



The bridge to possible

[Data sheet](#)
Cisco public

Cisco UCS 6400 Series Fabric Interconnects

Contents

Cisco Unified Computing System overview	3
Product overview	4
Features and benefits	7
Product specifications	8
Physical specifications	15
Regulatory standards compliance: safety and EMC	17
Ordering information	18
Warranty information	19
Cisco environmental sustainability	19
Cisco Services for Unified Computing	19
Why Cisco?	19
For more information	20

Cisco Unified Computing System overview

The Cisco Unified Computing System™ (Cisco UCS®) is a next-generation data center platform that unites computing, networking, storage access, and virtualization resources into a cohesive system designed to reduce Total Cost of Ownership (TCO) and increase business agility. The system integrates a low-latency, lossless 10/25/40/100 Gigabit Ethernet unified network fabric with enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain (Figure 1).

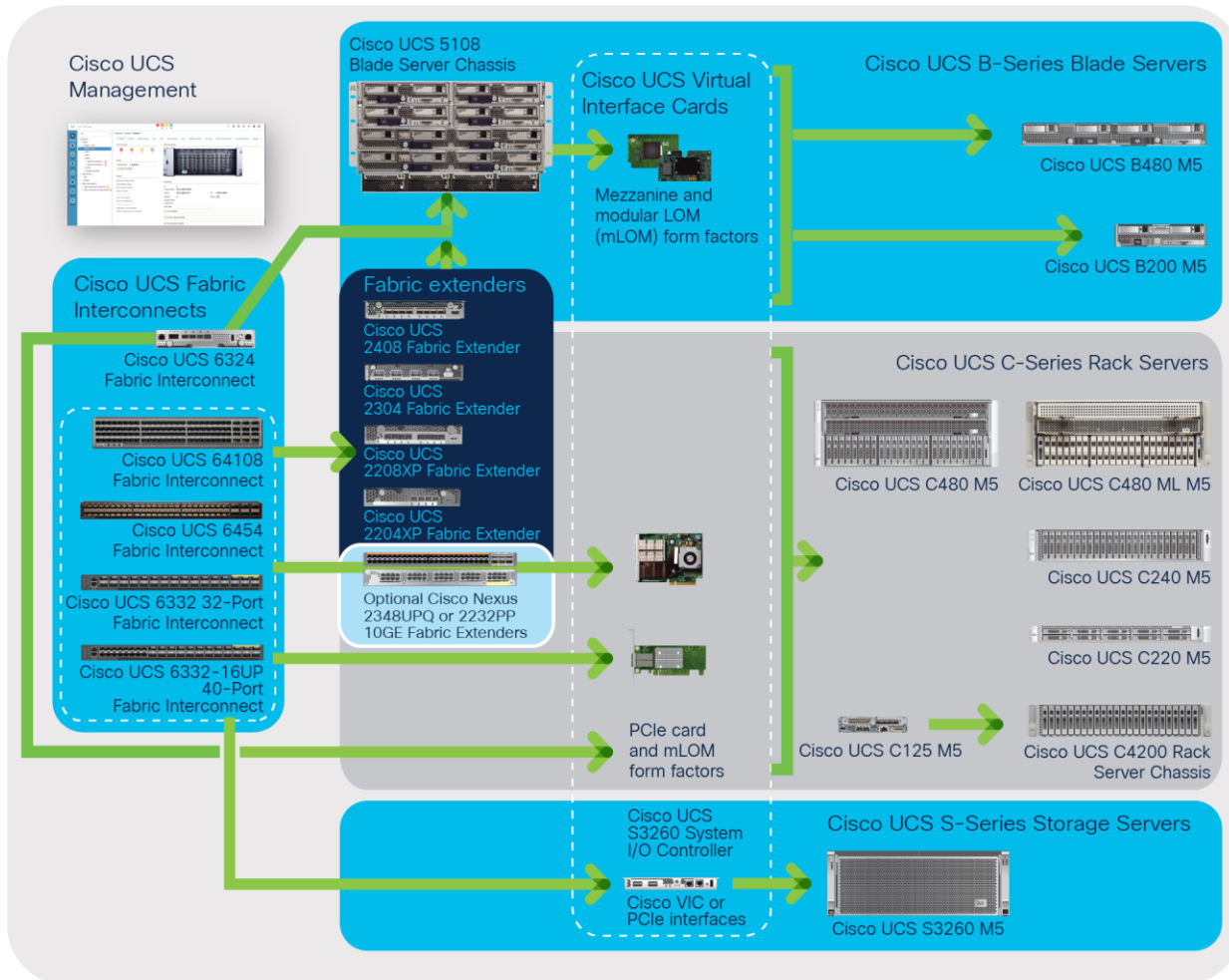


Figure 1. The Cisco Unified Computing System’s highly available, cohesive architecture

