Spec Sheet

# Cisco UCS Fabric Interconnect 9108 100G



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**PUBLICATION HISTORY**

REV A.15, SEPTEMBER 08, 2026

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# OVERVIEW

Cisco UCS X-Series Direct transforms the Cisco UCS X-Series Modular System into a self-contained system with pair of internal Cisco UCS Fabric Interconnects 9108 100G that integrate each of up to 20 server nodes with Cisco unified fabric connectivity, upstream IP and Fibre Channel connectivity, all managed through Cisco Intersight or the time-proven Cisco UCS Manager.

The platform supports two- and four-socket compute nodes of which up to eight and four (respectively) can populate a chassis. Each node can support up to nine NVMe drives, two M.2 drives, two VICs, and up to six GPU accelerators. The platform's capabilities can be extended through the Cisco UCS X-Fabric. With the ability to have a second Cisco UCS X9508 Chassis with up to eight compute nodes and up to four UCS C-Series rack servers connected to UCS X-Series Direct, it expands the size of a UCS domain to a total of up to 20 compute nodes, managed either by Cisco Intersight or Cisco UCS Manager.

The fabric interconnects create a self-contained system connecting IP, storage, and management networks with two 100-Gbps connections to each of eight slots in the chassis. Within each compute node, Cisco virtual interface cards provide the number and type of I/O devices that you create depending on your application.

The fabric interconnects connect upstream to switches or storage appliances with eight 100- Gbps ports that can carry 1, 10, 25, 40, and 100 Gigabit Ethernet to upstream switches. these ports can be used to connect to a second Cisco UCS X9508 chassis equipped with intelligent fabric modules and to up to four C-Series Rack Server, with the primary chassis serving as a single point of connectivity and management for the edge location. The Fabric Interconnect can also provide eight Fibre Channel uplink or storage ports (8-, 16- or 32-Gbps FC) that can connect directly to a FC SAN switch (Cisco MDS or non-Cisco) or an FC storage array.

The Cisco UCS X-Series Direct is designed to shift your thinking from administrative details to business outcomes-with infrastructure that is assembled from the cloud, shaped to your workloads, and continuously optimized. Now that hardware can think and change like software, you are free to think like tomorrow. This brings about immense simplification to edge applications:

- **Simplify with cloud-operated infrastructure**: By shaping system resources to workload requirements with Cisco Intersight, you can deliver intelligent visualization, optimization, and orchestration to all your applications and infrastructure.
- **Simplify with an adaptable platform**: Edge applications have widely varying requirements. At the edge, you can use a single platform that combines the density and efficiency of blade servers with the expandability of rack servers for better performance, automation, and efficiency.
- **Simplify with a system engineered for the future**: Embrace emerging technology and reduce risk with a modular system engineered to support future generations of processor, accelerator, and interconnects with management enabled by a constant stream of new capabilities delivered as Software-as-a-Service (SaaS).

The Cisco UCS Fabric Interconnect 9108 100G (***Figure 1***) is an integrated 1/10/25/40/100 Gigabit Ethernet, FCoE, and Fibre Channel switch offering up to 1.6 Tbps throughput and up to 8 ports. The switch has 6 40/100-Gbps Ethernet ports and 2 unified ports that can support either 40/100-Gbps Ethernet speed per port or 32/64/128-Gbps FC speed per port by break-out into 4 8/16/32-Gbps FC ports. The 8 FC ports after breakout can either operate as an FC uplink port or as an FC storage port. The switch supports 2 1-Gbps speed after breakout and all 8 ports can breakout for 10/25-Gbps Ethernet connectivity. All Ethernet ports are capable of supporting FCoE. Beyond the 8 external facing 100G ports, the Fabric Interconnect 9108 100G also provides eight 100G or thirty-two 25G backplane ethernet ports connectivity towards the X-series

compute nodes depending on 100G or 25G VIC. The rear-view image shows the ortho-direct connectors that will connect to the VIC on the X-series compute node.

The Cisco UCS Fabric Interconnect 9108 100G also has one network management port, one console port for setting the initial configuration, and one USB port for saving or loading configurations.

***Figure 1*** shows the 8-port FI.

**Figure 1 Cisco UCS Fabric Interconnect 9108 100G.**

Front View



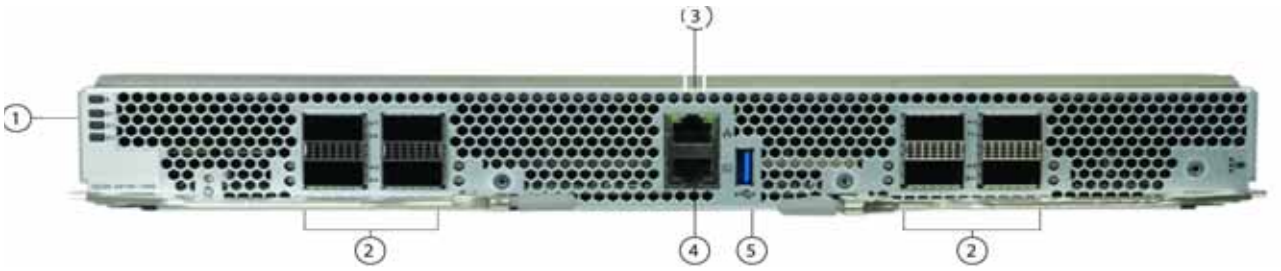
Rear View



# Detailed View

The Cisco UCS Fabric Interconnect 9108 100G front view shown in ***Figure 2***.

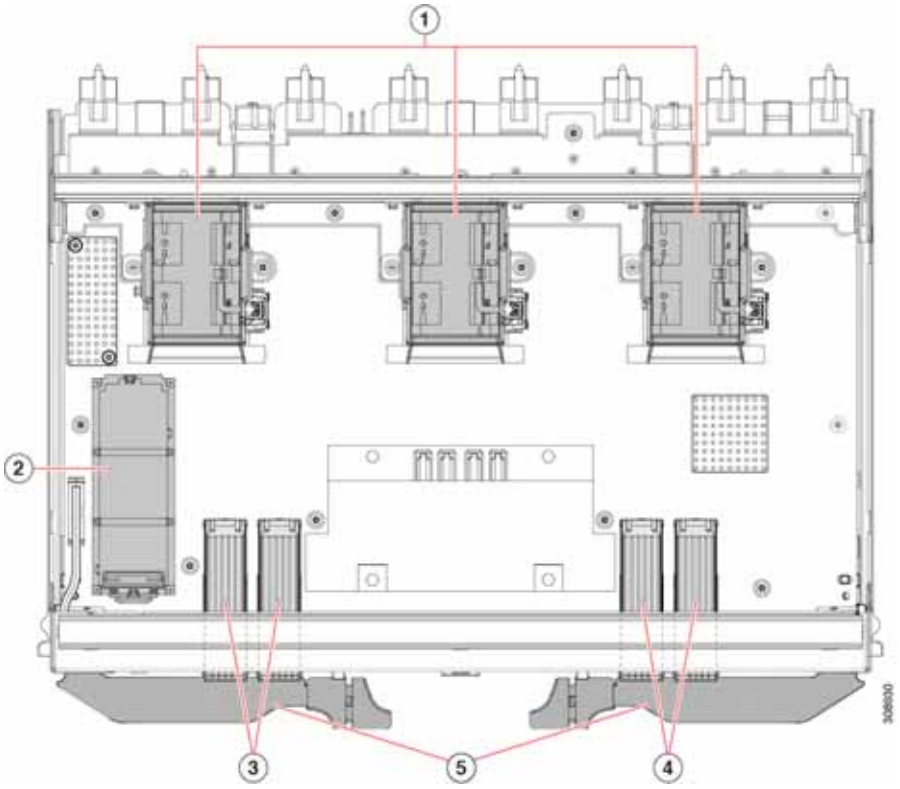
**Figure 2 Cisco UCS Fabric Interconnect 9108 100G (front view)**




| | | | |
|---|---|---|---|
| **1** | Status LEDs:<br>■ FI Status (top LED)<br>■ Fan Status LEDs 1 through 3, with Fan 1 as LED 2, Fan 2 as LED 3, and Fan 3 as LED 4. | **2** | QSFP28 Optical Ports.<br>Ports are arranged in two groups of four physical ports. Ports are stacked in vertical pairs, with two ports in each vertical port stack. |
| **3** | Management Port | **4** | Console Port |
| **5** | USB Port | **-** | |

