

Choosing the Correct Harness for your Switch

AEN 157, Revision: 3

This Application Engineering Note will serve as a guide to selecting the best Corning Optical Communications MTP® to LC harness for your structured cabling application. This document will focus on Base-12 and Base-8 MTP to LC harnesses to cable a broad offering of LAN and SAN Switches from different vendors with LC Duplex Optical Ports. For switches utilizing Parallel Optic ports (MTP/MPO interface), please refer to AEN151 “Four-Channel Parallel Optic Connectivity Solutions Utilizing Base-12 Structured Cabling”, AEN152 “Four-channel Parallel to Duplex Optical Connectivity Solutions Utilizing Base-12 Structured Cabling” and AEN156 “Connectivity Solutions Utilizing Base-8 Structured Cabling”.

What is a MTP to LC Harness?

A harness is a cable assembly with a multi-fiber MTP Connector on one end and simplex or duplex LC connectors at the ends of up-jacketed legs. It provides a transition from the MTP Connectors used on the trunk cables, extender trunk cables or the back of modules to single- or dual-fiber connectors. Figure 1 shows a few examples of different harness constructions.



Figure 1: Different MTP to LC Harness Constructions

What are the benefits of utilizing a MTP to LC Harness?

When designing a networking system, it is important to plan the structured cabling beforehand. The goal is to address current network requirements as well as accommodate future growth. A structured cabling system provides the flexibility to address the commonly performed tasks of moving, adding or changing the infrastructure as the network grows. The use of MTP to LC harnesses help improve your structured cabling when utilizing high-density LAN or SAN switches.

There are a few major benefits of utilizing harness assemblies vs. traditional jumpers.

1. Harnesses provide a clean, high-density method for implementing port replication of high-density switches, which reduces risk of damage or error to the switch ports.
2. Harnesses occupy less space in cabinet and vertical managers than traditional jumpers do, as the 12-fiber cable end of the harness is much smaller than the equivalent amount of patch cords.
3. Reduce cable congestion in front of the LAN and SAN; improving airflow for an increase in cooling and facilitates easier moves, adds and changes (MACs).
4. Harnesses offering available include custom-engineered stagger of the LC legs to match the port pitch in the electronics to provide seamless integration between the cabling infrastructure and electronics.

What are the typical applications for MTP[®] to LC Harnesses?

MTP to LC harnesses are used to port replicate the blades of a switch to facilitate the connection of these ports to other equipment. Based on the specific application and to what components they harnesses plug into, there are two types of harnesses, Module Harnesses and Trunk Harnesses.

Modules harnesses connect directly to the back of a MTP to LC module, to port replicate the switch to a housing located in the same or an adjacent rack to the switch. This application is typically used when the switches are located in the MDA or for end of row switching. Figure 2 depicts an example of a Module Harness application.

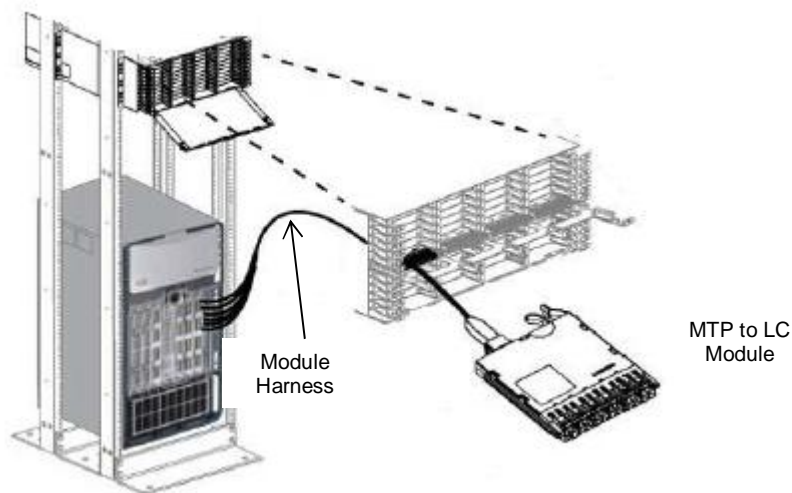


Figure 2: Module Harness Application

Trunk harnesses connect directly to the front of the MTP®-MTP trunks to port replicate the switch to a housing located outside of the area where the switch is situated. This application is typically deployed when you have a general switching area and port replication is desired at the Main Distribution Area (MDA). Figure 3 depicts an example of a Trunk Harness application.

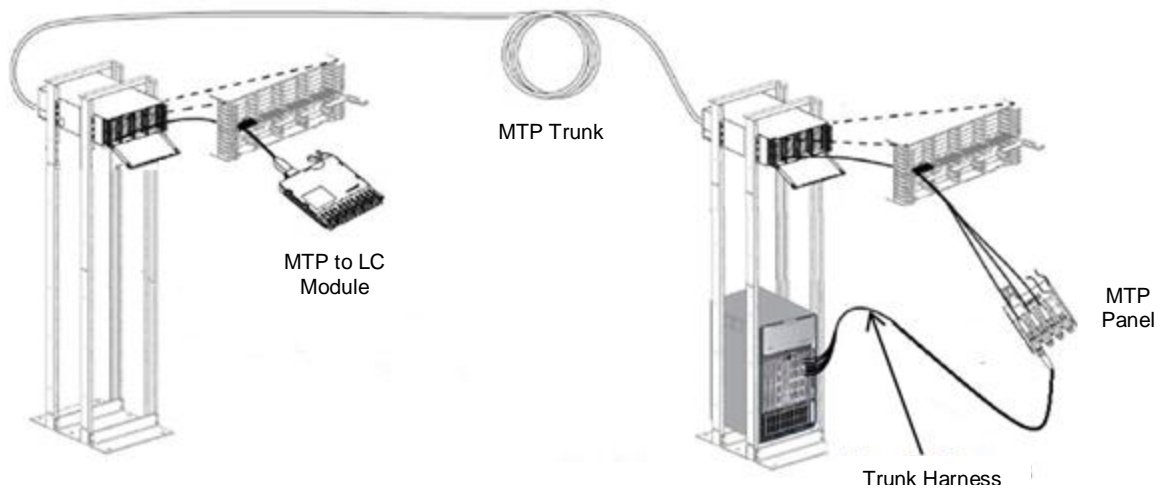


Figure 3: Trunk Harness Application

What LC leg length should I use for a MTP to LC Harness?