Product overview

The Cisco UCS 6400 Series Fabric Interconnects are a core part of the Cisco Unified Computing System, providing both network connectivity and management capabilities for the system (Figure 2). The Cisco UCS 6400 Series offer line-rate, low-latency, lossless 10/25/40/100 Gigabit Ethernet, Fibre Channel over Ethernet (FCoE), and Fibre Channel functions.

The Cisco UCS 6400 Series provide the management and communication backbone for the Cisco UCS B-Series Blade Servers, UCS 5108 B-Series Server Chassis, UCS Managed C-Series Rack Servers, and UCS S-Series Storage Servers. All servers attached to a Cisco UCS 6400 Series Fabric Interconnect become part of a single, highly available management domain. In addition, by supporting a unified fabric, Cisco UCS 6400 Series Fabric Interconnect provides both the LAN and SAN connectivity for all servers within its domain.

From a networking perspective, the Cisco UCS 6400 Series use a cut-through architecture, supporting deterministic, low-latency, line-rate 10/25/40/100 Gigabit Ethernet ports, switching capacity of 3.82 Tbps for the 6454, 7.42 Tbps for the 64108, and 200 Gbps bandwidth between the Fabric Interconnect 6400 series and the IOM 2408 per 5108 blade chassis, independent of packet size and enabled services. 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 an FCoE-optimized server design in which Network Interface Cards (NICs), Host Bus Adapters (HBAs), cables, and switches can be consolidated.



Figure 2.
Cisco UCS 6454 Fabric Interconnect



Figure 3.
Cisco UCS 64108

Unified fabric with FCoE: I/O consolidation

The Cisco UCS 6400 Series Fabric Interconnects are built to consolidate LAN and SAN traffic onto a single unified fabric, saving the Capital Expenditures (CapEx) and Operating Expenses (OpEx) associated with multiple parallel networks, different types of adapter cards, switching infrastructure, and cabling within racks. The unified ports allow ports in the fabric interconnect to support direct connections from Cisco UCS to existing native Fibre Channel SANs. The capability to connect FCoE to a native Fibre Channel protects existing storage-system investments while dramatically simplifying in-rack cabling.

Cisco UCS Manager

The Cisco UCS 6400 Series host and run Cisco UCS Manager in a highly available configuration, enabling the fabric interconnects to fully manage all Cisco UCS elements. Connectivity to the Cisco UCS 5108 Blade Server Chassis is maintained through the Cisco UCS 2200 and 2408 Series Fabric Extenders in each blade chassis. The Cisco UCS 6400 Series Fabric Interconnects support out-of-band management, through a dedicated 10/100/1000-Mbps Ethernet management port, as well as in-band management. Cisco UCS Manager typically is deployed in a clustered active/passive configuration on redundant fabric interconnects connected through dual 10/100/1000 Ethernet clustering ports.

Cisco UCS 6454 54-Port Fabric Interconnect

The Cisco UCS 6454 54-Port Fabric Interconnect (Figure 3) is a One-Rack-Unit (1RU) 10/25/40/100 Gigabit Ethernet, FCoE, and Fibre Channel switch offering up to 3.8 Tbps throughput and up to 54 ports. The switch has 28 10/25-Gbps Ethernet ports, 4 1/10/25-Gbps Ethernet ports, 6 40/100-Gbps Ethernet uplink ports, and 16 unified ports that can support 10/25-Gbps Ethernet ports or 8/16/32-Gbps Fibre Channel ports. All Ethernet ports are capable of supporting FCoE.

