NVIDIA AI

STRUCTURED CABLING REFERENCE ARCHITECTURE

Structured Cabling for
Installations Using NVIDIA
GPU Servers and Switches

PANDUIT™

How to Use this Guide

Benefits of Structured Cabling

Structured cabling has been used in most data centers for over 30 years to bring standardization and order to the cabling while also providing circuit protection, improving network uptime, and having no effect on the low latency needed by AI networks. It simplifies installation, provides slack management, and future-proofs by allowing easy upgrades of newer higher speed transceivers without ripping and replacing the existing infrastructure. This is even more important in AI data centers where fiber densities are four to eight times higher than traditional data centers. The guide contains the best practices, although there are other methods such as direct connect.

Structured Cabling Patch Panels

Slack Management

Step 1:
Choose the NVIDIA transceivers that match your application

	NVIDIA Model #	Type	Application	Reach (m)	Fiber Type	Interface	Infiniband or Ethernet
800G	MMA4Z00-NS*	OSFP	DR8	30/50	OM3/OM4	2xMPO12 APC	NDR InfiniBand or 2x400GbE
	MMS4X00-NS*	OSFP	DR8	100	OS2	2xMPO12 APC	NDR InfiniBand or 2x400GbE
	MMS4X00-NM*	OSFP	DR8	500	OS2	2xMPO12 APC	NDR InfiniBand or 2x400GbE
	MMS4X50-NM	OSFP	FR4	2 km	OS2	2xDuplex LC	NDR InfiniBand or 2x400GbE
400G	MMA1Z00-NS400	QSFP112	SR4	30/50	OM3/OM4	MPO12 APC	NDR InfiniBand or 400GbE
	MMS1X00-NS400	QSFP112	DR4	100	OS2	MPO12 APC	NDR InfiniBand or 400GbE
	MMS1V00-WM	QSFP-DD	DR4	500	OS2	MPO12 APC	400GbE
	MMS4X00-NS400	OSFP	DR4	100	OS2	MPO12 APC	NDR InfiniBand or 400GbE
	MMA4Z00-NS400	OSFP	SR4	30/50	OM3/OM4	MPO12 APC	NDR InfiniBand or 400GbE
	T-DQ8FNS-N00-M	QSFP-DD	SR8	100	OM3/OM4	MPO-16 APC	400GbE
200G	MMA1T00-HS	QSFP56	SR4	70/100	OM3/OM4	MPO12 UPC	InfiniBand
	MMA1T00-VS	QSFP56	SR4	70/100	OM3/OM4	MPO12 UPC	200GbE
	MMS1W50-HM	QSFP56	FR4	2 km	OS2	Duplex LC	InfiniBand
100G	MMA1B00-E100	QSFP28	SR4	70/100	OM3/OM4	MPO12 UPC	InfiniBand or Ethernet
	MMA1B00-C100D	QSFP28	SR4	70/100	OM3/OM4	MPO12 UPC	100GbE
	MMS1V70-CM	QSFP28	DR1	500	OS2	Duplex LC	100GbE

*Also available as a flat-top transceiver. Add -FLT to the end of the transceiver part #
FLAT is used at the server side, FINNED at the switch side

800G Transceivers

NVIDIA Model #	Description
 MMA4Z00-NS	The NVIDIA MMA4Z00-NS is an InfiniBand and Ethernet 800Gb/s 2x400Gb/s Twin-port OSFP, DR8 multimode, parallel, 8-channel transceiver using two, 4-channel MPO-12/APC optical connectors at 400Gb/s each. The parallel multimode, short reach 8-channel (SR8) uses 100G-PAM4 modulation and has a maximum fiber reach of 50 m using eight multimode fibers. The 50 m length assumes two optical patch panels in the link. *Also available in Flat-Top
 MMS4X00-NS	The NVIDIA MMS4X00-NS is an InfiniBand and Ethernet 800Gb/s 2x400Gb/s Twin-port OSFP finned, DR8 single-mode, parallel, 8-channel transceiver using two, 4-channel MPO-12/APC optical connectors at 400Gb/s each. The parallel single-mode, data center reach 8-channel (DR8) design uses 100G-PAM4 modulation and has a maximum fiber reach of 100 musing 8 single-mode fibers. The 100 m length assumes two optical patch panels in the link. *Also available in Flat-Top
 MMS4X00-NM	The NVIDIA MMS4X00-NM is an InfiniBand and Ethernet 800Gb/s, 2x400Gb/s Twin-port OSFP, DR8 single-mode, parallel, 8-channel transceiver using two, 4-channel MPO-12/APC optical connectors at 400Gb/s each. The parallel single-mode, datacenter reach 8-channel (DR8) design uses 100G-PAM4 modulation and has a maximum fiber reach of 500 m using eight single-mode fibers. The 500 m length assumes two optical patch panels in the link. *Also available in Flat-Top
 MMS4X50-NM	The NVIDIA MMS4X50-NM is an 800Gb/s 2x400Gb/s Twin-port OSFP finned, 2xFR4 single-mode, 8- channel electrical transceiver. This transceiver uses two, 2-fiber, LC Duplex optical connectors each carrying 4-channels of 100G-PAM4. The dual Far Reach 8-channel (2xFR4) design uses 100G-PAM4 electrical and optical modulation based on the CWDM4 serial, multiplexed 1310nm wavelength grid. It has a maximum fiber reach of 2 km which assumes two optical patch panels in the link.