***Figure 3*** shows the FI top view characteristics.

**Figure 3 Cisco UCS Fabric Interconnect 9108 100G (top view)**




| | | | |
|---|---|---|---|
| **1** | Fans (3) which are numbered 1 through 3 starting with the left fan | **4** | QSFP28 Optical Ports 5-8<br>Ports are arranged in two groups of four physical ports. Ports are stacked in vertical pairs, with two ports in each vertical port stack. |
| **2** | One M.2 mini storage module slot | **5** | FI ejector handles, left and right |
| **3** | QSFP28 Optical Ports 1-4<br>Ports are arranged in two groups of four physical ports. Ports are stacked in vertical pairs, with two ports in each vertical port stack. | **-** | - |

# LED Indicators

The LED indicators are described in ***Table 1*** (see ***Figure 2 on page 5*** for LED locations)

**Table 1 FI LED States**

| LED | State | Description |
|---|---|---|
| FI Status | OFF | Power OFF |
| | GREEN | Normal Operation |
| | AMBER | Booting or minor Temperature Alarm |
| | BLINKING AMBER | Stopped in uboot or unable to come online, or major temperature alarm |
| FAN status LED # 1, 2, 3 | OFF | Power OFF |
| | GREEN | Normal Operation |
| | AMBER | Fan fault (low fan speed or fan not running) |
| QSFP Port LED status 1 LED per port per color | OFF | Link enabled but not connected |
| | GREEN | Link connected |
| | AMBER | Operator disabled |
| | BLINKING AMBER | Disabled due to error |

# FABRIC INTERCONNECT 9108 100G (FIs) STANDARD CAPABILITIES AND FEATURES

Network connectivity is provided by a pair of Cisco UCS Fabric Interconnect 9108 100G (FIs). These modules carry all network traffic to the Top-of-Rack (ToR) switches. Having a single point of network connectivity and control in a system provides deterministic low latency. This, in turn, frees you to place workloads without regard to whether the compute nodes are in the same chassis. Each FI features the following:

UCS Fabric Interconnect 9108 100G:

- Server ports: Up to 200 Gbps of unified fabric connectivity per compute node with two FIs.
- Uplink and connectivity ports: 8x 100-Gbps QSFP28 ports.

The unified fabric carries management, production, and Fibre Channel over Ethernet (FCoE) traffic to the fabric interconnects. There, management traffic connects to the Cisco Intersight cloud operations platform; FC traffic is passed to native Fibre Channel interfaces through unified ports on the fabric interconnects, and production Ethernet traffic is passed upstream to the data center network.

Up to two Fabric Interconnect (FIs) 9108 100G plug into the back of the UCS X9508 chassis.

The Fabric Interconnect 9108 100G monitors and manages chassis components such as fan units, power supplies, environmental data, LED status panel, and other chassis resources. The compute node's Keyboard-Video-Mouse (KVM) data, Serial over LAN (SoL) data, and Intelligent Platform Management Interface (IPMI) data also travel to the FIs for monitoring and management purposes. In order to provide redundancy and failover, the FIs are always used in pairs.

There are 8x QSFP28 connectors on a FI to interface with the ToR switch. The FI provides up to 8x 100 Gbit/s links for the UCS Fabric Interconnect 9108 100G. The links provide the end-to-end interface from a compute node in the X9508 X-Series chassis to the connections on a ToR switch. When a compute node is inserted into the chassis, the compute node's upper mezzanine card (mLOM) plugs directly into the two FIs using two orthogonal connectors (ODs). The X9508 X-Series chassis accommodates two Cisco UCS Fabric Interconnects 9108 100G.

***Table 2*** lists the capabilities and features of the Cisco UCS Fabric Interconnect 9108 100G.

**Table 2 Capabilities and Features**

| Capability/Feature | Description |
|---|---|
| Server data path bandwidth | 1.6 Tbps for 8 compute nodes<br>(1x 100 Gbps or 4x25 Gbps per compute-node per UCSX-S9108-100G, for a total of 200 Gbps per compute node with dual UCSX-S9108-100G per X9508 Chassis) |
| Network data path bandwidth | ■ 1.6Tbps<br>■ 8x 100Gbps per UCSX-S9108-100G, with two FI per chassis. |
| CPU complex | ■ Intel® Denverton Processor (8 core, 2.2GHz, 15W)<br>■ DDR4 memory: 16GB max @ 2133 MHz |

**Table 2 Capabilities and Features *(continued)***

| Capability/Feature | Description |
|---|---|
| Fans | The FI 9108 100G has three dual-rotor on board fans. The air flow direction is aligned with chassis air flow direction, which is front to rear.<br>The FI 9108 100G Fans have minimum RPM requirements to be compatible with the chassis/system main fans. The fans are powered from 54VDC/48VDC. Fan speed is controlled and monitored by the FI CPU using a fan controller IC. |
| Fibre Channel | FC + FCoE |
| Unified Ports | 2 (1-2) |
| Power Supply | Power supplied by chassis |
| Power consumption | 237W |
| Management | ■ Cisco Intersight software (SaaS, Virtual Appliance and Private Virtual Appliance)<br>■ UCS Manager (UCSM) 4.3(4b) or later<br>■ Intersight Managed Mode (IMM) 4.3(4) or later |
| Unified Fabric | ■ Decreases total cost of ownership (TCO) by reducing the number of NICs, HBAs, switches, and cables needed<br>■ Support Fibre Channel and Ethernet traffic concurrently in a Unified Fabric<br>■ Increases flexibility with a range of interconnect solutions, including copper Twinax cable for short runs and fiber for long runs<br>■ Consumes less power per port than traditional solution |
| Expandability | ■ 1x Cisco UCS X9508 Chassis with UCS 9108-100G Intelligent Fabric Module and up to 8x compute nodes M6/M7/M8 + 4x Cisco UCS C2xx M7/M8 Rack Server.<br>■ SW version for 2nd chassis and rack server support 6.0(1b) or later |
| QSFP28-compatible ports | Allows all ports to be configured to operate in 40/100 Gigabit Ethernet mode with the transceiver options specified for use with<br>■ QSFP28-compatible ports |
| Transceivers | The Cisco UCS Fabric Interconnect 9108 100G supports a wide variety of 1/10/25/40/100 Gigabit Ethernet connectivity options using Cisco 1/10/25/40/100 Gbps modules. Unified Ports (UP) on the Cisco UCS Fabric Interconnect 9108 100G supports 10/25/40G/100G Gigabit Ethernet connectivity or a 128G FC-QSFP28 which can breakout into four 8/16/32 Gigabit Fibre Channel connection. Cisco UCS Fabric Interconnect 9108 100G provides flexible uplink port connectivity at 1G/10G/25G/40G/100G via Gigabit Ethernet transceivers and cables. Table 3 lists the supported transceiver options. |

**Table 2 Capabilities and Features *(continued)***

| Capability/Feature | Description |
|---|---|
| Performance | ■ Provides high-speed, low-latency connectivity to the Cisco UCS X-Series chassis<br>■ Provides approximately 50% reduction in end-to-end system latency (latency is less than 1 microseconds) |
| Lossless Fabric | ■ Provides a reliable, robust foundation for unifying LAN and SAN traffic on a single transport |
| Priority Flow Control (PFC) | ■ Simplifies management of multiple traffic flows over a single network link<br>■ Supports different classes of service, helping enable both lossless and classic Ethernet on the same fabric |
| Systemwide Bandwidth Management | Helps enable consistent and coherent quality of service (QoS) throughout the system |

# SUPPORTED FEATURES AND CONFIGURATIONS

*Table 3* lists the supported features and configurations of the Cisco UCS Fabric Interconnect 9108 100G with the Cisco UCS X-Series Direct.