Front view



Rear view



Figure 4.
Cisco UCS 6454 (1RU) 54-Port Fabric Interconnect

Cisco UCS 64108 108-Port Fabric Interconnect

The Cisco UCS 64108 Fabric Interconnect (FI) is a 2-RU top-of-rack switch that mounts in a standard 19-inch rack such as the Cisco R Series rack. The 64108 is a 10/25/40/100 Gigabit Ethernet, FCoE and Fiber Channel switch offering up to 7.42 Tbps throughput and up to 108 ports. The switch has 16 unified ports (port numbers 1–16) that can support 10/25-Gbps SFP28 Ethernet ports or 8/16/32-Gbps Fibre Channel ports, 72 10/25-Gbps Ethernet SFP28 ports (port numbers 17–88), 8 1/10/25-Gbps Ethernet SFP28 ports (port numbers 89–96), and 12 40/100-Gbps Ethernet QSFP28 uplink ports (port numbers 97–108). All Ethernet ports are capable of supporting FCoE.

The Cisco UCS 64108 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.

Front view



Rear view



Figure 5.
Cisco UCS 64108 (2 RU) 108-Port Fabric Interconnect

Table 1 summarizes the characteristics of the Cisco UCS 6400 Series Fabric Interconnects.

Table 1. Characteristics of Cisco UCS 6400 Series Fabric Interconnects

Item	Cisco UCS 6454	Cisco UCS 64108
Description	54-port fabric interconnect	108-port fabric interconnect
Form factor	1RU	2RU
Number of fixed 10/25/40/100-Gbps and FCoE ports with optional unified ports	54 fixed ports	108 fixed ports
Maximum number of unified ports	16 (unified ports 1-16)	16 (unified ports 1-16)
Maximum number of 1-Gbps Ethernet ports	4 (ports 45-48)	8 (ports 89-96)

Item	Cisco UCS 6454	Cisco UCS 64108
Maximum number of 40/100-Gbps Ethernet ports	6 (ports 49-54)	12 ((ports 97-108)
Throughput	3.82 Tbps	7.42 Tbps
Fan modules	3+1	2+1

Note: Breakout cables for uplink are supported on ports 49-54 (FI 6454) and 97-108 (FI 64108) when connecting to Nexus 9K switches.

Note: From 4.1(3) release, FI 6454 and 64108 supports server-ports on the 40/100G ports after break-out (ports 49-54 and 97-108 respectively). Only direct-connect rack-servers at 10/25G speeds with VIC 1455/1457 are supported on the 40/100G ports. Note that server port at 40/100G speeds are not supported. FI 6454 can support maximum of 64 server-ports and FI 64108 can support 128 server ports after breakout of 40/100G ports.

Features and benefits

Table 2 summarizes the features and benefits of Cisco UCS 6400 Series Fabric Interconnects.

Table 2. Features and benefits

Feature	Benefits
Power supply	<ul style="list-style-type: none"> • Two power supplies (AC or DC)
Management by Cisco UCS Manager	<ul style="list-style-type: none"> • Allows all elements connected to the interconnects to participate in a single, highly available management domain
Unified fabric	<ul style="list-style-type: none"> • Decreases TCO by reducing the number of NICs, HBAs, switches, and cables required • Transparently encapsulates Fibre Channel packets into Ethernet
Fabric extender architecture	<ul style="list-style-type: none"> • Scales to 20 blade chassis without adding complexity by eliminating the need for dedicated chassis management and blade switches and by reducing the number of cables needed • Provides deterministic latency for optimized application performance
Performance	<ul style="list-style-type: none"> • Provides high-speed, low-latency connectivity to the chassis • Provides approximately 50 percent reduction in end-to-end system latency (latency is less than 1 microsecond)
Lossless fabric	<ul style="list-style-type: none"> • Provides a reliable, robust foundation for unifying LAN and SAN traffic on a single transport
Priority-based Flow Control (PFC)	<ul style="list-style-type: none"> • Simplifies management of multiple traffic flows over a single network link • Supports different classes of service, helping enable both losses and classic Ethernet on the same fabric
Systemwide bandwidth management	<ul style="list-style-type: none"> • Helps enable consistent and coherent Quality of Service (QoS) throughout the system.
Rear ports	<ul style="list-style-type: none"> • Helps keep cable lengths short and efficient
Redundant hot-swappable fans and power supplies	<ul style="list-style-type: none"> • Helps enable high availability in multiple configurations • Increase serviceability • Provides uninterrupted service during maintenance

