Cisco UCS 6536 Fabric Interconnect (FI)
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Overview

The Cisco 6536 Fabric Interconnects are a core part of the Cisco Unified Computing System, providing both network connectivity and management capabilities for the system. The Cisco 6536 offer line-rate, low-latency, lossless 10/25/40/100 Gigabit Ethernet, Fibre Channel over Ethernet (FCoE), and Fibre Channel functions.

The Cisco UCS 6536 Fabric Interconnect provide the management and communication backbone for the Cisco UCS X-Series compute nodes, UCS X9508 X-series chassis, UCS B-Series Blade Servers, UCS 5108 B-Series Server Chassis and UCS C-Series Rack Servers. All servers attached to a Cisco UCS 6536 Fabric Interconnect become part of a single, highly available management domain. In addition, by supporting a unified fabric, Cisco UCS 6536 Fabric Interconnect provides both the LAN and SAN connectivity for all servers within its domain.

From a networking perspective, the Cisco UCS 6536 uses a cut-through architecture, supporting deterministic, low-latency, line-rate 10/25/40/100 Gigabit Ethernet ports, a switching capacity of 7.42 Tbps per FI and 14.84 Tbps per unified fabric domain, independent of packet size and enabled services. It enables 1600Gbps bandwidth per X9508 chassis per domain with a X9108-IFM-100G in addition to enabling end-to-end 100G ethernet and 200G aggregate bandwidth per X210c compute node. With X9108-IFM-25G and IOM 2408, it enables 400Gbps bandwidth per chassis per FI domain. The product family supports Cisco low-latency, lossless 10/25/40/100 Gigabit Ethernet unified network fabric capabilities, which increase the reliability, efficiency, and scalability of Ethernet networks. The fabric interconnect supports multiple traffic classes over a lossless Ethernet fabric from the server through the fabric interconnect. Significant TCO savings come from Cisco's unified fabric design in which Network Interface Cards (NICs), Host Bus Adapters (HBAs), cables, and switches can be consolidated.
Cisco UCS 6536 Fabric Interconnect

The Cisco UCS 6536 36-Port Fabric Interconnect (Figure 1) is a One-Rack-Unit (1RU) 10/25/40/100 Gigabit Ethernet, FCoE, and Fibre Channel switch offering up to 7.42 Tbps throughput and up to 36 ports. The switch has 32 40/100-Gbps Ethernet ports and 4 unified ports that can support 40/100-Gbps Ethernet ports or 16 Fiber Channel ports after break-out at 8/16/32-Gbps FC speeds. The 16 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 36 ports can breakout for 10/25-Gbps Ethernet connectivity. All Ethernet ports are capable of supporting FCoE.

The Cisco UCS 6536 Fabric Interconnect also has one network management port, one console port for setting the initial configuration, and one USB port for saving or loading configurations. The FI also includes L1/L2 ports for connecting two fabric interconnects for high availability.

The 36-port chassis is shown in Figure 1.

Figure 1  Cisco UCS Fabric Interconnect 6536 (1RU)

Front View

Rear View
**Detailed Front View**

The Cisco UCS 6536 front view shown in Figure 2.

**Figure 2  Front View of 6536**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC/DC power supplies power supply modules (1 or 2)</td>
</tr>
<tr>
<td>2</td>
<td>Six fan modules (hot swappable)</td>
</tr>
<tr>
<td>3</td>
<td>Layer 2 (L2) Ethernet port, 10/100/1000 Mb autonegotiating. Supports high availability (HA) or clustering</td>
</tr>
<tr>
<td>4</td>
<td>Layer 1 (L1) Ethernet port, 10/100/1000Mb autonegotiating. Supports high availability (HA) or clustering.</td>
</tr>
<tr>
<td>5</td>
<td>Ethernet network management port (RJ45), 10/100/1000Mb autonegotiating</td>
</tr>
<tr>
<td>6</td>
<td>RS-232 Serial Console port (RJ45 connector), 9600 baud.</td>
</tr>
<tr>
<td>7</td>
<td>USB 3.0/2.0 port Supports booting the system and downloading scripts.</td>
</tr>
<tr>
<td>8</td>
<td>Beacon (BCN) LED</td>
</tr>
<tr>
<td>9</td>
<td>Status (STS) LED - -</td>
</tr>
</tbody>
</table>

The front LED indicators are described in the following sections.
Power Supply LEDs

The power supply LEDs are located on the left front portion of the power supply. Combinations of states indicated by the Power On (✓) and Error (⚠️) LEDs indicate the status for the module as shown in Table 1.

Table 1 Power Supply LED States

<table>
<thead>
<tr>
<th>Power on LED</th>
<th>Error LED</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Off</td>
<td>Power supply is on and outputting power to the switch.</td>
</tr>
<tr>
<td>Flashing green</td>
<td>Off</td>
<td>Power supply is connected to a power source but not outputting power to the switch—power supply might not be installed in the chassis.</td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>Power supply is not receiving power.</td>
</tr>
<tr>
<td>Green</td>
<td>Flashing amber</td>
<td>Power supply warning—possibly one of the following conditions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Power supply installed in chassis but not connected to a power source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Slow power supply fan</td>
</tr>
<tr>
<td>Flashing green</td>
<td>Amber</td>
<td>Power supply failure—possibly one of the following conditions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Over voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Over current</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Over temperature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Power supply fan failure</td>
</tr>
</tbody>
</table>

Management Port LEDs

The management port LED states (see Figure 2 on page 3) are shown in Table 2.