400G Transceivers

NVIDIA Model #	Description
 MMA1Z00-NS400	The NVIDIA MMA1Z00-NS400 is an InfiniBand and Ethernet 400Gb/s, Single-port, QSFP112, SR4 multimode parallel transceiver using a single, 4-channel MPO-12/APC optical connector. The Short Reach 4-channel (SR4) design uses 100G-PAM4 modulation and has a maximum fiber reach of 50 m using OM4 multimode fiber and assumes two optical patch panels in the link.
 MMS1X00-NS400	The Nvidia MMS1X00-NS400 is an InfiniBand and Ethernet 400Gb/s, Single-port, QSFP112, DR4 single-mode parallel transceiver using a single, 4-channel MPO-12/APC optical connector. The data center reach 4-channel (DR4) design uses 100G-PAM4 modulation and has a maximum fiber reach of 100 m and assumes two optical patch panels in the link.
 MMS1V00-WM	The NVIDIA MMS1V00-WM transceiver is a single-mode 4-channel (DR4) QSFP-DD optical transceiver, designed for 400 Gigabit Ethernet (GbE) links on up to 500m of single-mode fiber. The MMS1V00-WM converts eight input channels of 50Gb/s PAM4 electrical data to four channels of 100Gb/s PAM4 optical signals, using a nominal wavelength of 1310nm, for 400Gb/s optical transmission.
 MMS4X00-NS400	The NVIDIA MMS4X00-NS400 is an InfiniBand (IB) and Ethernet (ETH) 400Gb/s, Single-port, OSFP, DR4 single-mode parallel transceiver using a single, 4-channel MPO-12/APC optical connector. The data center Reach 4-channel (DR4) design uses 100G-PAM4 modulation and has a maximum fiber reach of 100 m and assumes two optical patch panels in the link.
 MMA4Z00-NS400	The NVIDIA MMA4Z00-NS400 is an InfiniBand (IB) and Ethernet (ETH) 400Gb/s, Single-port, OSFP, SR4 multimode parallel transceiver using a single, 4-channel MPO-12/APC optical connector. The Short Reach 4-channel (SR4) design uses 100G-PAM4 modulation and has a maximum fiber reach of 50 m using OM4 multimode fiber and assumes two optical patch panels in the link.
 T-DQ8FNS-N00-M	The NVIDIA T-DQ8FNS-N00-M is a 400G single-port, multimode 8-channel parallel transceiver. The application type is SR8 using a MPO-16 APC connector with a 100 m reach

200G Transceivers

NVIDIA Model #	Description
 MMA1T00-HS	The NVIDIA MMA1T00 transceiver is a 4-channel, pluggable, QSFP56 optical transceiver, designed for use in 200Gb/s HDR InfiniBand applications. This module incorporates NVIDIA integrated circuit technology, in order to provide high performance. The transceiver operates over 4-lane parallel multimode fiber (MMF), using a nominal wavelength of 850nm, and is QSFP56 MSA compliant.

200G Transceivers (continued)	
NVIDIA Model #	**Description**
 MMA1T00-VS	The NVIDIA MMA1T00 transceiver is a 4-channel, pluggable, QSFP56 optical transceiver, designed for use in 200GbE Ethernet applications. This module incorporates NVIDIA integrated circuit technology to provide high performance. The transceiver operates over 4-lane parallel multimode fiber (MMF), using a nominal wavelength of 850nm, and is QSFP56 MSA compliant.
 MMS1W50-HM	The NVIDIA MMS1W50-HM transceiver supports link lengths of up to 2 km over single-mode fiber with Duplex-LC UPC connector in a QSFP56 form factor, using a nominal wavelength of 1310 nm. This transceiver complies with the CMIS4.04, QSFP MSA, IEEE 802.3bs (relevant sections) and operates according to the InfiniBand IBTA specification, and it is designed for use in 200Gb/s HDR InfiniBand applications.

