Spec Sheet

How to Buy

Cisco UCS 5108 Blade Server Chassis

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OVERVIEW

The UCS 5108 chassis is a 6RU chassis the that can accommodate up to eight half-width, four full-width or any combination of blade form factors (M1 - M5 generation) that will fit in the available number of blade slots. The chassis has two I/O bays for Fabric Extenders or Fabric Interconnects.

Figure 1 through *Figure 3 on page 4* show the front and rear views of a 5108 blade chassis.

Figure 1 Cisco UCS 5108 Blade Server Chassis (front view)



Figure 2 Cisco UCS 5108 Blade Server Chassis with Fabric Extenders (rear view)

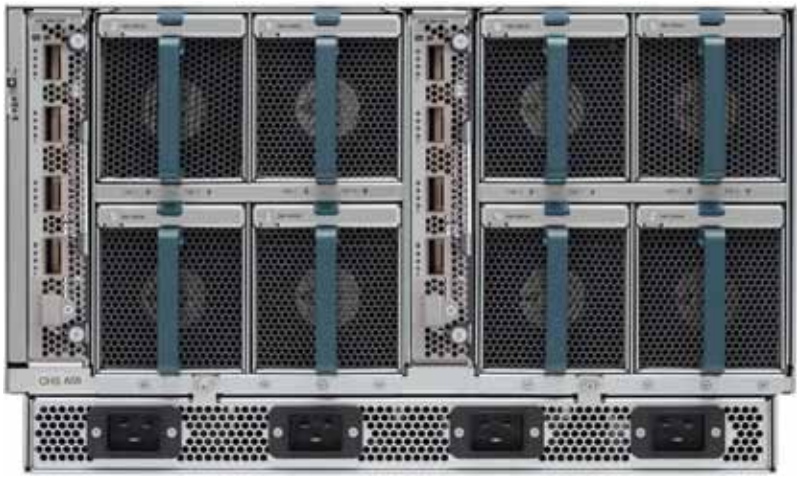


Figure 3 Cisco UCS 5108 Blade Server Chassis with Fabric Interconnects (rear view)



DETAILED VIEWS

Chassis Front Views

Figure 4 is a detailed front view of the Cisco UCS 5108 Blade Server Chassis with eight half-width blade servers installed.

Figure 4 5108 Chassis Front View with Eight Half-Width Blade Servers Installed

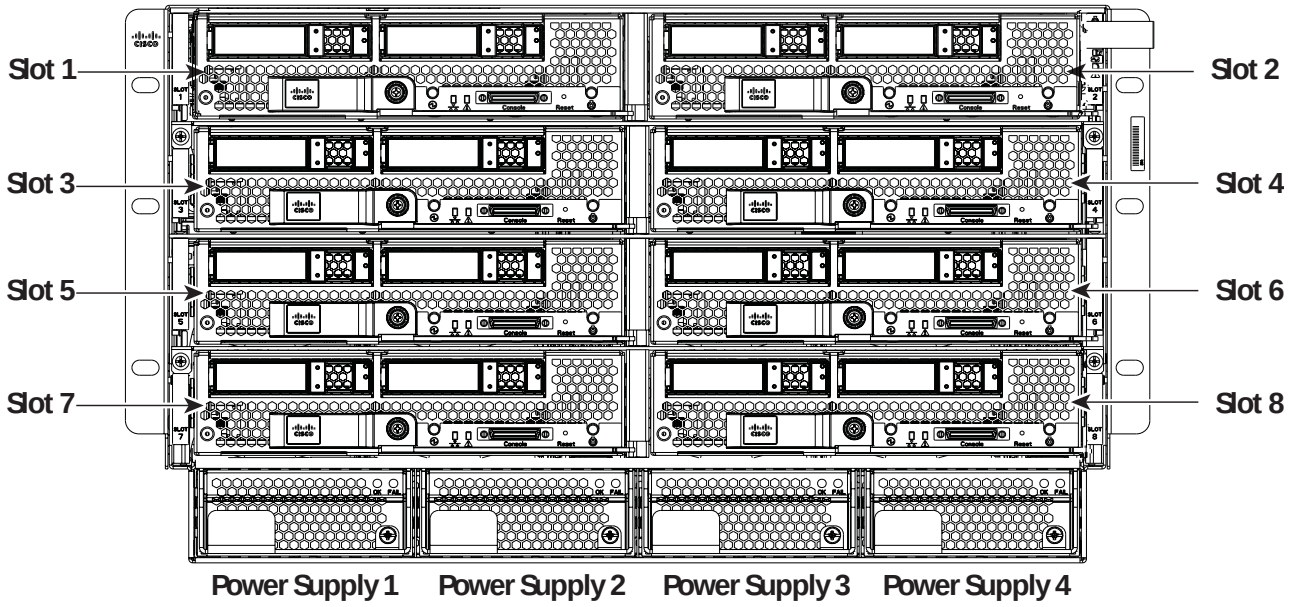


Table 1 Front View Callouts

Callout	Description
Slot 1 - 8	Slot numbering for half-width blade servers
Power Supply 1 - 4	Slot numbering for power supply

Figure 5 is a detailed front view of the Cisco UCS 5108 Blade Server Chassis with four full-width blade servers installed.

Figure 5 5108 Chassis Front View with Four Full-Width Blade Servers Installed

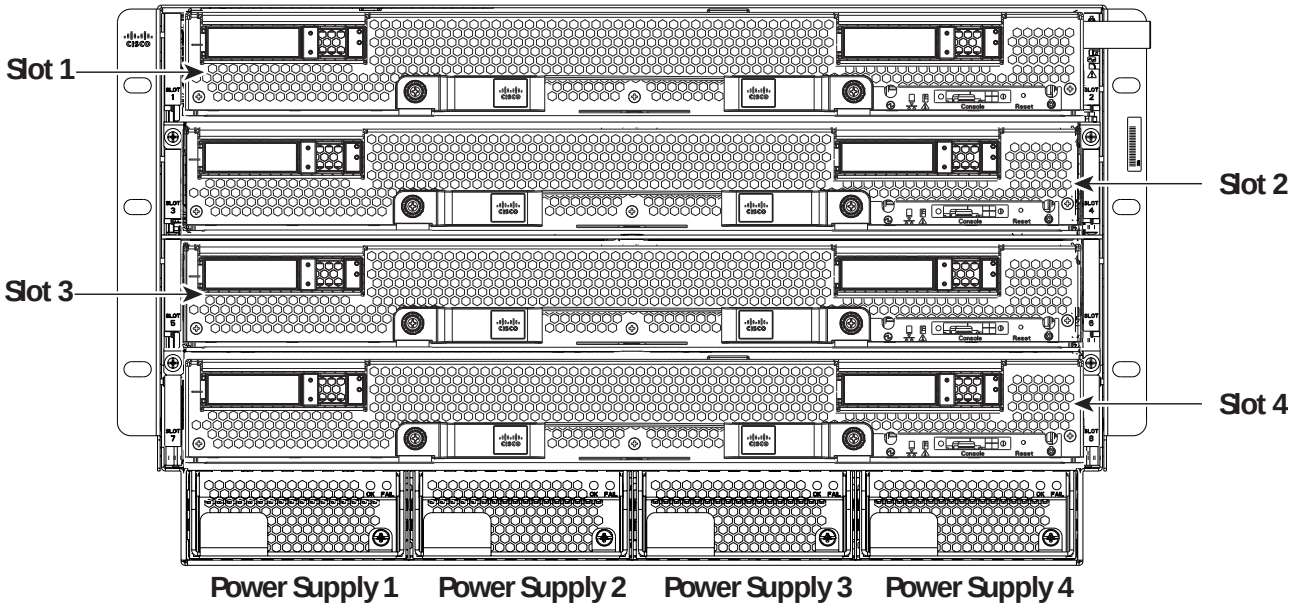


Table 2 Front View Callouts

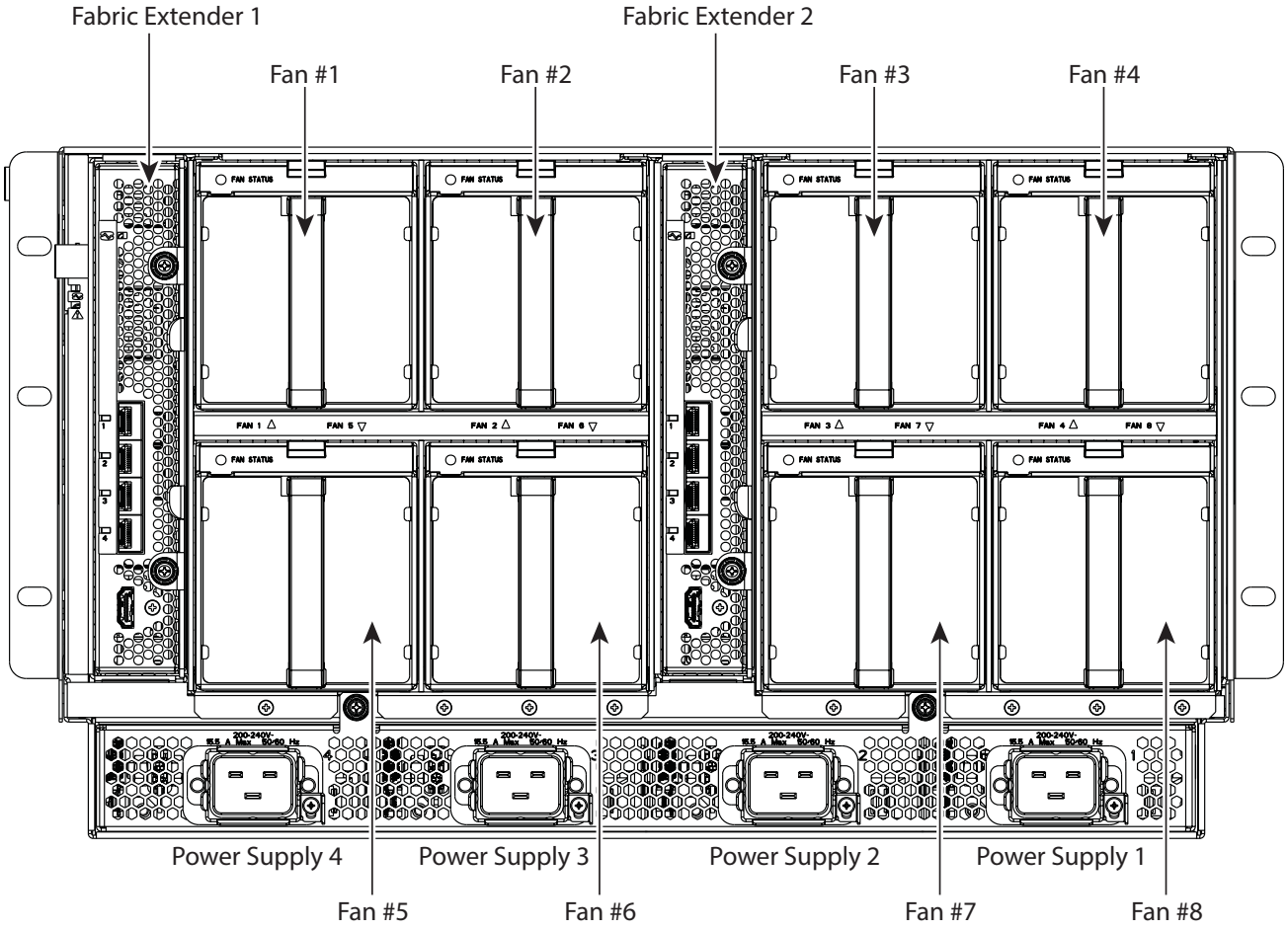
Callout	Description
Slot 1 - 4	Slot numbering for full-width blade servers
Power Supply 1 - 4	Slot numbering for power supply

NOTE: If a B460 M4 full-width blade server is mixed with other full-width or half-width blades in the chassis, the B460 M4 must occupy the bottom two full-width slots in the 5108 blade chassis.