The optimal LC leg length for a harness will depend on the following factors: chassis model, blade type, blade port count, port orientation and cabling routing. Corning has worked with different industry vendors to provide harnesses with a custom-engineered stagger to match the port pitch across each of their data center switch product families, providing seamless integration between the cabling infrastructure and electronics. Stagger types 1, 2, 3 and 5 are exact engineered lengths designed specifically to match the port layouts across the different vendors' switches. In addition, Corning offers a variety of uniform/non-staggered leg lengths (such as 6" (Stagger 4), 12", 24" and 36") depending on your cabling preference. Figures 4 and 5 show the different stagger configurations offered.

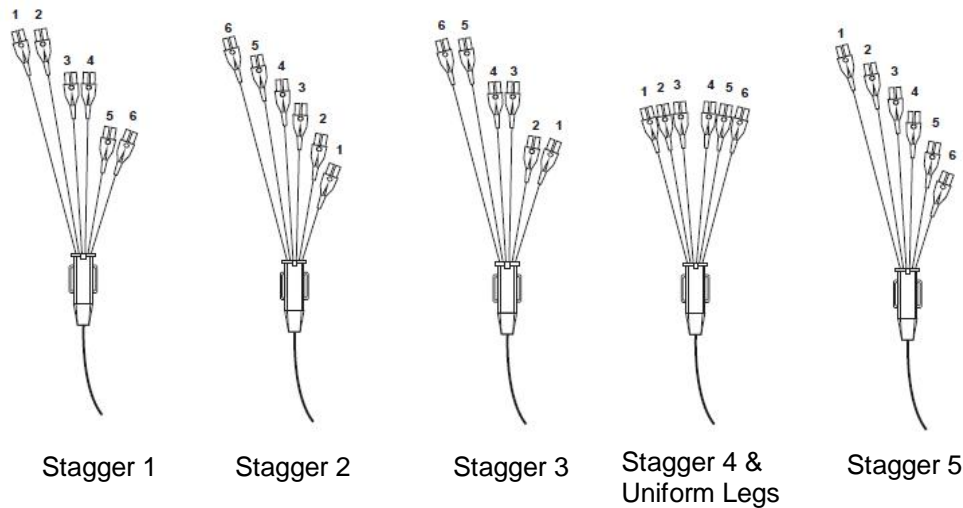


Figure 4: Base-12 LC leg length offering

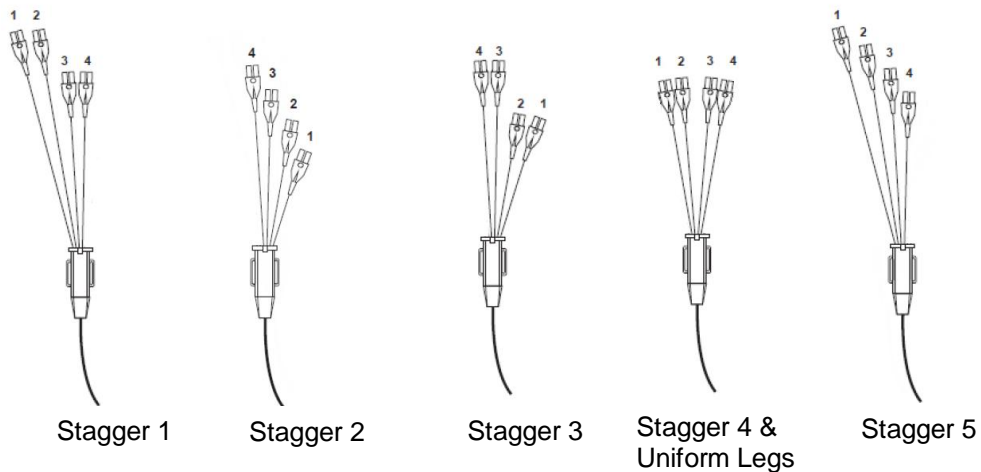
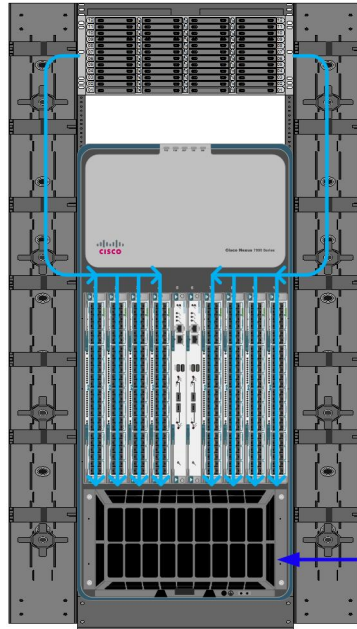


Figure 5: Base-8 LC leg length offering

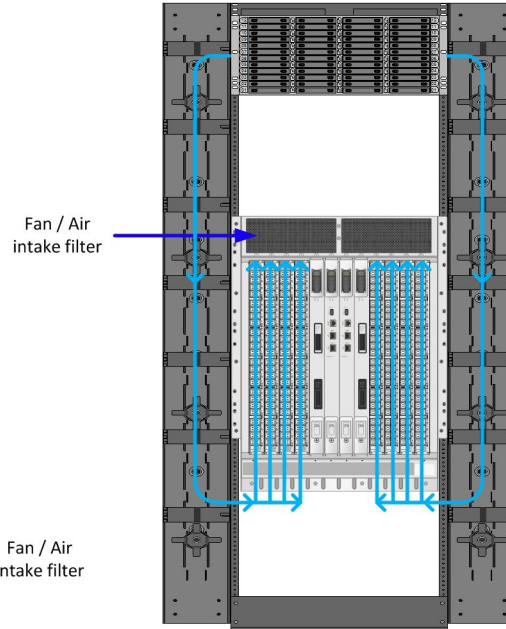
From which direction should I cable my switch utilizing MTP[®] to LC Harness?

The best cabling direction for a switch will depend on two factors, blade orientation and fan/air intake location. For example, if your switch has horizontal blades and your fan/air intake location does not impede the harnesses coming in from the left or right, then it comes down to customer preference. On the other hand, if the fan/air intake is located on one side of the switch, you should bring your harnesses from the opposite side. The same applies for switches with vertical oriented blades. Corning has worked with different industry vendors to provide the optimal cabling direction based on the different switch chassis offerings. Figure 6 illustrates the different cabling directions.