100G Transceivers	
NVIDIA Model #	**Description**
 MMA1B00-E100	The NVIDIA MMA1B00-E100 pluggable optical transceiver is designed for use in 100Gb/s InfiniBand link protocol applications. This SFF-8665 compliant transceiver is a flexible alternative to an Active Optical Cable (AOC), as it combines high port density and configurability with longer reach than passive copper cables in the data centers. The MMA1B00 transceiver has a standard QSFP28 port on the electrical side towards the host system.
 MMA1B00-C100D	The NVIDIA MMA1B00-C100D is a 4-channel, pluggable QSFP28 optical transceiver designed for use in 100GbE Ethernet links with up to 100m reach on multimode fiber (MMF). This transceiver incorporates our integrated circuit technology to provide high performance at low power. The MMA1B00-C100D converts four input channels of 25 Gb/s electrical data to 4 optical signals at 850 nm. Reversely, the receiver side de-multiplexes four optical inputs into four electrical differential output signals.The transceiver has selectable retiming as specified in the SFF-8636 MSA. The transceiver can therefore be used in both 40 GbE and 100 GbE applications.
 MMS1V70-CM	The NVIDIA MMS1V70-CM transceiver is a single-mode 1-lane (DR1), QSFP28 optical transceiver, designed for use in 100 Gigabit Ethernet (GbE) links on up to 500m of single-mode fiber.

Notes: *All MPO-MPO fiber in the guide is Method B polarity. All Fiber Adapter Panels (FAP's) are key-up to key-down due to angle/polish of the MPO connectors*

AI/ML connectivity can be complicated by several different factors which include customer preference, availability of components, distance between active components, quantity of connections, etc.

The part numbers within are suggestions for connectivity types. Installation quantities may vary and change with port density requirements. Please see Panduit.com for Enclosure, Panel, Cassette, FAP, Interconnect, and Patch Cord available options. Additional components such as horizontal cable managers are available at Panduit.com but not specifically shared in the infrastructure link.

Step 2:

Identify the enclosure system(s) that meet your application needs. Select the MPO Fiber Adapter Panel (FAP) density needed to suit your requirements.

For more information about Panduit fiber products, visit **www.panduit.com/fiber-optic-systems**

HD Flex™ Fiber Enclosures

The HD Flex Fiber Cabling System is the highest density solution designed to set you free by removing the barriers of architecture, deployment, scalability, and maintenance challenges.

- **Best choice for racks with 4 GPU servers like NVL72**
- Provides up to 576 fibers (72 MPO ports) per RU
- Enclosures and panels are adaptable between 4 and 6 port MPO adapters
- Split tray feature allows each half of the tray to be pulled out independently

SFQ QuickNet™ Patch Panels

Panduit QuickNet Patch Panels provide the flexibility to deploy both copper and fiber connectivity in the same RU.

- **Best Choice for racks with 8 GPU servers like H100 and B200**
- High-density patch panels conserve valuable rack space with up to 512 fibers (64 MPO ports) per RU. Available in 4, 6, or 8 MPO's per FAP
- Available in flat or angled patch panels to facilitate proper bend radius control and minimize the need for horizontal cable managers

Opticom® Fiber Enclosures

Opticom Fiber Enclosures accept pre-terminated, splice-on, and field terminated fiber connectivity.

- Slide-out, tilt-down drawer provides up to 576 fibers (72 MPOs) per RU. Available in 4, 6, 8, 12, 16, 18 MPOs per FAP
- Integral bend radius control and cable management for fiber optic patch cords
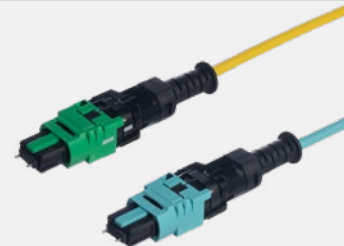
PanMPO™ Fiber Connector

The PanMPO Fiber Connector is a unique, patented MPO design that specifically addresses today's needs for fast and efficient Ethernet and Fiber Channel migration to help maximize return on cabling infrastructure investment and minimize downtime. Protect your investments today; minimizing installed cost of high-speed data center engineered links securing your position as a next-generation data center prepared to face future demands.