Chassis Rear View

Figure 6 shows the rear view of the 5108 chassis (AC power version).

Figure 6 Chassis Rear View (AC power supplies)



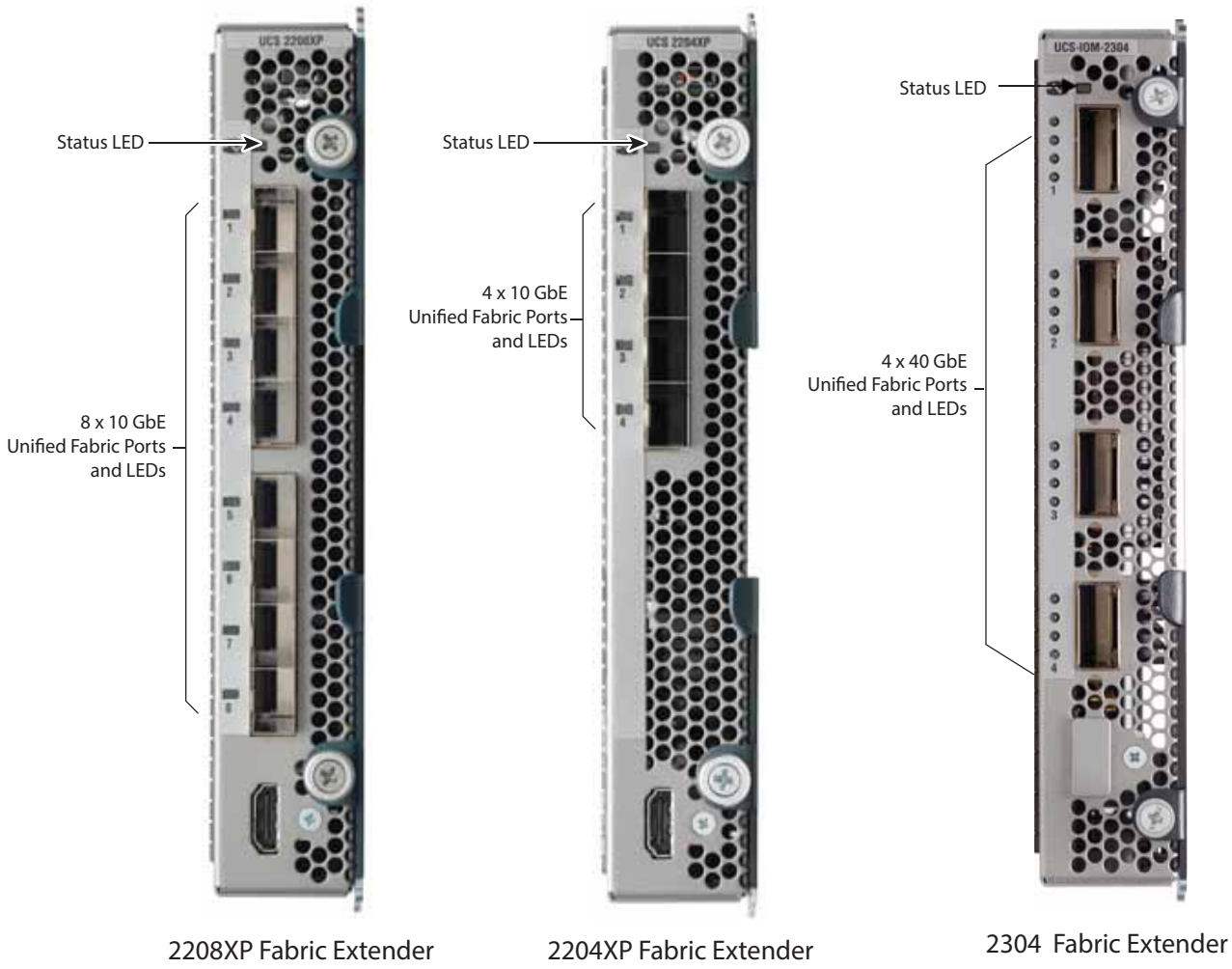
Fabric Extender Modules

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

- Cisco UCS 2208XP
- Cisco UCS 2204XP
- Cisco UCS 2304

Figure 7 shows the Fabric Extenders.

Figure 7 2208XP, 2204XP, and 2304 Fabric Extender



2208XP Fabric Extender 2204XP Fabric Extender 2304 Fabric Extender

Fabric Interconnect Module

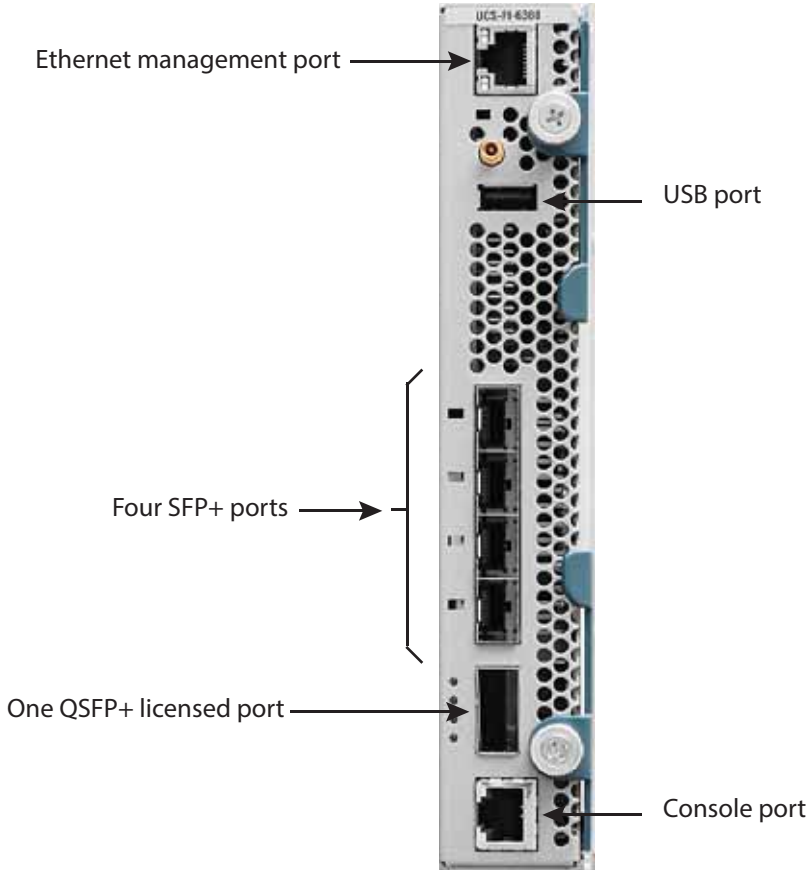
The Fabric Interconnect modules (up to two) plug into the back of the 5108 blade chassis. A midplane connects the blade servers to the Fabric Interconnects. The 5108 blade chassis accommodates the following Fabric Interconnect module:

- Cisco UCS 6324 Fabric Interconnect

NOTE: The Cisco UCS 6324 is supported only in the UCSB-5108-AC2 and UCSB-5108-DC2 chassis. The Cisco UCS 6324 is not currently supported in the UCSB-5108-HVDC chassis.

Figure 8 shows the Fabric Interconnect.

Figure 8 Cisco UCS 6324 Fabric Interconnect



BASE CHASSIS STANDARD CAPABILITIES and FEATURES

Table 3 lists the capabilities and features of the base 5108 chassis. Details about how to configure the chassis for a particular feature or capability are provided in *CONFIGURING the CHASSIS on page 12*.