Feature	Benefits
Front-to-back cooling	<ul style="list-style-type: none"> Fan-side intake, port-side exhaust
SFP+ ports	<ul style="list-style-type: none"> Increases flexibility with a range of interconnect solutions, including copper Twinax cable for short runs and SFP28 and QSFP28 optics for long runs Consumes less power per port than traditional solutions Helps enable cost-effective connections on fabric extenders with Cisco® Fabric Extender Transceiver (FET) optics
SFP28-compatible ports	<ul style="list-style-type: none"> Allows fixed ports to be configured to operate in 10/25 GB Ethernet mode with the transceiver options specific for use with SFP28-compatible ports in Table 3
QSFP28-compatible Ports	<ul style="list-style-type: none"> Allows all ports to be configured to operate in 40/100 GB Ethernet mode with the transceiver options specific for use with QSFP28-compatible ports in Table 3
Port-based licensing options	<ul style="list-style-type: none"> Helps enable a pay-as-you-grow model, allowing customers to add capacity as the networking needs of an individual system increase

Product specifications

Transceivers

The Cisco UCS 6400 Series Fabric Interconnects 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 6400 Series support 10/25 Gigabit Ethernet connectivity or 8/16/32 Gigabit Fibre Channel modules. Uplink ports support 40/100 Gigabit Ethernet transceivers and cables. Table 3 lists the supported transceiver options.

Table 3. Cisco UCS 6400 Series Fabric Interconnect-supported transceiver and cable support matrix

Product number	Description
SFP 1-Gigabit transceivers	
GLC-TE	1000 BASE-T SFP transceiver module for Category 5 copper wire
GLC-SX-MMD	1000 BASE-SX short wavelength; with DOM
SFP-GE-T	1000 BASE-T SFP transceiver module for Category 5 copper wire, extended operating temperature range (supported but EOL)
SFP+ 10-Gbps transceivers	
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
SFP-10G-LRM	10GBASE-LRM SFP module
SFP-10G-ER	10GBASE-ER SFP module
SFP-10G-ER-S	10GBASE-ER-SFP module, Enterprise class

Product number	Description
SFP-10G-ZR	Cisco 10GBASE-ZR SFP10G module for SMF
SFP-10G-ZR-S	10GBASE-ZR SFP module, Enterprise class
FET-10G	10G line extender for FEX
SFP28 25-Gbps transceivers	
SFP-25G-SR-S	25GBASE-SR SFP module
SFP-10/25G-LR-S	10/25GBASE-LR SFP28 Module for SMF
SFP-10/25G-CSR-S	Dual Rate 10/25GBASE-CSR SFP Module
QSFP+ 40-Gbps transceivers	
QSFP-40G-SR4	40GBASE-SR4 QSFP transceiver module with MPO connector
QSFP-40G-SR4-S	40GBASE-SR4 QSFP transceiver module, MPO connector, Enterprise class
QSFP-40G-SR-BD	40GBASE-SR-BiDi, duplex MMF (LC)
QSFP-40G-LR4	QSFP 40GBASE-LR4 OTN transceiver, LC, 10KM
QSFP-40G-LR4-S	QSFP 40GBASE-LR4 transceiver module, LC, 10KM, Enterprise class
QSFP-40G-ER4	QSFP 40GBASE-ER4 transceiver module, LC, 2KM
WSP-Q40GLR4L	QSFP 40G Ethernet - LR4 lite, LC, 2KM
QSFP-4X10G-LR-S	QSFP 4x10G transceiver module, SM MPO, 10KM, Enterprise class
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
SFP+ 10G copper cables with integrated transceivers	
SFP-H10GB-CU1M	10GBASE SFP+ cable 1-meter, passive
SFP-H10GB-CU1-5M	10GBASE SFP+ cable 1.5-meter, passive
SFP-H10GB-CU2M	10GBASE SFP+ cable 2-meter, passive
SFP-H10GB-CU2-5M	10GBASE SFP+ cable 2.5-meter, passive
SFP-H10GB-CU3M	10GBASE SFP+ cable 3-meter, passive