- Innovative push-pull boot to allow for easy installation and removal
- Alignment pins and tool are permanently housed and protected inside the connector, allowing for a tool-less change of gender and polarity
- Easy migration from serial duplex (SR/SR-BD) to parallel (SR4.x) while maintaining compliance with cabling standards (TIA and ISO/IEC)
- Connector cleaning – the pin retraction feature allows for complete cleaning of the MPO surface
- Link certification – the gender changing ability of PanMPO on test leads allows for multiple test scenarios without the need for multiple test lead styles (which increase test variability)
- Mistake proofing – PanMPO Patch Cords can be reconfigured for gender and polarity in the field

For more information on the PanMPO Fiber Connector, visit **www.panduit.com/panmpo**

Step 3:

Select the components to build out your end-to-end fiber connectivity channel.

800G Twin-Port OSFP to 800G Twin-Port OSFP

View is 'top view' of link. MPO's will be installed vertically on 800G dual MPO transceivers

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	**HD Flex**		**MPO-12**	**HD Flex**		**MPO-12**
OM4			**OM4**			**OM4**
GZ8RLJPJPYNM*	FHMP-4-ABL / FLEX1U04 — SFQ Quicknet		**GZ8RLKPKPYNM***	FHMP-4-ABL / FLEX1U04 — SFQ Quicknet		**GZ8RLJPJPYNM***
Female to Female, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per transceiver			Male to Male, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per link			Female to Female, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per transceiver
OS2			**OS2**			**OS2**
G98RLJPJPLNM*	FQMAP85BL / QPP64HDBL — Opticom / FAPH1612BLMPO / FCE1U		**G98RLKPKPLNM***	FQMAP85BL / QPP64HDBL — Opticom / FAPH1612BLMPO / FCE1U		**G98RLJPJPLNM***
Female to Female, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per transceiver			Male to Male, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per link			Female to Female, PanMPO / Method B, LSZH (Dca) / 8F APC connectors / (2) per transceiver

	Near	Far	Application
OM4	MMA4Z00-NS	MMA4Z00-NS	800G Switch to 800G Switch
		MMA4Z00-NS-FLT	800G Switch to DGX H100 GPU
OS2	MMS4X00-NM	MMS4X00-NM	800G Switch to 800G Switch
		MMS4X00-NS-FLT	800G Switch to DGX H100 GPU
	MMS4X00-NS	MMS4X00-NS	800G Switch to 800G Switch
		MMS4X00-NS-FLT	800G Switch to DGX H100 GPU

^Interconnects are also available in B2ca (change '8RL' to '8RB')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: GZ8RLJPJPYNM020 = OM4, 8F, MMF APC, LSZH, PanMPO female to PanMPO female, Method B, 20 m

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

800G Twin-Port OSFP to (2) 400G Single-Port OSFP / QSFP112

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		MPO-12
OM4			**OM4**			**OM4**
GZ8RLJPJPYNM***	FHMP-4-ABL / FLEX1U04		GZ8RLKPKPYNM***	FHMP-4-ABL / FLEX1U04		GZ8RLJPJPYNM***
Female to Female, PanMPO	SFQ Quicknet		Male to Male, PanMPO	SFQ Quicknet		Female to Female, PanMPO
Method B, LSZH (Dca) 8F APC connectors			Method B, LSZH (Dca) 8F APC connectors			Method B, LSZH (Dca) 8F APC connectors
(2) per transceiver			(2) per link			1 per transceiver / 2 total per link
OS2			**OS2**			**OS2**
G98RLJPJPLNM***	FQMAP85BL / QPP64HDBL		G98RLKPKPLNM***	FQMAP85BL / QPP64HDBL		G98RLJPJPLNM***
Female to Female, PanMPO	Opticom		Male to Male, PanMPO	Opticom		Female to Female, PanMPO
Method B, LSZH (Dca) 8F APC connectors			Method B, LSZH (Dca) 8F APC connectors			Method B, LSZH (Dca) 8F APC connectors
(2) per transceiver	FAPH1612BLMPO / FCE1U		(2) per link	FAPH1612BLMPO / FCE1U		1 per transceiver / 2 total per link

	Near	Far	Application
OM4	MMA4Z00-NS	MMA4Z00-NS400	800G Switch to (2) 400G ConnectX-7 OSFP
		MMA1Z00-NS400	800G Switch to (2) 400G BlueField-3 or (2) 400G ConnectX-7 QSFP112
OS2	MMS4X00-NS	MMS4X00-NS400	800G Switch to (2) 400G ConnectX-7 OSFP
		MMS1X00-NS400	800G Switch to (2) 400G BlueField-3 or (2) 400G ConnectX-7 QSFP112
		MMS1V00-WM (2)	800G Switch to (2) 400G Switch ports
	MMS4X00-NS-FLT	MMS1V00-WM (2)	(2) 400G ConnectX-7 to (2) 400G Switch ports