Table 3 Capabilities and Features

Capability/Feature	Description
Management by Cisco UCS Manager	■ Reduces TCO by removing management modules from the chassis, making the chassis stateless, and UCS systems management inherently scalable ■ Provides a single, highly available management domain for all system chassis, reducing administrative tasks through automated service profile configuration
Unified fabric	Decreases TCO by reducing the number of network interface cards (NICs), host bus adapters (HBAs), switches, and cables needed
Support for up to two Cisco UCS 2200 or 2300 Series Fabric Extenders	■ Eliminates switches from the chassis along with complex configuration and management of those switches, allowing a system to scale without adding complexity and cost ■ Allows use of two fabric extenders for redundancy or aggregation of bandwidth ■ Enables bandwidth scaling based on application needs; blades can be configured for 1.25 Gbps to 40 Gbps
Support for up to two Cisco UCS 6324 Fabric Interconnects that connect directly to an external switch	■ Allows use of up to two internal 6324 fabric interconnects for redundancy or aggregation of bandwidth ■ The 6324 Fabric Interconnect combines the Fabric Extender and Fabric Interconnect functions into one plug-in module, and allows direct connection to an external switch.
Auto-discovery	Requires no configuration; like all components in the Cisco Unified Computing System, chassis are automatically recognized and configured by Cisco UCS Manager and its service profiles and service profile groups
High-performance mid-plane	■ Provides investment protection ■ Supports up to 2x 40 Gbit Ethernet links to each half-width blade slot or up to 4x 40 Gbit links to each full-width slot ■ Provides 8 blades with 1.2 terabits (Tb) of available Ethernet throughput for future I/O requirements. (note that the UCS 6324 FI supports only 512 Gbps) ■ Provides reconfigurable chassis to accommodate a variety of form factors and functions
Redundant hot-swappable power supplies and fans	■ Provides high availability in multiple configurations ■ Provides uninterrupted service during maintenance

Table 3 Capabilities and Features *(continued)*

Capability/Feature	Description
Hot-swappable blade servers and fabric extenders	Provides uninterrupted service during maintenance and server deployment.
Comprehensive monitoring	■ Provides extensive environmental monitoring on each chassis ■ Allows use of user thresholds to optimize environmental management of the chassis
Thermal efficiencies	The Chassis Management Controller (CMC) monitors all the temperature sensors and regulates fan speeds to maintain the airflow at the minimum needed to cool the system. The open backplane and deep plenum allow air to be directed across the blades to ensure cooling is directed where it is needed most.
Tool-free installation	■ Requires no specialized tools for chassis installation ■ Provides mounting rails for easy installation and servicing
Mixed blade configurations	The UCS 5108 Server Chassis can accommodate a maximum of 8 half-width sever blades or 4 full-width server blades or any combinations of the two sizes that will fit in the chassis.
UCS Manager	Consult Cisco UCS Hardware and Software Compatibility tool at https://ucshcltool.cloudapps.cisco.com/public/ to verify supported hardware and software combinations.

CONFIGURING the CHASSIS

Follow these steps to configure the Cisco UCS 5108 chassis:

- *STEP 1 VERIFY BASE CHASSIS SKU, page 13*
- *STEP 2 SELECT FABRIC I/O EXTENDERS, page 15*
- *STEP 3 SELECT FABRIC INTERCONNECTS, page 17*
- *STEP 4 CHOOSE ADDITIONAL COMPONENTS (OPTIONAL), page 18*
- *STEP 5 CHOOSE POWER SUPPLIES, page 24*
- *STEP 6 SELECT INPUT POWER CORD(s), page 25*
- *STEP 7 CHOOSE SERVICE and SUPPORT LEVEL, page 26*
- *SUPPLEMENTAL MATERIAL on page 34*

STEP 1 VERIFY BASE CHASSIS SKU

Verify the product ID (PID) of the base 5108 blade chassis as shown in *Table 4*. Note that you can order either an AC, -48 DC, or high-voltage DC (200 VDC—380 VDC) input power version of the chassis.

Table 4 PID of the Base UCS Mini Chassis

Product ID (PID)	Description	Usage
UCSB-5108-AC2	UCS 5108 Blade Server AC2 Chassis, 0 PSU/8 fans/0 FEX	Cannot be configured outside bundle. Use N20-Z0001 or UCS-MINI-Z0001 PIDs to include Fabric Interconnects, blades, power supply Units (PSUs) and Fabric Extender (FEX) modules as a system.
UCSB-5108-AC2-UPG	UCS 5108 Blade Server AC2 Chassis, 0 PSU/8 fans/0 FEX	Can only be used to order a chassis configured with blades, PSUs and FEX or FIOM modules. May not be used to order an empty chassis.
UCSB-5108-AC2=	UCS 5108 Blade Server AC2 Chassis, 0 PSU/8 fans/0 FEX	Use to order an empty chassis with or without PSUs and FEX or FIOM modules, cannot be configured with blades.
UCSB-5108-DC2	UCS 5108 Blade Server DC2 Chassis/0 PSU/8 fans/0 FEX	Cannot be configured outside bundle. Use N20-Z0001 or UCS-MINI-Z0001 PIDs to include Fabric Interconnects, blades, PSUs and FEX modules as a system.
UCSB-5108-DC2-UPG	UCS 5108 Blade Server DC2 Chassis/0 PSU/8 fans/0 FEX	Can only be used to order a chassis configured with blades, PSUs and FEX or FIOM modules. May not be used to order an empty chassis.
UCSB-5108-DC2=	UCS 5108 Blade Server DC2 Chassis/0 PSU/8 fans/0 FEX	Use to order an empty chassis with or without power supplies and FEX or FIOM modules, cannot be configured with blades.
UCSB-5108-HVDC	UCS 5108 Blade Chassis 200V-380V HVDC 0 PSU/8 fans/0 FEX	Cannot be configured outside bundle. Use N20-Z0001 or UCS-MINI-Z0001 PIDs to include Fabric Interconnects, blades, PSUs and FEX modules as a system.
UCSB-5108-HVDC-UPG	UCS 5108 Blade Chassis 200V-380V HVDC 0 PSU/8 fans/0 FEX	Can only be used to order a chassis configured with blades, PSUs and FEX or FIOM modules. May not be used to order an empty chassis.
UCSB-5108-HVDC=	UCS 5108 Blade Chassis 200V-380V HVDC 0 PSU/8 fans/0 FEX	Use to order an empty chassis with or without PSUs and FEX or FIOM modules, cannot be configured with blades.

Items included with the chassis:

- N01-UAC1: AC power input module (AC blade chassis only)
- UCSB-PWRM-DC48: DC power input module (DC blade chassis only)

- UCSB-PWRM-HVDC: HVDC power input module (HVDC blade chassis only)
- N20-CDIVH: Horizontal divider, where quantity is based on number and type of blade(s) selected.
- N20-CDIVV: Vertical divider, where quantity is based on number and type of blade(s) selected.
- N20-CBLKI: FEX blanking panel, where quantity is based on unpopulated slots.
- N20-CBLKB1: Blade blanking panel, where quantity is based on unpopulated slots.
- N20-CBLKP: PSU blanking panel, where quantity is based on unpopulated slots.
- N20-FAN5: Fan modules.
- N20-CAK: Chassis accessory kit, consisting of:
  - N20-CRMK2: Tool-less rail kit designed for racks with square mounting.
  - N20-BKVM=: KVM local console connector cable that connects to the front of any UCS blade server, and documentation.

Items not included with the chassis (but may be ordered separately):

- N20-CRMK2-RHA=: Round hole adapter kit used to install tool-less rail kit in racks that have round mounting holes (supports threaded and non-threaded holes).
- All items listed above can be ordered separately as spares, with the exception of the power input modules.



NOTE: The adapter kit only works with the N20-CRMK2 rail kit

Caveats

- You must select either an AC, DC, or HVDC version of the 5108 blade chassis, which is configured with the appropriate input power module (AC, DC or HVDC).
- Mixing of AC, DC, and HVDC PSUs within the same 5108 blade chassis is not supported.
- The blade chassis input power module cannot be replaced in the field to convert the input power type, e.g. converting a DC input to an AC input blade chassis.

STEP 2 SELECT FABRIC I/O EXTENDERS

The Fabric I/O Extender options are:

- Cisco UCS 2208XP
- Cisco UCS 2204XP
- Cisco UCS 2304

Choose Fabric I/O Extenders

The available Fabric I/O Extenders are listed in *Table 5*. Each Fabric I/O Extender connects to the Fabric Interconnect series 10GbE or 40GbE, Fibre Channel over Ethernet (FCoE) capable ports.

Table 5 Available Fabric I/O Extenders

Product ID (PID)	Fabric I/O Extender	Number of GbE/FCoE Ports to Fabric Interconnect	Number of Internal GbE/FCoE Ports	Total Chassis I/O per Fabric Extender
UCS-IOM-2304	2304	4x40G	32x10G or 8x40G	160 Gbps
UCS-IOM-2304-8FET	Bundle that includes one 2304 plus 8 Fabric Extender Transceivers (FETs)[1]	4x40G	32x10G or 8x40G	160 Gbps
UCS-IOM-2208XP	2208XP	8x10G	32x10G	80 Gbs
UCS-IOM2208-16FET	Bundle that includes one 2208XP plus 16 Fabric Extender Transceivers (FETs)[1]	8x10G	32x10G	80 Gbs
UCS-IOM-2204XP	2204XP	4x10G	16x10G	40 Gbs
UCS-IOM2204-8FET	Bundle that includes one 2204XP plus 8 Fabric Extender Transceivers (FETs)[1]	4x10G	16x10G	40 Gbs

Notes . . .

1. For more information on Fabric Extender bundles, see *Fabric Extender Bundles on page 41*.

Approved Configurations

(1) Choose one or two identical Fabric I/O Extenders, or

(2) Choose one or two identical Fabric Extender bundles (includes one Fabric Extender plus transceivers)

Caveats

- Do not use any Fabric Extender transceivers other than those that come in the bundles.
- You cannot combine a 6324 Fabric Interconnect and a Fabric Extender in the same chassis



NOTE: The Cisco UCS 2304 Fabric Extender is not compatible with the Cisco UCS 6200 Fabric Interconnect series

STEP 3 SELECT FABRIC INTERCONNECTS

The Fabric Interconnect options are:

- Cisco UCS 6324 Fabric Interconnect

Choose Fabric Interconnects

The available Fabric Interconnects are listed in *Table 6*. Each Fabric Interconnect integrates the functions of a Fabric I/O Extender and Fabric Interconnect and connects directly to external Nexus switches by means of several ports of 10GbE and Fibre Channel over Ethernet (FCoE).

Table 6 Available Fabric Interconnects

Product ID (PID)	Fabric Interconnect	Number of Internal GbE/FCoE Ports	Number of FCoE Uplink Ports	Number of 40GbE/FCoE Scalability Ports[1]	Total Chassis I/O per Fabric Interconnect
UCS-FI-M-6324	UCS 6324 in-chassis FI with1 x 40G QSFP+ expansion port, and 16 10G-KR links to servers	16x10G	4x1G or 10G	1	40 Gbs (one 40 GbE Port)

Notes . . .

1. The scalability port supports a QSFP+ breakout cable.

Approved Configurations

(1) Choose one or two identical Fabric Interconnects

Caveats

- You must select either one or two identical Fabric Interconnects.
- You cannot combine a 6324 Fabric Interconnect and a Fabric Extender in the same chassis

STEP 4 CHOOSE ADDITIONAL COMPONENTS (OPTIONAL)

The Cisco UCS FEX and FIOM support SFP+ Ethernet transceivers, SFP transceivers, SFP+ copper Twinax cables with integrated transceivers, SFP Fibre Channel transceivers, QSFP transceivers, and QSFP cables.

