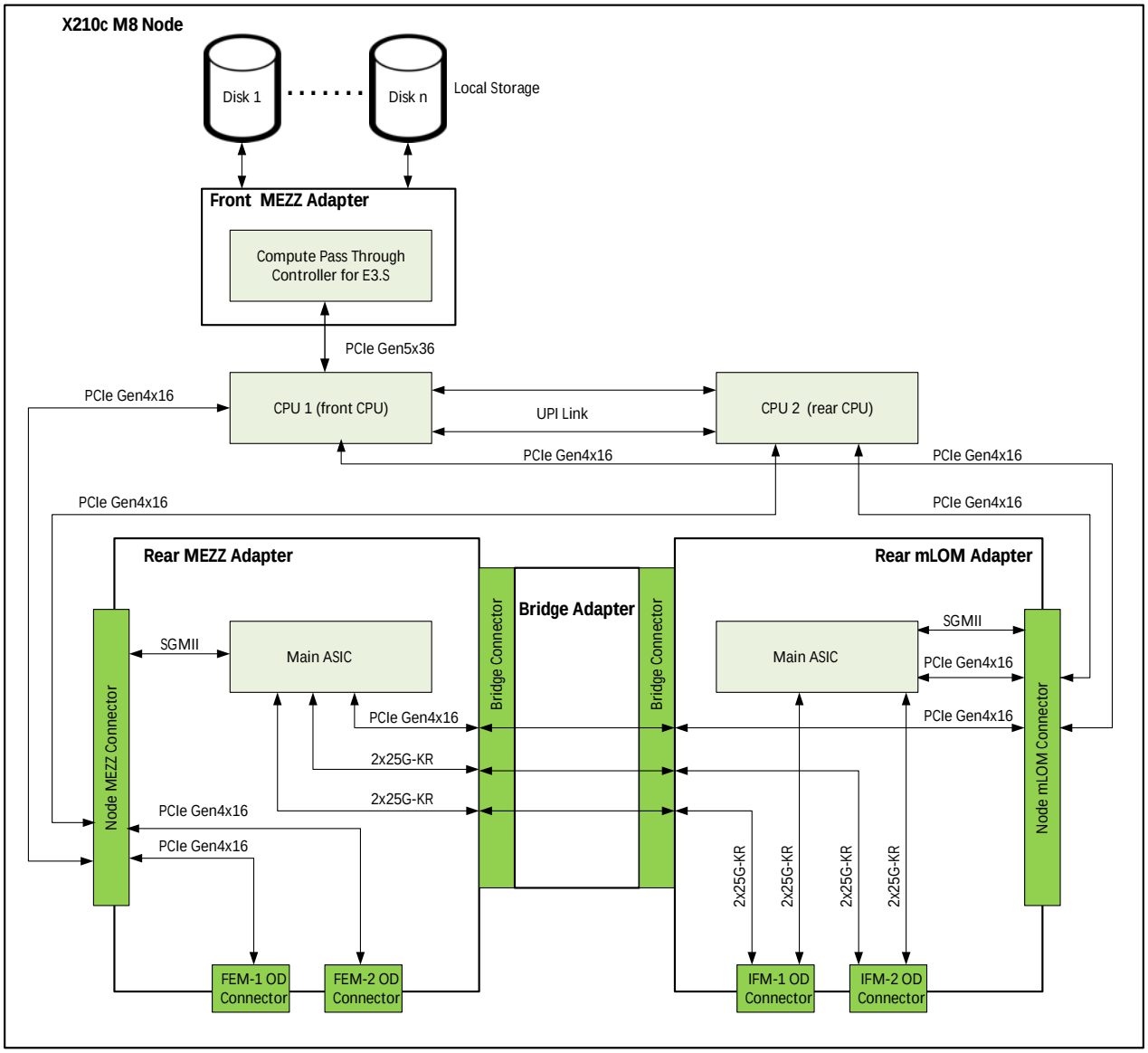


Figure 8 vSAN ReadyNode Simplified Block Diagram (VIC 100G with drives and pass through controller)

