Overview

This chapter contains the following topics:

Cisco UCS X-Series Direct Fabric Interconnect 9108 100G Overview

The Cisco UCS X-Series Direct Fabric Interconnect 9108 100G (UCSX-S9108-100G) is a modular fabric interconnect system designed for the Cisco UCS X9508 server chassis. The Cisco UCS X-Series Direct Fabric Interconnect 9108 100G ("fabric interconnect" or "fabric interconnect module" in this document) is part of the overall Cisco UCS X-Series Direct solution, which consists of the fabric interconnect plus additional Cisco equipment that enables end-to-end connectivity.

Deployed in pairs, the fabric interconnect offers robust and scalable networking, compute, storage, and GPU acceleration in a smaller physical form factor that can replace a standalone Cisco UCS Fabric Interconnect. The fabric interconnect module is designed for cost, power, and physical space savings in less extensive applications, for example:

- at the network edge

- deployments of up to 8 blade servers or compute nodes.

The X-Series Direct supports the following:

- Eight QSFP ports (1 through 8) capable of up to 100 Gbps including two unified ports (1 and 2).

- CPU: Intel Atom® C3000 processor series System on a Chip (SOC), 2.2 GHz, 8 cores. One CPU is supported per UCS X-Series Direct Fabric Interconnect.

- Uplink Ports: Total of eight physical ports that can be configured as a mix of Fibre Channel and Ethernet to connect to ToR switches. The first two ports are unified ports to provide flexibility between Fibre Channel and Gigabit Ethernet, and 6 ports are dedicated Ethernet.

  - Fibre Channel: A maximum of two uplinks configured through total of 8 break-out ports supporting either 8, 16 or 32 Gbps each fibre-channel ports. Fibre Channel ports support breakout to a maximum of eight ports, four breakout ports for each physical FC port.

- Ethernet: Depending on the port speed configured on the physical port, Ethernet uplinks are supported as follows:

  - For 10G or 25G, a maximum of eight ports. Breakout ports or single QSA transceivers are supported.

  - For 100G, a maximum of eight ports. Because all eight ports support 100G Ethernet, Ethernet port breakout is not required.

  - For 1G, a maximum of two ports (ports seven and eight only). QSA is supported. For information about the port locations and identifiers, see Fabric Interconnect Front Panel, on page 2.
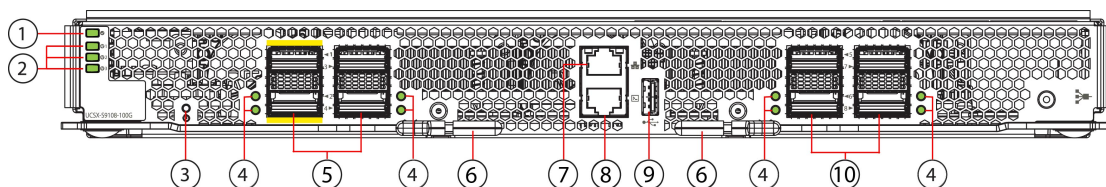
  For more information, see Fabric Interconnect Port Configuration.

- 32 GB Flash Memory

- 16 GB DRAM

- Three fans for optimal cooling

- A boot-optimized mini-storage module consisting of one M.2 240G SATA SSD, with no RAID support.

- Local console connectivity: RS-232 Serial Console port (RJ45 connector)

- Bootup and system firmware log retrieval: USB 2.0 port Type-A connector

- Management connectivity: One 10/100/1000 Mbps management port

The fabric interconnect is always deployed in pairs in a Cisco UCS X9508 modular system. The UCS X-Series Direct system cannot operate with only one fabric interconnect.

Fabric Interconnect Front Panel

The Cisco UCS X-Series Direct Fabric Interconnect 9108 100G front panel contains system LEDs that provide visual indicators for how the overall fabric interconnect is operating. Physical ports are also supported for network and storage connectivity through scale-out connections with ToR switches or direct connection to servers.