The Cisco UCS 2204XP Fabric Extender (Figure 7) has four 10 Gigabit Ethernet, FCoE-capable, SFP+ ports that connect the blade chassis to the fabric interconnect. Each Cisco UCS 2204XP has sixteen 10 Gigabit Ethernet ports connected through the midplane to each half-width slot in the chassis. Typically configured in pairs for redundancy, two fabric extenders provide up to 80 Gbps of I/O to the chassis. This product support 10 Gigabit Ethernet SFP+ copper Twinax cables for short distances and SFP+ optics for longer distances.

The Cisco UCS 2208XP Fabric Extender (Figure 7) has eight 10 Gigabit Ethernet, FCoE-capable, Enhanced Small Form-Factor Pluggable (SFP+) ports that connect the blade chassis to the fabric interconnect. Each Cisco UCS 2208XP has thirty-two 10 Gigabit Ethernet ports connected through the midplane to each half-width slot in the chassis. Typically configured in pairs for redundancy, two fabric extenders provide up to 160 Gbps of I/O to the chassis. This product support 10 Gigabit Ethernet SFP+ copper Twinax cables for short distances and SFP+ optics for longer distances.

The Cisco UCS 2304 Fabric Extender (Figure 7) has four 40 Gigabit Ethernet, FCoE-capable, Quad Small Form-Factor Pluggable (QSFP+) ports that connect the blade chassis to the fabric interconnect. Each Cisco UCS 2304 can provide one 40 Gigabit Ethernet ports connected through the midplane to each half-width slot in the chassis, giving it a total eight 40G interfaces to the compute. Typically configured in pairs for redundancy, two fabric extenders provide up to 320 Gbps of I/O to the chassis. This product support 40 Gigabit Ethernet QSFP+ copper Twinax cables for short distances and QSFP+ optics for longer distances.

The Cisco UCS 6324 Fabric Interconnect supports a wide variety of 10 Gigabit Ethernet connectivity options using Cisco 10GBASE SFP+ modules. In addition, the four SFP+ uplink ports support 1 Gigabit Ethernet connectivity options using 1GBASE SFP modules. Alternatively, 2/4/8-Gbps Fibre Channel SFP+ interfaces are supported.

The supported transceivers and cables are shown in *Table 7*. Additional transceiver and cable compatibility details for Cisco UCS products is available at:

https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html

Table 7 SFP+ Transceivers

Product ID	Description	FEX or FIOM			
		2204	2208	2304	6324
SFP+ Transceivers					
SFP-10G-SR	10GBASE-SR SFP+ module (multimode fiber [MMF])	X	X		X
SFP-10G-SR-X	10GBASE-SR SFP+ module (multimode fiber [MMF]) - Extended Operating Temperature Range	X	X		X
SFP-10G-LR	10GBASE-LR SFP+ module (single-mode fiber [SMF])	X	X		X

Table 7 SFP+ Transceivers *(continued)*

Product ID	Description	FEX or FIOM			
		2204	2208	2304	6324
SFP+ Transceivers					
SFP-10G-LR-X	10GBASE-LR SFP+ module (single-mode fiber [SMF]) - Extended Operating Temperature Range	X	X		X
SFP-10G-SR-S	10GBASE-SR SFP+ module, (multi-mode fiber [MMF]) — no FCoE support	X	X		
SFP-10G-LR-S	SFP-10G-LR-S 10GBASE-LR SFP +module (single-mode fiber [SMF]) — no FCoE support	X	X		
FET-10G	FET-10G 10GBASE-FET SFP+ module (multimode fiber [MMF])	X	X		
SFP 1-Gigabit Transceivers					
GLC-T	1000BASE-T SFP transceiver module for Category 5 copper wire		X		X
GLC-TE	1000BASE-T SFP transceiver module for Category 5 copper wire		X		
GLC-LH-SM	1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310-nm wavelength, dual LC/PC connector		X		X
GLC-LH-SMD	1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM		X		
GLC-SX-MM	1000BASE-SX SFP transceiver module, MMF, 850nm wavelength, dual LC/PC connector		X		X
GLC-SX-MMD	1000BASE-SX SFP transceiver module, MMF, 850nm, DOM		X		
QSFP Transceivers					
QSFP-40G-SR4	40zGBASE-SR4 QSFP module (multimode fiber [MMF] at 100m)			X	
QSFP-40G-SR4-S	40zGBASE-SR4 QSFP module (multimode fiber [MMF] at 100m)			X	
QSFP-40G-CSR4	40GBASE Extended CSR4 QSFP module (MMF at 300m)			X	
QSFP-40G-LR4	Cisco 40GBASE-LR4 QSFP+ transceiver module for SMF, duplex LC connector			X	
QSFP-40G-LR4-S	Cisco 40GBASE-LR4 QSFP+ transceiver module for SMF, duplex LC connector			X	
FET-40G	Cisco 40G Line Extender for FEX			X	

Table 7 SFP+ Transceivers *(continued)*

Product ID	Description	FEX or FIOM			
		2204	2208	2304	6324
SFP+ Copper and Optical Cables with Integrated Transceivers					
SFP-H10GB-CU1M	SFP-H10GB-CU1M 10GBASE-CU SFP+ 1-meter cable	X	X		X
SFP-H10GB-CU3M	SFP-H10GB-CU3M 10GBASE-CU SFP+ 3-meter cable	X	X		X
SFP-H10GB-CU5M	SFP-H10GB-CU5M 10GBASE-CU SFP+ 5-meter cable	X	X		X
SFP-H10GB-ACU7M	SFP-H10GB-ACU7M 10GBASE-CU SFP+ 7-meter cable	X	X		X
SFP-H10GB-ACU10M	SFP-H10GB-ACU10M 10GBASE-CU SFP+ 10-meter cable	X	X		X
SFP-10G-AOC1M	SFP-10G-AOC1M 10GBASE Active Optical SFP+ Cable, 1M	X	X		X
SFP-10G-AOC3M	SFP-10G-AOC3M 10GBASE Active Optical SFP+ Cable, 3M	X	X		X
SFP-10G-AOC5M	SFP-10G-AOC5M 10GBASE Active Optical SFP+ Cable, 5M	X	X		X
SFP-10G-AOC7M	SFP-10G-AOC5M 10GBASE Active Optical SFP+ Cable, 7M	X	X		X
SFP-10G-AOC10M	SFP-10G-AOC5M 10GBASE Active Optical SFP+ Cable, 10M	X	X		X
QSFP Cables with Integrated Transceivers					
QSFP-4x10G-AC7M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 7-meter, active			X	X
QSFP-4x10G-AC10M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 10-meter, active			X	X
QSFP-H40G-CU1M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 1-meter, passive			X	
QSFP-H40G-CU3M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 3-meter, passive			X	
QSFP-H40G-CU5M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 5-meter, passive			X	
QSFP-H40G-ACU7M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 7-meter, active			X	

Table 7 SFP+ Transceivers *(continued)*

Product ID	Description	FEX or FIOM			
		2204	2208	2304	6324
QSFP Cables with Integrated Transceivers					
QSFP-H40G-ACU10M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 10-meter, active			X	
QSFP-4SFP10G-CU1M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 1 meter			X	X
QSFP-4SFP10G-CU3M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 3 meter			X	X
QSFP-4SFP10G-CU5M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 5 meter			X	X
QSFP-4X10G-AOC1M	Cisco 40GBASE-AOC QSFP to 4 SFP+ Active Optical breakout Cable, 1-meter			X	X
QSFP-4X10G-AOC3M	Cisco 40GBASE-AOC QSFP to 4 SFP+ Active Optical breakout Cable, 3-meter			X	X
QSFP-4X10G-AOC5M	Cisco 40GBASE-AOC QSFP to 4 SFP+ Active Optical breakout Cable, 5-meter			X	X
QSFP-4X10G-AOC7M	Cisco 40GBASE-AOC QSFP to 4 SFP+ Active Optical breakout Cable, 7-meter			X	X
QSFP-4X10G-AOC10M	Cisco 40GBASE-AOC QSFP to 4 SFP+ Active Optical breakout Cable, 10-meter			X	X
Fibre Channel SFP Transceiver (Cisco UCS 6324 Fabric Interconnect)					
DS-SFP-FC4G-SW	4 Gbps Fibre Channel-SW SFP, LC connector				X
DS-SFP-FC4G-LW	4 Gbps Fibre Channel-LW SFP, LC, (10km Reach)				X
DS-SFP-FC8G-SW	8-Gbps Fibre Channel SW SFP+, LC connector				X
DS-SFP-FC8G-LW	8 Gbps Fibre Channel LW SFP+, LC				X

Table 8 Cabling specifications

Connector (Media)	Cable Type	Distance	Power	Standard
SFP+ copper CU	Twinax	1, 3, 5, 7 and 10 m	0.1W	SFF 8431
SFP+ FET	MM OM2 MM OM3 MM OM4	25 and 100 m	1.0W	IEEE 802.3ae
SFP+ short-reach (SR) and multimode fiber (MMF)	MM OM2 MM OM3 MM OM4	82 and 300 m	1.0W	IEEE 802.3ae
SFP+ long-reach (LR) MMF and SR	SMF	Up to 300 m	1.0W	IEEE 802.3ae
QSFP+ copper CU	Twinax	1, 3, 5, 7 and 10 m	0.1W	SFF 8635
QSFP+ FET	MM OM2 MM OM3 MM OM4	30 and 100 m	1.5W	IEEE 802.3ba
QSFP+ short-reach (SR) and multimode fiber (MMF)	MM OM2 MM OM3 MM OM4	30 and 300 m	1.5W	IEEE 802.3ba
QSFP+ long-reach (LR) MMF and SR	SMF	Up to 300 m	3.5W	IEEE 802.3ba

Choose QSFP+ Port License

In order to use the QSFP+ port on 6324 FI, a license must be added. See *Table 9*.

Table 9 QSFP+ Port License

Product ID (PID)	PID Description
UCS-6324-40G	Mini FI License for 40G Scalability Port

Caveats

- You should order enough SFPs, QSFPs and cables to accommodate your maximum foreseeable needs.
- If you selected a QSFP+ transceiver, make sure you choose a QSFP+ port license.
- For the 6324, observe the following:

— The maximum number of SFP+ transceivers, SFP optical transceivers, copper transceivers, or Twinax cables must be less than or equal to four. A minimum of one of these must be installed for the 6324 to have network connectivity.

— The maximum number of Fibre Channel SFPs must be less than or equal to three. The reason for this is that at least one SFP+ port on the 6324 must be free so the 6324 can connect to a network.