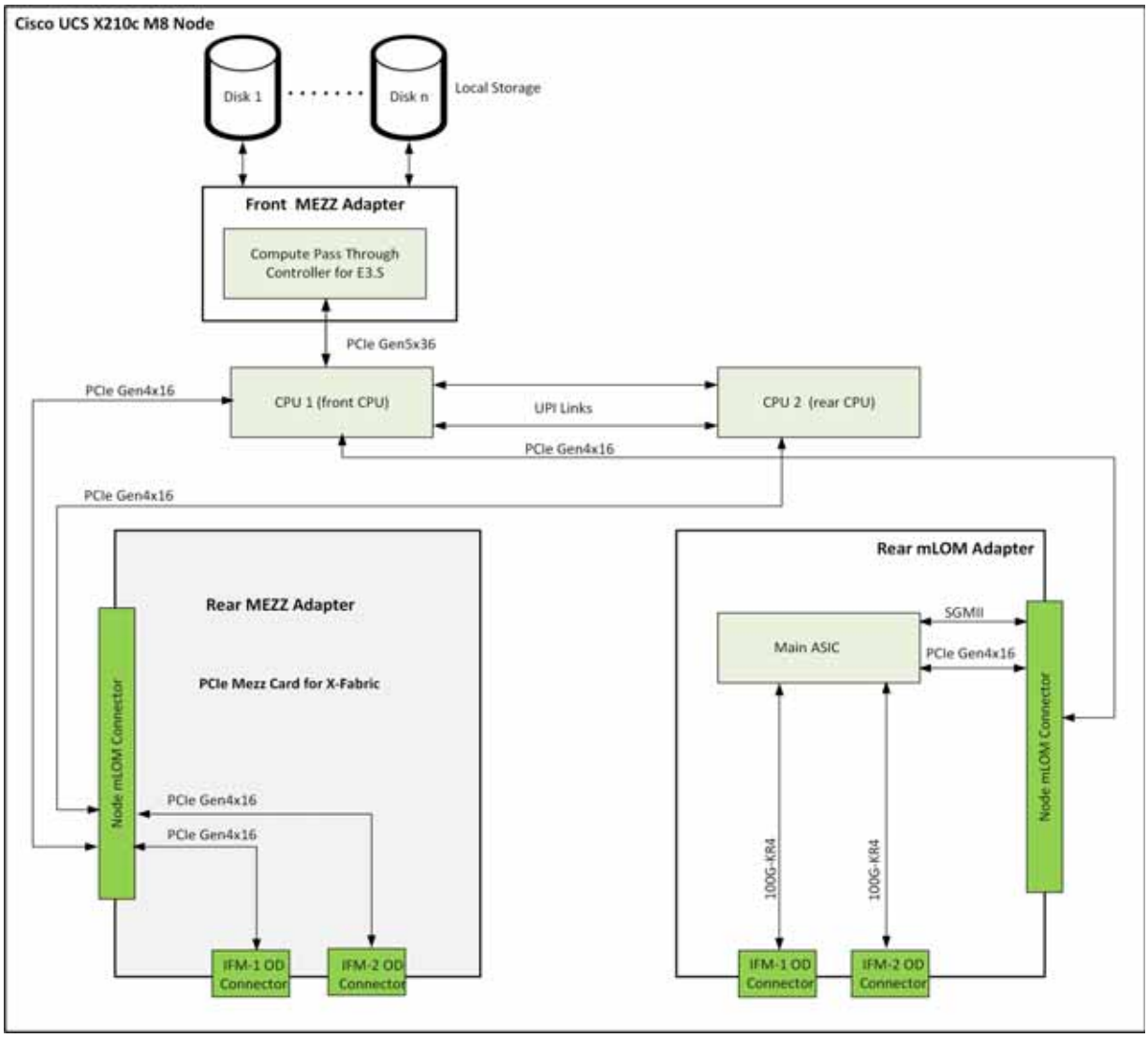


Figure 9 vSAN ReadyNode Simplified Block Diagram (VIC 25G with Drives and GPUs)