**Table 3 Supported Features and Configurations**

| Capability/Feature | Description |
|---|---|
| Compute Nodes | The UCS X-Series Direct supports the X210c M6/M7/M8, X410c M7 and X215c M8 compute nodes in the primary and secondary chassis.<br>Supports a mix of up to four Cisco UCS C-Series Rack servers, either C220 M7/M8, C240 M7/M8, C225 M8, or C245 M8. |
| PCIe Node | The UCS X-Series Direct supports the X440p/X580p PCIe node as well as the UCS 9416/9516 X-Fabric modules |
| Port Usage | The UCS Fabric Interconnect 9108 100G has eight QSFP ports. The eight QSFP ports can be configured as:<br>■ Uplink ports<br>■ Appliance ports<br>■ 1, 10, 25, 40, 100 Gbit ports<br>■ Unified port 1 + 2 with 32/64/128-Gbps FC speed per port by break-out into 4 8/16/32-Gbps FC ports (FC end-host and FC switch mode)<br>■ FCoE ports |
| Number of UCS X-Series Chassis | Overall, up to two UCS X-Series chassis are supported, including X-Direct. |
| Licensing | All QSFP ports are enabled by default and included in the perpetual license UCSX-S9108-SW. |
| Cisco UCS Fabric Interconnect 9108 100G | Two Cisco UCS Fabric Interconnect 9108 100G are required for production operation in the UCS X-Series chassis. |

# CONFIGURING the FABRIC INTERCONNECT

Follow these steps to configure the Fabric Interconnect 9108 100G:


- *STEP 1 SELECT FABRIC INTERCONNECTS, page 13*
- *STEP 2 SOFTWARE LICENSE (INCLUDED), page 14*
- *STEP 3 CHOOSE TRANSCEIVERS AND CABLES (OPTIONAL), page 15*
- *SUPPLEMENTAL MATERIAL on page 22*

# STEP 1 SELECT FABRIC INTERCONNECTS

## Choose Fabric Interconnect

The available Fabric Interconnects are listed in ***Table 4***. Each FI connects to external ToR using 8x 100G ports

**Table 4 Available Fabric Interconnect**

| Product ID (PID) | Description |
|---|---|
| **Under UCSX-M6-MLB** | |
| UCSX-S9108-100G | UCS X-Series Direct Fabric Interconnect 9108 100G |
| **Under UCSX-M7-MLB** | |
| UCSX-S9108-100G | UCS X-Series Direct Fabric Interconnect 9108 100G |
| **Under UCSX-M8-MLB** | |
| UCSX-S9108-100G | UCS X-Series Direct Fabric Interconnect 9108 100G |

The base Cisco UCS Fabric Interconnect 9108 100G does not include the following components. They must be selected during product ordering:

- Transceivers
- Cables
- Warranty Service as part of the overall Cisco UCS X-Series Direct.



**NOTE:** Use the steps on the following pages to configure the FI with the components that you want to include.

## STEP 2 SOFTWARE LICENSE (INCLUDED)

*Table 5* shows the Software License Options. This included as a default line item under FI ordering PID.

**Table 5 Software License**

| Product ID (PID) | Description |
|---|---|
| **Software License** | |
| UCSX-S9108-SW | Perpetual software license for the Cisco UCS Fabric Interconnect 9108 100G. This license activates all the ports and software features of the Cisco UCS Fabric Interconnect 9108 100G |

## STEP 3 CHOOSE TRANSCEIVERS AND CABLES (OPTIONAL)

The Cisco UCS Fabric Interconnect 9108 100G supports a wide variety of 1/10/25/40/100 Gigabit Ethernet connectivity options using Cisco 1/10/25/40/100 Gbps modules. Unified ports (UP) on the Cisco UCS Fabric Interconnect 9108 100G support 10/25/40/100 Gigabit Ethernet connectivity or 32/64/128 Gigabit FC connectivity by breakout into 4 8/16/32-Gbps FC ports.

The supported transceivers are for the UCS Fabric Interconnect 9108 100G is listed in ***Table 6***

**Table 6 UCS Fabric Interconnect 9108 100G Supported Transceivers For Uplink Connectivity**

| Product ID (PID) | Description |
|---|---|
| **QSFP28 100G Transceivers** | |
| QSFP-100G-SR4-S | 100GBASE SR4 QSFP Transceiver, MPO, 100m over OM4 MMF |
| QSFP-100G-LR4-S | 100GBASE LR4 QSFP Transceiver, LC, 10km over SMF |
| QSFP-40/100-SRBD | 100GBASE/40GBASE SR-BiDi QSFP Transceiver, LC, 100m over OM4 MMF |
| QSFP-100G-SM-SR | 100GBASE CWDM4 Lite QSFP Transceiver, 2km over SMF, 10-60C |
| QSFP-100G-SL4 | 100GBASE SL4 for up to 30M over OM4 MMF |
| QSFP-100G-DR-S | 100G QSFP28 Transceiver 100GBASE-DR, 500m SMF, duplex, LC |
| QSFP-100G-FR-S | 100G QSFP28 Transceiver 100G-FR, 2km SMF, duplex, LC |
| QSFP-100G-SR1.2 | 100G SR1.2 BiDi QSFP Transceiver, LC, 100m OM4 MMF |
| **QSFP28 100G Cables with Integrated Transceivers** | |
| QSFP-100G-CU1M | 100GBASE-CR4 Passive Copper Cable, 1m |
| QSFP-100G-CU2M | 100GBASE-CR4 Passive Copper Cable, 2m |
| QSFP-100G-CU3M | 100GBASE-CR4 Passive Copper Cable, 3m |
| QSFP-100G-CU5M | 100GBASE-CR4 Passive Copper Cable, 5m |
| QSFP-100G-AOC1M | 100GBASE QSFP Active Optical Cable, 1m |
| QSFP-100G-AOC2M | 100GBASE QSFP Active Optical Cable, 2m |
| QSFP-100G-AOC3M | 100GBASE QSFP Active Optical Cable, 3m |
| QSFP-100G-AOC5M | 100GBASE QSFP Active Optical Cable, 5m |
| QSFP-100G-AOC7M | 100GBASE QSFP Active Optical Cable, 7m |
| QSFP-100G-AOC10M | 100GBASE QSFP Active Optical Cable, 10m |
| QSFP-100G-AOC15M | 100GBASE QSFP Active Optical Cable, 15m |
| QSFP-100G-AOC20M | 100GBASE QSFP Active Optical Cable, 20m |
| QSFP-100G-AOC25M | 100GBASE QSFP Active Optical Cable, 25m |
| QSFP-100G-AOC30M | 100GBASE QSFP Active Optical Cable, 30m |