^Interconnects are also available in B2ca (change '8RL' to '8RB')

Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'

Replace *** with length, i.e. *** to 005 = 5 m

ex: GZ8RLJPJPYNM020 = OM4, 8F, MMF APC, LSZH, PanMPO female to PanMPO female, Method B, 20 m

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

800G Twin-Port OSFP to (4) 200G Single-Port OSFP or QSFP112 with Y Splitter

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Y-Splitter
MPO-12	**HD Flex**		**MPO-12**	**HD Flex**		**MPO-12**
OM4			**OM4**			**OM4**
GZ8RLJPJPYNM*** Female to Female, PanMPO Method B, LSZH (Dca) 8F APC connectors (2) per transceiver	**FHMP-4-ABL** **SFQ Quicknet**	**FLEX1U04**	**GZ8RLKPKPYNM***** Male to Male, PanMPO Method B, LSZH (Dca) 8F APC connectors (2) per link	**FHMP-4-ABL** **SFQ Quicknet**	**FLEX1U04**	**GZ8RLJP5AYNM***** Female to Female, PanMPO Method B, LSZH (Dca) 8F to (2) 4F MPO Y - Splitter Cable (2) per link
OS2			**OS2**			**OS2**
G98RLJPJPLNM*** Female to Female, PanMPO Method B, LSZH (Dca) 8F APC connectors (2) per transceiver	**FQMAP85BL** **Opticom** **FAPH1612BLMPO**	**QPP64HDBL** **FCE1U**	**G98RLKPKPLNM***** Male to Male, PanMPO Method B, LSZH (Dca) 8F APC connectors (2) per link	**FQMAP85BL** **Opticom** **FAPH1612BLMPO**	**QPP64HDBL** **FCE1U**	**G98RLJP5AYNM***** Female to Female, PanMPO Method B, LSZH (Dca) 8F to (2) 4F MPO Y - Splitter Cable (2) per link

	Near	Far	Application
OM4	**MMA4Z00-NS**	**MMA4Z00-NS400 (4)**	800G Switch to (4) 200G ConnectX-7 OSFP
		MMA1Z00-NS400 (4)	800G Switch to (2) dual port 200G BlueField-3 + ConnectX-7 QSFP112
OS2	**MMS4X00-NS**	**MMS4X00-NS400 (4)**	800G Switch to (4) 200G ConnectX-7 OSFP
		MMS1X00-NS400 (4)	800G Switch to (2) dual port 200G BlueField-3 + ConnectX-7 QSFP112

^Interconnects are also available in B2ca (change '8RL' to '8RB')

Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'

Replace *** with length, i.e. *** to 005 = 5 m

ex: GZ8RLJPJPYNM020 = OM4, 8F, MMF APC, LSZH, PanMPO female to PanMPO female, Method B, 20 m

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

400G Single-Port to 400G Single-Port DR4

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		MPO-12
OS2			OS2			OS2
G98RLJPJPLNM***			G98RLKPKPLNM***			G98RLJPJPLNM***
Female to Female, PanMPO; Method B, LSZH (Dca); 8F APC connectors	FHMP-4-ABL	FLEX1U04	Male to Male, PanMPO; Method B, LSZH (Dca); 8F APC connectors	FHMP-4-ABL	FLEX1U04	Female to Female, PanMPO; Method B, LSZH (Dca); 8F APC connectors
	SFQ Quicknet			SFQ Quicknet		
	FQMAP85BL	QPP64HDBL		FQMAP85BL	QPP64HDBL	
	Opticom			Opticom		
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

	Near	Far	Application
OS2	MMS1V00-WM	MMS1V00-WM	400G Eth Switch to 400G Eth Switch
		MMS4X00-NS400	400G Eth Switch to 400G ConnectX-7
		MMX1X00-NS400	400G Eth Switch to 400G ConnectX-7, or BlueField-3

^Interconnects are also available in B2ca (change '8RL' to '8RB')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: G98RLJPJPLNM020 = OS2, 8F, MMF APC, LSZH, PanMPO female to PanMPO female, Method B, 20 m