Table 2  Management Port LED States

<table>
<thead>
<tr>
<th>LED Position</th>
<th>LED State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td>Solid green</td>
<td>Physical link</td>
</tr>
<tr>
<td>Right</td>
<td>Off</td>
<td>No activity</td>
</tr>
<tr>
<td></td>
<td>Blinking green</td>
<td>Activity</td>
</tr>
</tbody>
</table>

Beacon and System Status LEDs

The beacon and system status LED states (see Figure 2 on page 3) are shown in Table 3.

Table 3  Beacon and System Status LED States

<table>
<thead>
<tr>
<th>LED</th>
<th>Location</th>
<th>Function</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beacon LED</td>
<td>Front and rear</td>
<td>Identify selected chassis</td>
<td>Blue</td>
<td>Solid on</td>
<td>Chassis is selected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Off</td>
<td>Chassis is not selected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green</td>
<td>Solid on</td>
<td>Normal operation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Off</td>
<td>System is powered off</td>
</tr>
<tr>
<td>System status LED</td>
<td>Front and rear</td>
<td>System power/health during boot up and run time</td>
<td>Amber</td>
<td>On</td>
<td>System fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Red</td>
<td>Solid on</td>
<td>Power shut down by software</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blinking</td>
<td>Secure boot validation has failed</td>
</tr>
</tbody>
</table>

L1/L2 Port LEDs

The L1/L2 port LED states (see Figure 4 on page 7) are shown in Table 4.

Table 4  L1/L2 Port LED States

<table>
<thead>
<tr>
<th>LED Position</th>
<th>LED State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td>Solid green</td>
<td>Physical link</td>
</tr>
<tr>
<td>Right</td>
<td>Off</td>
<td>No activity</td>
</tr>
<tr>
<td></td>
<td>Blinking green</td>
<td>Activity</td>
</tr>
</tbody>
</table>
Detailed Rear View

*Figure 3* is an overall rear view of the Cisco UCS 6536 Fabric Interconnect.

**Figure 3**  6536 36-port Fabric Interconnect Chassis Overall Rear View

<table>
<thead>
<tr>
<th>1</th>
<th>Ports 1-8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>■ 40/100 Gbps Ethernet or FCoE ports only</td>
</tr>
<tr>
<td></td>
<td>■ 10/25 Gbps Ethernet via breakout, QSA or QSA28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Ports 9-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>■ 1 Gbps Ethernet via QSA</td>
</tr>
<tr>
<td></td>
<td>■ 40/100 Gbps Ethernet or FCoE ports only</td>
</tr>
<tr>
<td></td>
<td>■ 10/25 Gbps Ethernet via breakout, QSA or QSA28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Ports 11-32</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>■ 40/100 Gbps Ethernet or FCoE ports only</td>
</tr>
<tr>
<td></td>
<td>■ 10/25 Gbps Ethernet via breakout or QSA28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Unified 33-36</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>■ 16 x 8/16/32G FC port via breakout</td>
</tr>
<tr>
<td></td>
<td>■ 10/25/40/100 Gbps Ethernet or FCoE</td>
</tr>
<tr>
<td></td>
<td>■ 10/25 Gbps Ethernet via breakout, QSA or QSA28</td>
</tr>
</tbody>
</table>
Rear LED Indicators

The rear LED indicators are described in the following sections.

System Environment LED

The system environment LED is located on the left rear of the chassis (see Figure 3 on page 6). The LED states are shown in Table 5.

Table 5  System Environment LED States

<table>
<thead>
<tr>
<th>LED State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Amber</td>
<td>Minor fan alarm (one fan missing or failure</td>
</tr>
<tr>
<td>Solid red</td>
<td>Major fan alarm (two more fans missing or failed, or fan direction mismatch)</td>
</tr>
</tbody>
</table>

Ethernet Port (ports 1–36) LEDs

Figure 4 is an detailed view of one of the 40/100 Gbps Ethernet or FCoE ports and its LEDs.

Figure 4  Ethernet Port LEDs (ports 1-36)

The port 1–36 LED states are shown in Table 6.

Table 6  Port 1 to 36 LED States

<table>
<thead>
<tr>
<th>LED Position</th>
<th>LED State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td>Solid green</td>
<td>Physical link</td>
</tr>
<tr>
<td>Right</td>
<td>Off</td>
<td>No activity</td>
</tr>
<tr>
<td></td>
<td>Blinking green</td>
<td>Activity</td>
</tr>
</tbody>
</table>

Upper port LED  

Lower port LED  

33 △ 34
Cisco UCS 6536 Fabric Interconnect Capabilities And Features

Table 7 lists the capabilities and features of the Cisco UCS 6536 Fabric Interconnect. Details about how to configure this Fabric Interconnect series for a particular feature or capability are provided in CONFIGURING the FABRIC INTERCONNECT on page 10.