**Table 6 UCS Fabric Interconnect 9108 100G Supported Transceivers *(continued)* For Uplink**

| Product ID (PID) | Description |
|---|---|
| **QSFP28 40G Transceivers** | |
| QSFP-40G-SR4 | 40GBASE-SR4 QSFP Transceiver Module with MPO Connector |
| QSFP-40G-SR4-S | 40GBASE-SR4 QSFP Transceiver Module, MPO Conn, Enterprise-Class |
| QSFP-40G-CSR4 | QSFP 4x10GBASE-SR Transceiver Module, MPO, 300M |
| QSFP-40G-SR-BD | 40GBASE-SR-BiDi, duplex MMF (LC) |
| **QSFP 40G Cables** | |
| QSFP-H40G-ACU10M | 40GBASE-CR4 Active Copper Cable, 10m |
| QSFP-H40G-AOC2M | 40GBASE Active Optical Cable, 2m |
| QSFP-H40G-AOC3M | 40GBASE Active Optical Cable, 3m |
| QSFP-H40G-AOC5M | 40GBASE Active Optical Cable, 5m |
| QSFP-H40G-CU1M | 40GBASE-CR4 Passive Copper Cable, 1m |
| QSFP-H40G-CU2M | 40GBASE-CR4 Passive Copper Cable, 2m |
| QSFP-H40G-CU3M | 40GBASE-CR4 Passive Copper Cable, 3m |
| QSFP-H40G-CU5M | 40GBASE-CR4 Passive Copper Cable, 5m |
| **QSFP28 100G Breakout Cables with Integrated Transceivers** | |
| QSFP-4SFP25G-CU1M | 100GBASE QSFP to 4xSFP25G passive copper splitter cable, 1M |
| QSFP-4SFP25G-CU2M | 100GBASE QSFP to 4xSFP25G passive copper splitter cable, 2M |
| QSFP-4SFP25G-CU3M | 100GBASE QSFP to 4xSFP25G passive copper splitter cable, 3M |
| QSFP-4SFP25G-CU5M | 100GBASE QSFP to 4xSFP25G passive copper splitter cable, 5M |
| QSFP-4SFP10G-CU3M | QSFP to 4xSFP10G Passive Copper Splitter Cable, 3m |
| QSFP-4SFP10G-CU5M | QSFP to 4xSFP10G Passive Copper Splitter Cable, 5m |
| QSFP-4SFP10G-CU10M | QSFP to 4xSFP10G Passive Copper Splitter Cable, 10m |
| QSFP-4X10G-AOC3M | 40GBASE Active Optical QSFP to 4SFP breakout Cable, 3m |
| QSFP-4X10G-AOC5M | 40GBASE Active Optical QSFP to 4SFP breakout Cable, 5m |
| QSFP-4X10G-AOC7M | 40GBASE Active Optical QSFP to 4SFP breakout Cable, 10m |
| **SFP28 25G Cables with Integrated Transceivers** | |
| SFP-25G-SR-S | 25GBASE-SR SFP Module |
| SFP-10/25G-LR-S | 10/25GBASE-LR SFP28 Module |
| SFP-10/25G-CSR-S | Dual Rate 10/25GBASE-CSR SFP Module |

**Table 6 UCS Fabric Interconnect 9108 100G Supported Transceivers *(continued)* For Uplink**

| Product ID (PID) | Description |
|---|---|
| SFP-25G-SL | 25GBASE-SR SFP SL Module |
| SFP-10G-SR | 10GBASE-SR SFP Module |
| SFP-10G-SR-S | 10GBASE-SR SFP Module, Enterprise-Class |
| SFP-10G-LR | 10GBASE-LR SFP Module |
| SFP-10G-LR-S | 10GBASE-LR SFP Module, Enterprise-Class |
| CVR-QSFP28-SFP25G | 100G to SFP25G adapter |
| CVR-QSFP-SFP10G | QSFP 40G to SFP+ 10G adapter |
| CVR-QSFP-SFP10G + GLC-TE | 100m |
| DS-SFP-4X32G-SW | 4X 32G Optic SFP+ |

**NOTE:**

- The Fabric Interconnect 9108 100G supports 1G optics on ports 7 and 8.
- Transceiver modules and cables that are supported on a specific fabric interconnect are not always supported on all VIC adapters, I/O modules, or fabric extenders that are compatible with that fabric interconnect. Detailed compatibility matrices for the transceiver modules are available here: https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-devi ce-support-tables-list.html
- SFP-10/25G-LR-S and SFP-10/25G-CSR-S are supported only at 25G speed.
- S-class transceivers do not support FCoE at 10G and 40G speeds.
- There is no link-up when connecting X-Direct (UCSX-S9108-100G) with SFP-H25GB-CU5M/QSA28 to some of the 25G ports on N9K (C93180YC-FX). The N9K ports without link-up are 1,2,3,5,7,9, while trying all other ports on N9K will have link up. Please see https://cdetsng.cisco.com/summary/#/defect/CSCwj87577

## Caveats

- The maximum length of fiber optic runs is limited to 300 meters. This is imposed by our use of 802.3X/802.1Qbb Priority Pauses.

**NOTE:** For transceiver specifications, see the following link: https://tmgmatrix.cisco.com/?npid=6841&npid=6842&npid=6843

- You should order enough transceivers and cables to accommodate your maximum foreseeable needs.
- In order to work with DS-SFP-4x32G-SW you need to have Multimode OM4 fiber, MTP/MPO female to 4x LC 8-fiber type-b breakout cable and 8/16/32G FC SW SFP

The supported transceivers and cables for connectivity from UCS FI 9108 100G to second X-Series chassis with UC S9108 100G IFM are listed in ***Table 7***

**Table 7 UCS Fabric Interconnect 9108 100G Supported Transceivers and Cables for second chassis support**

| Product ID (PID) | Description |
|---|---|
| QSFP-100G-SR4-S | 100GBASE SR4 QSFP Transceiver, MPO, 100m over OM4 MMF |
| QSFP-100G-LR4-S | 100GBASE LR4 QSFP Transceiver, LC, 10km over SMF |
| QSFP-100G-SM-SR | 100GBASE CWDM4 Lite QSFP Transceiver, 2km over SMF, 10-60C |
| QSFP-100G-SL4 | 100GBASE QSFP Short Link Transceivers, 30m reach over OM4 MMF |
| QSFP-100G-SR1.2 | 100G SR-BiDi QSFP Transceiver, LC, 100m OM4 MMF |
| QSFP-40/100-SRBD | 100G and 40GBASE SR-BiDi QSFP Transceiver, LC, 100m OM4 MMF |
| QSFP-100G-DR-S | 100GBASE DR QSFP Transceiver, 500m over SMF |
| QSFP-100G-FR-S | 100GBASE-FR1 QSFP Transceiver, 2km over SMF |
| QSFP-100G-PSM4-S | 100GBASE PSM4 QSFP Transceiver, MPO, 500m over SMF |
| QSFP-100G-CU1M | 100GBASE-CR4 Passive Copper Cable, 1-meter |
| QSFP-100G-CU2M | 100GBASE-CR4 Passive Copper Cable, 2-meter |
| QSFP-100G-CU3M | 100GBASE-CR4 Passive Copper Cable, 3-meter |
| QSFP-100G-CU5M | 100GBASE-CR4 Passive Copper Cable, 5-meter |
| QSFP-100G-AOC2M | 100G QSFP Active Optical Cable, 2-meter |
| QSFP-100G-AOC3M | 100G QSFP Active Optical Cable, 3-meter |
| QSFP-100G-AOC5M | 100G QSFP Active Optical Cable, 5-meter |
| QSFP-100G-AOC7M | 100G QSFP Active Optical Cable, 7-meter |
| QSFP-100G-AOC10M | 100G QSFP Active Optical Cable, 10-meter |
| QSFP-100G-AOC15M | 100G QSFP Active Optical Cable, 15-meter |
| QSFP-100G-AOC20M | 100G QSFP Active Optical Cable, 20-meter |
| QSFP-100G-AOC25M | 100G QSFP Active Optical Cable, 25-meter |
| QSFP-100G-AOC30M | 100G QSFP Active Optical Cable, 30-meter |

The supported transceivers and cables for connectivity from UCS FI 9108 100G to Cisco UCS C-Series Rack Servers are listed in ***Table 8***.