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

400G QSFP-DD to 400G QSFP-DD MMF SR8

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-16	HD Flex		MPO-16	HD Flex		MPO-16
OM4			OM4			OM4
FRZCLOOY021M***			FRZCLMMY021M***			FRZCLOOY021M***
Female to Female, MPO Method B, LSZH (Dca) 16F APC connectors			Male to Male, MPO Method B, LSZH (Dca), 16F APC connectors			Female to Female, MPO Method B, LSZH (Dca) 16F APC connectors
	FHMP-4M-ABL	FLEX1U04		FHMP-4M-ABL	FLEX1U04	
	SFQ Quicknet			SFQ Quicknet		
	FQMAP8MBL	QPP64HDBL		FQMAP8MBL	QPP64HDBL	
	Opticom			Opticom		
	FAPH08MBLMPO	FCE1U		FAPH08MBLMPO	FCE1U	

	Near	Far	Application
OM4	T-DQ8FNS-N00-M	T-DQ8FNS-N00-M	400G Eth Switch to 400G Eth Switch

Replace *** with length, i.e. *** to 005 = 5 m
ex: FRZCLOOY021M005 = OM4, 16F, MMF APC, LSZH, PanMPO female to PanMPO female, Method B, 5 m
Note: Opticom FAPs are eight ports

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

400G QSFP-DD to (2) 200G QSFP-DD MMF Breakout SR8 – SR4

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-16	HD Flex		MPO-16	HD Flex		MPO-16
OM4			OM4			OM4
FRZCLOOY021M***			FRZCLMMY021M***			FRZCLOJY023M***
Female to Female, MPO Method B, LSZH (Dca) 16F APC	FHMP-4M-ABL	FLEX1U04	Male to Male, MPO Method B, LSZH (Dca) 16F APC	FHMP-4M-ABL	FLEX1U04	Female to Female, MPO Method B, LSZH (Dca) 16F APC to (2) 8F UPC PanMPO, 24" Breakout "Y" Splitter cable
	SFQ Quicknet			SFQ Quicknet		
	FQMAP8MBL	QPP64HDBL		FQMAP8MBL	QPP64HDBL	
	Opticom			Opticom		
	FAPH08MBLMPO	FCE1U		FAPH08MBLMPO	FCE1U	

	Near	Far	Application
OM4	T-DQ8FNS-N00-M	MMA1T00-VS	400G Eth Switch to BlueField-3, ConnectX-7, ConnectX-6, or 200GbE Switch
		MMA1B00C100D	400G Eth Switch to BlueField-3, ConnectX-7, ConnectX-6, or 100GbE Switch

Replace *** with length, i.e. *** to 020 = 20 m
ex: FRZCLOOY021M020 = OM4, 16F to (2) 8F UPC PanMPO Fem to PanMPO Fem, "Y" Splitter, LSZH, Method B, 20 m
Note: Opticom FAPs have eight ports

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

400G QSFP-DD to (4) 100G QSFP28 LC DR4 – DR1 Breakout

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		LC Harness
OS2			OS2			OS2
G98RLGPGPLNM***	FHMP-4-ABL	FLEX1U04	G98RLHPHPLNM***	FHMP-4-ABL	FLEX1U04	FH98LVLV016M***
Female to Female, MPO Method B, LSZH (Dca) 8F APC connectors	SFQ Quicknet		Male to Male, MPO Method B, LSZH (Dca) 8F APC connectors	SFQ Quicknet		Female PanMPO 8F 4:1 Duplex LC U2 Polarity 24" Breakout LSZH (Dca)
	FQMAP85BL	QPP64HDBL		FQMAP85BL	QPP64HDBL	
	Opticom			Opticom		
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

	Near	Far	Application
OS2	MMS1V00-WM	MMS1V70-CM (4)	400G Eth Switch to 200G Eth Switch, BlueField-3, ConnectX-7 or X-6 via LC Breakout

^Interconnects are also available in LSZH (change '98P' to '98L')
Replace *** with length, i.e. *** to 005 = 5 m
ex: G98RLGPGPLNM020 = OS2, 8F, SMF APC, LSZH, PanMPO female to PanMPO female, Method B, 20 m

Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

200G QSFP56 to 200G QSFP56, or 100G QSFP28 to 100G QSFP28 SR4

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		MPO-12
OM4			OM4			OM4
FRZ8LJJY011M***			FRZ8LKKY011M***			FRZ8LJJY011M***
Female to Female, PanMPO	FHMP-4-ABL	FLEX1U04	Male to Male, PanMPO	FHMP-4-ABL	FLEX1U04	Female to Female, PanMPO
Method B, LSZH (Dca)	SFQ Quicknet		Method B, LSZH (Dca)	SFQ Quicknet		Method B, LSZH (Dca)
8F UPC connectors			8F UPC connectors			8F UPC connectors
	FQMAP85BL	QPP64HDBL		FQMAP85BL	QPP64HDBL	
	Opticom			Opticom		
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