Table 7 Capabilities and Features

<table>
<thead>
<tr>
<th>Capability/Feature</th>
<th>Cisco UCS 6536 (36 Ports)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chassis</td>
<td>1RU 36-port Fabric Interconnect</td>
</tr>
<tr>
<td>Throughput</td>
<td>7.42 Tbps switching performance</td>
</tr>
<tr>
<td>Fan Modules</td>
<td>Six variable speed fans</td>
</tr>
<tr>
<td>Unified Ports</td>
<td>4 (33-36)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Two Power Supplies (AC or DC)</td>
</tr>
<tr>
<td>Management by Cisco Intersight</td>
<td>Allows all elements connected to the interconnects to participate in a single, highly available management domain</td>
</tr>
<tr>
<td>Unified Fabric</td>
<td>■ Decreases total cost of ownership (TCO) by reducing the number of NICs, HBAs, switches, and cables needed</td>
</tr>
<tr>
<td></td>
<td>■ Support Fibre Channel and Ethernet traffic concurrently in a Unified Fabric</td>
</tr>
<tr>
<td></td>
<td>■ Increases flexibility with a range of interconnect solutions, including copper Twinax cable for short runs and fiber for long runs</td>
</tr>
<tr>
<td></td>
<td>■ Consumes less power per port than traditional solution</td>
</tr>
<tr>
<td>Fabric Extender Architecture</td>
<td>■ Scales to 20 chassis without adding complexity by eliminating the need for dedicated chassis management and blade switches and by reducing the number of cables needed</td>
</tr>
<tr>
<td></td>
<td>■ Provides deterministic latency for optimized application performance</td>
</tr>
<tr>
<td>QSFP28-compatible Ports</td>
<td>Allows all ports to be configured to operate in 40/100 Gigabit Ethernet mode with the transceiver options specified for use with QSFP28-compatible ports (see Table 9 on page 13).</td>
</tr>
<tr>
<td>Transceivers</td>
<td>The Cisco UCS 6536 series FIs support a wide variety of 10/25/40/100 Gigabit Ethernet connectivity options using Cisco 10/25/40/100 Gbps modules. Unified Ports (UP) on the Cisco UCS 6536 support 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 6536 provides flexible uplink port connectivity at 1G/10G/25G/40G/100G via Gigabit Ethernet transceivers and cables. Table 3 lists the supported transceiver options.</td>
</tr>
<tr>
<td>Front-to-Back Cooling</td>
<td>Fan side intake, port side exhaust</td>
</tr>
</tbody>
</table>
Table 7 Capabilities and Features (continued)

<table>
<thead>
<tr>
<th>Capability/Feature</th>
<th>Cisco UCS 6536 (36 Ports)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redundant hot-swappable fans</td>
<td>■ Helps enable high availability in multiple configurations</td>
</tr>
<tr>
<td>and power supplies</td>
<td>■ Increases serviceability</td>
</tr>
<tr>
<td></td>
<td>■ Provides uninterrupted service during maintenance</td>
</tr>
<tr>
<td>Rear Ports</td>
<td>Helps keep cable lengths short and efficient</td>
</tr>
<tr>
<td>Performance</td>
<td>■ Provides high-speed, low-latency connectivity to the chassis</td>
</tr>
<tr>
<td></td>
<td>■ Provides approximately 50% reduction in end-to-end system latency (latency is less than 1</td>
</tr>
<tr>
<td></td>
<td>microsecond)</td>
</tr>
<tr>
<td>Lossless Fabric</td>
<td>Provides a reliable, robust foundation for unifying LAN and SAN traffic on a single transport</td>
</tr>
<tr>
<td>Priority Flow Control (PFC)</td>
<td>■ Simplifies management of multiple traffic flows over a single network link</td>
</tr>
<tr>
<td></td>
<td>■ Supports different classes of service, helping enable both lossless and classic Ethernet</td>
</tr>
<tr>
<td></td>
<td>on the same fabric</td>
</tr>
<tr>
<td>Systemwide Bandwidth</td>
<td>Helps enable consistent and coherent quality of service (QoS) throughout the system</td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
</tbody>
</table>
CONFIGURING the FABRIC INTERCONNECT

Follow these steps to configure the Cisco UCS 6536 Fabric Interconnect:

- **STEP 1 VERIFY FABRIC INTERCONNECT SKU, page 11**
- **STEP 2 CHOOSE 6536 FABRIC INTERCONNECT LICENSES, page 12**
- **STEP 3 CHOOSE TRANSCEIVERS (OPTIONAL), page 13**
- **STEP 4 CHOOSE POWER SUPPLIES, page 16**
- **STEP 5 SELECT AC POWER CORDS, page 18**
- **STEP 6 ACCESSORY KIT (INCLUDED), page 21**
- **SUPPLEMENTAL MATERIAL, page 22**
STEP 1 VERIFY FABRIC INTERCONNECT SKU

Verify the product ID (PID) of the desired 6536 Fabric Interconnects as shown in Table 8.