**Table 8 UCS Fabric Interconnect 9108 100G Supported Transceivers and Cables for rack server support**

| Product ID (PID) | Description |
|---|---|
| QSFP-100G-SR4-S (25G default rate) | 100G QSFP28 SR4, MPO-12 connector, 100m reach on MMF (OM3/OM4/OM5), 4x25G optical breakout via MPO12-x4LC external MMF cable to SFP-25G-SR-S/SFP-25G-SL/SFP-10/25G-CSR-S |
| QSFP-100G-SL4 (25G default rate) | 100G QSFP28 SL4, MPO-12 connector, 30m reach on MMF, 4x25G optical breakout via MPO12-x4LC external MMF cable to SFP-25G-SR-S/SFP-25G-SL/SFP-10/25G-CSR-S |
| QSFP-100G-PSM4-S (25G default rate) | 100G QSFP28 PSM4, MPO-12 connector, 500m reach on SMF, 4x25G optical breakout via MPO12-x4LC external SMF cable to SFP-25G-LR-S |
| QSFP-40/100G-SRBD | 40/100G SR BiDi, duplex LC connector, 100m reach on MMF, supports dual 40/100G operation (100G default rate) |
| QSFP-100G-SR1.2 | 100G SR1.2 BiDi, duplex LC connector, 100m reach on MMF, supports breakout to 4x25G, reuses duplex LC MMF infrastructure |
| QSFP-100G-LR4-S | 100G LR4, duplex LC connector, 10km reach on SMF |
| QSFP-100G-DR-S | 100G DR, single-mode fiber, 500m reach |
| QSFP-100G-FR-S | 100G FR, single-mode fiber, 2km reach |
| QSFP-100G-SM-SR | 100G SM SR, single-mode fiber, short reach |
| QSFP-100G-CU1M | 100G Passive Copper Twinax cable, 1 meter length |
| QSFP-100G-CU2M | 100G Passive Copper Twinax cable, 2 meters length |
| QSFP-100G-CU3M | 100G Passive Copper Twinax cable, 3 meters length |
| QSFP-100G-CU5M | 100G Passive Copper Twinax cable, 5 meters length |
| QSFP-4SFP25G-CU1M | QSFP to 4x SFP25G Passive Copper breakout cable, 1 meter length |
| QSFP-4SFP25G-CU2M | QSFP to 4x SFP25G Passive Copper breakout cable, 2 meters length |
| QSFP-4SFP25G-CU3M | QSFP to 4x SFP25G Passive Copper breakout cable, 3 meters length |
| QSFP-4SFP25G-CU5M | QSFP to 4x SFP25G Passive Copper breakout cable, 5 meters length |
| QSFP-100G-AOC1M | 100G Active Optical Cable (AOC), 1 meter length |
| QSFP-100G-AOC2M | 100G Active Optical Cable (AOC), 2 meters length |
| QSFP-100G-AOC3M | 100G Active Optical Cable (AOC), 3 meters length |
| QSFP-100G-AOC5M | 100G Active Optical Cable (AOC), 5 meters length |
| QSFP-100G-AOC7M | 100G Active Optical Cable (AOC), 7 meters length |
| QSFP-100G-AOC10M | 100G Active Optical Cable (AOC), 10 meters length |

**Table 8 UCS Fabric Interconnect 9108 100G Supported Transceivers and Cables for rack server support**

| Product ID (PID) | Description |
|---|---|
| QSFP-100G-AOC15M | 100G Active Optical Cable (AOC), 15 meters length |
| QSFP-100G-AOC20M | 100G Active Optical Cable (AOC), 20 meters length |
| QSFP-100G-AOC25M | 100G Active Optical Cable (AOC), 25 meters length |
| QSFP-100G-AOC30M | 100G Active Optical Cable (AOC), 30 meters length |
| SFP-25G-SR-S | 25G SFP28 SR, multimode fiber, 100m reach |
| SFP-25G-SL | 25G SFP28 SL, multimode fiber, 30m reach |
| SFP-25G-CSR-S | 25G SFP28 CSR, multimode fiber, 300m/400m reach |
| SFP-25G-LR-S | 25G SFP28 LR, single-mode fiber, 10km reach |
| SFP-H25G-CU1M | 25G Passive Copper Twinax cable, 1 meter length |
| SFP-H25G-CU2M | 25G Passive Copper Twinax cable, 2 meters length |
| SFP-H25G-CU3M | 25G Passive Copper Twinax cable, 3 meters length |
| SFP-H25G-CU4M | 25G Passive Copper Twinax cable, 4 meters length |
| SFP-H25G-CU5M | 25G Passive Copper Twinax cable, 5 meters length |
| SFP-25G-AOC1M | 25G Active Optical Cable (AOC), 1 meter length |
| SFP-25G-AOC2M | 25G Active Optical Cable (AOC), 2 meters length |
| SFP-25G-AOC3M | 25G Active Optical Cable (AOC), 3 meters length |
| SFP-25G-AOC4M | 25G Active Optical Cable (AOC), 4 meters length |
| SFP-25G-AOC5M | 25G Active Optical Cable (AOC), 5 meters length |
| SFP-25G-AOC7M | 25G Active Optical Cable (AOC), 7 meters length |
| SFP-25G-AOC10M | 25G Active Optical Cable (AOC), 10 meters length |



**NOTE:**

- The 100G QSFP transceivers such as QSFP-100G-SR4-S, QSFP-100G-SL4, and QSFP-100G-PSM4-S support both QSFP-to-QSFP (Q to Q) and QSFP-to-4xSFP25G (Q to 4S) breakout modes using MPO12-x4LC external cables to corresponding 25G SFP transceivers at the breakout end.
- The QSFP-100G-SR1.2 BiDi transceiver allows reuse of existing duplex LC MMF infrastructure and supports breakout to 4x25G.
- Passive copper cables (CU) are available in various fixed lengths for direct attach copper connections.
- Active Optical Cables (AOC) provide longer reach and lighter weight compared to copper cables, available in multiple lengths.
- 25G transceivers and cables are designed for connectivity from JP (line card) with QSA28 adapters to VIC (server or leaf), supporting smooth migration and breakout from 100G QSFP ports.

# SUPPLEMENTAL MATERIAL

## Cisco UCS X-Series Direct Connectivity

The LAN connectivity from the Cisco UCS Fabric Interconnect 9108 100G to the ToR switch is shown in ***Figure 4*** and ***Figure 5***

**Figure 4 LAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G and vPC in End-Host mode**

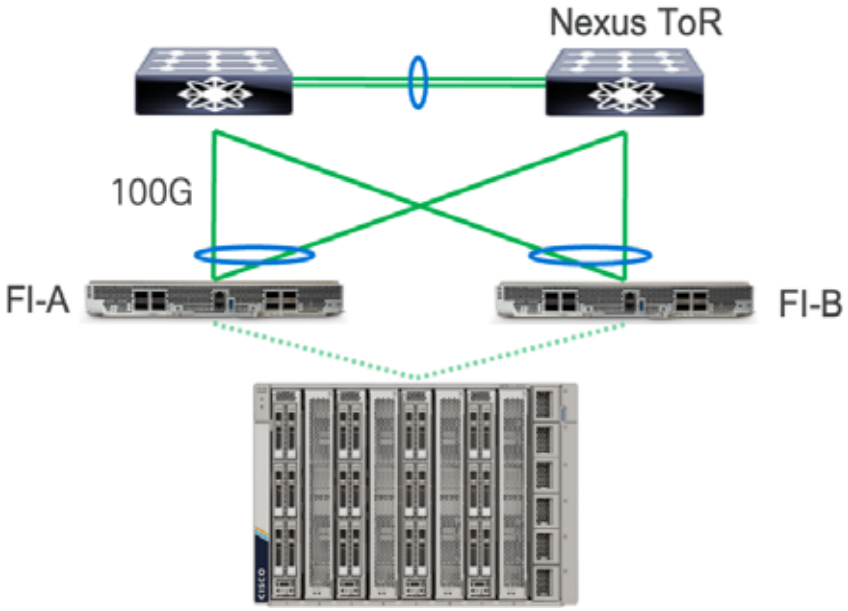
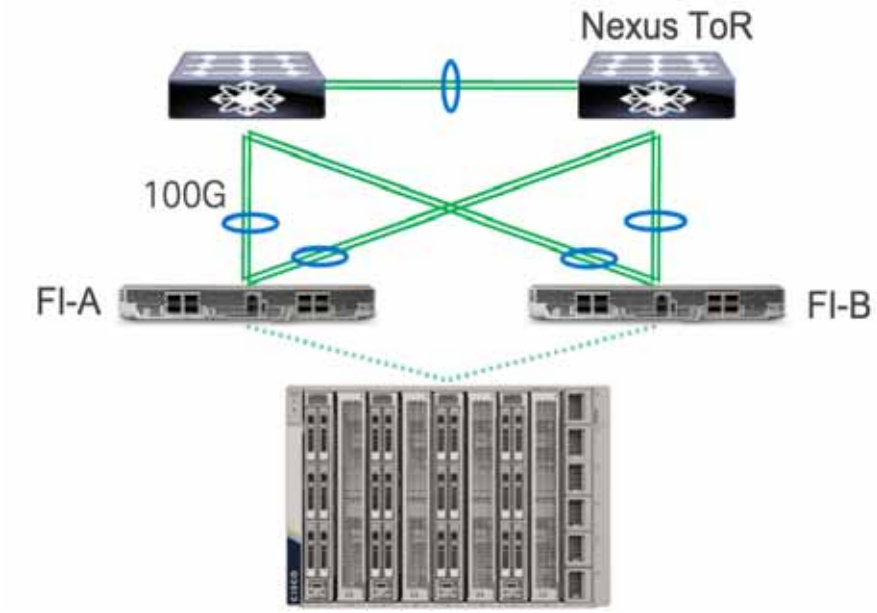