Product number	Description
SFP-H10GB-CU5M	10GBASE SFP+ cable 5-meter, passive
SFP-H10GB-ACU7M	10GBASE SFP+ cable 7-meter, active
SFP-H10GB-ACU10M	10GBASE SFP+ cable 10-meter, active
SFP-10G-AOC1M	10GBASE active optical SFP+ cable, 1M
SFP-10G-AOC2M	10GBASE active optical SFP+ cable, 2M
SFP-10G-AOC3M	10GBASE active optical SFP+ cable, 3M
SFP-10G-AOC5M	10GBASE active optical SFP+ cable, 5M
SFP-10G-AOC7M	10GBASE active optical SFP+ cable, 7M
SFP-10G-AOC10M	10GBASE active optical SFP+ cable, 10M
SFP28 25G copper cables with integrated	
SFP-H25G-CU1M	25GBASE-CU SFP28 cable 1-meter
SFP-H25G-CU2M	25GBASE-CU SFP28 cable 2-meter
SFP-H25G-CU3M	25GBASE-CU SFP28 cable 3-meter
SFP-H25G-CU4M	25GBASE-CU SFP28 Cable 4 Meter
SFP-H25G-CU5M	25GBASE-CU SFP28 cable 5-meter
SFP-25G-AOC1M	25GBASE active optical SFP28 cable, 1M
SFP-25G-AOC2M	25GBASE active optical SFP28 cable, 2M
SFP-25G-AOC3M	25GBASE active optical SFP28 cable, 3M
SFP-25G-AOC4M	25GBASE active optical SFP28 cable, 4M
SFP-25G-AOC5M	25GBASE active optical SFP28 cable, 5M
SFP-25G-AOC7M	25GBASE active optical SFP28 cable, 7M
SFP-25G-AOC10M	25GBASE active optical SFP28 cable, 10M
QSFP 40G cables with integrated transceivers	
QSFP-H40G-CU1M	40GBASE-CR4 passive copper cable, 1M
QSFP-H40G-CU3M	40GBASE-CR4 passive copper cable, 3M
QSFP-H40G-CU5M	40GBASE-CR4 passive copper cable, 5M
QSFP-H40G-ACU7M	40GBASE-CR4 active copper cable, 7M

Product number	Description
QSFP-H40G-ACU10M	40GBASE-CR4 active copper cable, 10M
QSFP-H40G-AOC1M	40GBASE active optical cable, 1M
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-AOC10M	40GBASE active optical cable, 10M
QSFP-H40G-AOC15M	40GBASE active optical cable, 15M
QSFP-4SFP10G-CU1M	QSFP to 4xSFP10G passive copper splitter cable, 1M
QSFP-4SFP10G-CU3M	QSFP to 4xSFP10G passive copper splitter cable, 3M
QSFP-4SFP10G-CU5M	QSFP to 4xSFP10G passive copper splitter cable, 5M
QSFP-4x10G-AC7M	QSFP to 4xSFP10G active copper splitter cable, 7M
QSFP-4x10G-AC10M	QSFP to 4xSFP10G active copper splitter cable, 10M
QSFP-4x10G-AOC1M	40GBASE active optical QSFP to 4SFP breakout cable, 1M
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, 7M
QSFP-4x10G-AOC10M	40GBASE active optical QSFP to 4SFP breakout cable, 10M
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-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

Product number	Description
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
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
Fibre Channel transceivers	
DS-SFP-FC4G-SW	4 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC8G-SW	8 Gbps Fibre Channel-SW SFP+, LC
DS-SFP-FC8G-LW	8 Gbps Fibre Channel-LW SFP+, LC
DS-SFP-FC16G-SW	16 Gbps Fibre Channel-SW SFP+, LC
DS-SFP-FC16G-LW	16 Gbps Fibre Channel-LW SFP+, LC
DS-SFP-FC32G-SW	32 Gbps Fibre Channel-SW SFP+, LC
DS-SFP-FC32G-LW	32 Gbps Fibre Channel-LW SFP+, LC

Note:

1. FI 6454 supports 1G optics on ports 45-48. FI 64108 supports 1G optics on ports 89-96.
2. 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>.
3. SFP-10/25G-LR-S and SFP-10/25G-CSR-S currently works only at 25G speed. (i.e., FI 6454 supported ports 1-48 & FI 64108 supported ports 1-96)
4. S-Class transceivers do not support FCoE at 10G and 40G speeds
5. QSFP-4X10G-LR-S is supported only for uplink ports.