Table 8 PID of the Base 6536 Fabric Interconnects

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCSX-FI-6536-U</td>
<td>Standalone model: UCS 6536 1RU Fabric Interconnect, with no PSU, with 36 Ports.</td>
</tr>
<tr>
<td>UCSX-FI-6536</td>
<td>Configured model: UCS 6536 1RU Fabric Interconnect, with no PSU, with 36 Ports.</td>
</tr>
</tbody>
</table>

The base Cisco UCS 6536 Fabric Interconnect do not include the following components. They must be selected during product ordering:

- Power supplies
- Transceivers
- Cables
- Power cords
- Warranty Services

**NOTE:** Use the steps on the following pages to order the desired Fabric Interconnect with the configurable components that you want configured in your order.
**STEP 2  CHOSEN 6536 FABRIC INTERCONNECT LICENSES**

New simplified licensing model will be enabled along with orderability.
STEP 3  CHOOSE TRANSCEIVERS (OPTIONAL)

The Cisco UCS 6536 supports a wide variety of 10/25/40/100 Gigabit Ethernet connectivity options using Cisco 10/25/40/100 Gbps modules. Unified ports (UP) on the Cisco UCS 6536 support 10/25 Gigabit Ethernet connectivity or 8/16/32 Gigabit Fibre Channel modules.

Choose Transceivers

The supported transceivers are for the UCS 6536 are listed in Table 9.

Table 9  UCS 6536 FI Supported Transceivers

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SFP 1-Gigabit Transceivers</strong></td>
<td></td>
</tr>
<tr>
<td>GLC-TE</td>
<td>1000 BASE-T SFP transceiver module for Category 5 copper wire</td>
</tr>
<tr>
<td>GLC-SX-MMD</td>
<td>1000BASE-SX short wavelength; with DOM</td>
</tr>
<tr>
<td><strong>SFP+ 10-Gbps Transceivers</strong></td>
<td></td>
</tr>
<tr>
<td>SFP-10G-SR</td>
<td>10GBASE-SR SFP Module</td>
</tr>
<tr>
<td>SFP-10G-SR-S</td>
<td>10GBASE-SR SFP Module, Enterprise-Class</td>
</tr>
<tr>
<td>SFP-10G-LR</td>
<td>10GBASE-LR SFP Module</td>
</tr>
<tr>
<td>SFP-10G-LR-S</td>
<td>10GBASE-LR SFP Module, Enterprise-Class</td>
</tr>
<tr>
<td>CVR-QSFP-SFP10G</td>
<td>QSFP 40G to SFP+ 10G adapter</td>
</tr>
<tr>
<td><strong>SFP28 25-Gbps Transceivers</strong></td>
<td></td>
</tr>
<tr>
<td>SFP-25G-SR-S</td>
<td>25GBASE-SR SFP Module</td>
</tr>
<tr>
<td>SFP-10/25G-LR-S</td>
<td>10/25GBASE-LR SFP28 Module</td>
</tr>
<tr>
<td>SFP-10/25G-CSR-S</td>
<td>Dual Rate 10/25GBASE-CSR SFP Module</td>
</tr>
<tr>
<td>SFP-25G-SL</td>
<td>25GBASE-SR SFP SL Module</td>
</tr>
<tr>
<td>CVR-QSFP28-SFP28</td>
<td>QSFP28 100G to SFP28 25G adapter</td>
</tr>
<tr>
<td><strong>QSFP+ 40-Gbps Transceivers</strong></td>
<td></td>
</tr>
<tr>
<td>QSFP-40G-SR4</td>
<td>40GBASE-SR4 QSFP Transceiver Module with MPO Connector</td>
</tr>
<tr>
<td>QSFP-40G-SR4-S</td>
<td>40GBASE-SR4 QSFP Transceiver Module, MPO Conn, Enterprise-Class</td>
</tr>
<tr>
<td>QSFP-40G-CSR4</td>
<td>QSFP 4x10GBASE-SR Transceiver Module, MPO, 300M</td>
</tr>
<tr>
<td>QSFP-40G-LR4</td>
<td>QSFP 40BASE-LR4 OTN Transceiver, LC, 10KM</td>
</tr>
<tr>
<td>QSFP-40G-LR4-S</td>
<td>QSFP 40BASE-LR4 Transceiver Module, LC, 10km, Enterprise-Class</td>
</tr>
<tr>
<td><strong>QSFP28 100G Transceivers</strong></td>
<td></td>
</tr>
<tr>
<td>QSFP-100G-SR4-S</td>
<td>100BASE SR4 QSFP Transceiver, MPO, 100m over OM4 MMF</td>
</tr>
</tbody>
</table>
### Table 9 UCS 6536 FI Supported Transceivers (continued)