**Figure 5 LAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G but without vPC in end-host mode**



The SAN connectivity from the Cisco UCS Fabric Interconnect 9108 100G to a Cisco MDS or non-MDS switch is shown in ***Figure 6***, ***Figure 7*** and ***Figure 8***

**Figure 6 SAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G and FC end-host or switch mode (Cisco MDS)**

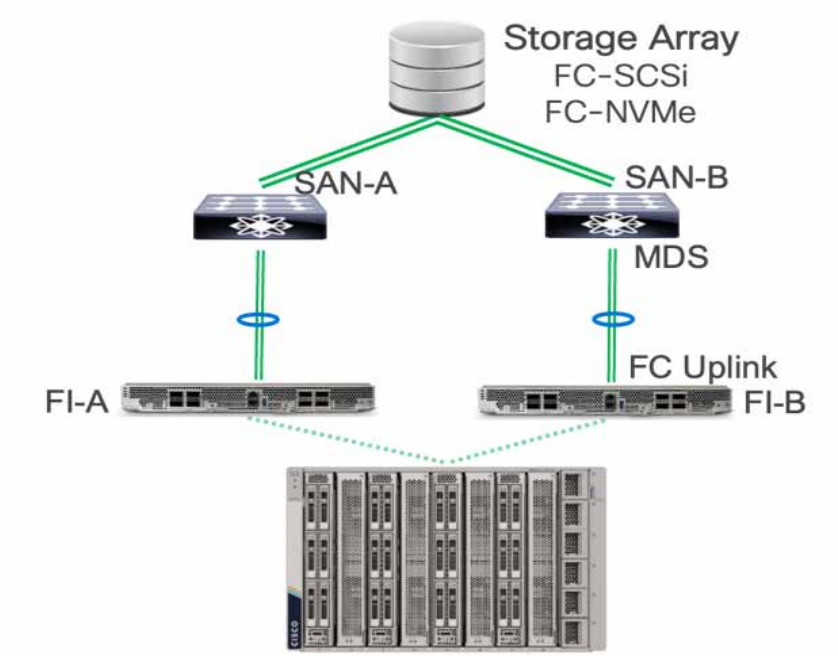



**Figure 7 SAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G and FC end-host mode (non-Cisco MDS)**

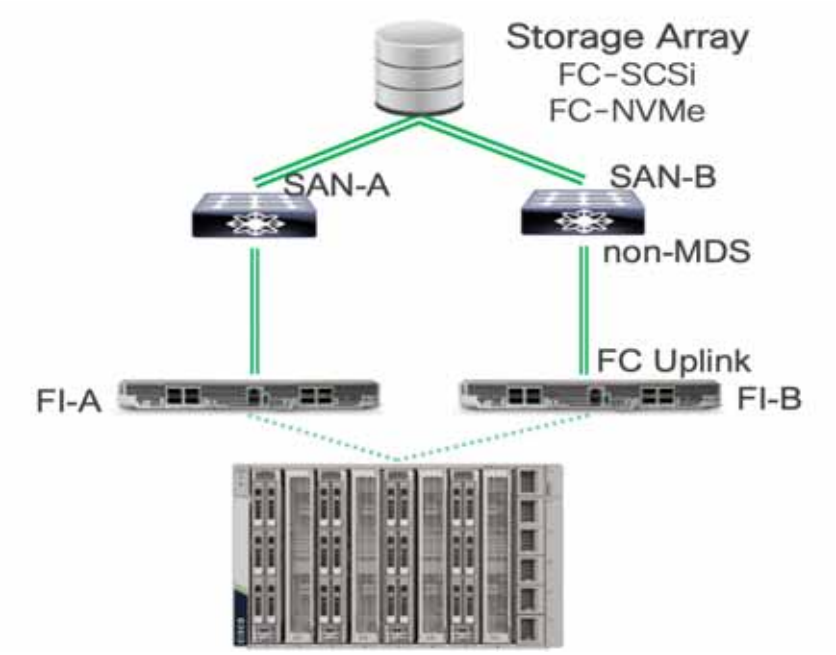
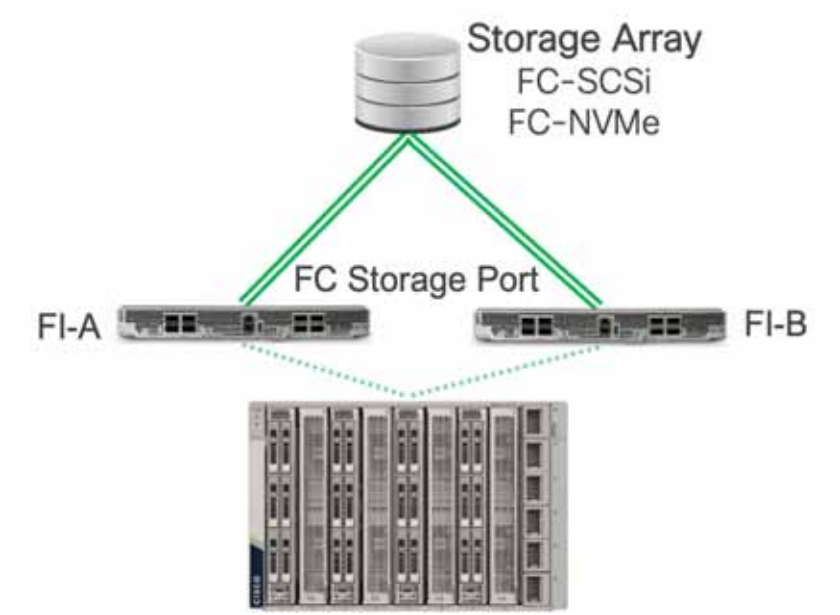


**Figure 8 SAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G and FC switch mode (direct attached)**



The IP-SAN connectivity from the Cisco UCS Fabric Interconnect 9108 100G is shown in, ***Figure 9*** and ***Figure 10***