Cabling

Table 4 provides 10-, 25-, 40-, and 100-Gigabit Ethernet cabling specifications for Cisco UCS 6400 Series Fabric Interconnects.

Table 4. 10-, 25-, 40-, and 100-Gigabit Ethernet cabling specifications

Connector (Media)	Cable	Distance	Power (each side)	Transceiver latency (link)	Standard
SFP+ copper (CU)	Twinax	1, 3, and 5M	Approximately 0.1 watt (W)	Approximately 0.1 microsecond	SFF 8431
SFP+ ACU copper	Active Twinax	7M10M	Approximately 0.5W	Approximately 0.1 microsecond	SFF 8461
SFP+FET	MM OM2MM OM3MM OM4	25 and 100M	1W	Approximately 0 microsecond	IEEE 802.3ae
SFP+ Short Reach (SR) and MMF	MM OM2MM OM3MM OM4	82 and 300M	1W	Approximately 0 microseconds	IEEE 802.3ae
SFP+ Long Reach (LR)	SMF	10 KM	1W	Approximately 0 microseconds	IEEE 802.3ae
SFP+ Long Range (ER)	SMF	40 KM	1.5W	Approximately 0 microseconds	IEEE 802.3ae
SFP+ Long Reach (ZR)	SMF	80 KM	1.5W	Approximately 0 microseconds	IEEE 802.3ae

Performance

- Cisco UCS 6454: Layer 2 hardware forwarding at 3.82 Tbps and 1.2 billion packets per second (bps)
- Cisco UCS 64108: Layer 2 hardware forwarding at 7.42 Tbps and 2.8 billion packets per second (bps)
- MAC address table entries: 32,000
- Low-latency cut-through design: Provides predictable, consistent traffic latency regardless of packet size, traffic pattern, or enabled features

Layer 2

- Ethernet switch mode
- Fibre Channel switch mode
- Layer 2 interconnect ports and 3K VLANs
- IEEE 802.1Q VLAN encapsulation
- Support Virtual SANs (VSANs) per interconnect
- Rapid Per-VLAN Spanning Tree Plus RPVST+
- Internet Group Management Protocol (IGMP) Versions 1, 2, and 3 snooping
- Link Aggregation Control Protocol (LACP): IEEE 802.3ad

-
- Advanced EtherChannel hashing based on Layer 2, 3, and 4 information
 - Jumbo frames on all ports (up to 9216 bytes)
 - Pause frames (IEEE 802.3x)
 - FC/FCoE slow drain detection and recovery
 - Port security

Quality of Service (QoS)

- Layer 2 IEEE 802.1p (class of service)
- Sixteen hardware queues per port (FCoE plus five user-defined)
- Class-of-Service(CoS)-based egress queuing
- Egress port-based scheduling: Weighted Round-Robin (WRR)
- Priority-based flow control (802.1Qbb)
- Enhanced transmission selection (802.1Qaz)

High availability

- Hot-swappable field-replaceable power suppliers, fan modules, and expansion modules
- 1+1 power redundancy
- N+1 fan module redundancy

Management

- Interconnect management using redundant 10/100/1000 Mbps management or console ports
- All management provided through Cisco UCS Manager. Please refer to the Cisco UCS Manager data sheet for more information about management interfaces

Low-latency, lossless 10/25/40/100 Gigabit Ethernet unified network fabric

- PFC (per priority pause frame support)
- Data Center Bridging Exchange (DCBX) Protocol
- IEEE 802.1Qaz: bandwidth management

Unified ports

- Cisco UCS 6400 Series can be configurable as 10- and 25-Gigabit Ethernet or 8/16/32-Gbps Fibre Channel

Industry standards

- IEEE 802.1p: CoS prioritization
- IEEE 802.1Q: VLAN tagging
- IEEE 802.1s: multiple VLAN instances of Spanning Tree Protocol
- IEEE 802.1w: rapid reconfiguration of Spanning Tree Protocol
- IEEE 802.3: Ethernet
- IEEE 802.3ad: LACP
- IEEE 802.3ae: 10-Gigabit Ethernet
- IEEE 802.3by: 25-Gigabit Ethernet
- IEEE 802.3bg: 40-Gigabit Ethernet
- IEEE 802.3bm: 100-Gigabit Ethernet
- SFP28 support
- QSFP28 support
- Remote Monitoring (RMON)