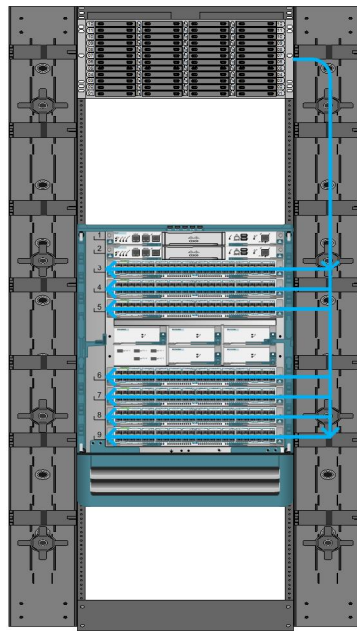
Cabling from the **Top**



Cabling from the **Bottom**



Cabling from the **Right**



Cabling from the **Left**

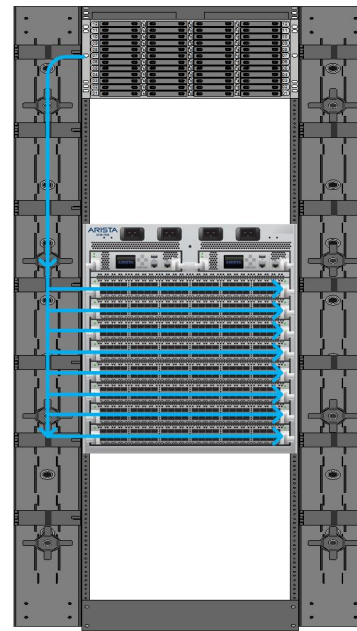
















Figure 6: Switch Cabling Directions

With the broad offering of switches in the network market, there are several configurations of MTP® to LC harnesses from which to choose.

The remaining information in this document will help you decide which harness would be the best fit for cabling your SAN or LAN switches. On the next page are Table 1 and Table 2, summarizing which harness Base-12 or Base-8 to use depending on the switch manufacturer, model, port count, port orientation and cabling direction. Part numbers for each of the different harness types are in Table 3 and Table 4. Pictures of examples of the different switches/blades installed with MTP to LC harnesses can be found in Appendix A at the end of the document.

For additional questions, contact Corning Optical Communications' Technical Support Line at 800-743-2671 or dutyeng@corning.com.

Table 1: Base-12 Harness Stagger by Switch/Blade Manufacturer

Chassis	Blade				Harness Leg Length/Stagger	
	Series	Description	Model	Image	Port Orientation	Cabling from Left or Top
Arista 7500E 7504 (4-slot; horiz) 7508 (8-slot; horiz)	36-port 40GbE (assumes Duplex Optics)	DCS-7500E-36Q		13 5 7...35 2 4 6 8...36	Stagger 3	Stagger 1 (Figure 1-a)
	48-port 10GbE & 2-port 100GbE (MXP)	DCS-7500E-72S		13 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1 (Figure 2-a)
	48-port 10GbE	DCS-7500E-48S		13 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1 (Figure 2-a)
Arista 7300E 7304 (4-slot; horiz) 7308 (8-slot; horiz) 7316 (16-slot; horiz)	32-port 40GbE (assumes Duplex Optics)	DCS-7300X-32Q		13 5 7...31 2 4 6 8...32	Stagger 3	Stagger 1 (Figure 3-a)
	48-port 10GbE & 4-port 40GbE	DCS-7300X-64S		13 5 7...47 2 4 6 8...48	Stagger 3 10G ports only	Stagger 1 10G ports only (Figure 4-a) Note 6
Brocade DCX DCX-4S (4-slot; horiz) DCX (8-slot; vert) DCX 8510-4 (4-slot; horiz) DCX 8510-8 (8-slot; vert)	32-port (2/4/8 GFC) 32-port (2/4/8/10/16 GFC)	FC8-32E FC16-32		32 31 30 ...18 17 16 15 14 13 ... 2 1 0	Note 1	24" Non- Staggered Legs
	64-port (2/4/8 GFC)	FC8-64		64 63 62 ...34 33 32 31 30 29 ... 2 1 0	Note 1	mini SFP (mSFP) Harness (Figure 5-a) Note 4
	48-port (2/4/8 GFC) 48-port (2/4/8/10/16 GFC)	FC8-48E FC16-48		47 46 45 ...26 25 24 23 22 21 ... 2 1 0	Note 1	Stagger 2 (Figure 6-a)
	64-port (4/8/16 GFC)	FC16-64		64 63 62 ...34 33 32 31 30 29 ... 2 1 0	Note 1	MTP Jumper or 8- F Break-out Harness. Refer to AE Notes 151, 152 and 156 (Figure 7-a)
Brocade VDX 8770-4 (4-slot; horiz) 8770-8 (8-slot; vert)	48-port 1/10GbE	BR-VDX8770-48X1G-SFP-1 BR-VDX8770-48X1G-SFPP-1		13 5 7...47 2 4 6 8...48	Stagger 3 (Figure 8-a)	Note 2
	12-port 40GbE (QSFP+)	BR-VDX8770-12X40G-QSFP-1		12 3 4 ... 12	MTP Jumper or 8- F Break-out Harness. Refer to AE Notes 151, 152 and 156	Note 2
Cisco MDS 9506 (4-slot; horiz) 9513 (11-slot; horiz) 9706 (4-slot; horiz) 9710 (8-slot; horiz)	32-port; 1/2/4/8 GFC	DS-X9232-256K9		13 5 7...31 2 4 6 8...32	Stagger 3 (9700 series only) Note 3	Stagger 1
	48-port; 1/2/4/8 GFC	DS-X9248-256K9		13 5 7...47 2 4 6 8...48	Stagger 3 (9700 series only) Note 3	Stagger 1 (Figure 9-a)
Cisco Nexus 6000 6004/5696Q (4-slot fixed, 4-slot expansion; vert)	12x 40-Gigabit Ethernet/FCoE QSFP ports (assumes Duplex Optics)	N6K-C6004-M12Q (Expansion Module p/n)		1 7 2 8 3 9 4 10 5 11	Stagger 2 (Figure 10-a)	Stagger 5

Note 1: DCX and DCX-8510-8 require cabling from bottom only

Note 2: VDX 8770-8 requires cabling from the top only

Note 3: Stagger 3 cannot be used on the MDS 9500 series because of fan tray, thus this harness can only be used on MDS 9700 series