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSFP-100G-LR4-S</td>
<td>100GBASE LR4 QSFP Transceiver, LC, 10km over SMF</td>
</tr>
<tr>
<td>QSFP-40/100-SRBD</td>
<td>100GBASE/40GBASE SR-BiDi QSFP Transceiver, LC, 100m over OM4 MMF</td>
</tr>
<tr>
<td>QSFP-100G-SM-5R</td>
<td>100GBASE CWDM4 lite QSFP transceiver, 2KM over SMF, 10-60C</td>
</tr>
<tr>
<td>QSFP-100G-SL4</td>
<td>100GBASE SL4 for up to 30M over OM4 MMF</td>
</tr>
<tr>
<td>QSFP-100G-D4-S</td>
<td>100G QSF28 Transceiver 100GBASE-D4, 500m SMF, duplex, LC</td>
</tr>
<tr>
<td>QSFP-100G-FR-S</td>
<td>100G QSF28 Transceiver 100G-FR, 2km SMF, duplex, LC</td>
</tr>
</tbody>
</table>

**QSFP28 100G cables with integrated transceivers**

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSFP-100G-CU1M</td>
<td>100BASE-CR4 passive copper cable, 1M</td>
</tr>
<tr>
<td>QSFP-100G-CU2M</td>
<td>100BASE-CR4 passive copper cable, 2M</td>
</tr>
<tr>
<td>QSFP-100G-CU3M</td>
<td>100BASE-CR4 passive copper cable, 3M</td>
</tr>
<tr>
<td>QSFP-100G-CU5M</td>
<td>100BASE-CR4 passive copper cable, 5M</td>
</tr>
<tr>
<td>QSFP-100G-AOC1M</td>
<td>100BASE QSFP active optical cable, 1M</td>
</tr>
<tr>
<td>QSFP-100G-AOC2M</td>
<td>100BASE QSFP active optical cable, 2M</td>
</tr>
<tr>
<td>QSFP-100G-AOC3M</td>
<td>100BASE QSFP active optical cable, 3M</td>
</tr>
<tr>
<td>QSFP-100G-AOC5M</td>
<td>100BASE QSFP active optical cable, 5M</td>
</tr>
<tr>
<td>QSFP-100G-AOC7M</td>
<td>100BASE QSFP active optical cable, 7M</td>
</tr>
<tr>
<td>QSFP-100G-AOC10M</td>
<td>100BASE QSFP active optical cable, 10M</td>
</tr>
<tr>
<td>QSFP-100G-AOC15M</td>
<td>100BASE QSFP active optical cable, 15M</td>
</tr>
<tr>
<td>QSFP-100G-AOC20M</td>
<td>100BASE QSFP active optical cable, 20M</td>
</tr>
<tr>
<td>QSFP-100G-AOC25M</td>
<td>100BASE QSFP active optical cable, 25M</td>
</tr>
<tr>
<td>QSFP-100G-AOC30M</td>
<td>100BASE QSFP active optical cable, 30M</td>
</tr>
<tr>
<td>QSFP-4SFP25G-CU1M</td>
<td>100BASE QSFP to 4xSFP25G passive copper splitter cable, 1M</td>
</tr>
<tr>
<td>QSFP-4SFP25G-CU2M</td>
<td>100BASE QSFP to 4xSFP25G passive copper splitter cable, 2M</td>
</tr>
<tr>
<td>QSFP-4SFP25G-CU3M</td>
<td>100BASE QSFP to 4xSFP25G passive copper splitter cable, 3M</td>
</tr>
<tr>
<td>QSFP-4SFP25G-CU5M</td>
<td>100BASE QSFP to 4xSFP25G passive copper splitter cable, 5M</td>
</tr>
</tbody>
</table>

**Fibre Channel transceivers**
Table 9  UCS 6536 FI Supported Transceivers (continued)

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-SFP-4X32G-SW</td>
<td>128 Gbps FC-SW QSFP, MPO for 4 x 8/16/32G fibre channel breakout, 100M</td>
</tr>
</tbody>
</table>

Notes:

- The 6536 FI supports 1G optics on ports 9 and 10.
- 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-device-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.
- The Cisco 128G FC QSPF (PID: DS-SFP-4x32G-SW) will be used to connect to a SAN switch or storage array at 8/16/32G speeds using a multi-mode OM4 8-fiber MPO to LC breakout cable.

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:

- Transceiver modules and cables that are supported on a specific Fabric Interconnect are not always supported on all VIC adapters, IOMs, or FEXs 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-device-support-tables-list.html.
- S-Class transceivers, (for example QSFP-40G-SR4-S), do not support FCoE.
STEP 4  CHOOSE POWER SUPPLIES

The Cisco UCS 6536 Fabric Interconnects use AC or DC power supplies.

Choose Power Supplies

The supported power supplies for the Cisco UCS 6536 Fabric Interconnects are listed in Table 10.