Physical specifications

SFP28 and QSFP28 optics

Cisco UCS products support 10-, 25-, 40-, and 100-Gigabit Ethernet SFP28 and QSFP28 copper Twinax cables for short distances, and SFP28 and QSFP28 optics for longer distances. SFP28 and QSFP28 have several advantages compared to other Ethernet connectivity options:

- 10-, 25-, 40-, and 100-Gigabit Ethernet form factor
- Low power consumption
- Hot-swappable devices

Table 5 summarizes the Cisco UCS 6400 Series Fabric Interconnect specifications.

Table 5. Cisco UCS 6400 Series Fabric Interconnect specifications****

Feature	Cisco UCS 6454	Cisco UCS 64108
Ports	48 x 10/25-Gbps SFP28 ports and 6 x 40/100-Gbps QSFP28 ports	96 x 10/25-Gbps SFP28 ports and 12 x 40/100-Gbps QSFP28 ports
Downlink supported speeds	1/10/25-Gbps Ethernet/FCoE8/16/32-Gbps Fibre Channel	1/10/25-Gbps Ethernet/FCoE8/16/32-Gbps Fibre Channel
CPU	6 cores	6 cores
System memory	64 GB	64 GB
Management ports	L1, L2, and RJ-45 ports	L1, L2, and RJ-45 ports

Feature	Cisco UCS 6454	Cisco UCS 64108
USB ports	1	1
Power supplies (up to 2)	650W (AC) or 930W (DC)	Two identical AC or DC
Typical operating power	260W	404W
Maximum power (AC)	650W	1200W
Maximum power (DC)	930W	930W
Input voltage (AC)	100 to 240 VAC	7A at 200 VAC
Input voltage (DC)	-40 to -72VDC	23 A maximum at -48 VDC
Frequency	50 to 60 Hz	50 to 60 Hz
Fans	4	3
Airflow	Standard airflow - front (PSU/fan-side) to back (port-side exhaust)	Standard airflow - front (PSU/fan-side) to back (port-side exhaust)
Efficiency (AC)	95 to 98% (50 to 100% load)	95 to 98% (50 to 100% load)
Efficiency (DC)	88 to 92% (50 to 100% load)	88 to 92% (50 to 100% load)
RoHS compliance	Yes	Yes
Hot swappable	Yes	Yes

Cisco UCS 6400 Series physical and environmental specifications

Table 6 summarizes the physical and environmental specifications for Cisco UCS 6400 Series Fabric Interconnects.

Table 6. Physical and environmental specifications

Property	Cisco UCS 6454	Cisco UCS 64108
Physical (height x width x depth)	1.72 in. x 17.3 in x 22.5 in (4.4 cm x 43.9 cm x 57.1 cm)	3.38 in. x 17.42 in x 22.95 in (8.33 cm x 44.25 cm x 58.29 cm)
Operating temperature	32 to 104° F (0 to 40° C)	32 to 104° F (0 to 40° C)
Nonoperating temperature	-40 to 158° F (-40 to 70° C)	-40 to 158° F (-40 to 70° C)
Humidity	5 to 95%	5 to 95%
Altitude	0 to 13,123 ft (0 to 4000m)	0 to 13,123 ft (0 to 4000m)

Weight

Table 7 summarizes the weights for the Cisco UCS 6400 Series.

Table 7. Weight, including power supplies and fan modules

Component	Weight
Cisco UCS 6454 with two power supplies and two expansion modules installed	22.24 lb (10.10 kg), with fans
Cisco UCS 64108 with two power supplies and two expansion modules installed	35.86 lb (16.27 kg), with fans

Regulatory standards compliance: safety and EMC

Table 8 summarizes regulatory compliance for the Cisco UCS 6400 Series Fabric Interconnects.