STEP 5 CHOOSE POWER SUPPLIES

The 5108 blade chassis accommodates up to four power supplies.

Choose Power Supplies

The available power supplies are listed in *Table 10*.

Table 10 Available Power Supplies

Product ID (PID)	PID Description
UCSB-PSU-2500ACDV	2500 W Platinum AC Hot Plug Power Supply - DV
UCSB-PSU-2500DC48	2500 W DC -48 V power supply
UCSB-PSU-2500HVDC	2500 W DC high voltage (200 to 380 VDC) DC power supply

Approved Configurations

(1) Choose from 2 to 4 power supplies

Caveats

- You must select either an AC, DC, or HVDC version of the 5108 blade chassis, which is configured with the appropriate input power module (AC, DC or HVDC).
- Mixing AC, DC or HVDC PSUs within the same 5108 blade chassis is not supported.
- The blade chassis input power module cannot be replaced in the field to convert the input type e.g. converting a DC input to an AC input blade chassis.

STEP 6 SELECT INPUT POWER CORD(s)

Select the appropriate AC power cords listed in *Table 11*. You may select up to 4 power cords.

Table 11 Available Power Cords

Product ID (PID)	PID Description	Comment
CAB-AC-16A-AUS	16A, 250 VAC	Australia
CAB-9K16A-BRZ	16A, 250 VAC	Brazil
CAB-AC16A-CH	16A, 250 VAC	China
CAB-AC-2500W-EU	16A, 250 VAC	Europe
CAB-AC-2500W-INT	16A, 250 VAC	International
CAB-AC-2500W-ISRL	16A, 250 VAC	Israel
CAB-US620P-C19-US	16A, 250VAC NEMA L6-20P to IEC C19	USA
CAB-AC-C6K-TWLK	20A, 250VAC NEMA L6-20 (Twist Lock) to IEC C19	USA
CAB-ACS-16	16A, 250 VAC	Switzerland
CAB-C19-CBN	16A, 250 VAC	Jumper cord C19/C20
CAB-US515P-C19-US	15A, 125 VAC NEMA 5-15 to IEC-C19	USA
CAB-US520-C19-US	20A, 125 VAC NEMA 5-20 to IEC-C19	USA
CAB-BS1363-C19-UK	13A, 250 VAC BS1363 to IEC C19	UK
CAB-9K16A-KOR	16A, 250 VAC CEE 7/7 to IEC C19	South Korea
CAB-C19-C20-3M-JP	16A, 250 VAC	Japan
CAB-IR2073-C19-AR	20A, 250 VAC IRSM 2073 to IEC C19	Argentina
CAB-SABS-C19-IND	16A, 250 VAC SABS 164-1 to IEC C19	India
CAB-S132-C19-ISRL	16A, 250 VAC S132 to IEC C19	Isreal
CAB-C2316-C19-IT	16A, 250 VAC CEI 23-16 to IEC C19	Italy

STEP 7 CHOOSE SERVICE and SUPPORT LEVEL

A variety of service options are available, as described in this section.

Unified Computing Warranty, No Contract

If you have noncritical implementations and choose to have no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) onsite parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Ongoing downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

Smart Net Total Care (SNTC) for UCS

For support of the entire Unified Computing System, Cisco offers the Cisco SMARTnet for UCS Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to Cisco Technical Assistance Center (TAC) is provided around the clock, from anywhere in the world.

For the 5108 chassis, there is Smart Call Home, which provides proactive, embedded diagnostics and real-time alerts. For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco SMARTnet for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. You can choose a desired service listed in *Table 12*.

Table 12 Cisco SNTC for UCS Service (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-6508AC2	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-6508AC2	UCSD8	Yes	UC SUPP DR 24X7X2OS*
CON-C2PL-6508AC2	C2PL	Yes	LL 24X7X2OS**
CON-OSP-6508AC2	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-6508AC2	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-6508AC2	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-6508AC2	USD7L	Yes	LLUCS HW DR
CON-OSE-6508AC2	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-6508AC2	UCSD6	Yes	UC SUPP DR 8X5X4OS*

Table 12 Cisco SNTC for UCS Service (PID UCSB-5108-AC2)

CON-SNCO-6508AC2	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-6508AC2	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-6508AC2	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-6508AC2	S2P	No	SNTC 24X7X2
CON-S2PL-6508AC2	S2PL	No	LL 24X7X2**
CON-SNTP-6508AC2	SNTP	No	SNTC 24X7X4
CON-SNTPL-6508AC2	SNTPL	No	LL 24X7X4**
CON-SNTE-6508AC2	SNTE	No	SNTC 8X5X4
CON-SNC-6508AC2	SNC	No	SNTC 8x7xNCD****
CON-SNT-6508AC2	SNT	No	SNTC 8X5XNBD
CON-SW-6508AC2	SW	No	SNTC NO RMA

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-PREM-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-PREM-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix (Example:

*Includes Drive Retention (see below for full description)

**Includes Local Language Support (see below for full description) – Only available in China and Japan

***Includes Local Language Support and Drive Retention – Only available in China and Japan

****Available in China Only

Smart Net Total Care for Cisco UCS Onsite Troubleshooting Service

An enhanced offer over traditional Smart Net Total Care which provides onsite troubleshooting expertise to aid in the diagnostics and isolation of hardware issue within our customers' Cisco Unified Computing System (UCS) environment. It is delivered by a Cisco Certified field engineer (FE) in collaboration with remote TAC engineer and Virtual Internet working Support Engineer (VISE). You can choose a desired service listed in *Table 13*.

Table 13 SNTC for Cisco UCS Onsite Troubleshooting Service (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-OSPT-6508AC2	OSPT	Yes	24X7X4OS Trblshtg
CON-OSPTD-6508AC2	OSPTD	Yes	24X7X4OS TrblshtgDR*

Table 13 SNTC for Cisco UCS Onsite Troubleshooting Service (PID UCSB-5108-AC2)

CON-OSPTL-6508AC2	OSPTL	Yes	24X7X4OS TrblshtgLL**
CON-OPTLD-6508AC2	OPTLD	Yes	24X7X4OS TrblshtgLLD***

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-OSPT-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-OSPT-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix (Example:

*Includes Drive Retention (see below for full description)

**Includes Local Language Support (see below for full description) – Only available in China and Japan

***Includes Local Language Support and Drive Retention – Only available in China and Japan

Solution Support for UCS

Solution Support includes both Cisco product support and solution-level support, resolving complex issues in multivendor environments, on average, 43% more quickly than product support alone. Solution Support is a critical element in data center administration, to help rapidly resolve any issue encountered, while maintaining performance, reliability, and return on investment.

This service centralizes support across your multivendor Cisco environment for both our products and solution partner products you've deployed in your ecosystem. Whether there is an issue with a Cisco or solution partner product, just call us. Our experts are the primary point of contact and own the case from first call to resolution. For more information please refer to the following url:

http://www.cisco.com/c/en/us/services/technical/solution-support.html?stickynav=1

You can choose a desired service listed in *Table 14*.

Table 14 Solution Support for UCS Service (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-SSC2P-6508AC2	SSC2P	Yes	SOLN SUPP 24X7X2OS
CON-SSC4P-6508AC2	SSC4P	Yes	SOLN SUPP 24X7X4OS
CON-SSC4S-6508AC2	SSC4S	Yes	SOLN SUPP 8X5X4OS
CON-SSCS-6508AC2	SSCS	Yes	SOLN SUPP 8X5XNBDOS
CON-SSDR7-6508AC2	SSDR7	Yes	SSPT DR 24X7X4OS*
CON-SSDR5-6508AC2	SSDR5	Yes	SSPT DR 8X5XNBDOS*
CON-SSS2P-6508AC2	SSS2P	No	SOLN SUPP 24X7X2
CON-SSSNP-6508AC2	SSSNP	No	SOLN SUPP 24X7X4

Table 14 Solution Support for UCS Service (PID UCSB-5108-AC2)

CON-SSSNE-6508AC2	SSSNE	No	SOLN SUPP 8X5X4
CON-SSSNC-6508AC2	SSSNC	No	SOLN SUPP NCD**
CON-SSSNT-6508AC2	SSSNT	No	SOLN SUPP 8X5XNBD

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON- SSC2P-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-SSC2P-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix

*Includes Drive Retention (see below for description)

**Available in China only

Smart Net Total Care for UCS Hardware Only Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Smart Net Total Care for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. Smart Net Total Care for UCS Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in *Table 15*.

Table 15 SNTC for UCS Hardware Only Service (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-6508AC2	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-6508AC2	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-6508AC2	UCW7L	Yes	LL UCS 24X7X4OS**
CON-UWD7L-6508AC2	UWD7L	Yes	LL UCS DR 24X7X4OS***
CON-UCW5-6508AC2	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-6508AC2	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-UCW7-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-UCW7-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix

*Includes Drive Retention (see below for description)

Table 15 SNTC for UCS Hardware Only Service (PID UCSB-5108-AC2)

**Includes Local Language Support (see below for full description) – Only available in China and Japan
***Includes Local Language Support and Drive Retention – Only available in China and Japan

Partner Support Service for UCS

Cisco Partner Support Service (PSS) is a Cisco Collaborative Services service offering that is designed for partners to deliver their own branded support and managed services to enterprise customers. Cisco PSS provides partners with access to Cisco's support infrastructure and assets to help them:

- Expand their service portfolios to support the most complex network environments
- Lower delivery costs
- Deliver services that increase customer loyalty

PSS options enable eligible Cisco partners to develop and consistently deliver high-value technical support that capitalizes on Cisco intellectual assets. This helps partners to realize higher margins and expand their practice.

PSS is available to all Cisco PSS partners.

The two Partner Unified Computing Support Options include:

- Partner Support Service for UCS
- Partner Support Service for UCS Hardware Only

PSS for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support. You can choose a desired service listed in *Table 16*.

Table 16 PSS for UCS (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-6508AC2	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-6508AC2	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-6508AC2	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-6508AC2	PSJ6	Yes	UCS PSS 8X5X4 OS
CON-PSJD6-6508AC2	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-6508AC2	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-6508AC2	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-6508AC2	PSJ2	No	UCS SUPP PSS 8X5X4

Table 16 PSS for UCS (PID UCSB-5108-AC2)

CON-PSJ1-6508AC2	PSJ1	No	UCS SUPP PSS 8X5XNBD

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-PSJ7-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-PSJ7-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix

*Includes Drive Retention (see below for description)

PSS for UCS Hardware Only

PSS for UCS Hardware Only provides customers with replacement parts in as little as two hours and provides remote access any time to Partner Support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in *Table 17*.