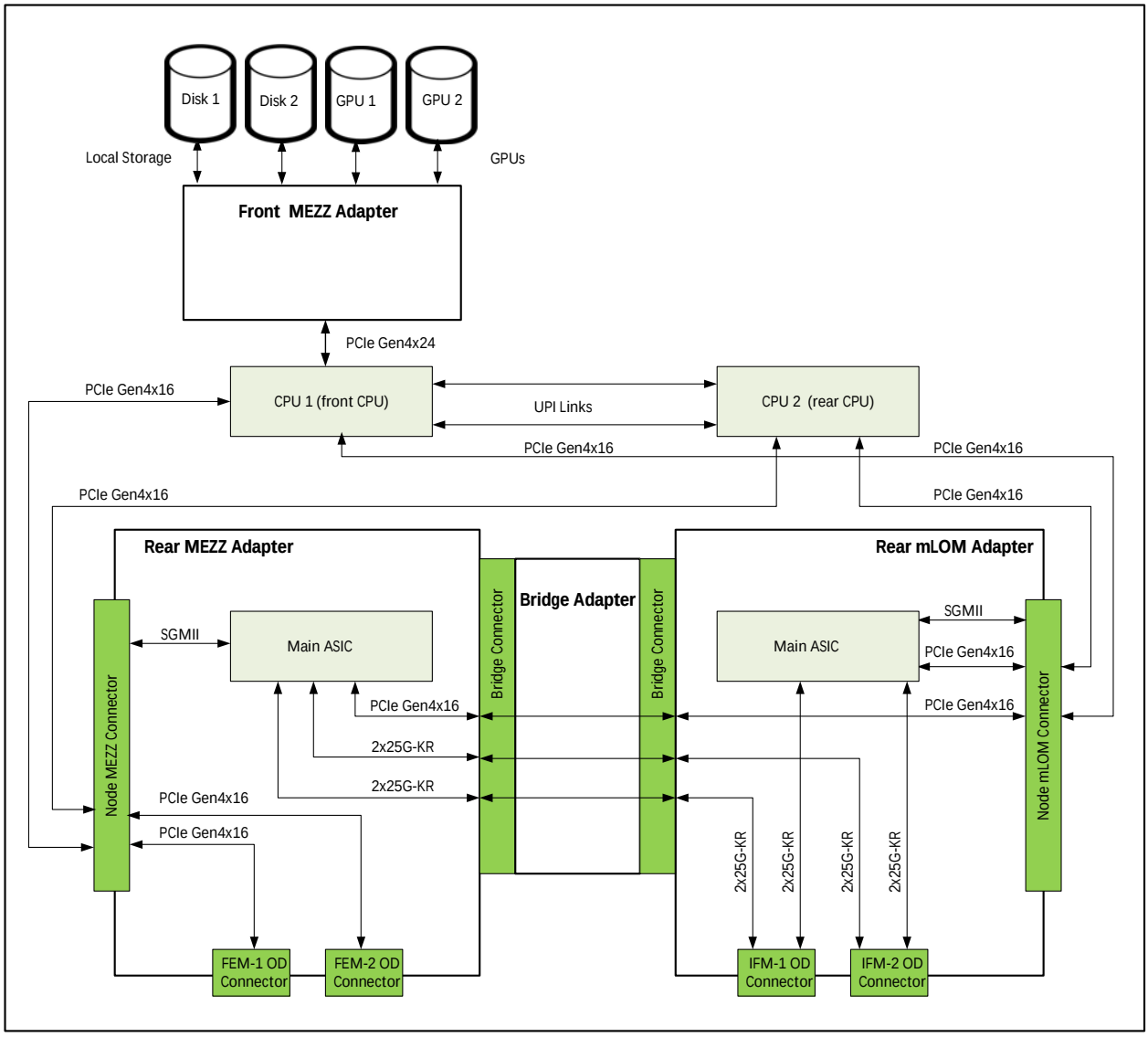