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1	Status LED	2	Fan Status LEDs
	The LED provides a visual indicator about the status of the fabric interconnect. For more information, see Interpreting LEDs, on page 4.		LEDs are stacked vertically, with each LED corresponding to a fan. Fan 1 is the top LED, Fan 2 is the middle LED, and Fan 3 is the bottom LED.
			For more information, see Interpreting LEDs, on page 4.
3	Reset Button	4	Port Link and Port Activity LEDs
			For more information, see Interpreting LEDs, on page 4.
5	Uplink Ports one through four. Ports are numbered vertically starting with the top left port as port 1. Ports one and two (indicated with the yellow highlighting) are 100 Gbps Unified ports which can be configured as: • Ethernet uplink, 10/25/40/100 Gbps • Fibre Channel uplink, 8/16/32 Gbps • Appliance • Fibre Channel over Ethernet (FCoE) Uplink • Fibre Channel storage Ports 3 and 4 are 100 Gbps Ethernet only, which can be configured as: • 10/25/40/100 Gbps Ethernet Uplink • Appliance • Fibre Channel over Ethernet (FCoE) Uplink	6	Ejector handles, one per ejector.

7	OAM Ethernet Port, 10/100/1000 Mbps RJ-45 for out-of-band (OOB) management.	8	RJ-45 Console Port (RS-232 Serial Console)
	This port is used for Cisco UCS management applications, such as Cisco UCS Manager or Cisco Intersight.		Used for initial system configuration and troubleshooting the fabric interconnect.
	For more information, see Interpreting LEDs, on page 4.		For more information, see Interpreting LEDs, on page 4.
9	USB 2.0 port	10	Ethernet Ports, five through eight
	Can be used for system booting, firmware upgrades, or log retrieval.		Ports are numbered vertically starting with the top left port as port 5.
			• Ports 5 through 8 support 10/25/40/100 Gbps Ethernet uplinks.
			• Also, ports seven and eight support 1 Gbps Ethernet uplinks
			• Appliance

Interpreting LEDs

Table 1: Fabric Interconnect LEDs

LED	Color	Description
Fabric Interconnect Status	Green	The fabric interconnect is receiving power and operational.
	Flashing Amber	The fabric interconnect is booting up.
	Solid Amber	Temperature exceeds the minor alarm threshold.
	Red	Temperature exceeds the major alarm threshold.
	Dark	The fabric interconnect is not receiving power.
Fan Status	Green	The fan module is operational.
	Red	The fan module is not operational (fan is probably not functional).
	Dark	Fan module is not receiving power.

Table 2: Fabric Interconnect Data Port LEDs

LED	Color	Description
Ports, Ethernet and Fibre Channel	Green	Port admin state is 'Enabled', SFP is present, and the interface is connected (that is, cabled, and the link is up).
	Amber	Port admin state is 'Disabled, or the SFP is absent, or both
	Dark	Port admin state is 'Enabled' and SFP is present, but interface is not connected.

Table 3: Fabric Interconnect Management and Console Port LEDs

LED	Color	Description
Management Port and Console Port Link LED	Solid Green	Physical Link detected
	Dark	No Physical Link Detected
Management Port and Console Port Activity LED	Blinking Green	Activity
	Dark	No Activity

Port Type Details

The following tables show the port type, protocol support, and port role of the ports on the fabric interconnect.

Port	Port Type				Protocol Support			Port Role				
	1 GigE QSA	10/25 GigE Break-out QSA, or QSA 28	40/100 GigE	4x 8/16/32 Gbps FC Break-out	Ethernet	Fibre Channel (FC)	Fibre Channel over Ethernet (FCoE)	Uplink, Ethernet, 10/25/ 40/100 Gbps	Uplink, Fibre Chanel 8/16/32 Gbps	Uplink FCoE 10/25/ 40/100 Gbps	Appli-ance	Storage Port, FC
1 to 2	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3 to 6	No	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	No
7 to 8	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	No