Table 17 PSS for UCS Hardware Only (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-PSW7-6508AC2	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-6508AC2	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-6508AC2	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-6508AC2	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-6508AC2	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-6508AC2	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-6508AC2	PSW2	No	UCS W PL PSS 8X5X4

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-PSW7-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-PSW7-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix

*Includes Drive Retention (see below for description)

Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SNTC services for UCS help increase the availability of your vital data center infrastructure and realize the most value from your unified computing investment. The more benefits you realize from the Cisco Unified Computing System (Cisco UCS), the more important the technology becomes to your business. These services allow you to:

- Optimize the uptime, performance, and efficiency of your UCS
- Protect your vital business applications by rapidly identifying and addressing issues
- Strengthen in-house expertise through knowledge transfer and mentoring
- Improve operational efficiency by allowing UCS experts to augment your internal staff resources
- Enhance business agility by diagnosing potential issues before they affect your operations
- You can choose a desired service listed in *Table 18*.

Table 18 Combined Support Service for UCS (PID UCSB-5108-AC2)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-6508AC2	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-6508AC2	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-6508AC2	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-6508AC2	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-6508AC2	NCF2	No	CMB SVC 24X7X2
CON-NCFP-6508AC2	NCFP	No	CMB SVC 24X7X4
CON-NCFE-6508AC2	NCFE	No	CMB SVC 8X5X4
CON-NCFT-6508AC2	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-6508AC2	NCFW	No	CMB SVC SW

Note: For PID UCSB-5108-AC2-UPG, select Service SKU with 6508AC2U suffix (Example:

For PID UCSB-5108-DC2, select Service SKU with 6508DC2 suffix (Example: CON-NCF2P-6508DC2)

For PID UCSB-5108-DC2-UPG, select Service SKU with 6508DC2U suffix (Example:

For PID UCSB-5108-HVDC, select Service SKU with 6508HVD suffix (Example: CON-NCF2P-6508HVD)

For PID UCSB-5108-HVDC-UPG, select Service SKU with 6508HVDU suffix (Example:CON-NCF2P-6508HVDU)

UCS Drive Retention Service

With the Cisco Unified Computing Drive Retention Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The Drive Retention service enables you to retain your drives and ensures that the sensitive data on those drives is not compromised, which reduces the risk of any potential liabilities. This service also enables you to comply with regulatory, local, and federal requirements.

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in the above tables (where available)



NOTE: Cisco does not offer a certified drive destruction service as part of this service.

Local Language Technical Support for UCS

Where available, and subject to an additional fee, local language support for calls on all assigned severity levels may be available for specific product(s) - see tables above.

For a complete listing of available services for Cisco Unified Computing System, see the following URL: http://www.cisco.com/en/US/products/ps10312/serv_group_home.html

SUPPLEMENTAL MATERIAL

System Overview

The Cisco Unified Computing System™ (Cisco UCS™) is a next-generation data center platform that unites compute, network, 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 unified 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.

Cisco UCS and Blade Server Access

In a multilayer data center design, you can replace core Cisco Nexus 7000 Series Switches with the Cisco Nexus 9500 platform, or replace the core with the Cisco Nexus 9300 platform and the access layer with the Cisco Nexus 9300 platform. You can also connect an existing Cisco Unified Computing System™ (Cisco UCS®) and blade server access layer to Insieme hardware (Figures 9 and 10).

Figure 9 Classic Design Using Cisco Nexus 7000 and 5000 Series and Fabric Extenders

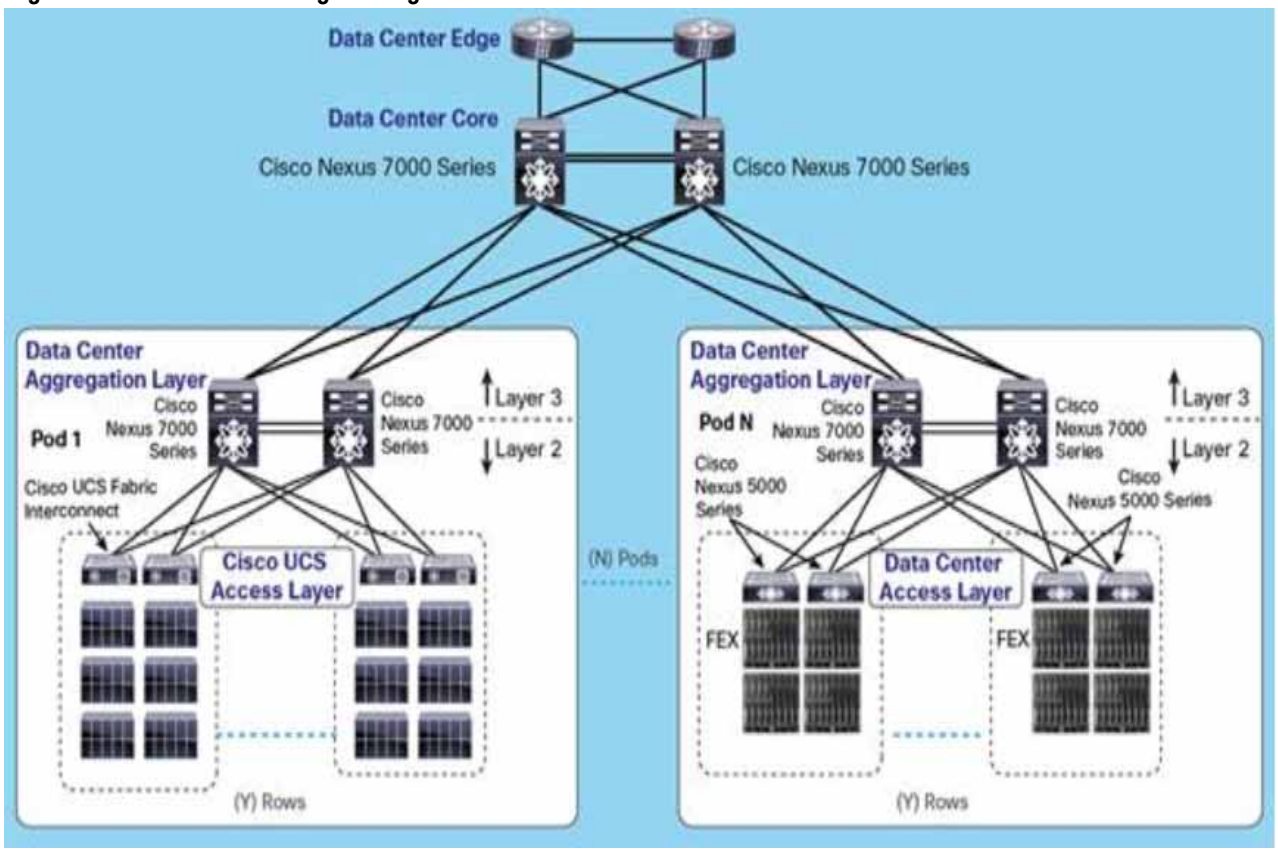
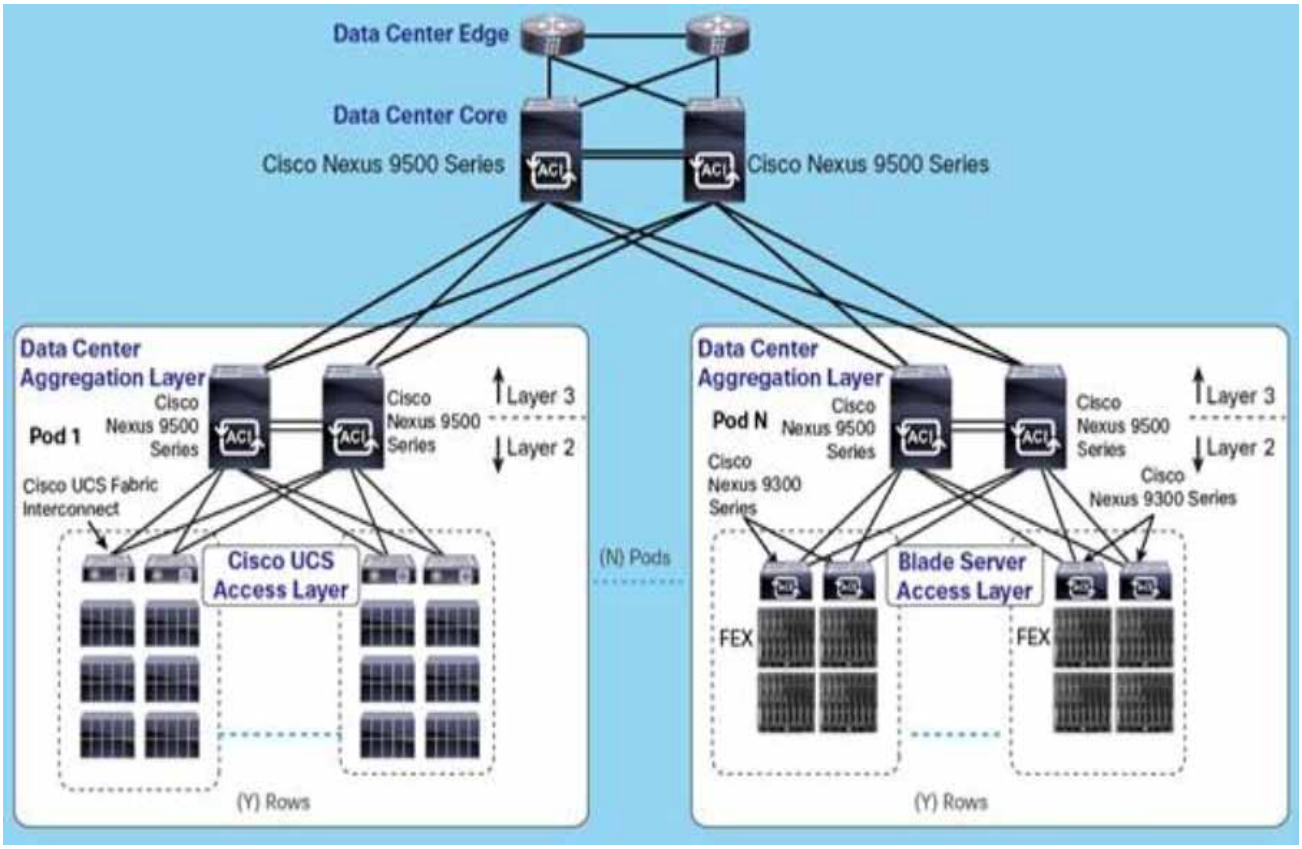


Figure 10 Classic Design Using Cisco Nexus 7000 and 5000 Series and Fabric Extenders



Cisco UCS Fabric Extenders bring the unified fabric into the blade server enclosure, providing multiple 10 or 40 Gigabit Ethernet connections between blade servers and the fabric interconnect, simplifying diagnostics, cabling, and management.