**Figure 9 IP-SAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G**

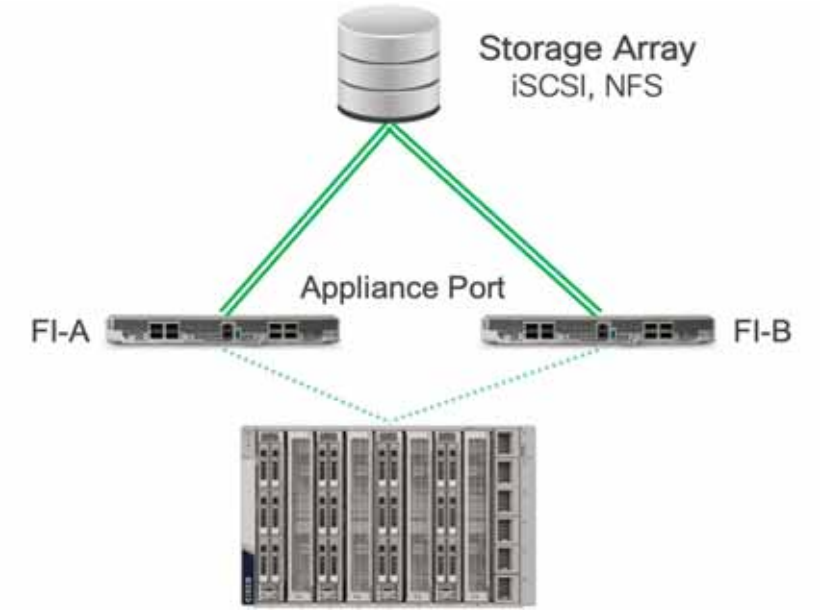
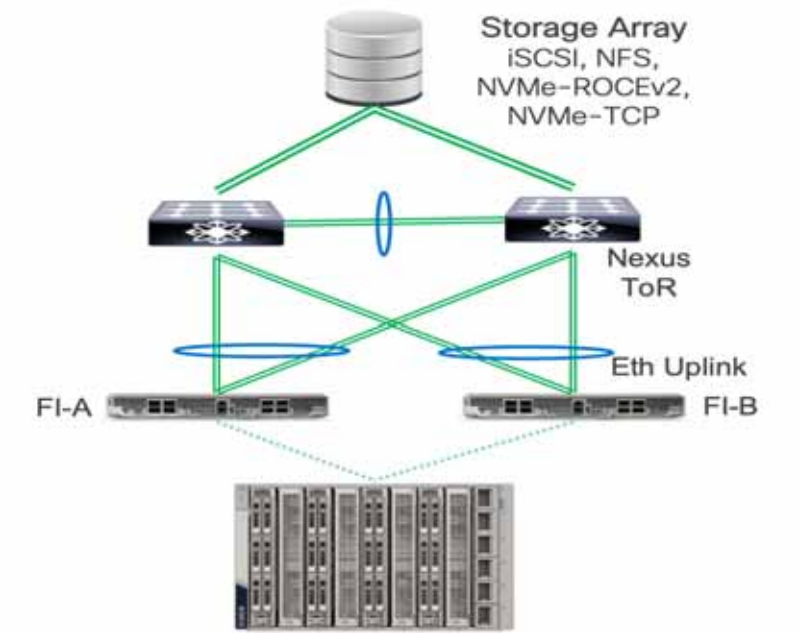



**Figure 10 IP-SAN Connectivity with Cisco UCS Fabric Interconnect 9108 100G and Appliance Port through ToRs in vPC Port Channel configuration**



## Connectivity Between M6/M7/M8 Compute Node and UCS Fabric Interconnect 9108 100G

*Figure 11* and *Figure 12* shows the network connectivity from the 25G mLOM out to the Cisco UCS Fabric Interconnect 9108 100G.