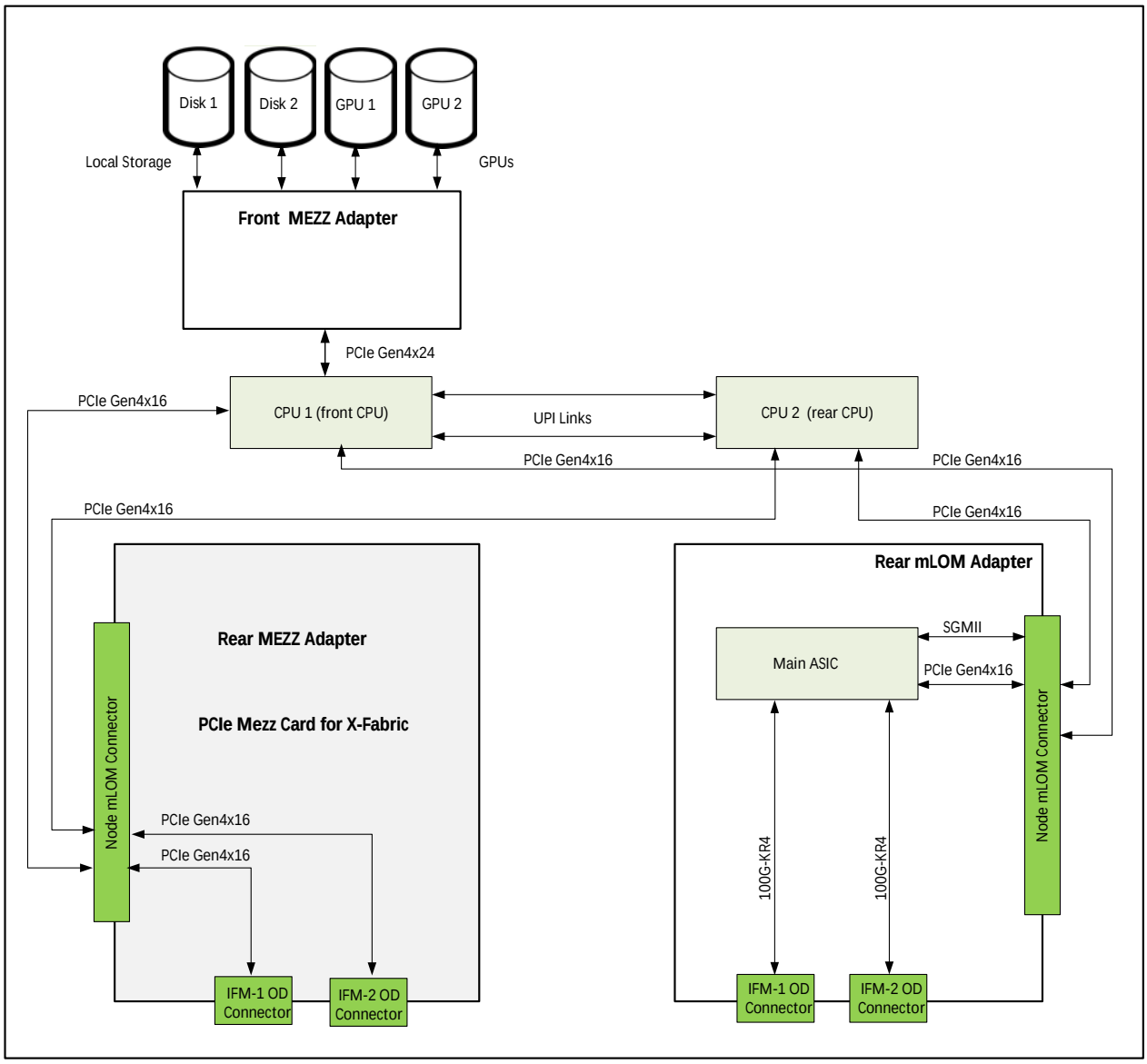