The Fabric Extenders extend the I/O fabric between the Cisco UCS 6200 or 6300 Series Fabric Interconnects and the Cisco UCS 5108 Blade Server Chassis, enabling a lossless and deterministic Fibre Channel over Ethernet (FCoE) fabric to connect all blades and chassis together. Since the fabric extender is similar to a distributed line card, it does not perform any switching and is managed as an extension of the fabric interconnects. This approach removes switching from the chassis, reducing overall infrastructure complexity and enabling Cisco UCS to scale to many chassis without multiplying the number of switches needed, reducing TCO and allowing all chassis to be managed as a single, highly available management domain.

The Fabric Extenders also manage the chassis environment (the power supply and fans as well as the blades) in conjunction with the fabric interconnect. Therefore, separate chassis management modules are not required.

The Fabric Extenders fit into the back of the Cisco blade chassis. Each blade chassis can support up to two fabric extenders, allowing increased capacity and redundancy.

Connectivity between each unique blade and the Fabric Extenders varies according to the type of blade, its available adapter card slots, and the type of card plugged into each slot. See the individual blade server spec sheets for detailed connectivity information and connectivity diagrams at this link:

http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

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 5100 blade chassis series, 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 FEXs:

- Cisco UCS 2304

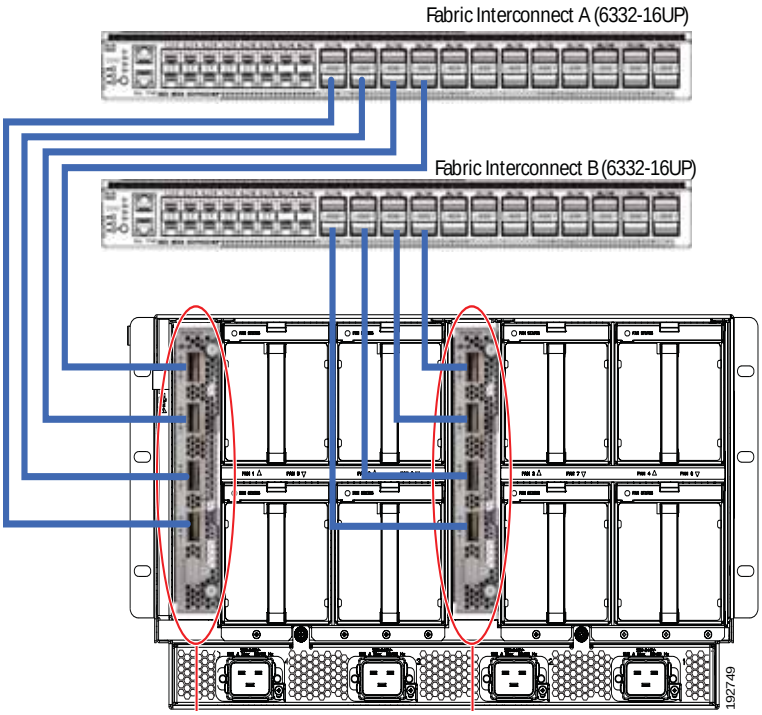


NOTE: The Cisco UCS 2304 Fabric Extender is not compatible with the Cisco UCS 6200 Fabric Interconnect series

- Cisco UCS 2208XP
- Cisco UCS 2204XP

Figure 11 shows how the FEX modules in the blade chassis connect to the FIs.

Figure 11 Connecting Blade Chassis Fabric Extenders to Fabric Interconnect Chassis



Blade Chassis Connection Types

In a blade chassis, the FEX fabric link (the link between the FEX and the FI) supports two different types of connections:

- Discrete Mode
- Port Channel Mode

In discrete mode, a half-width server slot is pinned to a given FEX fabric link. The supported number of links are 1, 2, 4, and 8, as shown in *Figure 12*. The figure shows how each FEX fabric link services a particular slot. It is an example of four FEX fabric link connections.

Figure 12 Discrete Mode FEX Fabric Link

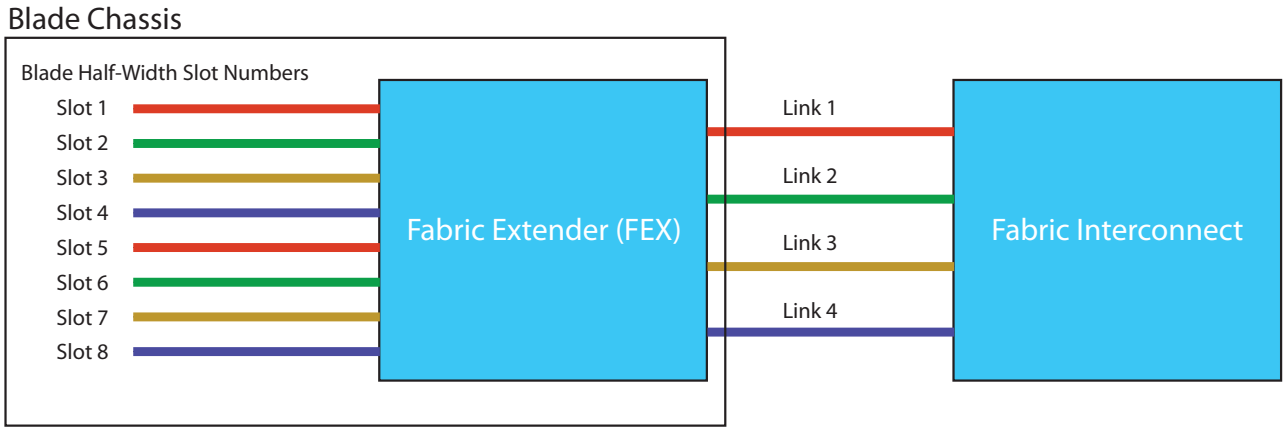


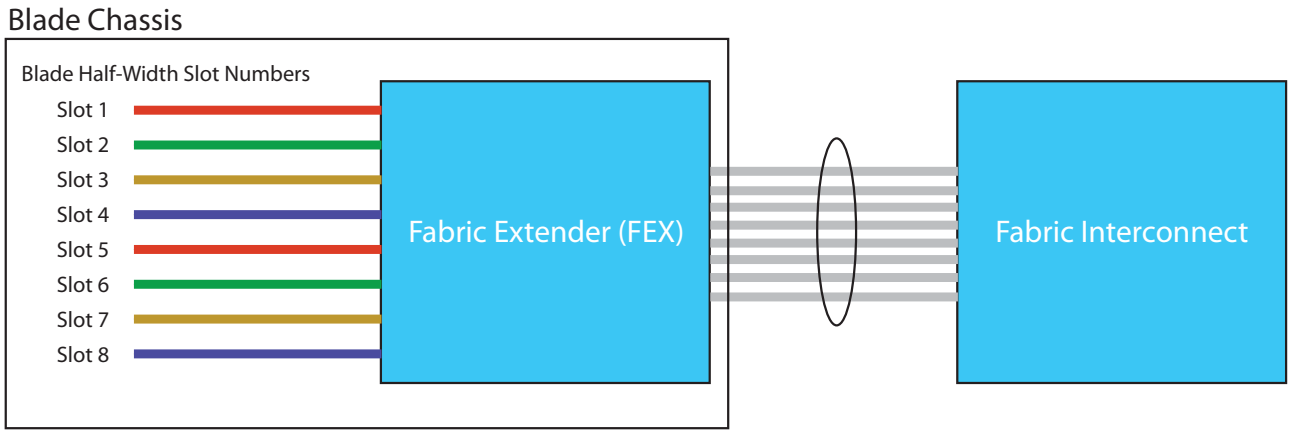
Table 19 shows the mapping from the blade chassis server half slots to the FEX fabric links.

Table 19 Blade Chassis Slot to Link Mapping

FEX Type	Number of FEX Fabric Links	Half-Width Server Slot to Link
Cisco UCS 2304, Cisco UCS 2208XP, and Cisco UCS 2204XP	1	Server Slots 1 - 8 merged to link 1
	2	Server Slots 1, 3, 5, 7 merged to link 1 Server Slots 2, 4, 6, 8 merged to link 2
	4	Server Slots 1, 5 merged to link 1 Server Slots 2, 6 merged to link 2 Server Slots 3, 7 merged to link 3 Server Slots 4, 8 merged to link 4
Cisco UCS 2208XP only	8	1:1 mapping. Each half-width server slot is pinned to a single FEX fabric link.

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. Depending the FEX, up to 8 links can be port-channeled.