Note 4: mini SFP harnesses are for exclusive use with Brocade's FC8-64 using the mini SFP transceiver















Note 6: These harnesses only apply to the SFP ports not the QSFP

Table 1: Base-12 Harness Stagger by Switch/Blade Manufacturer – Continuation

Chassis	Blade				Harness Leg Length/Stagger	
	Series	Description	Model	Image	Port Orientation	Cabling from Left or Top
Cisco Nexus 7700 7706 (4-slot; horiz) 7710 (8-slot; horiz) 7718 (16-slot; horiz)	48-port 1 & 10GbE (F3 Series - SFP/SFP+) (F2e Series - SFP/SFP+)	N77-F348XP-23 N77-F248XP-23E		13 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1 (Figure 11-a)
	24-port 40GbE (F3 Series - QSFP+) (assumes Duplex Optics)	N77-F324FQ-25		13 5 7...23 2 4 6 8...24	Stagger 3	Stagger 1 (Figure 12-a)
Cisco Nexus 7000 7009 (7-slot; horiz) 7010 (8-slot; vert) 7018 (16-slot; horiz)	48-port 1 & 10GbE (F2 Series - SFP/SFP+) (F2 Series - SFP/SFP+)	N7K-F348XP-25 N7K-F248XP-25 N7K-F248XP-25E		13 5 7...47 2 4 6 8...48	Stagger 3 (Figure 13-a)	Note 5
	24-port 10GbE (M2 Series - SFP+)	N7K-M224XP-23L		13 5 7...23 2 4 6 8...24	Stagger 3 (Figure 14-a)	Note 5
	32-port 10GbE (M1 Series - SFP+)	N7K-M132XP-12 N7K-M132XP-12L		13 5 7...31 2 4 6 8...32	Stagger 3 (Figure 15-a)	Note 5
	12-port 40GbE (F3 Series - QSFP+) (assumes Duplex Optics)	N7K-F312FQ-25		12 3 ...12	Stagger 3 (Figure 16-a)	Note 5
Cisco Nexus 9000 9504 (4-slot; horiz) 9508 (8-slot; horiz) 9516 (16-slot; horiz)	48-port 10GbE & 4-port 40GbE	N9K-X9564PX or N9K-X9464PX		13 5 7...47 2 4 6 8...48	Stagger 3 10G ports only Note 6	Stagger 1 10G ports only (Figure 17-a) Note 6
	36-port 40GbE (assumes Duplex Optics)	N9K-X9636PQ or N9K-X9536PQ or N9K-X9736PQ		13 5 7...35 2 4 6 8...36	Stagger 3	Stagger 1 (Figure 18-a)
	32-port 40GbE (assumes Duplex Optics)	N9K-X9432PQ		13 5 7...31 2 4 6 8...32	Stagger 3	Stagger 1 (Figure 19-a)
Juniper QFX10K QFX10008 (8-slot; horiz) QFX10016 (16-slot; horiz)	36-port 40GbE (or 12-port 100GbE) (assumes Duplex Optics)	QFX10000-36Q		0 2 4 6 ... 34 1 3 5 7 ... 35	Stagger 3	Stagger 1
	30-port 100GbE (or 24x40GbE, 6x100GbE) (assumes Duplex Optics)	GFY10000-30C		0 2 4 6 ... 28 1 3 5 7 ... 29	Stagger 3	Stagger 1
	60-port 10GbE with 6-port 40GbE (or 2-port 100GbE)	QFX10000-60S-6Q		0 3 6 9 ... 57 1 4 7 10 ... 58 60 62 64 2 5 8 11 ... 59 61 63 65	Stagger 4	Stagger 4

Note 5: Nexus 7010 can only be cabled from top; 7009 and 7018 is right to left air flow thus may require cabling only from left based on cabinet design
Note 6: These harnesses only apply to the SFP ports not the QSFP

Table 2: Base-8 Harness Stagger by Switch/Blade Manufacturer

Chassis		Blade			Harness Leg Length/Stagger	
Series	Description	Model	Image	Port Orientation	Cabling from Left or Top	Cabling from Right or Bottom
Arista 7500E 7504 (4-slot; horiz) 7508 (8-slot; horiz)	36-port 40GbE (assumes Duplex Optics)	DCS-7500E-36Q		1 3 5 7...35 2 4 6 8...36	Stagger 3	Stagger 1
	48-port 10GbE & 2-port 100GbE (MXP)	DCS-7500E-72S		1 3 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1
	48-port 10GbE	DCS-7500E-48S		1 3 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1
Arista 7300E 7304 (4-slot; horiz) 7308 (8-slot; horiz) 7316 (16-slot; horiz)	32-port 40GbE (assumes Duplex Optics)	DCS-7300X-32Q		1 3 5 7...31 2 4 6 8...32	Stagger 3	Stagger 1
	48-port 10GbE & 4-port 40GbE	DCS-7300X-64S		1 3 5 7...47 2 4 6 8...48	Stagger 3 10G ports only	Stagger 1 10G ports only Note 6
Brocade DCX DCX-4S (4-slot; horiz) DCX (8-slot; vert) DCX 8510-4 (4-slot; horiz) DCX 8510-8 (8-slot; vert)	32-port (2/4/8 GFC) 32-port (2/4/8/10/16 GFC)	FC8-32E FC16-32		32 31 30 ...18 17 16 15 14 13 ... 2 1 0	Note 1	Stagger 2
	64-port (2/4/8 GFC)	FC8-64		64 63 62 ...34 33 32 31 30 29 ... 2 1 0	Note 1	Note 7
	48-port (2/4/8 GFC) 48-port (2/4/8/10/16 GFC)	FC8-48E FC16-48		47 46 45 ...26 25 24 23 22 21 ... 2 1 0	Note 1	Stagger 2
	64-port (4/8/16 GFC)	FC16-64		64 63 62 ...34 33 32 31 30 29 ... 2 1 0	Note 1	MTP Jumper or 8-F Break-out Harness. Refer to AE Notes 151, 152 and 156
Brocade VDX 8770-4 (4-slot; horiz) 8770-8 (8-slot; vert)	48-port 1/10GbE	BR-VDX8770-48X1G-SFP-1 BR-VDX8770-48X1G-SFPP-1		1 3 5 7...47 2 4 6 8...48	Stagger 3	Note 2
	12-port 40GbE (QSFP+)	BR-VDX8770-12X40G-QSFP-1		1 2 3 4 ... 12	MTP Jumper or 8-F Break-out Harness. Refer to AE Notes 151, 152 and 156	Note 2
Cisco MDS 9506 (4-slot; horiz) 9513 (11-slot; horiz) 9706 (4-slot; horiz) 9710 (8-slot; horiz)	32-port; 1/2/4/8 GFC	DS-X9232-256K9		1 3 5 7...31 2 4 6 8...32	Stagger 3 (9700 series only) Note 3	Stagger 1
	48-port; 1/2/4/8 GFC	DS-X9248-256K9		1 3 5 7...47 2 4 6 8...48	Stagger 3 (9700 series only) Note 3	Stagger 1
Cisco Nexus 6000 6004/5696Q (4-slot fixed, 4-slot expansion; vert)	12x 40-Gigabit Ethernet/FCoE QSFP ports (assumes Duplex Optics)	N6K-C6004-M12Q (Expansion Module p/n)		1 7 2 8 3 9 4 10 5 11	24" Non-Staggered Legs	Stagger 5