**Figure 11 Dual-VIC Network Connectivity mLOM 25G to FI**

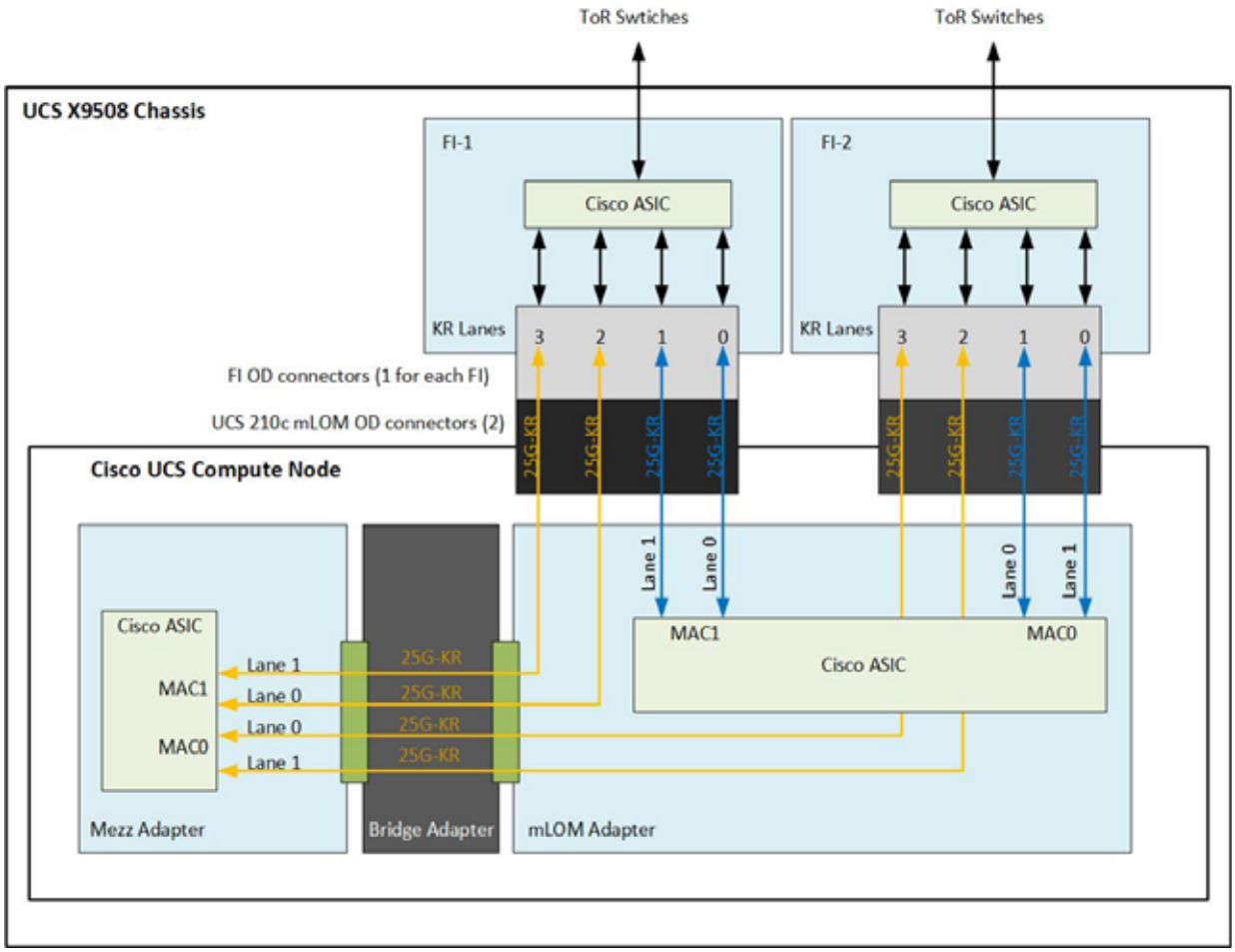


**Figure 12 Single-VIC Network Connectivity mLOM 25G to FI**

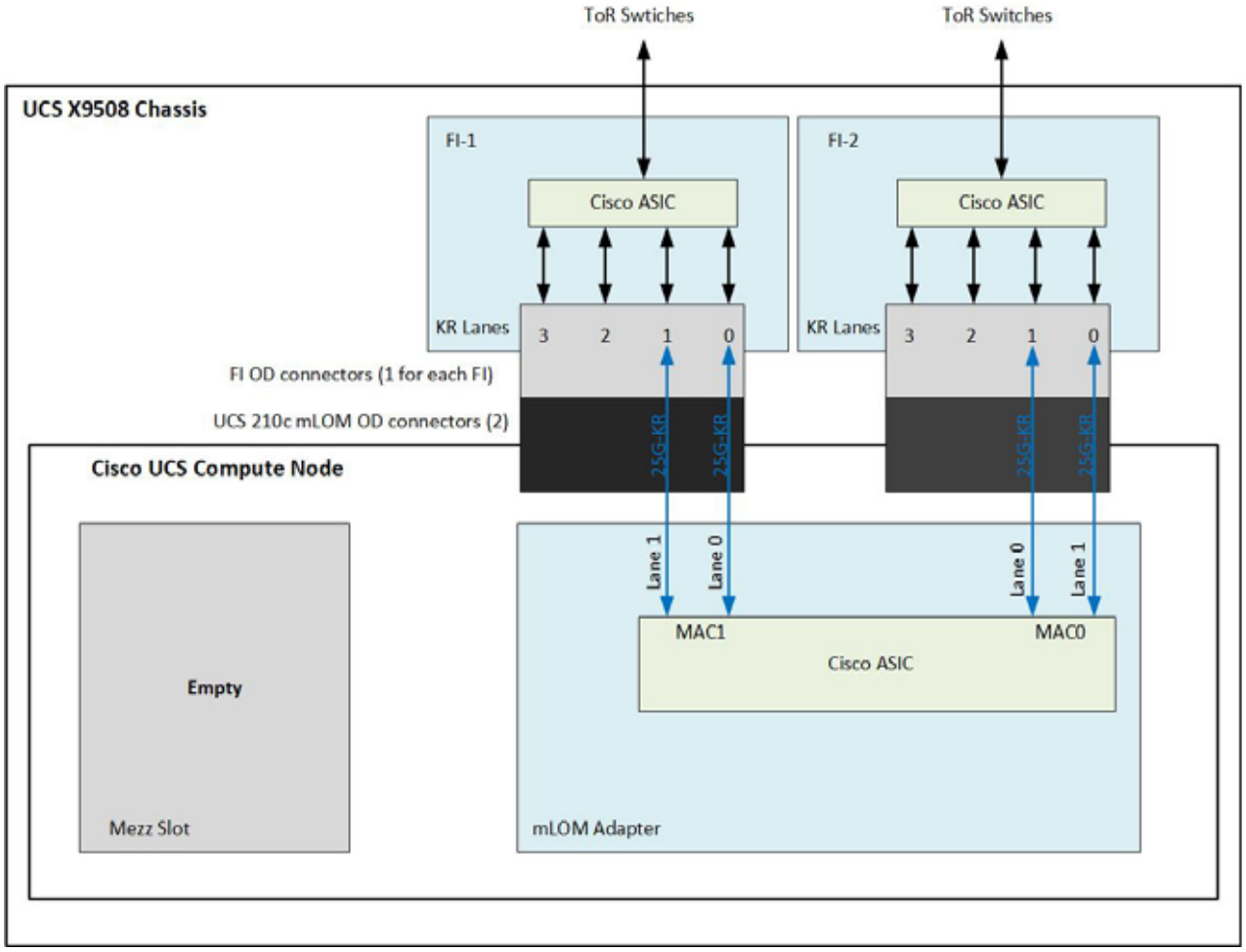
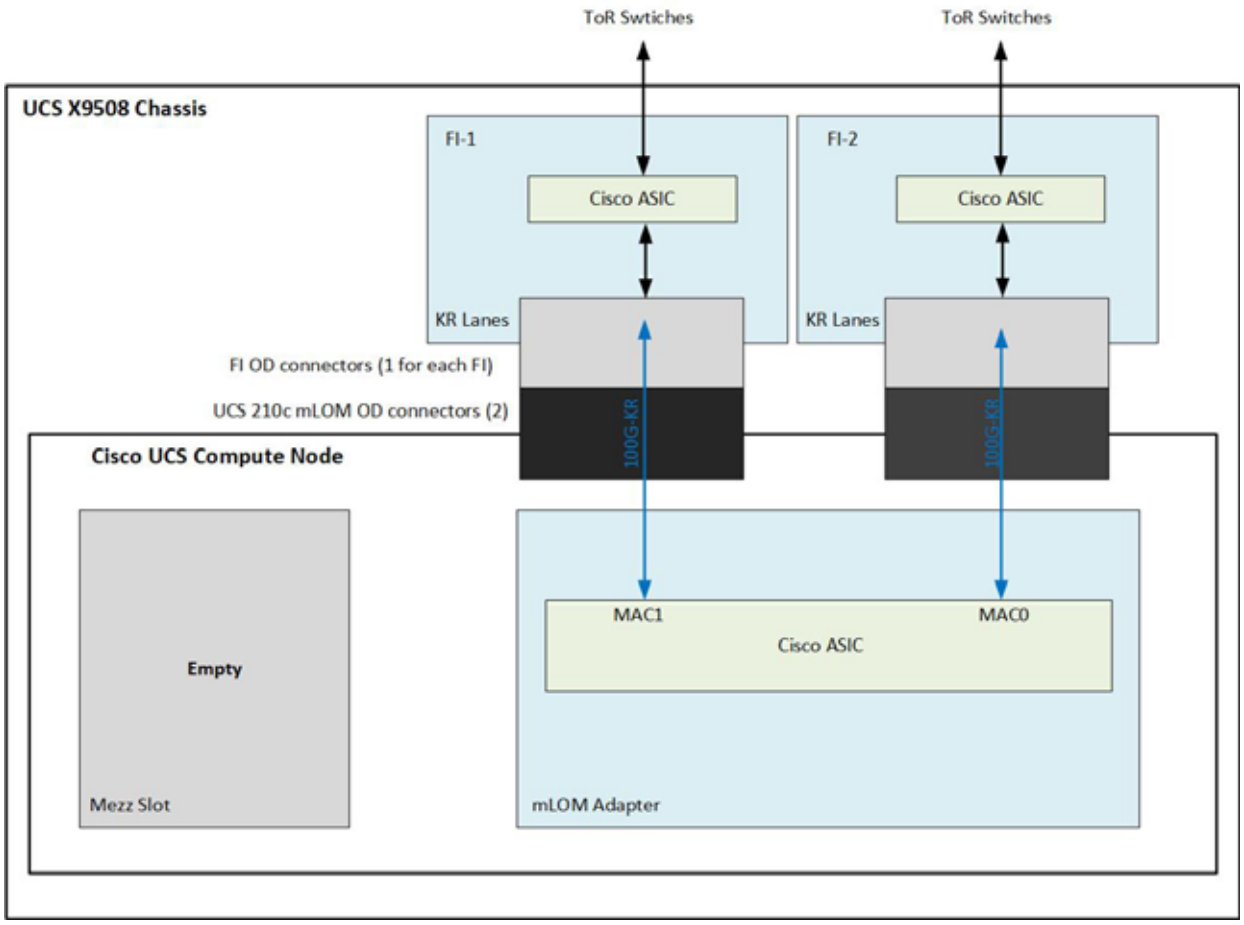


*Figure 13* shows the network connectivity from the 100G mLOM out to the Cisco UCS Fabric Interconnect 9108 100G.

**Figure 13 Network Connectivity mLOM 100G to FI**



# TECHNICAL SPECIFICATIONS

## Physical Dimensions and Specifications

The physical and Environmental specifications for the for the Cisco UCS Fabric Interconnect 9108 100G are listed in listed in ***Table 9***

**Table 9 Physical and Environmental Specifications**

| Description | Specification |
|---|---|
| **Cisco UCS Fabric Interconnect 9108 100G** | |
| Dimensions (H x W x D) | 1.67 in, x 14.93 in x 11.76 in. (4.2 cm x 37.9 cm x 29.9 cm) |
| Weight | 8.42 lb (3.82 kg) |
| Temperature, operating | 50° to 95°F (10 to 35°C) |
| Temperature, non-operating | -40 to 158°F (-40 to 70°C) |
| Humidity (RH), non-condensing | 5 to 95% |
| Altitude | 0 to 13,123 ft (0 to 4000 m) |

## Compliance Specifications

The regulatory standards compliance (safety and EMC) specifications ***Table 10***.

**Table 10 The regulatory standards compliance (safety and EMC) specifications**

| Parameter | Description |
|---|---|
| Regulatory compliance | Products comply with CE Markings per directives 2004/108/EC and 2006/108/EC |
| Safety | ■ UL 60950-1<br>■ CAN/CSA-C22.2 No. 60950-1<br>■ EN 60950-1<br>■ IEC 60950-1<br>■ AS/NZS 60950-1<br>■ GB4943 |
| EMC: Emissions | ■ 47CFR Part 15 (CFR 47) Class A (FCC Class A)<br>■ AS/NZS CISPR22 Class A<br>■ CISPR2 2 Class A<br>■ EN55022 Class A<br>■ ICES003 Class A<br>■ VCCI Class A<br>■ EN61000-3-2<br>■ EN61000-3-3<br>■ KN22 Class A<br>■ CNS13438 Class A |
| EMC: Immunity | ■ EN50082-1<br>■ EN61000-6-1<br>■ EN55024<br>■ CISPR24<br>■ EN300386<br>■ KN 61000-4 Series |

## System Requirements

The system requirements are listed in ***Table 11***.

**Table 11 System requirements**

| Item | Requirement |
|---|---|
| X-Series chassis | Cisco UCS X9508 Chassis for Compute resources |
| Cisco Intersight or Cisco UCS Manager | Cisco Intersight Managed Mode or Cisco UCS Manager for management |


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