Figure 13 FEX Fabric Links in Port Channel Mode



https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-6300-series-fabric-interconnects/datasheet-c78-736682.html

Connectivity Cisco 6324 Fabric Interconnects

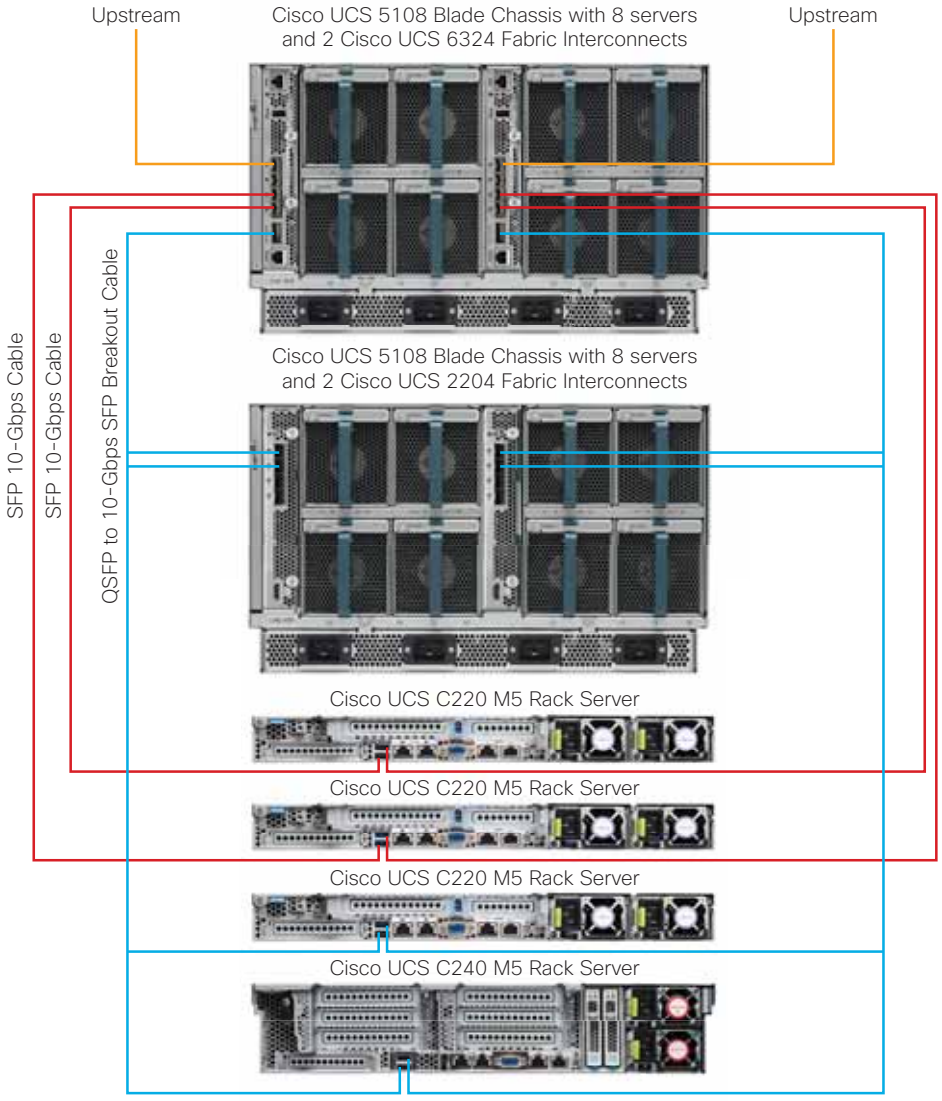
Figure 14 is a system diagram showing a Cisco UCS 5108 chassis with internal Cisco UCS 6324 Fabric Interconnects connected in a system.

The Cisco 6324 Fabric Interconnect provides the management and communication backbone for Cisco UCS Mini. The chassis, blades, and rack-mount servers that are attached to interconnects are part of a single highly available management domain

Because it supports Cisco Unified Fabric, the 6324 Fabric Interconnect offers customers flexibility to support LAN and storage connectivity for all servers within its domain at configuration. Typically deployed in redundant pairs, the 6324 Fabric Interconnect delivers uniform access to both networks and storage to facilitate a fully virtualized environment. For additional details see UCS mini at

https://www.cisco.com/c/en/us/products/servers-unified-computing/index.html#~stickynav=2

Figure 14 System Diagram (Cisco UCS 5108 Chassis with Internal Cisco UCS 6324 Fabric Interconnects)



Fabric Extender Bundles

You can order three kinds of Fabric Extender bundles:

UCS-IOM2208-16FET

UCS-IOM2204-8FET

UCS-IOM-2304-8FET

The bundle includes a pair of Fabric Extender Transceivers (FETS) per FEX port.



NOTE: Cables connecting the Fabric Extender to the Fabric Interconnect using your own multimode fiber (MMF) optical cables must have the same SFP (FET-10G**=** or FET-40G=) on each end. Both the Fabric Extender ports and the corresponding Fabric Interconnect ports should implement the same SFP or QSFP; otherwise, the servers in the blade chassis might not be discovered.

The FETs are in an SFP+ and QSFP+ form-factor and support 10 Gbps or 40 Gbps full-duplex transmissions between the Fabric Extender and Fabric Interconnect, using your own multimode fiber (MMF) optical cables. The reach is 25 meters using MMF OM2 optical cables and 100 meters using MMF OM3 or OM4 optical cables.

If you do not order the bundle that includes the transceivers, you can order the transceivers separately as spares (PIDs: = FET-10G= or FET-40G=).

TECHNICAL SPECIFICATIONS

Physical Dimensions and Specifications

Table 20 Cisco UCS 5108 Chassis Specifications

Parameter	Value
Height	10.5 in. (26.7 cm); 6 rack unit (6RU)
Width	17.5 in. (44.5 cm); fits standard 19-inch square-hole rack (or round hole threaded or non-threaded, with optional adapter kit)
Depth	32 in. (81.2 cm)
Weight	90 lbs (40.83 kg) empty, 255 lbs (115.66 kg) fully configured
Blade server slots	8 half-width slots, 4 full-width slots, or combination of half- and full-width slots.
IO slots (for FIs or FEXs)	2
Fabric Extenders	Compatible with 2208XP, 2204XP, and 2304XP Fabric Extenders
Fabric Interconnects	Compatible with 6324 Fabric Interconnects
Power	Four PSUs supporting N, N+1 and N+N redundancy.
Fans	8 hot-swappable fan modules supporting N+1 redundancy
Management	Managed from the Cisco UCS 6200 or 6300 Series Fabric Interconnects by Cisco UCS Manager (redundant management when configured with two fabric extenders or two 6324 Fabric Interconnects)
Backplane	1.2 TB of aggregate throughput; supports 10G-KR or 40G-KR connections for 8 half-width blades.
Regulatory compliance	Products comply with CE Markings per directives 2004/108/EC and 2006/108/EC1
Safety	■ UCANL 60950-1 ■ CAN/CSA-C22.2 No. 60950-1
EMC: Emissions	■ 47CFR Part 15 (CFR 47) Class A ■ AS/NZS CISPR22 Class A ■ CISPR2 2 Class A ■ EN55022 Class A ■ ICES003 Class A ■ VCCI Class A ■ EN61000-3-2 ■ EN61000-3-3 ■ KN22 Class A

Table 20 Cisco UCS 5108 Chassis Specifications *(continued)*

Parameter	Value
EMC: Immunity	■ EN50082-1 ■ EN61000-6-1 ■ EN55024 ■ CISPR24 ■ EN300386 ■ KN 61000-4 Series

Power Specifications

The specifications for the various 5108 power supplies are listed in *Table 21*.

Table 21 Power Supply

Variable	UCSB-PSU-2500ACDV				UCSB-PSU-2500DC48	UCSB-PSU-2500HVDC
Input Connector	IEC320 C20				Panduit LCD4-14AF-L[1]	Saf-D-Grid
Input Voltage Range (V rms)	100 to 120 and 200 to 240[2]				-48 to -60	200 to 380
Maximum Allowable Input Voltage Range (V rms)	90 to 132 and 180 to 264[2]				-40 to -72	180 to 400
Frequency Range (Hz)	50 to 60				DC	DC
Maximum Allowable Frequency Range (Hz)	47 to 63				DC	DC
Maximum Rated Output (W)	1300/2500[3]				2500	2500
Nominal Input Voltage (V rms)	100	120	208	230	-48	380
Nominal Input Current (A rms)	14.9	12.4	13.8	12.3	59.2	7.3
Maximum Input at Nominal Input Voltage (W)	1444	1444	2778	2747	2840	2778
Maximum Input at Nominal Input Voltage (VA)	1489	1489	2863	2832	2840	2778
Minimum Rated Efficiency (%)[4]	90	90	90	91	88	90
Minimum Rated Power Factor[4]	0.97	0.97	0.97	0.97	NA	NA
Maximum Inrush Current (A peak)	35				90	35
Maximum Inrush Current (ms)	0.2				0.2	0.2
Minimum Ride-Through Time (ms)[5]	12				4	12

Notes . . .

1. Barrel-type terminal with 90-degree angle, two-hole tongue, which accommodates 1/0 AWG size copper wire. The connector tongue width is 0.81-in, the stud hole spacing is 0.63-in and hole size is 0.25-in

2. Low line operation (100-120VAC input) only supported with 6324 Fabric Interconnect
3. Maximum rated output is limited to 1300W when operating at low-line input voltage (100-120VAC)
4. This is the minimum rating required to achieve 80 PLUS Platinum certification, see test reports published at http://www.80plus.org/for certified values and test reports
5. Time output voltage remains within regulation limits at 100% load, during input voltage dropout

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

https://ucspowercalc.cisco.com

Environmental Specifications

The environmental specifications for the Cisco UCS 5108 blade chassis are listed in *Table 22*.

Table 22 UCS 5108 Blade Server Environmental Specifications

Parameter	Minimum
Operating Temperature	10°C to 35°C (50°F to 95°F) with no direct sunlight Maximum allowable operating temperature de-rated 1°C/300 m (1°F/547 ft) above 950 m (3117 ft)
Non-operating Temperature	-40°C to 65°C (-40°F to 149°F) Maximum rate of change (operating and non-operating) 20°C/hr
Operating Relative Humidity	8% to 90% and 24°C (75°F) maximum dew-point temperature, non-condensing environment
Non-Operating Relative Humidity	5% to 93% and 33°C (91°F) maximum dew-point temperature, non-condensing environment
Operating Altitude	0 m to 3050 m (10,000 ft)
Non-Operating Altitude	0 m to 12,000 m (39,370 ft)
Non-Operating Vibration	2.2 Grms, 10 minutes per axis on each of the three axes
Operating Shock	Half-sine 2 G, 11 ms pulse, 100 pulses in each direction, on each of the three axes
Non-Operating Shock	Trapezoidal, 25 G, two drops on each of six faces: 175 inches per second each corner on bottom face drop, 90 inches per second each corner on other five faces
Safety	UL60 950-1 No. 21CFR1040, CAN/CSA-C22.2 No. 60950-1, IRAM IEC60950-1, CB IEC60950-1, EN 60950-1, IEC 60950-1, GOST IEC60950-1, SABS/CB IEC6095-1, CCC*/CB GB4943-1995, CNS14336, CB IEC60950-1, AS/NZS 60950-1, GB4943
Immunity	Verified to comply with EN55024, CISPR 24, KN 61000-4 Series, KN 24
Electrostatic Discharge	Tested to ESD levels up to 15 kilovolts (kV) air discharge and up to 8 kV contact discharge without physical damage
Acoustic	■ Sound power: 68.8 dBA at ambient temperature 23° C measured using the Dome Method ■ GOST MsanPiN 001-96Tested to ESD levels up to 15 kilovol

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