Table 10  Supported 6536 Power Supplies

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supplies</td>
<td></td>
</tr>
<tr>
<td>UCS-PSU-6536-AC</td>
<td>UCS 6536 Power Supply/100-240VAC (1100 W)</td>
</tr>
<tr>
<td>UCS-PSU-6536-AC=</td>
<td>Spare, UCS 6536 Power Supply/100-240VAC (1100 W)</td>
</tr>
<tr>
<td>UCS-PSU-6536-DC</td>
<td>UCS 6536 Power Supply/-48VDC (1100 W)</td>
</tr>
<tr>
<td>UCS-PSU-6536-DC=</td>
<td>Spare, UCS 6536 Power Supply/-48VDC (1100 W)</td>
</tr>
</tbody>
</table>

Supported Configurations

(1) You must choose two identical power supplies (either two AC power supplies or two DC power supplies).

(2) If you select DC power supplies, you must also select two DC power cords (CAB-48DC-40A-8AWG). See Table 12 on page 18.

Caveats

- You cannot mix power supply types.
6536 FI Fan Module

These are hot-swappable 6 x fan modules. And each fan module consists of two fan rotors. Redundancy of the fan is implanted in rotor level, and when the rotor fails, the system continues to operate with 9 fan rotors.

Table 11  6536 FI Fan Module

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCS-FAN-6536</td>
<td>UCS 6536 Fan Module</td>
</tr>
</tbody>
</table>
CONFIGURING the FABRIC INTERCONNECT

STEP 5  SELECT AC POWER CORDS

Select the appropriate AC power cords listed in Table 12. You must select two identical power cords. If you select the option R2XX-DMYPWRCORD, no power cord is shipped with the server.

Table 12  Available Power Cords

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>PID Description</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2XX-DMYPWRCORD</td>
<td>No power cord (dummy PID to allow for a no power cord option)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>CAB-AC-L620-C13</td>
<td>AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft</td>
<td></td>
</tr>
<tr>
<td>CAB-250V-10A-AR</td>
<td>Power Cord, 250V, 10A, Argentina</td>
<td></td>
</tr>
<tr>
<td>CAB-250V-10A-BR</td>
<td>Power Cord - 250V, 10A - Brazil</td>
<td></td>
</tr>
<tr>
<td>CAB-9K10A-AU</td>
<td>Power Cord, 250VAC 10A 3112 Plug, Australia</td>
<td></td>
</tr>
<tr>
<td>CAB-250V-10A-CN</td>
<td>AC Power Cord - 250V, 10A - PRC</td>
<td></td>
</tr>
<tr>
<td>CAB-9K10A-EU</td>
<td>Power Cord, 250VAC 10A CEE 7/7 Plug, EU</td>
<td></td>
</tr>
</tbody>
</table>
### Table 12 Available Power Cords (continued)

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>PID Description</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAB-250V-10A-ID</td>
<td>Power Cord, 250V, 10A, India</td>
<td><img src="image1" alt="Image" /></td>
</tr>
<tr>
<td>CAB-IND-10A</td>
<td>10A Power cable for India</td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>CAB-250V-10A-IS</td>
<td>Power Cord, 250V, 10A, Israel</td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td>CAB-9K10A-IT</td>
<td>Power Cord, 250VAC 10A CEI 23-16/VIll Plug, Italy</td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td>CAB-9K10A-SW</td>
<td>Power Cord, 250VAC 10A MP232 Plug, Switzerland</td>
<td><img src="image5" alt="Image" /></td>
</tr>
<tr>
<td>CAB-9K10A-UK</td>
<td>Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK</td>
<td><img src="image6" alt="Image" /></td>
</tr>
<tr>
<td>CAB-C13-C14-2M</td>
<td>CABASY, WIRE, JUMPER CORD, PWR, 2 Meter, C13/C14, 10A/250V</td>
<td><img src="image7" alt="Image" /></td>
</tr>
</tbody>
</table>
Table 12 Available Power Cords (continued)

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>PID Description</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAB-9K12A-NA</td>
<td>Power Cord, 125VAC 13A NEMA 5-15 Plug, North America</td>
<td><img src="image1.png" alt="Image of CAB-9K12A-NA" /></td>
</tr>
<tr>
<td>CAB-N5K6A-NA</td>
<td>Power Cord, 200/240V 6A North America</td>
<td><img src="image2.png" alt="Image of CAB-N5K6A-NA" /></td>
</tr>
<tr>
<td>CAB-C13-C14-AC</td>
<td>Power cord, C13 to C14 (recessed receptacle), 10A</td>
<td><img src="image3.png" alt="Image of CAB-C13-C14-AC" /></td>
</tr>
<tr>
<td>CAB-C13-CBN</td>
<td>CABASY,WIRE,JUMPER CORD, 27&quot; L, C13/C14, 10A/250V</td>
<td><img src="image4.png" alt="Image of CAB-C13-CBN" /></td>
</tr>
<tr>
<td>CAB-JPN-3PIN</td>
<td>Power Cord 3PIN, Japan</td>
<td><img src="image5.png" alt="Image of CAB-JPN-3PIN" /></td>
</tr>
<tr>
<td>CAB-48DC-40A-8AWG</td>
<td>-48VDC PSU Power Cord, 3.5M, 3 Wire, 8AWG, 40A</td>
<td><img src="image6.png" alt="Image of CAB-48DC-40A-8AWG" /></td>
</tr>
<tr>
<td>CAB-C13-C14-2M</td>
<td>Power Cord C13-C14, 2M/6.5ft Japan PSE mark</td>
<td><img src="image7.png" alt="Image of CAB-C13-C14-2M" /></td>
</tr>
</tbody>
</table>

Notes
1. A minimum of two DC power cables must be selected.
**STEP 6    ACCESSORY KIT (INCLUDED)**

An accessory kit is included for the Cisco 6536 Fabric Interconnects.