	Near	Far	Application
OM4	MMA1B00-C100D	MMA1B00-C100D	200G Switch to DGX H100 ConnectX-7
	MMA100-E00	MMA100-E00	200G Switch to DGX H100 ConnectX-7
	MMA1T00-HS	MMA1T00-HS	200G Switch to DGX H100 ConnectX-7
			200G IB Switch to 200G IB Switch, ConnectX-6, or BlueField-2
	MMA1T00-VS	MMA1T00-VS	200G Eth Switch to 200G Eth Switch, ConnectX-6, or BlueField-2

Interconnects are available in standard MPO, change 'JJ' to 'GG'
Replace *** with length, i.e. *** to 005 = 5 m
ex: FRZ8LJJY011M020 = OM4, 8F, MMF UPC, LSZH, PanMPO female to PanMPO female, Method B, No Breakout, 20 m
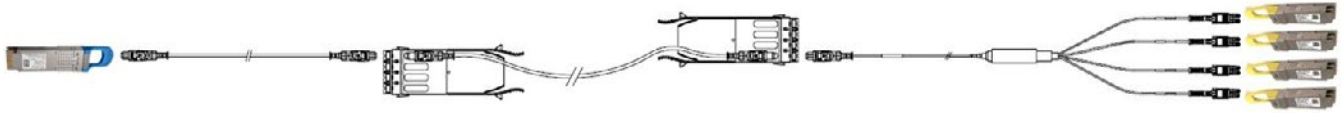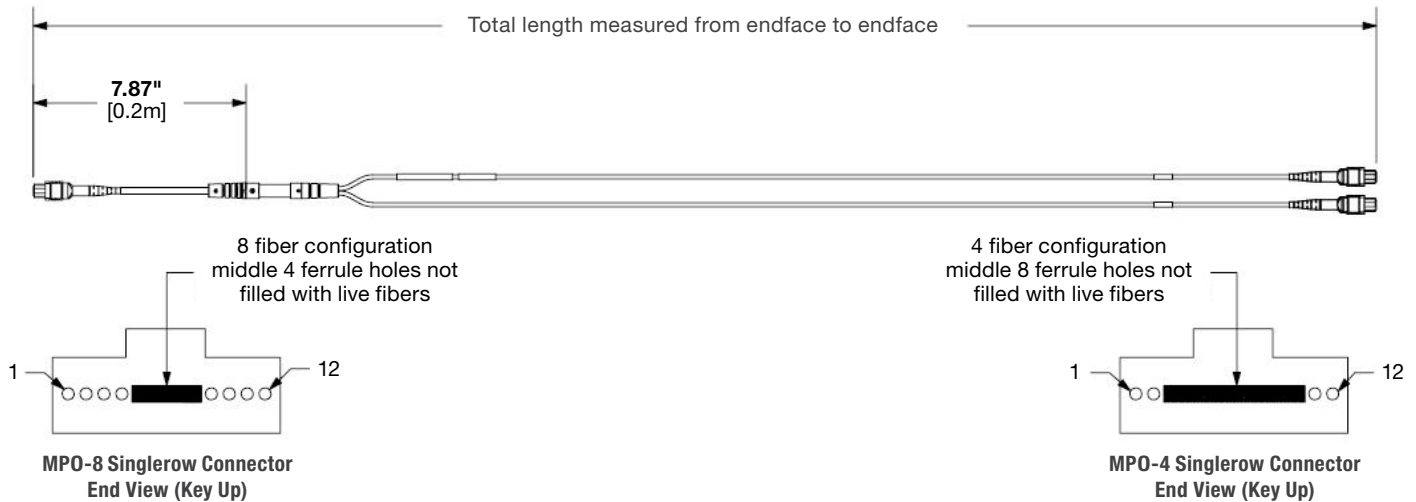
Step 3 (continued):

Select the components to build out your end-to-end fiber connectivity channel.