Table 8. Regulatory standards compliance: safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC.
Safety	<ul style="list-style-type: none">• UL 60950-1 Second Edition• CAN/CSA-C22.2 No. 60950-1• EN 60950-1 Second Edition• IEC 60950-1 Second Edition• AS/NZS 60950-1• GB4943
EMC: Emissions	<ul style="list-style-type: none">• 47CFR Part 15 (CFR 47) Class A• AS/NZS CISPR22 Class A• CISPR22 Class A• EN55022 Class A• ICES003 Class A• VCCI Class A• EN61000-3-2• EN61000-3-3• KN22 Class A• CNS13438 Class A
EMC: Immunity	<ul style="list-style-type: none">• EN55024• CISPR24• EN300386• KN 61000-4 series
RoHS	The product is RoHS 5-compliant with exceptions for leaded Ball Grid Array (BGA) balls and lead press-fit connectors.

Ordering information

Table 9 presents ordering information for Cisco UCS 6400 Fabric Interconnects.

Table 9. Ordering information

Part Number	Description
Fabric Interconnects	
UCS-FI-6454-U	Standalone model: 1RU FI, with no PSU, with 54 ports and includes 18x10/25-Gbps and 2x40/100-Gbps port licenses
UCS-FI-6454++	Standalone model: TAA-UCS 6454 1RU FI, with no PSU, with 54 ports and includes 18x10/25-Gbps and 2x40/100-Gbps port licenses
UCS-FI-6454	Configured model: UCS 6454 1RU FI, with no PSU, with 54 ports and includes 18x10/25-Gbps and 2x40/100-Gbps port licenses
UCS-FI-64108-U	Standalone model: UCS 64108 2RU FI, with no PSU, with 108 ports and includes 36x10/25-Gbps and 4x40/100-Gbps port licenses
UCS-FI-64108	Configured model: UCS 64108 2RU FI, with no PSU, with 108 ports and includes 36x10/25-Gbps and 4x40/100-Gbps port licenses
Fabric Interconnect port licenses	
UCS-L-6400-25G	UCS 6400 series ONLY Fabric Int 1 Port 10/25 Gbps/FC port license
UCS-L-6400-25GC	UCS 6400 series ONLY Fabric Int 1 Port 10/25 Gbps/FC port license C-direct only (used to connect directly from FI 6454 to C220, C240, C460, C480, and/or C4200)
UCS-L-6400-100G	UCS 6400 series ONLY Fabric Int 1 Port 40/100 Gbps port license
Power supply and fan	
UCS-PSU-6332-AC	UCS 6332/6454 power supply/100-240VAC (650 W)
UCS-PSU-6332-DC	UCS 6332/6454 power supply/-48VDC (930 W)
UCS-PSU-64108-AC	UCS 64108 power supply/100-240VAC
UCS-PSU-6332-DC	UCS 64108 Power Supply/-48VDC
UCS-FAN-6332	UCS 6332/6454 fan module
UCS-FAN-64108	UCS 64108 fan module
Accessory and blank	
UCS-ACC-6332	UCS 6332/6454 chassis accessory kit
UCS-ACC-64108	UCS 64108 chassis accessory kit

Warranty information

Find warranty information at Cisco.com on the Product Warranties page.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco Services for Unified Computing

Using a unified view of data-center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a unified computing architecture. Cisco Services for Unified Computing help you quickly deploy your data center resources, simplify ongoing operations, and optimize your infrastructure to better meet your business needs. For more information about these and other Cisco services for the data center, visit <https://www.cisco.com/go/unifiedcomputingservices>.

Why Cisco?

The Cisco Unified Computing System continues Cisco's long history of innovation in delivering integrated systems for improved business results based on industry standards and using the network as the platform. Recent examples include IP telephony, LAN switching, unified communications, and unified I/O. Cisco began the unified computing phase of our unified data center strategy several years ago by assembling an experienced team from the computing and virtualization industries to augment our own networking and storage access expertise. As a result, Cisco delivered foundational technologies, including the Cisco Nexus® Family, supporting unified fabric and server virtualization. Cisco UCS completes this phase, delivering innovation in architecture, technology, partnerships, and services. Cisco is well positioned to deliver this innovation by taking a systems approach to computing that unifies network intelligence and scalability with innovative ASICs, integrated management, and standard computing components.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments.

[Learn more.](#)

For more information

For more information about Cisco UCS, visit <https://www.cisco.com/en/US/products/ps10265/index.html>.

Americas Headquarters

Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters

Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters

Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at <https://www.cisco.com/go/offices>.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)