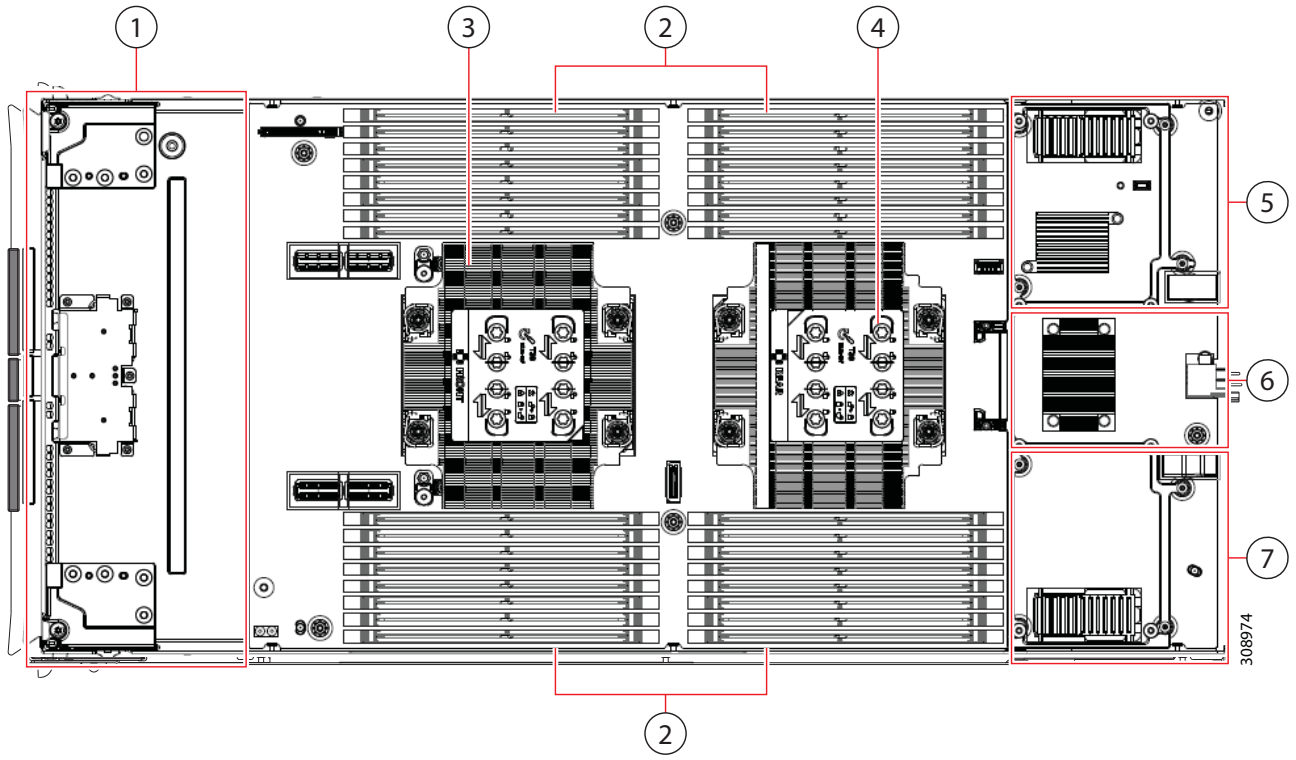
Figure 10 vSAN ReadyNode Simplified Block Diagram (VIC 100G with drives and GPUs)



System Board

A top view of the Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode system board is shown in *Figure 11*.

Figure 11 Cisco Compute Hyperconverged HCIXVS210c M8 All-NVMe vSAN ReadyNode System Board



1	Front mezzanine slot for SAS/SATA or NVMe drives and M.2 Controllers.	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 populated)	-	-

TECHNICAL SPECIFICATIONS

Dimensions and Weight

Table 18 Server Dimensions and Weight

Parameter	Value
Height	1.80 in. (45.7 mm)
Width	11.28 in. (286.5 mm)
Depth	23.7 in. (602 mm)
Weight	■ Minimally configured node weight = 12.84 lbs. (5.83 kg) ■ Fully configured vSAN ReadyNode weight = 25.1 lbs. (11.39 kg)

Environmental Specifications

Table 19 Server 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 Server Node has a power cap of 1300 Watts for all combinations of components (CPUs, DIMMs, drives, and so on). Also, the ambient temperature must be less than 35 ºC (95 ºF).

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