200G QSFP56 to 200G QSFP56 Duplex LC FR4

Interconnect	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		LC Harness
OS2			**OS2**			**OS2**
F92RLU1U1ONM***			FR98LVVY011M			F92RLU1U1ONM***
Duplex LC Uniboot Standard Polarity LSZH (Dca)	FHC39O-08H-10U	FLEX1U04	Female to Female, PanMPO Method B, LSZH (Dca) 8F UPC connectors	FHC39O-08H-10U	FLEX1U04	Duplex LC Uniboot Standard Polarity LSZH (Dca)
	SFQ Quicknet			SFQ Quicknet		
	FQ39O-08-10U	QPP64HDBL		FQ39O-08-10U	QPP64HDBL	
	Opticom			Opticom		
	FC39O-16-10U	FCE1U		FC39O-16-10U	FCE1U	

	Near	Far	Application
OS2	MMS1W50-HM	MMS1W50-HM	200G Switch to 200G Switch, 200G ConnectX-6, or BlueField-2

Interconnects are available in standard MPO, change 'KK' to 'HH'
Replace *** with length, i.e. *** to 005 = 5 m
ex: F92RLU1U1ONM020 = OS2, 2F, SMF Duplex LC, LSZH, Standard Polarity, 20 m

Notes: *These configurations are shown completed with fiber Interconnects (jumpers) due to generally close distances on active AI equipment. Multi-connector fiber trunks are also available by contacting Panduit Customer Service. Trunks are used for longer runs such as row to row and can come with pulling eyes to make installation easier. They can also consolidate many links which reduces the overall diameter freeing up space in the overhead pathways. Panduit offers Trunks in 8, 16, 24, 48, 72, 96, and 144 fibers. For example: 18x 8-fiber cables have a cross sectional area of 126 mm^2 which is 75% larger than 72 mm^2 for a single 144 fiber trunk.*

All Panduit fiber connectivity comes pre-tested and labeled with our award-winning RapidID™ labels.

Multimode and Single-mode connectivity options are both 0.35dB IL, with Single-mode using Ultra Low Loss connectors.

NVIDIA to Panduit Cross	Panduit Part Numbers						
NVIDIA Part # Equivalent	LSZH With MPO	LSZH With PanMPO	Plenum With MPO	Plenum With PanMPO	Mode	Method	Gender
MFP7E10-Nxxx	GZ8RLGPGPYNM***	GZ8RLJPJPNM***	GZ8RPGPGPYNM***	GZ8RPJPJPYNM***	OM4	B	Female to Female
MFP7E10-Nxxx	GZ8RLHPHPYNM***	GZ8RLKPKPNM***	GZ8RPHPHPYNM***	GZ8RPKPKPYNM***			Male to Male
MFP7E20-Nxxx	GZ8RL3ZGPYNM***	GZ8RL5ZJPYNM***	GZ8RP3ZGPYNM***	GZ8RP5ZJPYNM***			Splitter Female to 2x Female
MFP7E30-Nxxx	G98RLGPGPLNM***	G98RLJPJPLNM***	G98RPGPGPLNM***	G98RPJPJPLNM***	OS2	B	Female to Female
MFP7E30-Nxxx	G98RLHPHPLNM***	G98RLKPKPLNM***	G98RPHPHPLNM***	G98RPKPKPLNM***			Male to Male
MFP7E40-Nxxx	G98RL3ZGPLNM***	G98RL5ZJPLNM***	G98RP3ZGPLNM***	G98RP5ZJPLNM***			Splitter Female to 2x Female

Connector B

Connector A

Total length measured from endface to endface

7.87"
[0.2m]

8 fiber configuration middle 4 ferrule holes not filled with live fibers

4 fiber configuration middle 8 ferrule holes not filled with live fibers

1   12

1   12

MPO-8 Singlerow Connector
End View (Key Up)

MPO-4 Singlerow Connector
End View (Key Up)
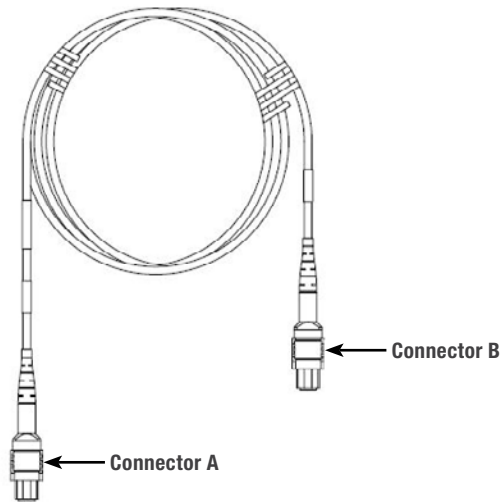
Our most important connection is with you.

We have the knowledge and experience to help you make the most of your infrastructure investment.

www.panduit.com/AI

Let's Connect
www.panduit.com/contact-us