Choose Accessory Kit

The supported accessory kits for the Cisco UCS 6536 Fabric Interconnects are listed in Table 13.

Table 13  Accessory Kit

<table>
<thead>
<tr>
<th>Product ID (PID)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6536 Accessory Kit</td>
<td></td>
</tr>
<tr>
<td>NXK-ACC-KIT-1RU</td>
<td>UCS 6536 Chassis Accessory Kit</td>
</tr>
<tr>
<td>NXK-ACC-KIT-1RU =</td>
<td>Spare, UCS 6536 Chassis Accessory Kit</td>
</tr>
</tbody>
</table>

The Cisco UCS 6536 Fabric Interconnect accessory kit includes the following items:

- 2 slider rails
- 2 rack-mount guides
- 2 rack-mount brackets
- 12 M4 x 0.7 x 8-mm Phillips countersunk screws
- 10 10-32 rack nuts
- 10 10-32 x 3/4-inch Phillips pan-head screws
- 1 console cable with an RJ-45-RS-232 adapter and a DB9 adapter
- 1 ground lug kit
- 1 ESD wrist strap
- 1 power cord clip (a wire clip that is used to retain the power cord)
- 1 pointer document (specifies where to find the online product documentation)
Cisco UCS 6536 FI Port Numbering

Each port on the Cisco UCS 6536 Fabric Interconnect is numbered, and groups of ports are numbered based on their function. The ports are numbered top to bottom and left to right.

*Figure 5* shows how ports are numbered and the table below explains how each port group functions.

### Figure 5  Port Numbering of the Cisco UCS 6536 FI

<table>
<thead>
<tr>
<th>Port Range</th>
<th>1-8</th>
<th>9-10</th>
<th>11-32</th>
<th>33-36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Gbps</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>10/25 Gbps</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>40/100 Gbps</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>8/16/32 Gbps FC</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Connectivity

This section explains the connectivity between the Fabric Interconnects (FIs) and Fabric Extenders (FEX). The Fabric Extenders are extensions of the Fabric Interconnects and act as remote line cards to form a distributed modular fabric system. The fabric extension is accomplished through the FEX fabric link, which is the connection between the Fabric Interconnect and the FEX.

A minimum of one connection between the FI and FEX is required to provide server connectivity. Depending on the FEX model, subsequent connections can be up to eight links, which provides added bandwidth to the servers.

5108 Blade Chassis Server Connectivity

For the 5108 blade chassis, the Fabric Extender modules (up to two) plug into the back of the UCS 5108 series blade server chassis. A midplane connects the blade servers to the Fabric Extenders. The 5108 chassis accommodates the following FEX:

- Cisco UCS 2408

*Figure 6* shows how the FEX modules in the blade chassis connect to the FIs.

*Figure 6*  Connecting Blade Chassis Fabric Extenders to Fabric Interconnect Chassis

Fabric Interconnect A (6536)

Fabric Interconnect B (6536)

Fabric Extender 1 (2408)
8 x 25Gb

Fabric Extender 2 (2408)
8 x 25Gb

NOTE: Cisco UCS 5108 rev 1 and rev 2 chassis are both supported with FI 6536
9508 Chassis Server Connectivity

For the X9508 chassis, the Fabric Extender modules (up to two) plug into the back of the UCS X9508 chassis. There is no backplane in the Cisco UCS X9508 chassis; the compute nodes directly connect to the IFMs using Orthogonal Direct connectors. The X9508 chassis accommodates the following IFMs:

- Cisco IFM 9108-25G *(Figure 7)*
- Cisco IFM 9108-100G *(Figure 8)*

The connectivity from the X9108-IFM-25G to 6536 Fabric Interconnects is shown in *Figure 7*.

*Figure 7*  X9108-IFM-25G to 6536 Fabric Interconnect Connectivity

---

---

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The connectivity from the X9108-IFM-100G to 6536 Fabric Interconnects is shown in Figure 8.

Figure 8   X9108-IFM-100G to 6536 Fabric Interconnect Connectivity

- QSFP28 Links
- 1600G Per X9508 Chassis
- 100G E2E single-flow
- 200G Per x210 with 1:1 oversubscription

IFM A-100G (8 x 100GB)
IFM B-100G (8 x 100GB)
**C-Series Rack-Mounted Server Connectivity**

C-Series servers connect to external FEXs and FIs as summarized in this section. Single-Wire Management interconnection methods are possible:

**Single-Wire Management**

Cisco UCS Intersight supports an additional option to integrate the C-Series Rack-Mount Server with Cisco UCS Manager using the NCSI. This option enables Cisco Intersight to manage the C-Series Rack-Mount Servers using a single-wire for both management traffic and data traffic. When you use the single-wire management mode, one host facing port on the FEX is sufficient to manage one rack-mount server, instead of the two ports you would use in the Shared-LOM mode. This connection method allows you to connect more rack-mount servers for integrated server management.