Note 1: DCX and DCX-8510-8 require cabling from bottom only

Note 2: VDX 8770-8 requires cabling from the top only

Note 3: Stagger 3 cannot be used on the MDS 9500 series because of fan tray; thus this harness can only be used on MDS 9700 series

Note 4: mini SFP harnesses are for exclusive use with Brocade's FC8-64 using the mini SFP transceiver

Note 6: These harnesses only apply to the SFP ports not the QSFP

Note 7: For Base-8 harnesses to be used with Brocade's FC8-64, please contact Corning Optical Communications' Technical Support Line at 800-743-2671

Table 2: Base-8 Harness Stagger by Switch/Blade Manufacturer - Continuation

Chassis	Blade				Harness Leg Length/Stagger	
	Series	Description	Model	Image	Port Orientation	Cabling from Left or Top
Cisco Nexus 7700 7706 (4-slot; horiz) 7710 (8-slot; horiz) 7718 (16-slot; horiz)	48-port 1 & 10GbE (F3 Series - SFP/SFP+) (F2e Series - SFP/SFP+)	N77-F348XP-23 N77-F248XP-23E		13 5 7...47 2 4 6 8...48	Stagger 3	Stagger 1
	24-port 40GbE (F3 Series - QSFP+) (assumes Duplex Optics)	N77-F324FQ-25		13 5 7...23 2 4 6 8...24	Stagger 3	Stagger 1
Cisco Nexus 7000 7009 (7-slot; horiz) 7010 (8-slot; vert) 7018 (16-slot; horiz)	48-port 1 & 10GbE (F2 Series - SFP/SFP+)(F2 Series - SFP/SFP+)	N7K-F348XP-25 N7K-F248XP-25 N7K-F248XP-25E		13 5 7...47 2 4 6 8...48	Stagger 3	Note 5
	24-port 10GbE (M2 Series - SFP+)	N7K-M224XP-23L		13 5 7...23 2 4 6 8...24	Stagger 3	Note 5
	32-port 10GbE (M1 Series - SFP+)	N7K-M132XP-12 N7K-M132XP-12L		13 5 7...31 2 4 6 8...32	Stagger 3	Note 5
	12-port 40GbE (F3 Series - QSFP+) (assumes Duplex Optics)	N7K-F312FQ-25		12 3 ...12	Stagger 3	Note 5
Cisco Nexus 9000 9504 (4-slot; horiz) 9508 (8-slot; horiz) 9516 (16-slot; horiz)	48-port 10GbE & 4-port 40GbE	N9K-X9564PX or N9K-X9464PX		13 5 7...47 2 4 6 8...48	Stagger 3 10G ports only Note 6	Stagger 1 10G ports only Note 6
	36-port 40GbE (assumes Duplex Optics)	N9K-X9636PQ or N9K-X9536PQ or N9K-X9736PQ		13 5 7...35 2 4 6 8...36	Stagger 3	Stagger 1
	32-port 40GbE (assumes Duplex Optics)	N9K-X9432PQ		13 5 7...31 2 4 6 8...32	Stagger 3	Stagger 1
Juniper QFX10K QFX10008 (8-slot; horiz) QFX10016 (16-slot; horiz)	36-port 40GbE (or 12-port 100GbE) (assumes Duplex Optics)	QFX10000-36Q		0 2 4 6 ... 34 1 3 5 7 ... 35	Stagger 3	Stagger 1
	30-port 100GbE (or 24x40GbE, 6x100GbE) (assumes Duplex Optics)	GFX10000-30C		0 2 4 6 ... 28 1 3 5 7 ... 29	Stagger 3	Stagger 1
	60-port 10GbE with 6-port 40GbE (or 2-port 100GbE)	QFX10000-60S-6Q		0 3 6 9 ... 57 1 4 7 10 ... 58 60 62 64 2 5 8 11 ... 59 61 63 65	Stagger 4	Stagger 4

Note 5: Nexus 7010 can only be cabled from top; 7009 and 7018 is right to left air flow thus may require cabling only from left based on cabinet design

Note 6: These harnesses only apply to the SFP ports not the QSFP

Table 3: Base-12 Harness Part Numbers

<i>Base-12 Harness Part Numbers with LC legs Stagger 1*</i>		
Type	Part Number	Description
Module Harness	H757912TPH-1BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 1 , xxx Feet
	H757912QPH-1BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 1 , xxx Feet
	H907812GPH-1BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 1 , xxx Feet
Trunk Harness	H937912TPH-1AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 1 , xxx Feet
	H937912QPH-1AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 1 , xxx Feet
	H897812GPH-1AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 1 , xxx Feet
<i>Base-12 Harness Part Numbers with LC legs Stagger 2*</i>		
Type	Part Number	Description
Module Harness	H757912TPH-2BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 2 , xxx Feet
	H757912QPH-2BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 2 , xxx Feet
	H907812GPH-2BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 2 , xxx Feet
Trunk Harness	H937912TPH-2AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 2 , xxx Feet
	H937912QPH-2AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 2 , xxx Feet
	H897812GPH-2AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 2 , xxx Feet
<i>Base-12 Harness Part Numbers with LC legs Stagger 3*</i>		
Type	Part Number	Description
Module Harness	H757912TPH-3BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 3 , xxx Feet
	H757912QPH-3BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 3 , xxx Feet
	H907812GPH-3BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 3 , xxx Feet
Trunk Harness	H937912TPH-3AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 3 , xxx Feet
	H937912QPH-3AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 3 , xxx Feet
	H897812GPH-3AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 3 , xxx Feet

*Note: Harnesses with staggered legs can be made in 1-ft increments from 3 to 20 ft.

Table 3: Base-12 Harness Part Numbers – Continuation

<i>Base-12 Harness Part Numbers with LC legs Stagger 4 (6 inch uniform)*</i>		
Type	Part Number	Description
Module Harness	H757912TPH-4BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, 6 inch uniform LC legs , xxx Feet
	H757912QPH-4BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, 6 inch uniform LC legs , xxx Feet
	H907812GPH-4BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, 6 inch uniform LC legs , xxx Feet
Trunk Harness	H937912TPH-4AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, 6 inch uniform LC legs , xxx Feet
	H937912QPH-4AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, 6 inch uniform LC legs , xxx Feet
	H897812GPH-4AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, 6 inch uniform LC legs , xxx Feet

<i>Base-12 Harness Part Numbers with LC legs Stagger 5*</i>		
Type	Part Number	Description
Module Harness	H757912TPH-5BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 5 , xxx Feet
	H757912QPH-5BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 5 , xxx Feet
	H907812GPH-5BxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 5 , xxx Feet
Trunk Harness	H937912TPH-5AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, Stagger 5 , xxx Feet
	H937912QPH-5AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 5 , xxx Feet
	H897812GPH-5AxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 5 , xxx Feet

<i>Base-12 Harness Part Numbers with 24 inch uniform LC legs</i>		
Type	Part Number	Description
Module Harness	H757912TPH-KBxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM3 , Plenum, 24 inch uniform LC legs , xxx Feet
	H757912QPH-KBxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, 24 inch uniform LC legs , xxx Feet
	H907812GPH-KBxxxF	EDGE™ Module Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, 24 inch uniform LC legs , xxx Feet
Trunk Harness	H937912TPH-KAxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM3 , Plenum, 24 inch uniform LC legs , xxx Feet
	H937912QPH-KAxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, 24 inch uniform LC legs , xxx Feet
	H897812GPH-KAxxxF	EDGE™ Trunk Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, 24 inch uniform LC legs , xxx Feet

*Note: Harnesses with staggered legs can be made in 1-ft increments from 3 to 20 ft.

Table 3: 12f Harness Part Numbers – Continuation

<i>Base-12 Harness Part Numbers mini SFP (mSFP) and 24 inch uniform LC Legs**</i>		
Type	Part Number	Description
Module Harness	H75S512TE8-KBxxxF	Plug & Play™ Universal Module Harness, Non-Pinned MTP to mini SFP (mSFP), OM3 , Plenum, 24 inch uniform LC legs , xxx Feet. "Only use for Brocade's FC8-64 blade"
	H75S512QE8-KBxxxF	Plug & Play™ Universal Module Harness, Non-Pinned MTP to mini SFP (mSFP), OM4 , Plenum, 24 inch uniform LC legs , xxx Feet. "Only use for Brocade's FC8-64 blade"
Trunk Harness	H93S512TE8-KAxxxF	Plug & Play™ Universal Trunk Harness, Pinned MTP to mini SFP (mSFP), OM3 , Plenum, 24 inch uniform LC legs , xxx Feet. "Only use for Brocade's FC8-64 blade"
	H93S512QE8-KAxxxF	Plug & Play™ Universal Trunk Harness, Pinned MTP to mini SFP (mSFP), OM4 , Plenum, 24 inch uniform LC legs , xxx Feet. "Only use for Brocade's FC8-64 blade"

** Note: Only use for Brocade's FC8-64 blade. miniSFP (mSFP) harnesses are only offered for Base-12 structured cabling.

Table 4: Base-8 Harness Part Numbers

<i>Base-8 Harness Part Numbers with LC legs Stagger 1*</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-1BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 1 , xxx Feet
	HE77808GPH-1BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 1 , xxx Feet
Trunk Harness	HE67908QPH-1AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 1 , xxx Feet
	HE87808GPH-1AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 1 , xxx Feet

<i>Base-8 Harness Part Numbers with LC legs Stagger 2*</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-2BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 2 , xxx Feet
	HE77808GPH-2BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 2 , xxx Feet
Trunk Harness	HE67908QPH-2AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 2 , xxx Feet
	HE87808GPH-2AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 2 , xxx Feet

*Note: Harnesses with staggered legs can be made in 1-ft increments from 3 to 20 ft.

Table 4: Base-8 Harness Part Numbers – Continuation

<i>Base-8 Harness Part Numbers with LC legs Stagger 3*</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-3BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 3 , xxx Feet
	HE77808GPH-3BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 3 , xxx Feet
Trunk Harness	HE67908QPH-3AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 3 , xxx Feet
	HE87808GPH-3AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 3 , xxx Feet
<i>Base-8 Harness Part Numbers with LC legs Stagger 4 (6 inch uniform)*</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-4BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, 6 inch uniform LC legs , xxx Feet
	HE77808GPH-4BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, 6 inch uniform LC legs , xxx Feet
Trunk Harness	HE67908QPH-4AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, 6 inch uniform LC legs , xxx Feet
	HE87808GPH-4AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, 6 inch uniform LC legs , xxx Feet
<i>Base-8 Harness Part Numbers with LC legs Stagger 5*</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-5BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 5 , xxx Feet
	HE77808GPH-5BxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 5 , xxx Feet
Trunk Harness	HE67908QPH-5AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, Stagger 5 , xxx Feet
	HE87808GPH-5AxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, Stagger 5 , xxx Feet
<i>Base-8 Harness Part Numbers with 24 inch uniform LC legs</i>		
Type	Part Number	Description
Module Harness	HE57908QPH-KBxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OM4 , Plenum, 24 inch uniform LC legs , xxx Feet
	HE77808GPH-KBxxxF	EDGE8™ Type B Harness, Pinned MTP to LC Uniboot, OS2 , Plenum, 24 inch uniform LC legs , xxx Feet
Trunk Harness	HE67908QPH-KAxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OM4 , Plenum, 24 inch uniform LC legs , xxx Feet
	HE87808GPH-KAxxxF	EDGE8™ Type A Harness, Non-Pinned MTP to LC Uniboot, OS2 , Plenum, 24 inch uniform LC legs , xxx Feet

*Note: Harnesses with staggered legs can be made in 1-ft increments from 3 to 20 ft.

Appendix A: Pictures of examples of different switches/blades

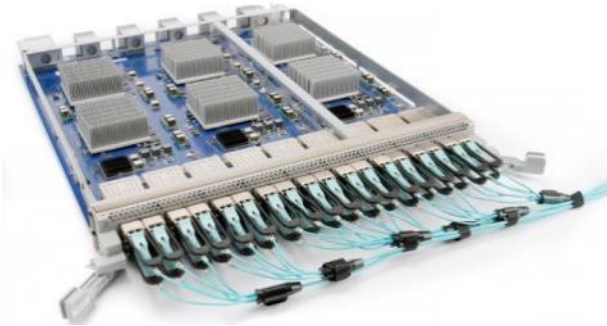


Figure 1-a: Arista DCS-7500E-36Q



Figure 2-a: Arista DCS-7500E-72S,
DCS-7500E-48S



Figure 3-a: Arista DCS-7300X-32Q



Figure 4-a: Arista DCS-7300X-64S

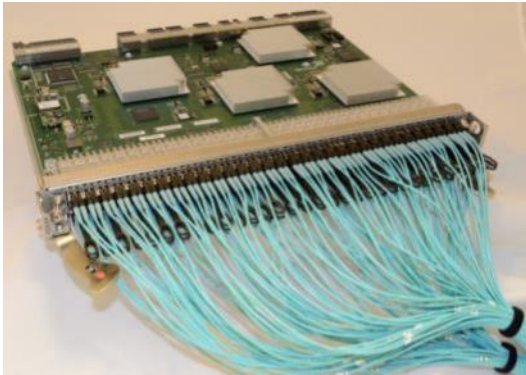


Figure 5-a: Brocade DCX FC8-64

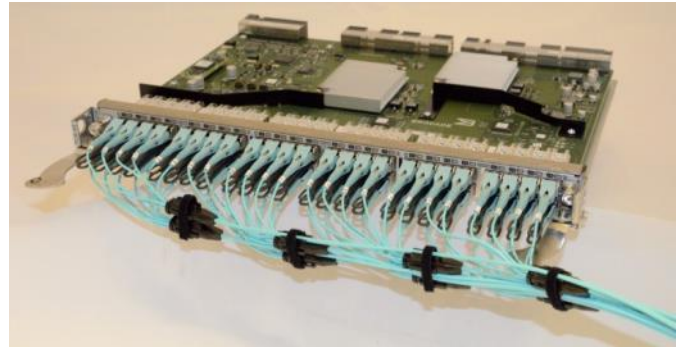


Figure 6-a: Brocade DCX FC8-48E, FC16-48

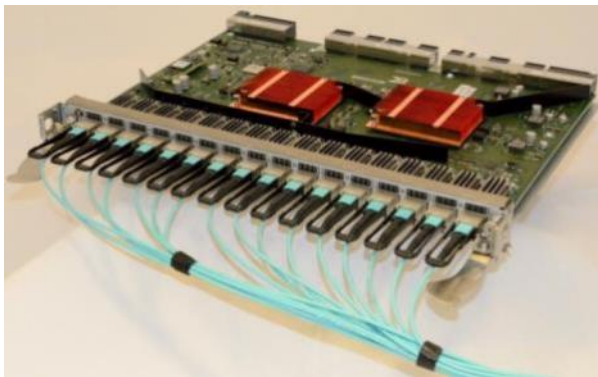
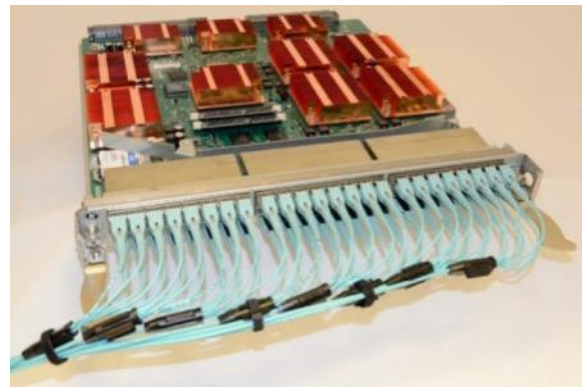


Figure 7-a: Brocade DCX FC16-64



**Figure 8-a: Brocade BR-VDX8770-48X1G-SFP-1,
BR-VDX8770-48X1G-SFPP-1**

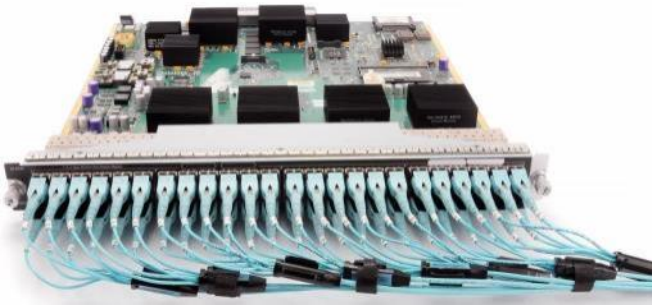


Figure 9-a: Cisco DS-X9248-256K9



Figure 10-a: Cisco N6K-C6004-M12Q

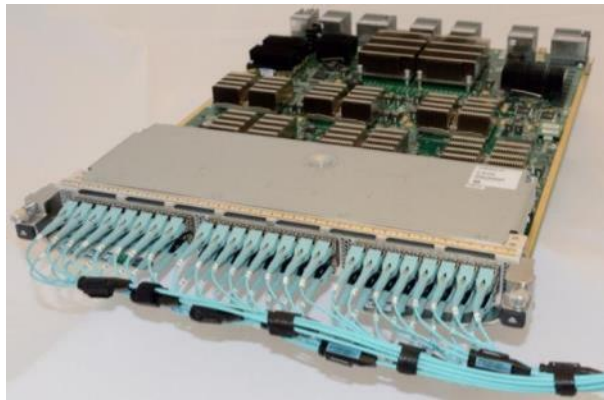


Figure 11-a: Cisco N77-F348XP-23,
N77-F248XP-23E



Figure 12-a: Cisco N77-F324FQ-25

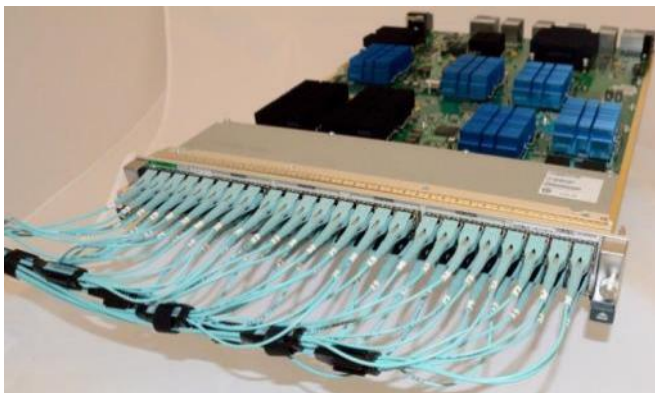


Figure 13-a: Cisco N7K-F348XP-25,
N7K-F248XP-25, N7K-F248XP-25E

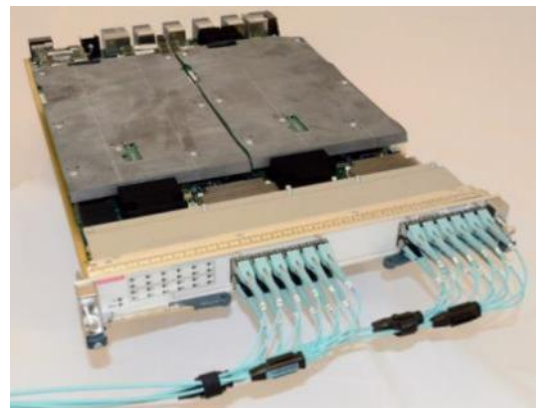
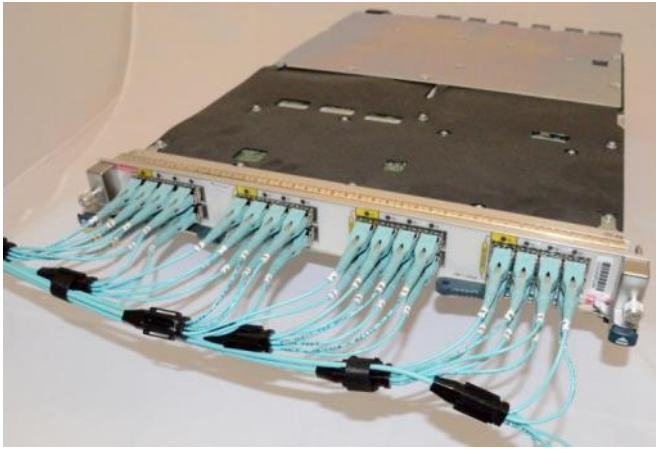


Figure 14-a: Cisco N7K-M224XP-23L



**Figure 15-a: Cisco N7K-M132XP-12,
N7K-M132XP-12L**

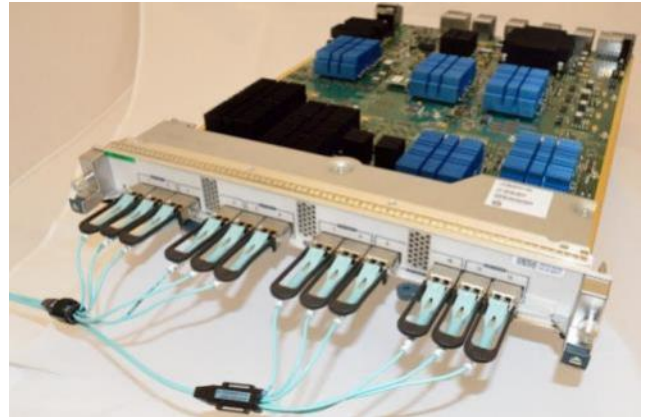
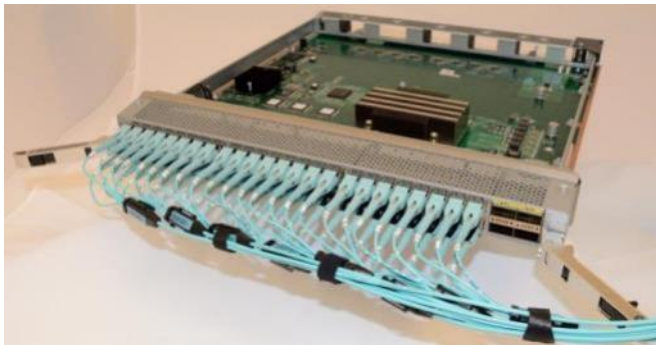
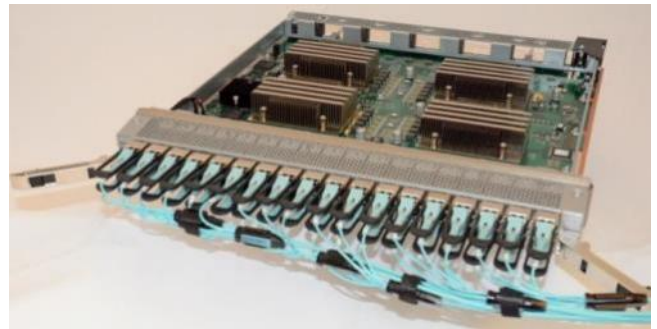


Figure 16-a: Cisco N7K-F312FQ-25



**Figure 17-a: Cisco N9K-X9564PX,
N9K-X9464PX**



**Figure 18-a: Cisco N9K-X9636PQ,
N9K-X9536PQ, N9K-X9736PQ**

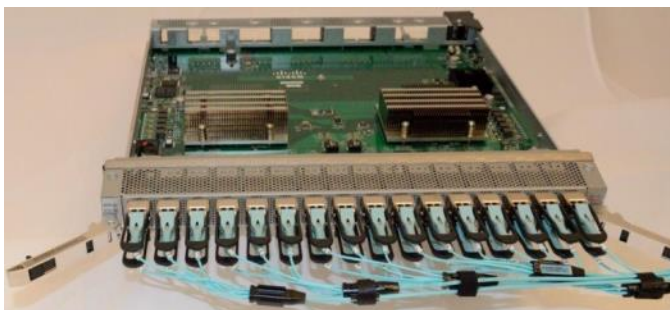


Figure 19-a: Cisco N9K-X9432PQ

For questions on blades not shown in Appendix A, please contact Corning Optical Communications' Technical Support Line at 800-743-2671 or dutyeng@corning.com.

Engineering Services Department
800 17th St NW | PO Box 489
Hickory, North Carolina 28603-0489

t 800 743-2671
f 828 901-5533
www.corning.com/opcomm

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