C-Series Rack-Mounted Server Connectivity has two options:

- Single-wire Management With 93180YC-FX3 in FEX mode *(Figure 9)*
- Single-wire Management Without FEX *(Figure 10 & Figure 11)*

*Figure 9* shows how the C-Series rack mount chassis connect to the FEXs and FIs for single-wire management.

**Figure 9**  **Connecting C-Series Rack Chassis (single-wire management with Nexus Switches)**

![Diagram](image)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cisco UCS 6536 FI (Fabric A)</td>
</tr>
<tr>
<td>2</td>
<td>Cisco Nexus 93180YC-FX3 (Fabric A)</td>
</tr>
<tr>
<td>3</td>
<td>Cisco UCS 6536 FI (Fabric B)</td>
</tr>
<tr>
<td>4</td>
<td>Cisco Nexus 93180YC-FX3 (Fabric B)</td>
</tr>
<tr>
<td>5</td>
<td>Cisco UCS C-series M5/M6 server</td>
</tr>
<tr>
<td>6</td>
<td>Cisco UCS VIC 1455/1457/1467/15428</td>
</tr>
</tbody>
</table>

*Figure 10* shows how the C-Series rack mount chassis connect to FIs for single-wire management.
Figure 10  Connecting C-Series Rack Chassis (single-wire management without FEX)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cisco UCS 6536 FI (Fabric A)</td>
</tr>
<tr>
<td>2</td>
<td>Cisco UCS 6536 FI (Fabric B)</td>
</tr>
<tr>
<td>3</td>
<td>Cisco UCS C-series M5/M6 server</td>
</tr>
<tr>
<td>4</td>
<td>Cisco UCS VIC 1455/1457/1467/15428</td>
</tr>
</tbody>
</table>
Figure 11  Connecting C-Series Rack Chassis (single-wire management without FEX)

1. Cisco UCS 6536 FI (Fabric A)
2. Cisco UCS 6536 FI (Fabric B)
3. Cisco UCS C-series M5/M6 server
4. Cisco UCS VIC 1477/1497/1495
**FI 6536 Fibre channel connectivity**

The Cisco 128G FC QSFP (PID: DS-SFP-4x32G-SW) will be used to connect to a SAN switch or storage array at 8/16/32G speeds using a multi-mode OM4, 8 fiber MPO to LC breakout cable.

Figure 12   FC Connectivity
**UCS 5108 and X9508 Chassis Connection Types**

In a **5108 and X9508 Chassis**, only port-channel mode is supported for connectivity from IOM-2408 to FI or IFM-25G to FI or IFM-100G to FIs:

- **Port Channel Mode**

In port channel mode, the FEX fabric links are bundled into a single logical link (see *Figure 13*) to provide higher bandwidth to the servers. Up to 8 links can be port-channeled.

*Figure 13  FEX Fabric Links in Port Channel Mode*

Blade Chassis

```
<table>
<thead>
<tr>
<th>Blade Half-Width Slot Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1</td>
</tr>
<tr>
<td>Slot 2</td>
</tr>
<tr>
<td>Slot 3</td>
</tr>
<tr>
<td>Slot 4</td>
</tr>
<tr>
<td>Slot 5</td>
</tr>
<tr>
<td>Slot 6</td>
</tr>
<tr>
<td>Slot 7</td>
</tr>
<tr>
<td>Slot 8</td>
</tr>
</tbody>
</table>
```

![FEX Fabric Links in Port Channel Mode](image-url)
## TECHNICAL SPECIFICATIONS (s)

### Physical and Environmental Specifications

Table 14  Physical and Environmental Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco UCS 6536 FI</td>
<td></td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>1.72 in. x 17.3 in x 24.7 in (4.4 cm x 43.9 cm x 62.7 cm)</td>
</tr>
<tr>
<td>Weight (with two power supplies and fans installed)</td>
<td>25.5 lb (11.6 kg)</td>
</tr>
<tr>
<td>Temperature, operating</td>
<td>32 to 104°F (0 to 40°C)</td>
</tr>
<tr>
<td>Temperature, non-operating</td>
<td>-40 to 158°F (-40 to 70°C)</td>
</tr>
<tr>
<td>Humidity (RH), non-condensing</td>
<td>5 to 95%</td>
</tr>
<tr>
<td>Altitude</td>
<td>0 to 13,123 ft (0 to 4000 m)</td>
</tr>
</tbody>
</table>

For configuration-specific power specifications, use the Cisco UCS Power Calculator at:

https://ucspowercalc.cloudapps.cisco.com/public/index.jsp#eula
Transceiver Specifications

For transceiver specifications, see the following link: