NVIDIA AI

Structured Cabling Reference Architecture

Structured cabling for installations using NVIDIA GPU servers and switches

PANDUIT®

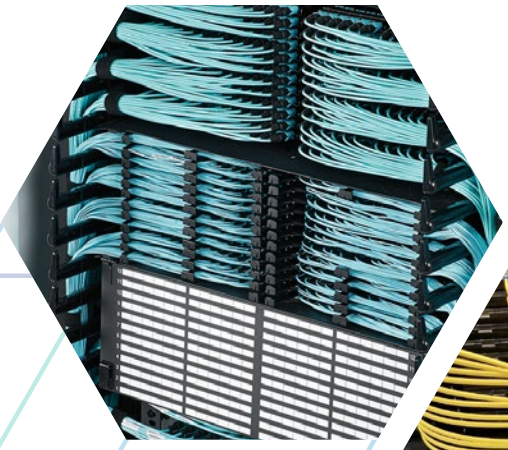
Application Guide

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 Number	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	2km	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	MPO16 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	2km	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 number
FLAT is used at the server side, FINNED at the switch side

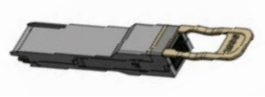
800G Transceivers

NVIDIA Model Number	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 Number	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 Number	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.
 **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 Number	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 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

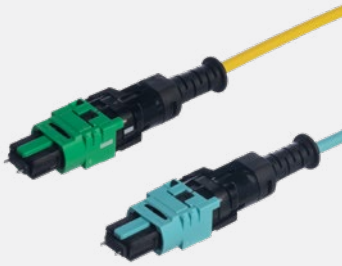
Panduit QuickNet Patch Panels provide the flexibility to deploy both copper and fiber connectivity in the same RU.

- **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 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
GZ8RPJPJPYNM***			GZ8RPKPKPYNM***			GZ8RPJPJPYNM***
Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver	FHMP-4-ABL	FLEX1U04	Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link	FHMP-4-ABL	FLEX1U04	Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver
	SFQ Quicknet			SFQ Quicknet		
OS2			OS2			OS2
G98RPJPJPLNM***	FQMAP85BL	QPP64HDBL	G98RPKPKPLNM***	FQMAP85BL	QPP64HDBL	G98RPJPJPLNM***
Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver	Opticom		Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link	Opticom		Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

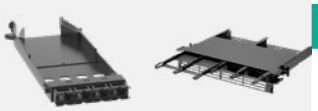
Near	Far	Application
OM4		
MMA4Z00-NS	MMA4Z00-NS	800G Switch to 800G Switch
	MMA4Z00-NS-FLT	800G Switch to DGX H100 GPU
OS2		
MMS4X00-NM	MMS4X00-NM	800G Switch to 800G Switch
	MMS4X00-NS-FLT	800G Switch to DGX H100 GPU
MMS4X00-NS	MMS4X00-NS	800G Switch to 800G Switch
	MMS4X00-NS-FLT	800G Switch to DGX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

^Interconnects are also available in LSZH (change '8RP' to '8RL')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: GZ8RPJPJPYNM020 = OM4, 8F, MMF APC Plenum, 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**
GZ8RPJPJPYNM* ** Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver	**FHMP-4-ABL**	**FLEX1U04**	**GZ8RPKPKPYNM*** ** Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link	**FHMP-4-ABL**	**FLEX1U04**	**GZ8RPJPJPYNM*** ** Female to Female, PanMPO Method B, Plenum 8F APC connectors 1 per transceiver 2 total per link
	SFQ Quicknet			**SFQ Quicknet**		
						
OS2			**OS2**			**OS2**
G98RPJPJPLNM* ** Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver	**FQMAP85BL**	**QPP64HDBL**	**G98RPKPKPLNM*** ** Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link	**FQMAP85BL**	**QPP64HDBL**	**G98RPJPJPLNM*** ** Female to Female, PanMPO Method B, Plenum 8F APC connectors 1 per transceiver 2 total per link
	Opticom			**Opticom**		
						
	FAPH1612BLMPO	**FCE1U**		**FAPH1612BLMPO**	**FCE1U**	

Near	Far	Application
OM4		
MMA4Z00-NS	**MMA4Z00-NS**	800G Switch to (2) 400G ConnectX-7 OSFP
	MMA4Z00-NS-FLT	800G Switch to (2) 400G BlueField-3 or (2) 400G ConnectX-7 QSFP112
OS2		
MMS4X00-NM	**MMS4X00-NM**	800G Switch to (2) 400G ConnectX-7 OSFP
	MMS4X00-NS-FLT	800G Switch to (2) 400G BlueField-3 or (2) 400G ConnectX-7 QSFP112
MMS4X00-NS	**MMS4X00-NS**	800G Switch to (2) 400G Switch ports
	MMS4X00-NS-FLT	(2) 400G ConnectX-7 to (2) 400G Switch ports

^Interconnects are also available in LSZH (change '8RP' to '8RL')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: GZ8RPJPJPYNM020 = OM4, 8F, MMF APC Plenum, 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	Interconnect
MPO-12	HD Flex		MPO-12	HD Flex		MPO-12
OM4			OM4			OM4
GZ8RPJPJPYNM***			GZ8RPKPKPYNM***			GZ8RPJP5AYNM***
Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver			Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link			Female to Female, PanMPO Method B, Plenum 8F to (2) 4F MPO Y - Splitter Cable (2) per link
	FHMP-4-ABL	FLEX1U04		FHMP-4-ABL	FLEX1U04	
	SFQ Quicknet			SFQ Quicknet		
OS2			OS2			OS2
G98RPJPJPLNM***	FQMAP85BL	QPP64HDBL	G98RPKPKPLNM***	FQMAP85BL	QPP64HDBL	G98RPJP5AYNM***
Female to Female, PanMPO Method B, Plenum 8F APC connectors (2) per transceiver	Opticom		Male to Male, PanMPO Method B, Plenum 8F APC connectors (2) per link	Opticom		Female to Female, PanMPO Method B, Plenum 8F to (2) 4F MPO Y - Splitter Cable (2) per link
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

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 LSZH (change '8RP' to '8RL')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: GZ8RPJPJPYNM020 = OM4, 8F, MMF APC Plenum, 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
G98RPJPJPLNM***			G98RPKPKPLNM***			G98RPJPJPLNM***
Female to Female , PanMPO Method B, Plenum 8F APC connectors	FHMP-4-ABL	FLEX1U04	Male to Male, PanMPO Method B, Plenum 8F APC connectors	FHMP-4-ABL	FLEX1U04	Female to Female, PanMPO Method B, Plenum 8F APC connectors
	SFQ Quicknet			SFQ Quicknet		
	FQMAP85BL	QPP64HDBL		FQMAP85BL	QPP64HDBL	
	Opticom			Opticom		
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

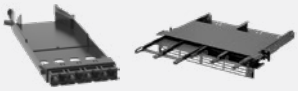
Near	Far	Application
OS2		
MMS1V00-WM	MMS1V00-WM	400G Eth Switch to 400G Eth Switch
	MMS4X00-NS400	400G Eth Switch to 400G ConnectX-7
	MMX1X00-NS400	400G Eth Switch to 400G ConnectX-7, or BlueField-3

^Interconnects are also available in LSZH (change '8RP' to '8RL')
Interconnects are available in standard MPO, change 'JPJP' to 'GPGP'
Replace *** with length, i.e. *** to 005 = 5 m
ex: G98RPJPJPLNM020 = OS2, 8F, MMF APC Plenum, 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**
FRZCPOOY021M* **	**FHMP-4M-ABL**	**FLEX1U04**	**FRZCPMMY021M*** **	**FHMP-4M-ABL**	**FLEX1U04**	**FRZCPOOY021M*** **
Female to Female, MPO Method B, Plenum 16F APC connectors	**SFQ Quicknet**		Male to Male, MPO Method B, Plenum 16F APC connectors	**SFQ Quicknet**		Female to Female, MPO Method B, Plenum 16F APC connectors
						
	FQMAP8MBL	**QPP64HDBL**		**FQMAP8MBL**	**QPP64HDBL**	
	Opticom			**Opticom**		
						
	FAPH08MBLMPO	**FCE1U**		**FAPH08MBLMPO**	**FCE1U**	

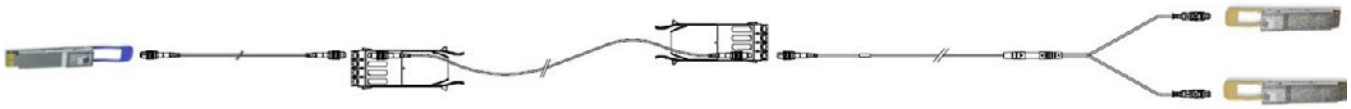
Near	Far	Application
OM4		
T-DQ8FNS-N00-M	**T-DQ8FNS-N00-M**	400G Eth Switch to 400G Eth Switch

^Interconnects are also available in LSZH (change 'CP' to 'CL')
Replace *** with length, i.e. *** to 005 = 5 m
ex: FRZCPOOY021M005 = OM4, 16F, MMF APC Plenum, 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
FRZCPOOY021M***	FHMP-4M-ABL	FLEX1U04	FRZCPMMY021M***	FHMP-4M-ABL	FLEX1U04	FRZCPOJY23M***
Female to Female, MPO Method B, Plenum 16F APC	SFQ Quicknet		Male to Male, MPO Method B, Plenum 16F APC	SFQ Quicknet		Female to Female, MPO Method B, Plenum 16F APC to (2) 8F UPC PanMPO, 24" Breakout "Y" Splitter cable
	FQMAP8MBL	QPP64HDBL		FQMAP8MBL	QPP64HDBL	
	Opticom			Opticom		
	FAPH08MBLMPO	FCE1U		FAPH08MBLMPO	FCE1U	

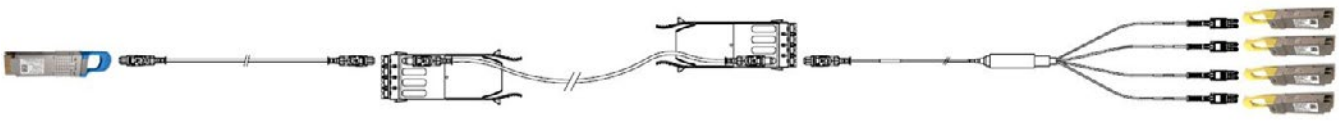
Near	Far	Application
OM4		
T-DQ8FNS-N00-M	MMA1T00-VS	400G Eth Switch to BlueField-3, ConnectX-7, ConnectX-6, or 200GbE Switch
	MMA1B00C100D	400G Eth Switch to BlueField-3, ConnectX-7, ConnectX-6, or 100GbE Switch

^Interconnects are also available in LSZH (change 'P' to 'L')
Replace *** with length, i.e. *** to 020 = 20 m
ex: FRZCPOOY021M020 = OM4, 16F to (2) 8F UPC PanMPO Fem to PanMPO Fem, "Y" Splitter, Plenum, 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
G98RPGPGPLNM***			G98RPHPHPLNM***			FH98PVLV016M***
Female to Female, MPO Method B, Plenum 8F APC connectors	FHMP-4-ABL	FLEX1U04	Male to Male, MPO Method B, Plenum 8F APC connectors	FHMP-4-ABL	FLEX1U04	Female PanMPO 8F 4:1 Duplex LC U2 Polarity 24" Breakout
	SFQ Quicknet			SFQ Quicknet		
	FQMAP85BL	QPP64HDBL		FQMAP85BL	QPP64HDBL	
	Opticom			Opticom		
	FAPH1612BLMPO	FCE1U		FAPH1612BLMPO	FCE1U	

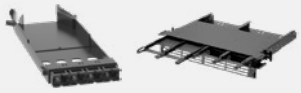
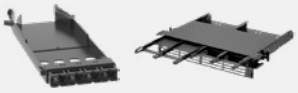
Near	Far	Application
OS2		
MMS1V00-WM	MMS1V70-CM (4)	400G Eth Switch to 200G Eth Switch, BlueField-3, ConnectX-7 or X-6 via LC Breakout

^Interconnects are also available in LSZH (change '98P' to '98L')
Replace *** with length, i.e. *** to 005 = 5 m
ex: G98RPGPGPLNM020 = OS2, 8F, SMF APC Plenum, 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**
FRZ8PJJY011M* **			**FRZ8PKKY011M*** **			**FRZ8PJJY011M*** **
Female to Female, PanMPO Method B, Plenum 8F UPC connectors			Male to Male, PanMPO Method B, Plenum 8F UPC connectors			Female to Female, PanMPO Method B, Plenum 8F UPC connectors
	FHMP-4-ABL	**FLEX1U04**		**FHMP-4-ABL**	**FLEX1U04**	
	SFQ Quicknet			**SFQ Quicknet**		
						
	FQMAP85BL	**QPP64HDBL**		**FQMAP85BL**	**QPP64HDBL**	
	Opticom			**Opticom**		
						
	FAPH1612BLMPO	**FCE1U**		**FAPH1612BLMPO**	**FCE1U**	

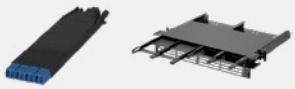
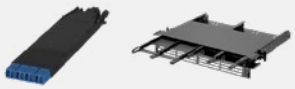
Near	Far	Application
OM4		
MMA1B00-C100D	**MMA1B00-C100D**	200G Switch to DGX H100 ConnectX-7
MMA100-E00	**MMA100-E00**	200G Switch to DGX H100 ConnectX-7
MMA1T00-HS	**MMA1T00-HS**	200G Switch to DGX H100 ConnectX-7
		200G IB Switch to 200G IB Switch, ConnectX-6, or BlueField-2
MMA1T00-VS	**MMA1T00-VS**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

^Interconnects are also available in LSZH (change 'P' to 'J')
Interconnects are available in standard MPO, change 'JJ' to 'GG'
Replace *** with length, i.e. *** to 005 = 5 m
ex: FRZ8PJJY011M020 = OM4, 8F, MMF UPC Plenum, 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

Patch Cord	Fiber Adapter Panels	Enclosures	Horizontal Link (Interconnect)	Fiber Adapter Panels	Enclosures	Patch Cord
Duplex LC	**HD Flex**		**MPO-12**	**HD Flex**		**Duplex LC**
OS2			**OS2**			**OS2**
F92RPU1U1ONM* **	**FHC39O-08H-10U**	**FLEX1U04**	**FR98PVVY011M*** **	**FHC39O-08H-10U**	**FLEX1U04**	**F92RPU1U1ONM*** **
Duplex LC Uniboot Optimized Performance IL (A-B)	**SFQ Quicknet**		Female to Female, PanMPO Method B, Plenum 8F APC connectors	**SFQ Quicknet**		Duplex LC Uniboot Optimized Performance IL (A-B)
						
	FQ39O-08-10U	**QPP64HDBL**		**FQ39O-08-10U**	**QPP64HDBL**	
	Opticom			**Opticom**		
						
	FC39O-16-10U	**FCE1U**		**FC39O-16-10U**	**FCE1U**	

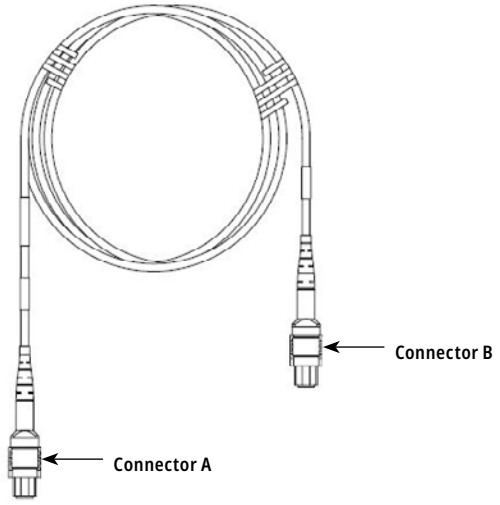
Near	Far	Application
OS2		
MMS1W50-HM	**MMS1W50-HM**	200G Switch to 200G Switch, 200G ConnectX-6, or BlueField-2

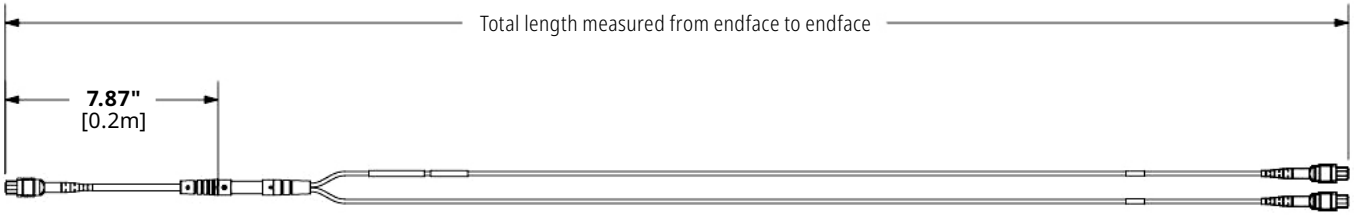
^Interconnects are also available in LSZH (change '98P' to '98L')
Patch cords are also available in LSZH (change 'RP' to 'RL')
Replace *** with length, i.e. *** to 005 = 5 m
ex: F92RPU1U1ONM020 = OS2, 2F, SMF Duplex LC, Standard Polarity, 20 m

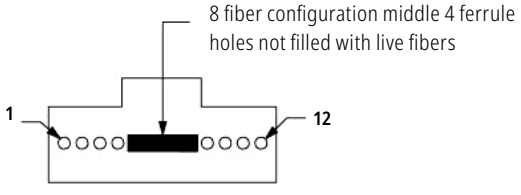
Notes: These configurations are shown completed with fiber Interconnects (jumpers) due to generally close distances on active AI equipment. Multi-connector fiber trunks are also available by contacting Panduit Customer Service. Trunks are used for longer runs such as row to row and can come with pulling 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 mm2 which is 75% larger than 72 mm2 for a single 144 fiber trunk.
All Panduit fiber connectivity comes pre-tested and labeled with our award-winning *Rapid*ID™ labels.
Multimode and Single-mode connectivity options are both 0.35dB IL, with Single-mode using Ultra Low Loss connectors.

NVIDIA to Panduit Cross Reference

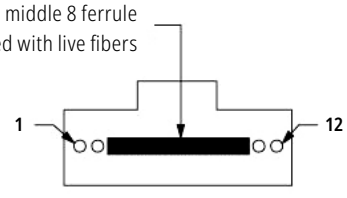
NVIDIA Part Number	Panduit Part Numbers				Mode	Method	Gender
	Plenum With MPO	Plenum With PanMPO	LSZH With MPO	LSZH With PanMPO			
MFP7E10-Nxxx	GZ8RPGPGPYNM***	GZ8RPJPJPYNM***	GZ8RLGPGPYNM***	GZ8RLJPJPNM***	OM4	B	Female to Female
MFP7E10-Nxxx	GZ8RPHPHPYNM***	GZ8RPKPKPYNM***	GZ8RLHPHPYNM***	GZ8RLKPKPNM***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







MPO-8 Singlerow Connector
End View (Key Up)



MPO-4 Singlerow Connector
End View (Key Up)

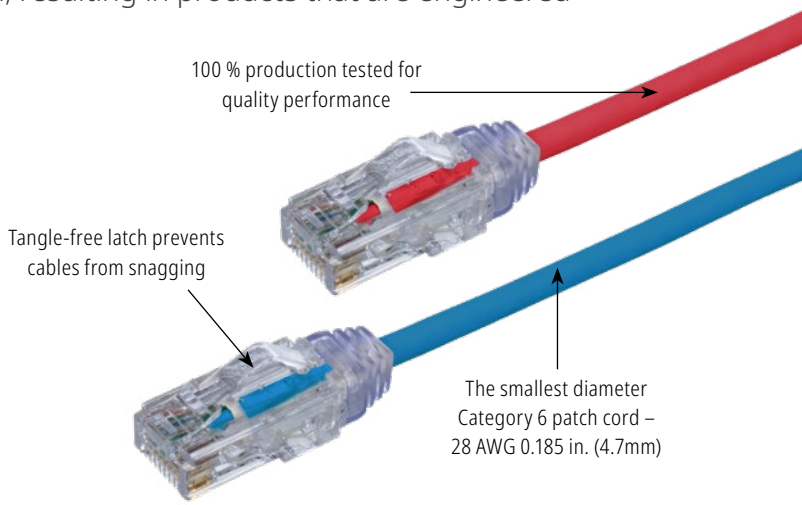
Copper Cabling Systems for OOBM Networks

Panduit offers a range of copper cabling solutions to fit the needs of all types of applications. Panduit copper systems provide the infrastructure needed to support networks of all shapes and sizes. At Panduit, quality is our number one concern, resulting in products that are engineered and produced with reliability and durability in mind.

PANDUIT™ RAPIDID™

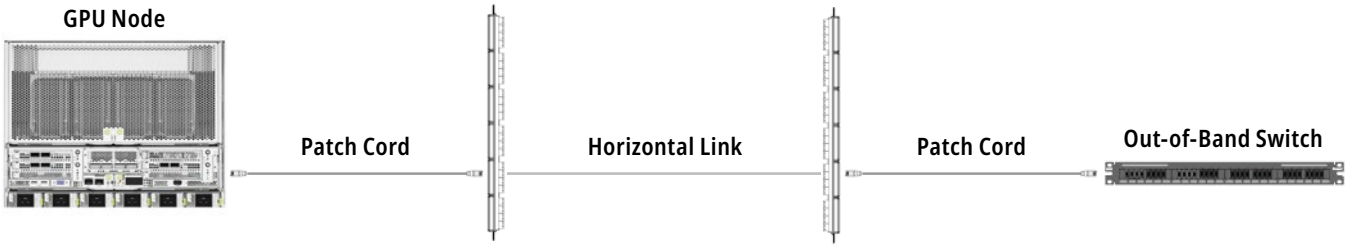
IG	BL	BU	GR	RD	OR	VL	YL

Notes: Colors shown may differ slightly from actual cable colors.



Patch Cords	Category 6
Catergory 6 24 AWG Standard Patch Cords	UTPSP*^Y
Category 6 28 AWG Standard Patch Cords	UTP28SP*^

*=Length in meters
^=Color code: IG = International Gray, BL=Black, BU=Blue, GR=Green, RD=Red, OR=Orange, VL=Violet, YL=Yellow

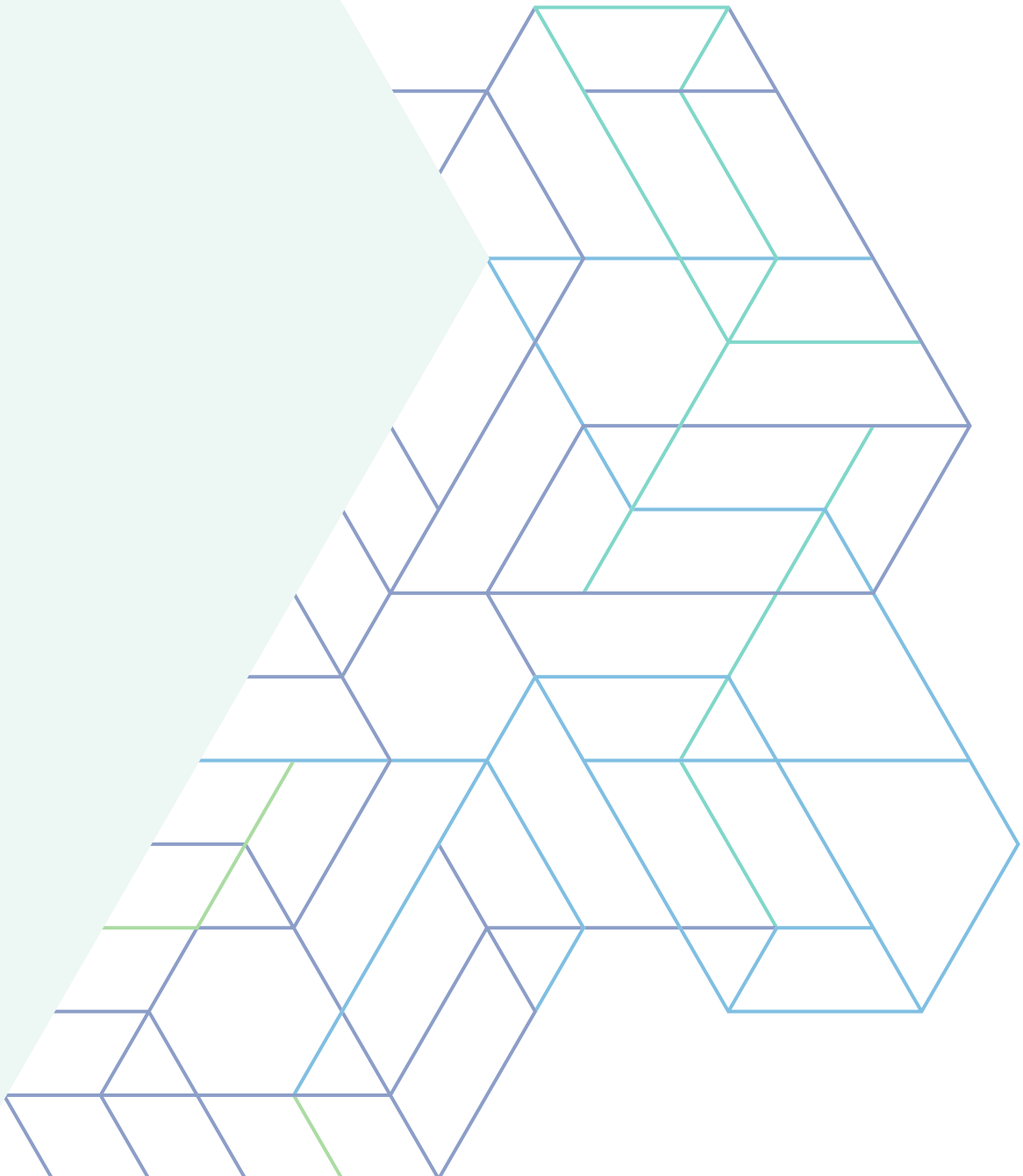


Patch Cord	Module	Panel	Horizontal Link	Panel	Module	Patch Cord
RJ45	Terminated Jacks		PUP6C04BU-WZ	Terminated Jacks		RJ45
CAT6						CAT6
UTP28SP*BU 28AWG Riser cable	CJ688TGBL	CPPL24WBLY		CPPL24WBLY	CJ688TGBL	UTP28SP*BU 28AWG Riser cable
	Pre-Populated Coupler Panel		Patch Cord UTP28SP*BU	Pre-Populated Coupler Panel		
	CP24688BL			CP24688BL		

PANDUIT™

DGX H100/H200 Air Cooled SuperPOD Structured Cabling

Architecture Guide

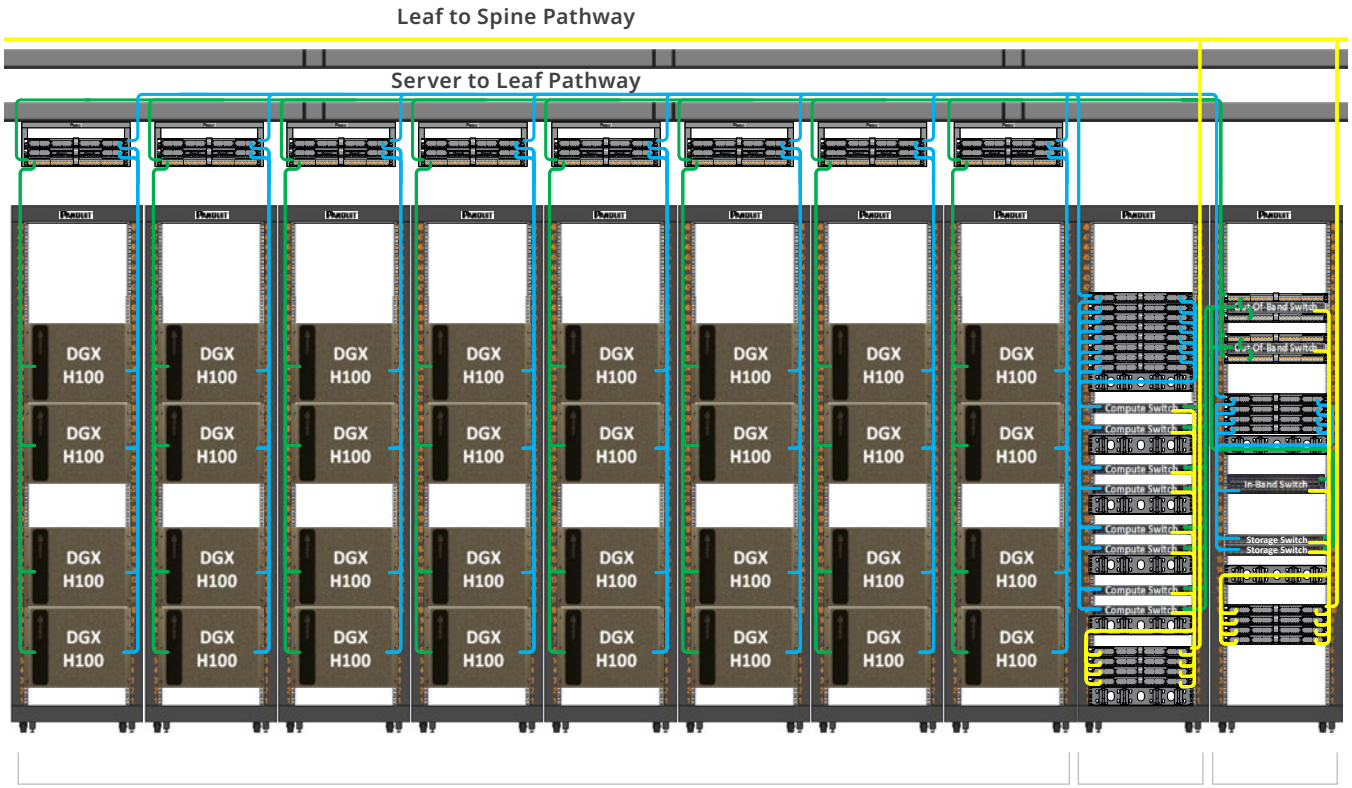


DGX H100/H200 SuperPOD

Structured Cabling Architecture – End of Row

32 GPU Nodes (Servers), 8 Leaf Switches

MPO OM4 Multimode Fiber Trunks – H100 to Leaf
MPO OS2 Singlemode Fiber Trunks – Leaf to Spine
OOBM Category Twisted-Pair Cabling



(8) Server Racks: Each with (4) H100/H200 GPU Nodes

Total Racks = 10; 48 RU x 800mm x 1200mm

8 for servers and 2 for networking

Networking racks can be either MoR or EoR

Recommend putting all Compute Leaf Switches in rack 9 and Switches for Storage, In-Band and Out-of-Band Management (OOBM) in rack 10 to lessen cable congestion.

Spine Switches are usually located in separate rows

Network Rack: Leaf Switches for Compute

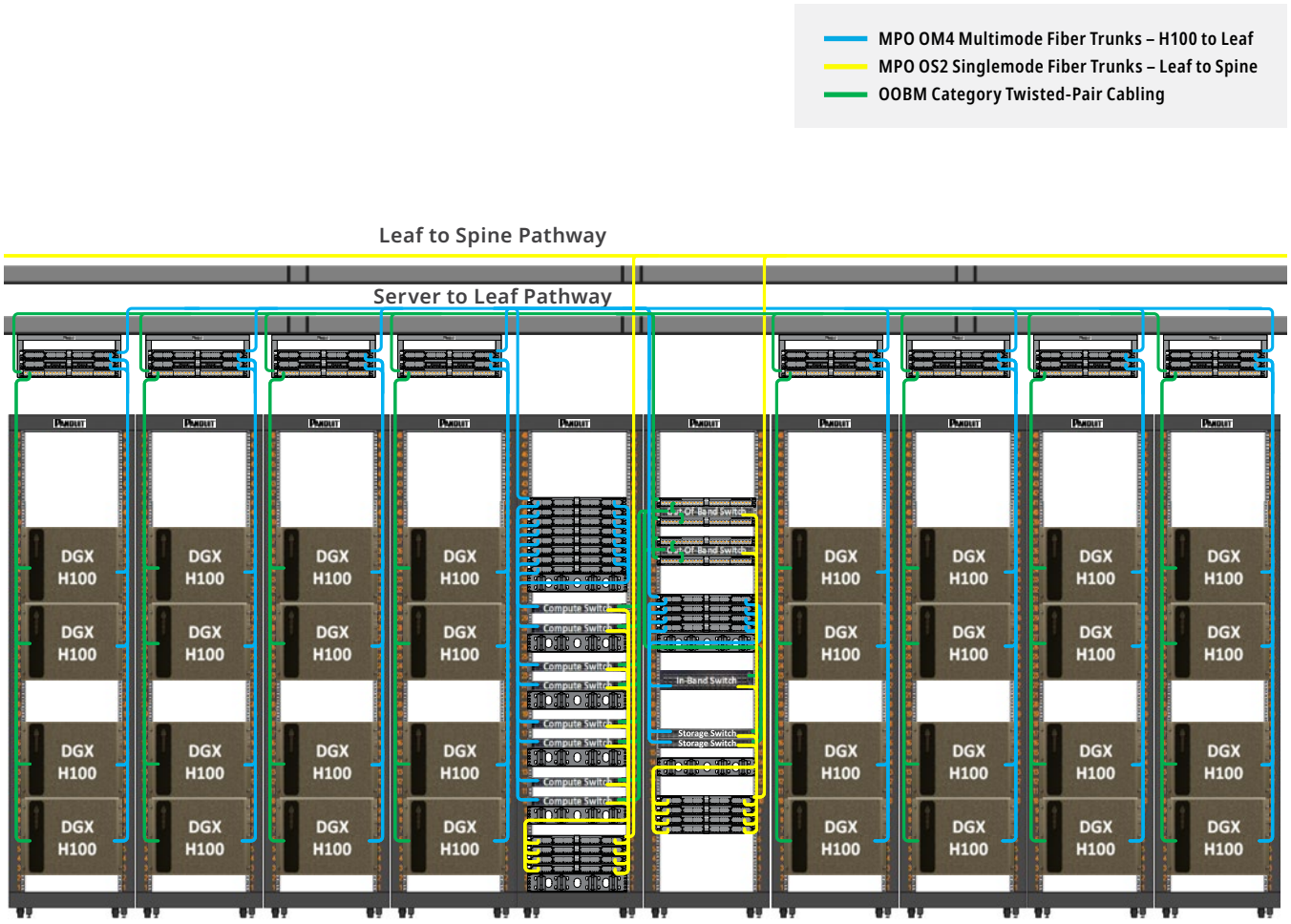
Network Rack: Storage and Management Switches

Source: NVIDIA DGX SuperPOD: Next Generation Scalable Infrastructure for AI Leadership Reference Architecture Featuring NVIDIA DGX H100

DGX H100/H200 SuperPOD

Structured Cabling Architecture – Middle of the Row

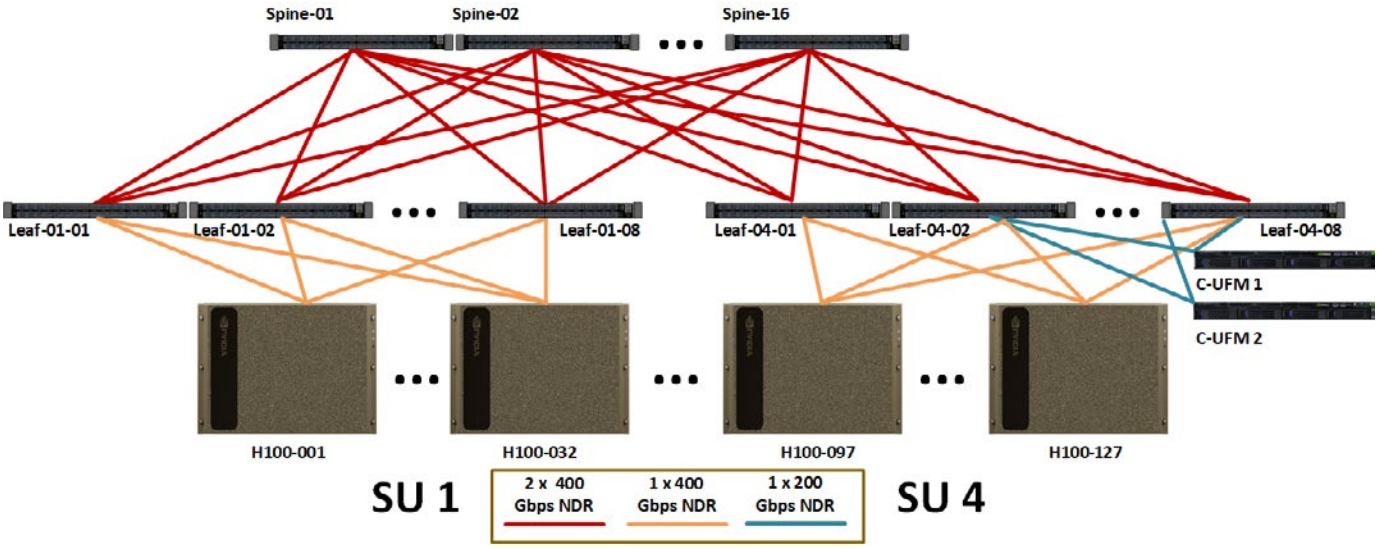
32 GPU Nodes (Servers), 8 Leaf Switches



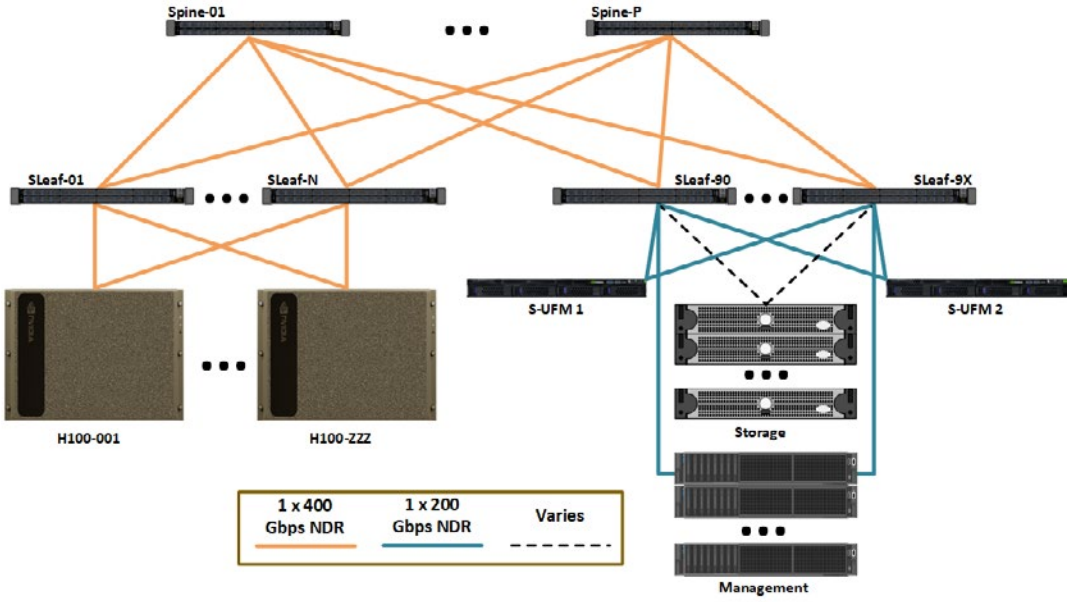
Source: NVIDIA DGX SuperPOD: Next Generation Scalable Infrastructure for AI Leadership Reference Architecture Featuring NVIDIA DGX H100

Four Networks in Each AI System

Compute Network



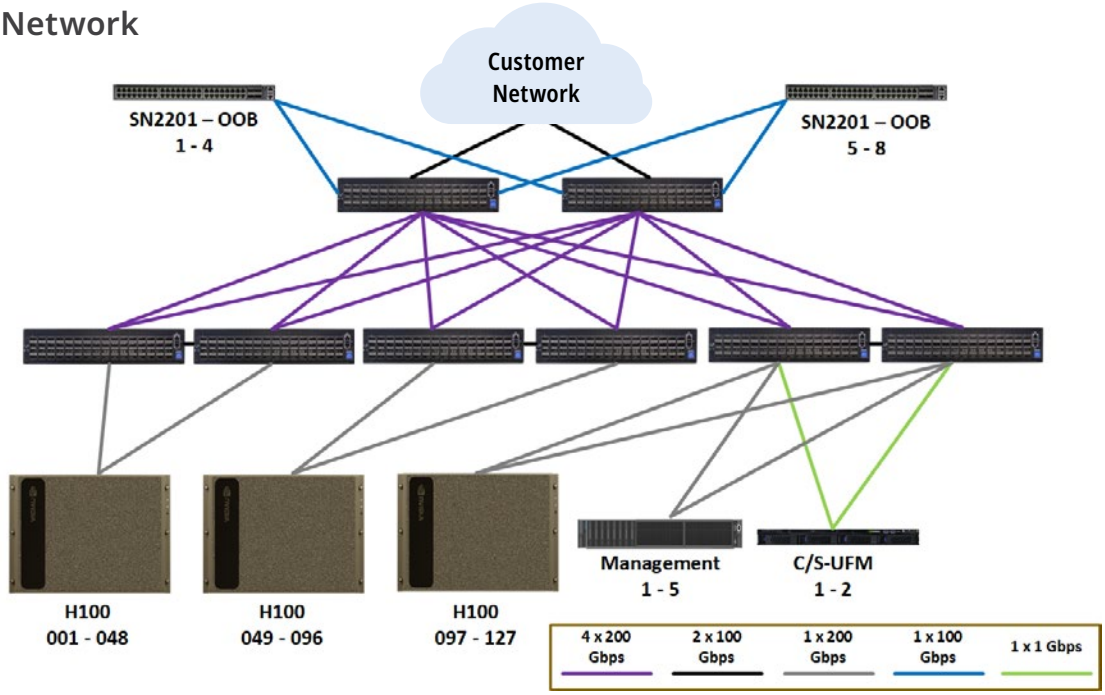
Storage Network



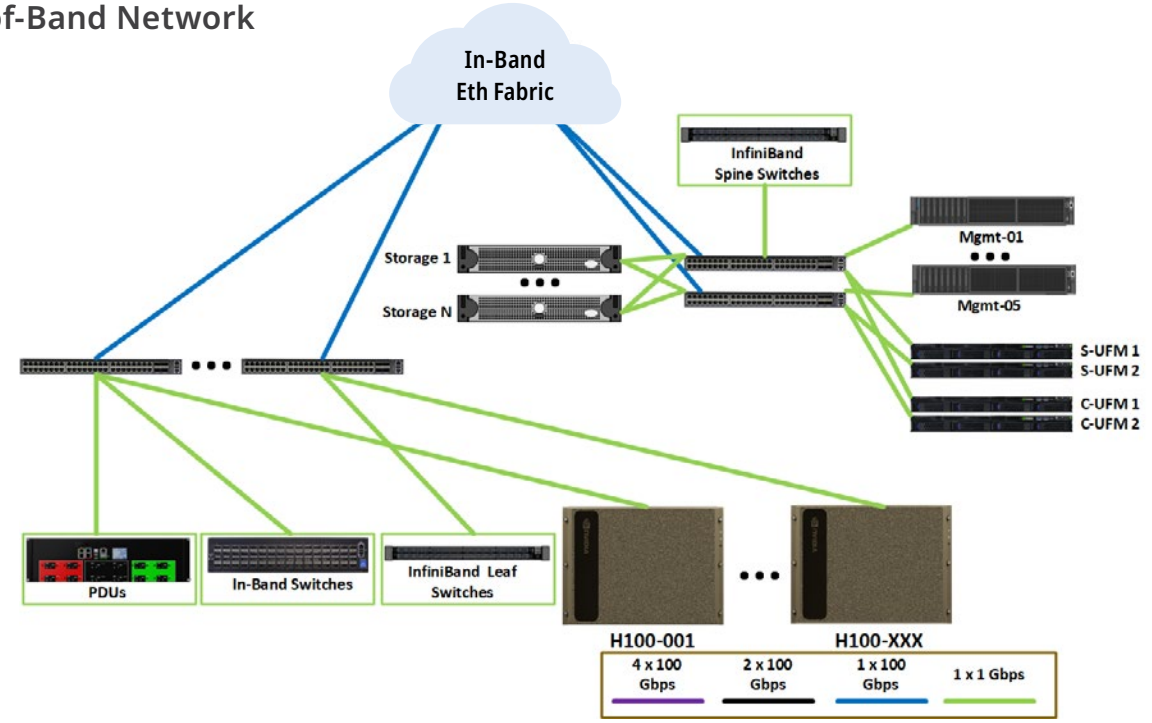
Source: NVIDIA DGX SuperPOD: Next Generation Scalable Infrastructure for AI Leadership Reference Architecture Featuring NVIDIA DGX H100

Four Networks in Each AI System (continued)

In-Band Network



Out-of-Band Network

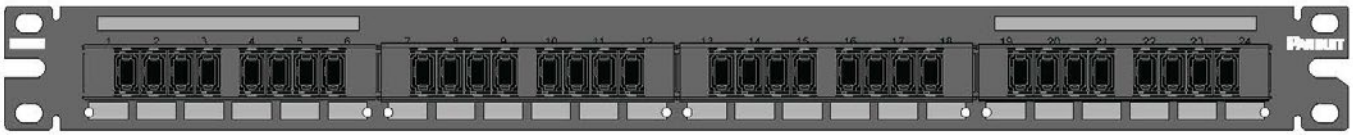


Source: NVIDIA DGX SuperPOD: Next Generation Scalable Infrastructure for AI Leadership Reference Architecture Featuring NVIDIA DGX H100

Recommended Cabling for H100/H200

Server Rack Fiber & Copper Cable Distribution

Compute Cabling

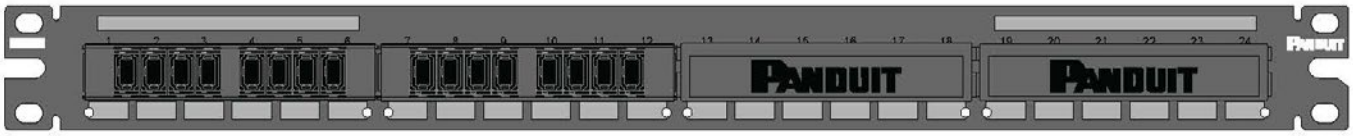


Node 1 Node 2 Node 3 Node 4

- (32) MPO interconnects from Nodes to Patch Panel and (32) from Patch Panel to Leaf Switch
- (1) QPP32BL Patch Panel with (4) FQMAP85BL 8-MPO FAPs
- Each H100 Node requires one eight-fiber MPO cable to connect to each of the (8) Leaf Switches for a total of (8) MPOs per Node
- (4) Nodes per rack needs a total of (32) MPO cables per rack

Cabling Option: Use (4) 64 fiber Trunks with (8)MPOs instead of (32) 8 fiber MPO Interconnects from Patch Panel to Leaf Switch to reduce pathway congestion

In-Band Management and Storage Cabling

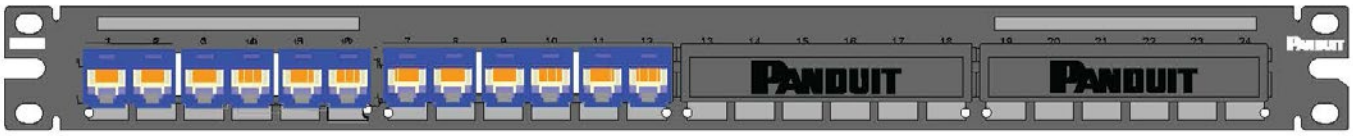


Node 1 Node 2 Node 3 Node 4

- (8) MPO Interconnects for Storage and (8) MPO Interconnects for In-Band Management
- Each H100 Node needs MPO Cables: (2) Storage and (2) In-Band Management
- Total of (16) MPO cables per rack only use two of the four Patch Panel slots

Cabling Option: Can combine the copper jacks in this Patch Panel if the Cat6 port count is 12 or fewer

Out-of-Band Management (Copper) Cabling



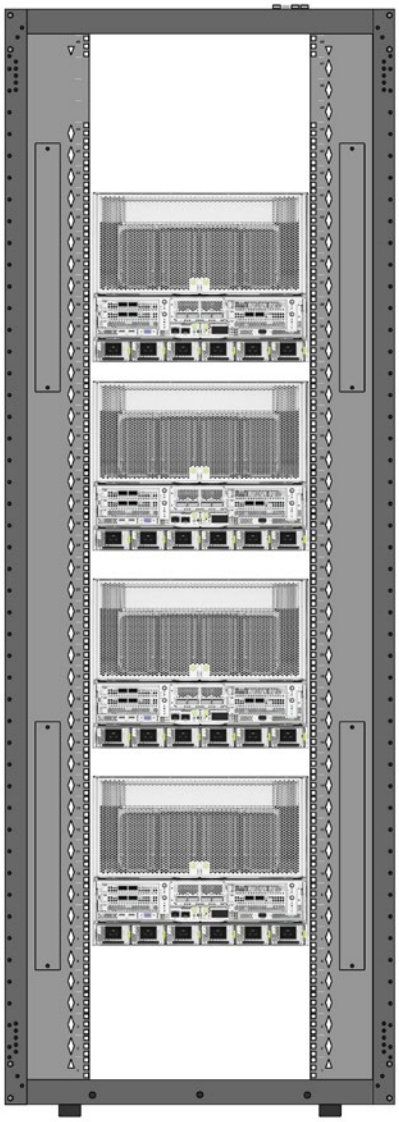
Node 1 Node 2 Node 3 Node 4

- (7-12) Cat6 Patch Cords up to Patch Panel and from Patch Panel to OOBM switch
- (1) CFAPPBL1 Patch Panel with (2) FMP6 plates, (12) CC688BU couplers and (2) FAPB blank plates
- Each H100 Node has (1-2) 1G ports,
- (3-4) PDU Sensor ports, and (1-4) other sensor ports

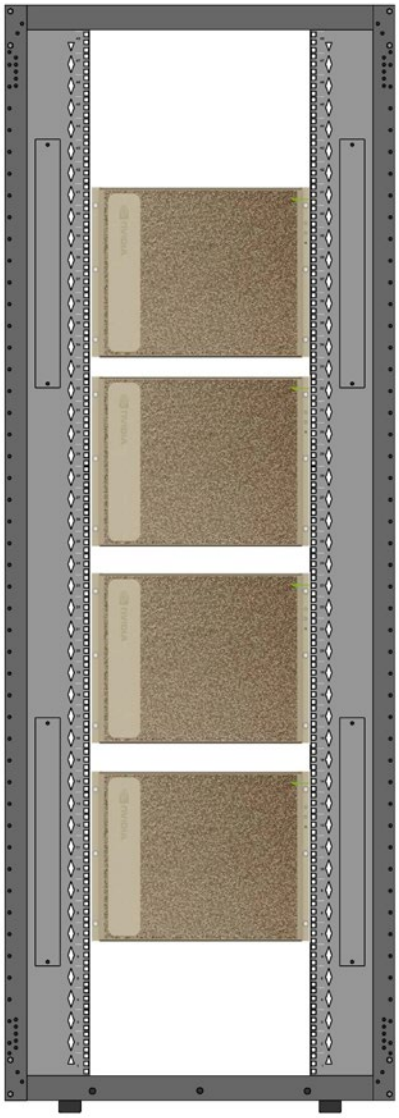
Cabling Option: CP24688BL 24 port Coupler Panel

Server Rack Layout

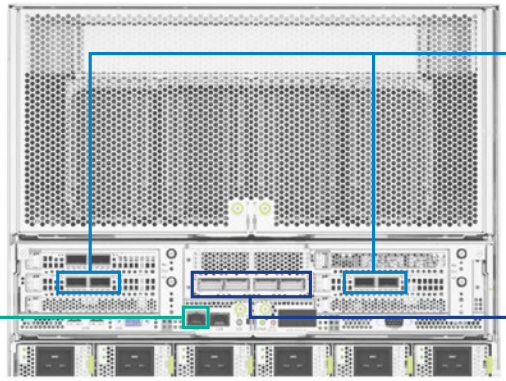
Rear View



Front View



A good option is to use an Overhead Distribution Rack (PZLRB2U or PZLRB4U) above the Server Rack, but the Patch Panels can be rack-mounted.



2 sets of 400G Single ports for storage and In-Band Management – total of (4) 400G MPO

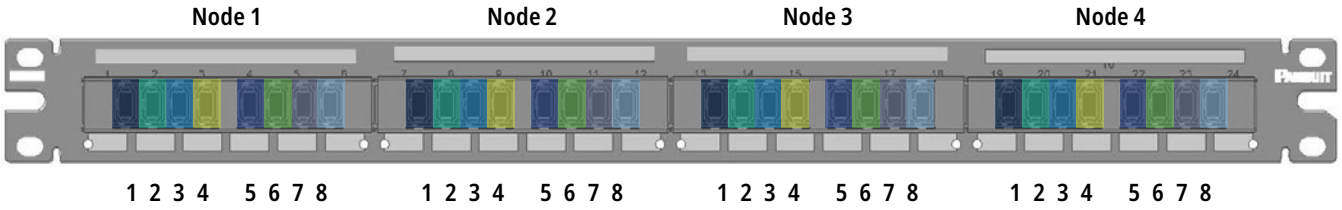
(1-2) RJ45 ports for Out-of-Band Management

(4) 800G Dual port (2x MPO) for compute – total of (8) 400G MPO

Compute Cabling Routing

The color coding is to distinguish the (8) different GPU ports on each Node

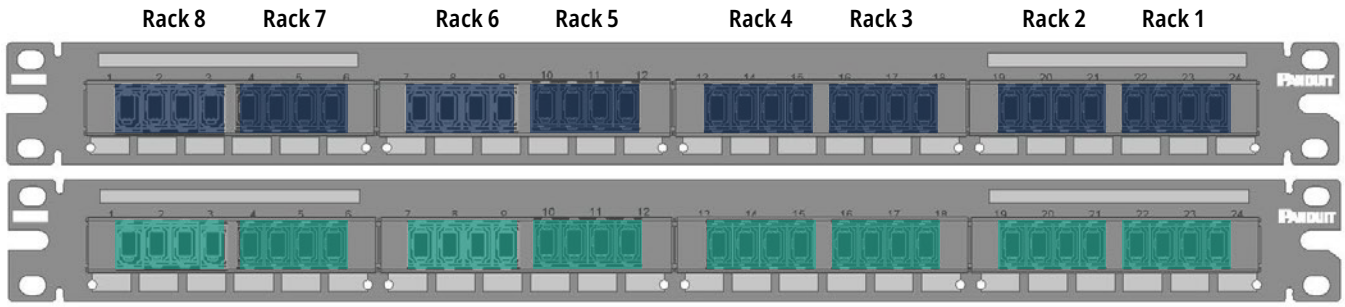
Server Rack – Front View



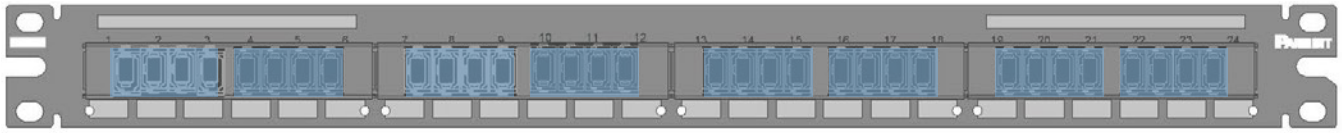
Each GPU Node has one MPO cable connected to each of the (8) Leaf Switches.
To achieve this:

- 1st MPO **(Dark Blue)** from each Node goes to Leaf 1
- 2nd MPO **(Teal)** goes to Leaf 2
- 8th MPO **(Bright Blue Tint)** goes to Leaf 8

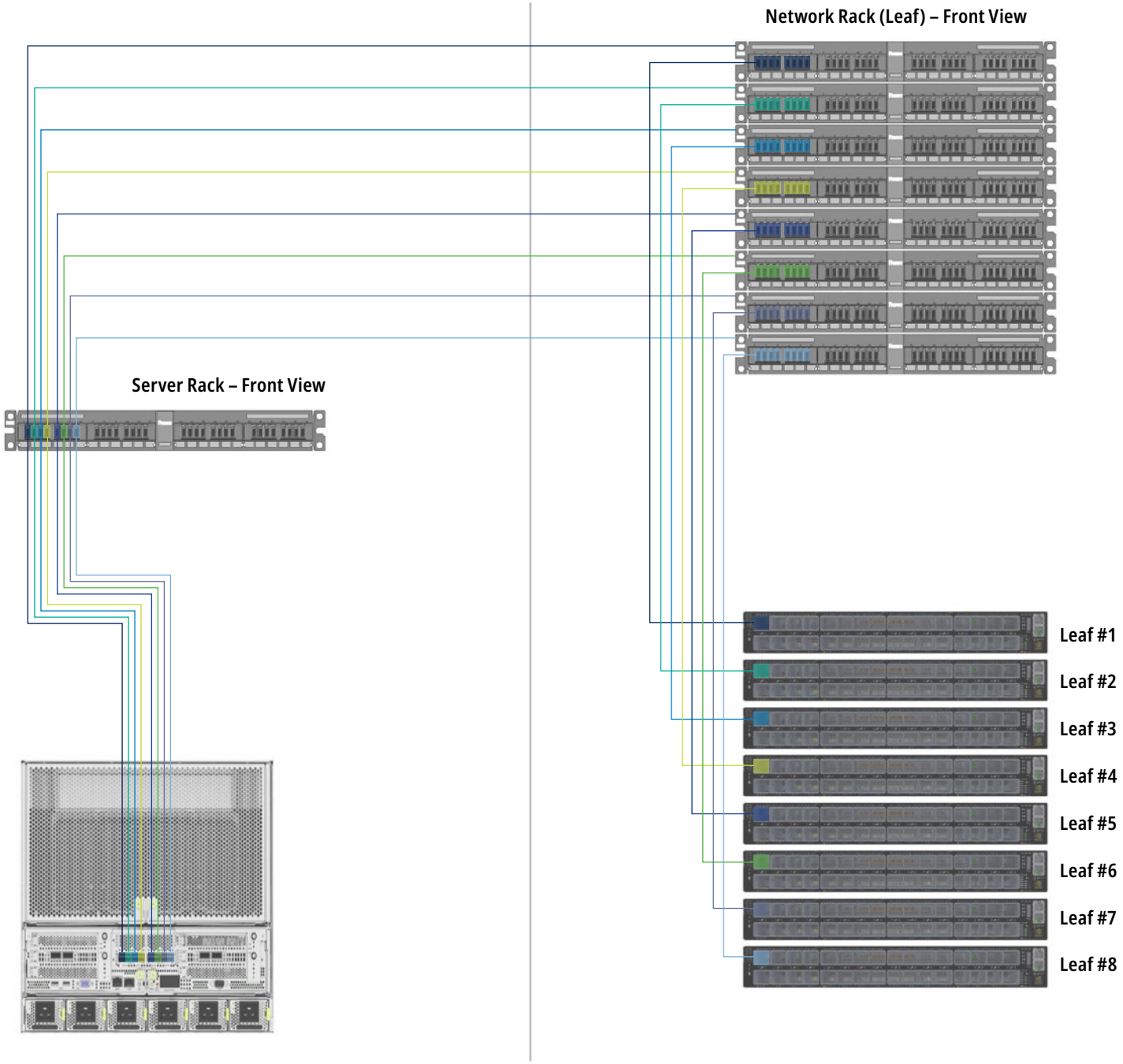
Network Rack – Rear View



To the 8th panel

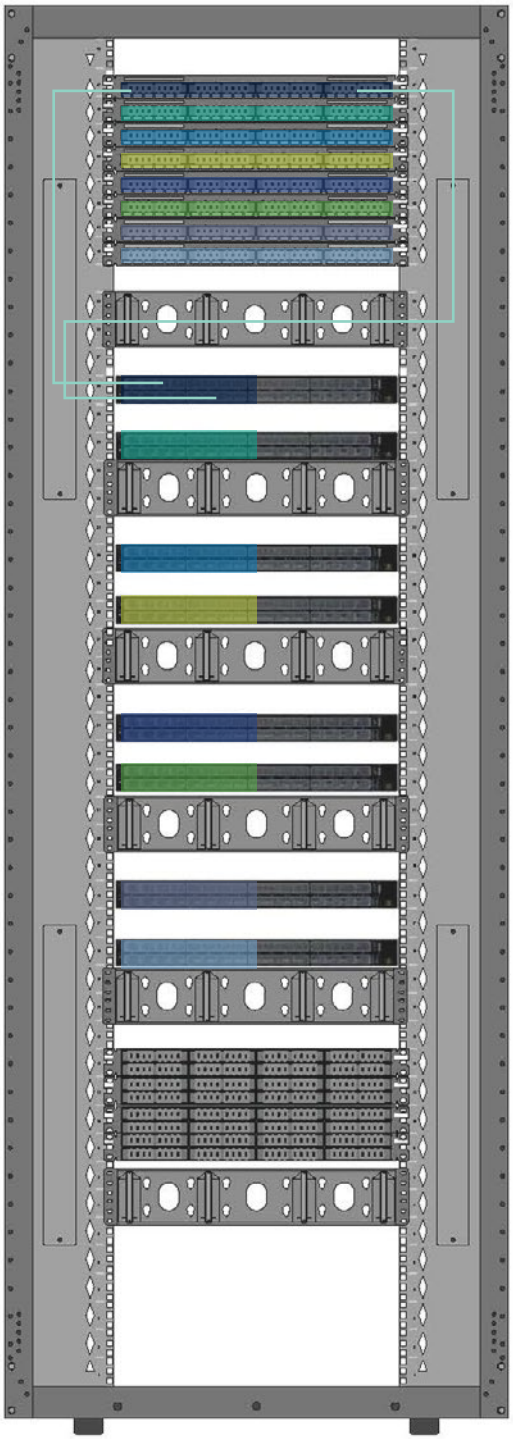


Server Node to Leaf Switch Cable Routing Guide



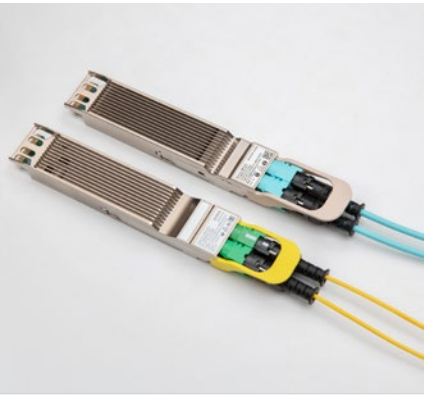
Network Rack #1

Compute Leaf Switches



Only GPU Node to Leaf Switch Cabling is Shown

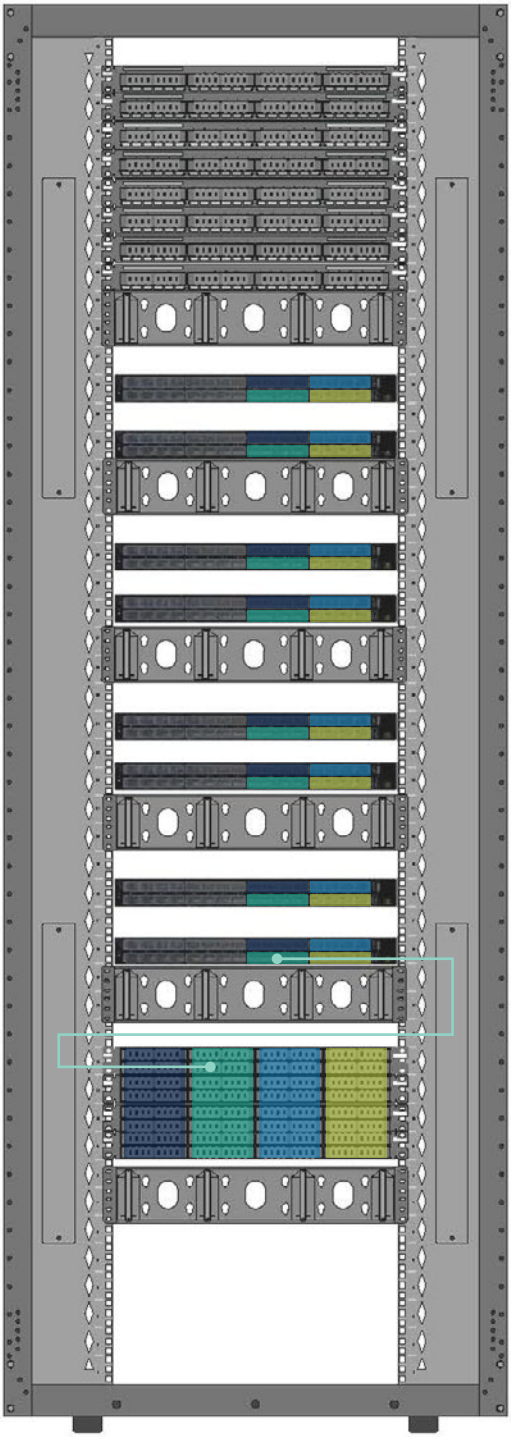
- 4 Patch Panels with 64 MPOs per = 256 total MPOs
- Color coding shows how to connect the GPU Nodes to the Leaf Switches
- All Dark Blue ports go to Leaf 1, All Teal ports go to Leaf 2...
- Left most 32 MPOs in Leaf receive cables from the GPU Nodes
- Right most 32 MPOs in Leaf send cables to the Spine Switches



GPU Nodes and Leaf Switches have 800G OSFP ports that house 800G dual port transceivers that get connected to (2) 400G MPO cables

Network Rack #1

Leaf to Spine Connections



Color coding ONLY addresses ports that connect each Leaf to the Patch Panels going to the Spine Rack.

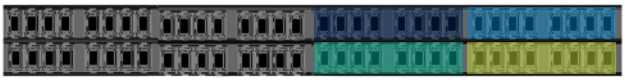
This configuration allows the use of 64 fiber (8 MPO) Trunks to connect the Leaf Switches with the Spine Switches.

View of Leaf Switch

On the left:
OM4 fiber cable coming from the GPU Nodes

On the right:
OS2 fiber cable going to the Spine Switches

View of Right Side of Each Leaf Switch



Front View of Lower Patch Panel

- Cabling in the rear of the lower Patch Panels goes to Spine Switches
- Use (32) 64-fiber, 8-MPO Trunks to reduce congestion in pathways
- One trunk for each 8-MPO adapter panel

Network Rack #2

Storage, In-Band, and Out-of-Band Management

(4) 24-port OOBM copper Patch Panels

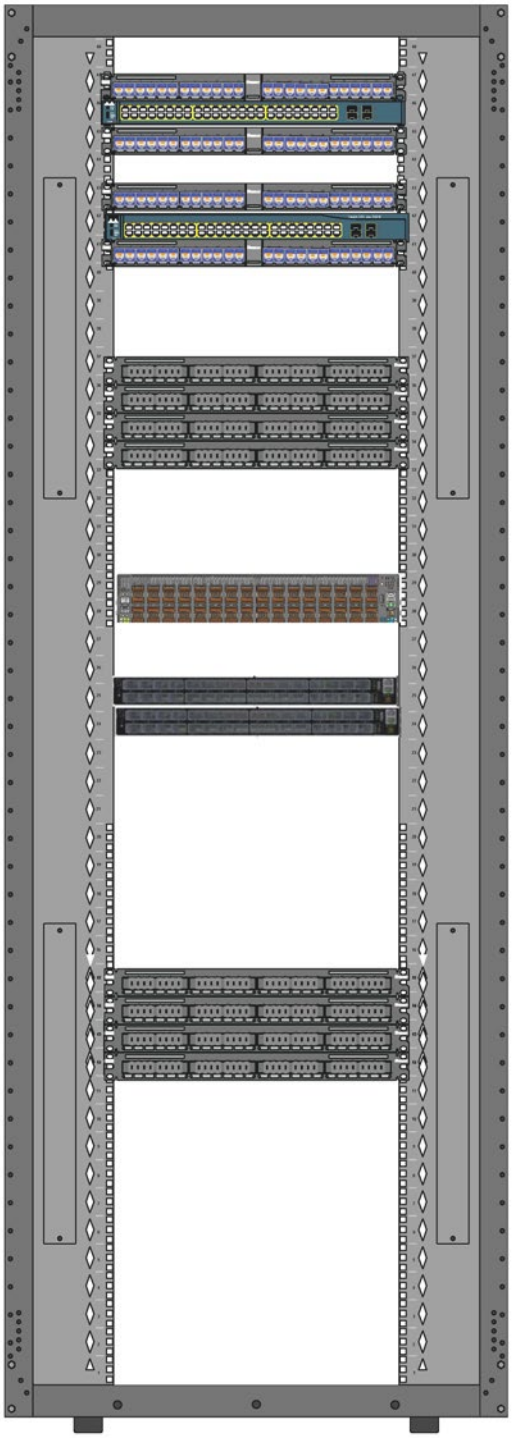
(2) 48-port OOBM Switches (96) Cat6 Cords

(4) 32-port Patch Panels each with (4) 8-MPO Adapters

(1) 64-dual port In-Band Switch (128) MPOs

(2) 32-dual port Storage Switches (128) MPOs

(4) 32-port Patch Panels each with (4) 8-MPO Adapters



(4) OOB Management Patch Panels

(2) OOB Management Switches

(2) Storage Patch Panels

(2) In-Band Management Patch Panels

In-Band Management Switch

Storage Switch 1
Storage Switch 2

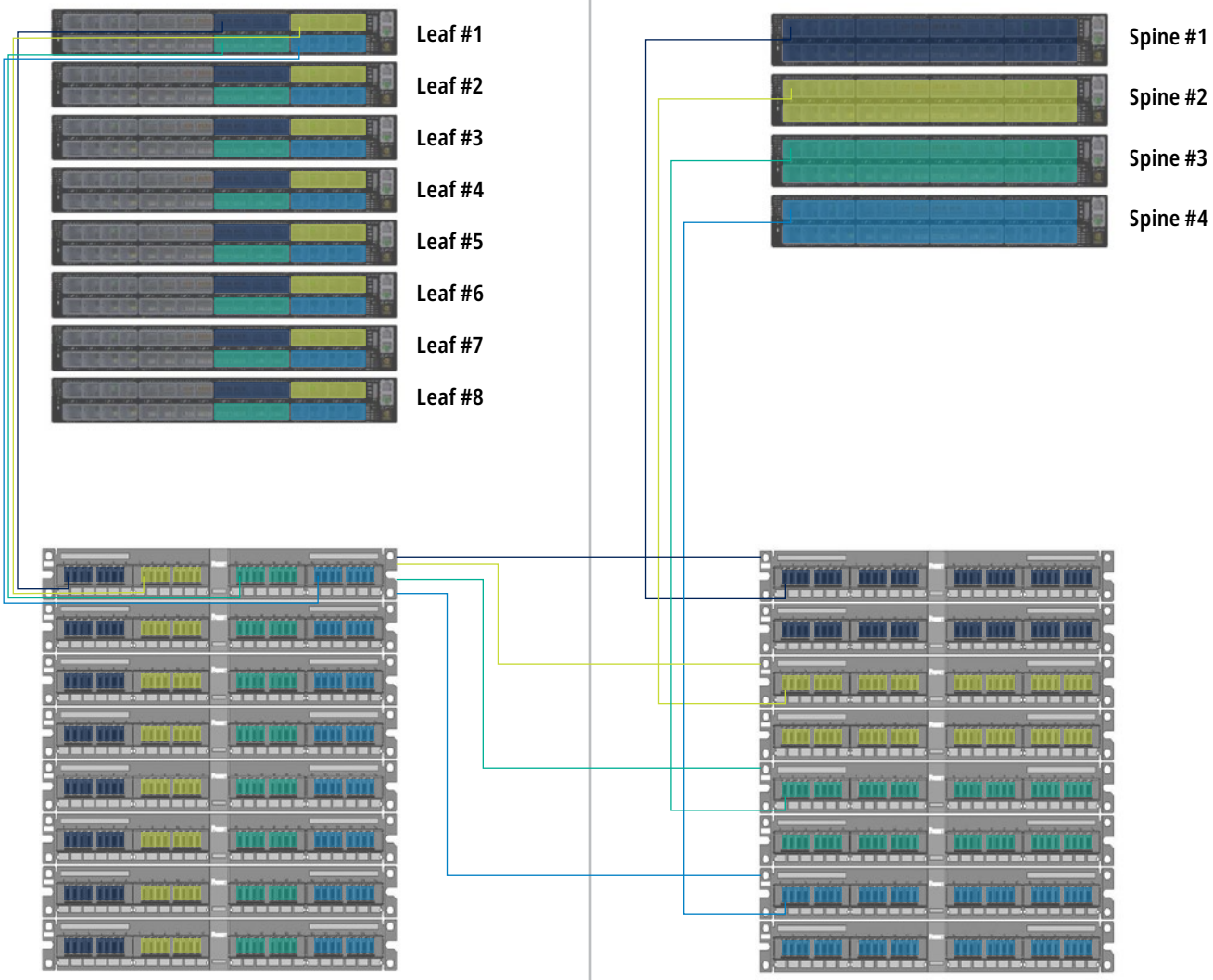
Fiber Uplink Patch Panels

Copper Out-of-Band Management ports for GPU Nodes, Switches, Power Distribution Units (PDUs), and sensors

Use 8 inch Cat6 patch cords for OOBM switch to patch panel

Leaf Switch to Spine Switch Cable Routing Guide

Follow this color coded map for fiber Trunks from the Leaf Rack to the Spine Rack to achieve all-to-all switch connection.

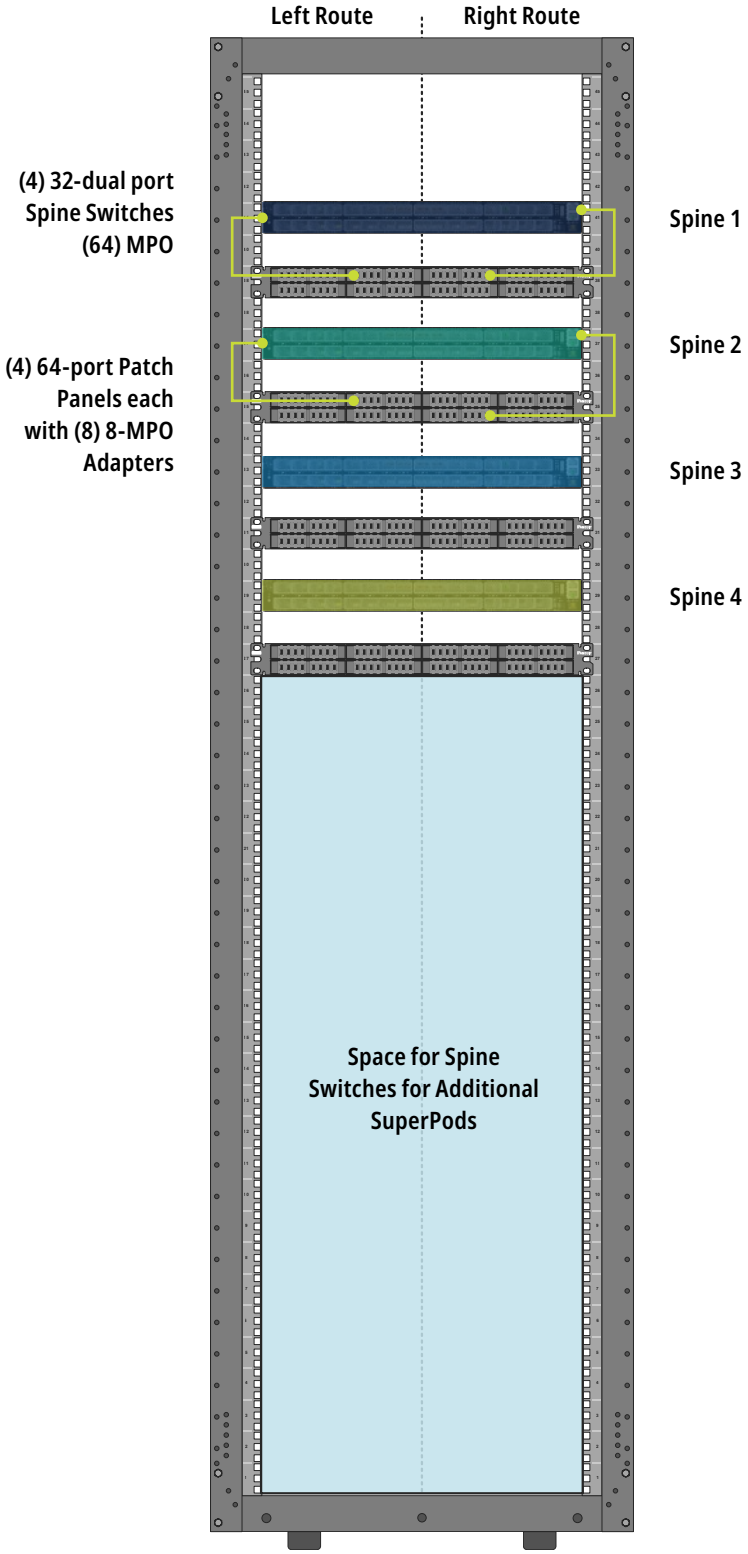


Leaf Rack Patch Front View

Spine Rack Patch Front View

64 fiber 8 MPO Trunks between
Leaf Rack and Spine Rack

Spine Rack Elevation



Structured Cabling

1 Patch Panel per Spine Switch, 4 panels total

64 MPOs per panel = 256 total MPOs

Color coding shows how to connect the Leaf Switches to the Spine Switches.

All **Dark Blue** ports go to Leaf 1,
All **Teal** ports go to Leaf 2, ...

Recommended BOM for DGX H200 Air Cooled SuperPod

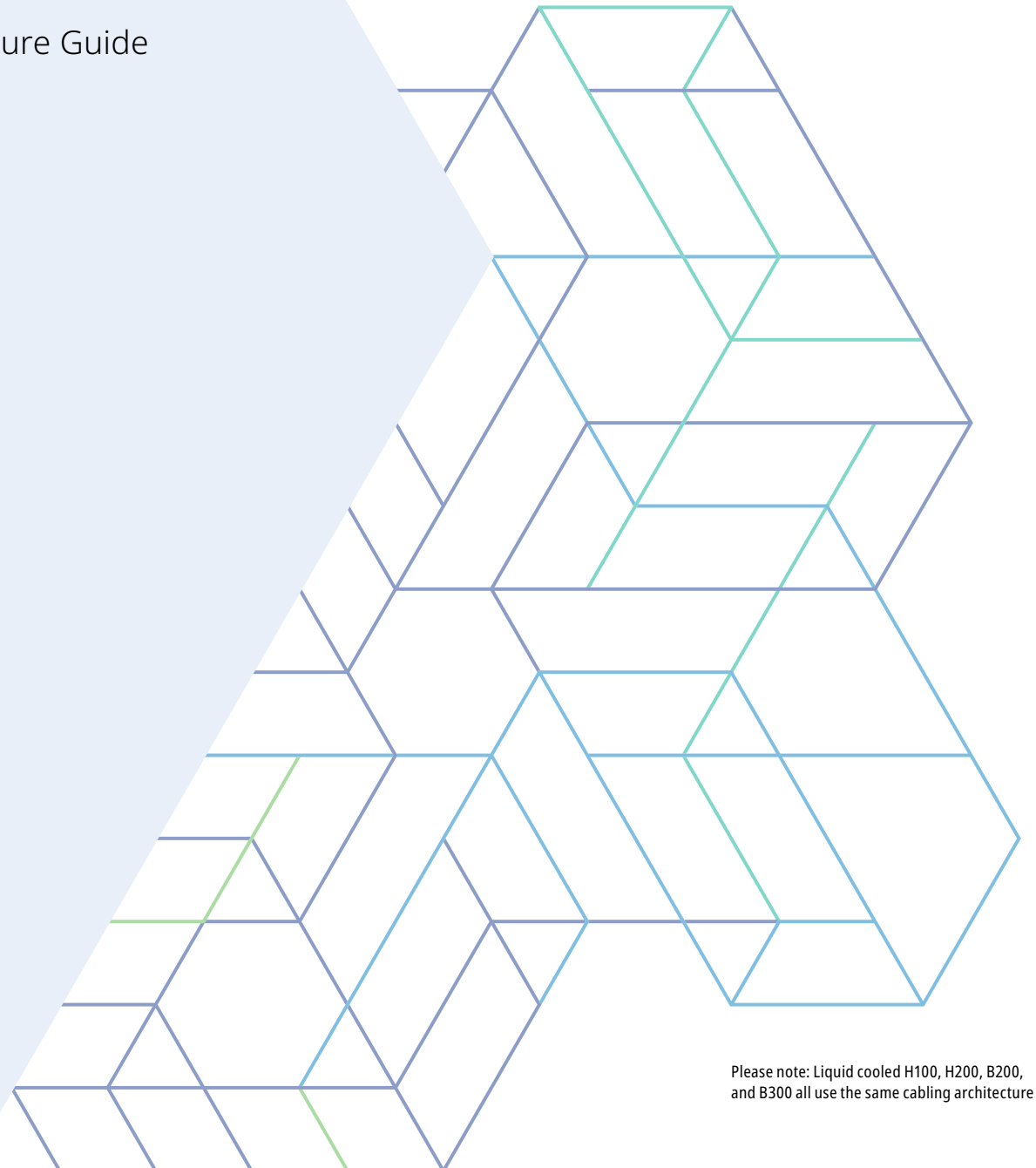
Product	Description	Panduit Part Number	GPU Node Racks (8)		GPU Node Racks to Network Racks	Network Racks (2)		Network Racks to Spine/ Storage/ Mgmt	Total	Notes
			Qty/ Rack	Qty/ Pod		Leaf	Storage/ Mgmt			
CABINET & ACCESSORIES										
Server Cabinet	FlexFusion 700mm x 48 RU x 1200mm, White, Hardware Mount Rail, Top Cap w/ Brush Seal, Single Hinge Perforated Door, Split Perforated Rear Door, Standard Locks, Left and Right PDU Brackets, Left and Right Side Vertical Cable Managers, Casters	XG74822WS000F	**1**	8	–	–	–	–	**8**	–
Network Cabinet	FlexFusion 800mm x 48 RU x 1200mm, White, Hardware Mount Rail, Top Cap w/ Brush Seal, Single Hinge Perforated Door, Split Perforated Rear Door, Standard Locks, Left PDU Brackets, Left and Right Side Vertical Cable Managers, Casters	XG84822WS002J	–	–	–	1	1	–	**2**	
Cabinet VCM	FlexFusion Cable Vertical Management Panel	XG-VCM45W							**1**	
Blanking Panel, 1 RU	Blanking Panel for 19 in. rails, 1 RU, Black	TLBP1S-V					–		**1**	Dependent on Cabinet and need for aesthetics or air containment
Blanking Panel, 2 RU	Blanking Panel for 19 in. rails, 2 RU, Black	TLBP2S-V	**12**	96		12	17		**125**	
PATCH PANELS										
Overhead Distribution Rack	2-Post, 2 RU, #12-24 Threaded E-Rails, Black	PZLRB2U	**1**	8	–	–	–	–	**8**	–
Patch Panel, High Density	SFQ High Density Patch Panel, holds 8 Adapter Panels, Flat, Black, 1 RU	QPP64HDBL				8	4		**20**	
Fiber Adapter Panel	SFQ 8 MPO Key-Up/Key-Down Adapter Panel	FQMAP85BL	**6**	48		–			**48**	
Fiber Blanking Panel	SFQ Blank Panel	QPPBBL	**2**	16			–		**16**	
Copper Coupler Panel, 24 ports	24 Coupler Panel, Flat, 1 RU	CP24688BL	**1**	8					**8**	
Copper Coupler Panel, 48 ports	48 Coupler Panel, Flat, 1 RU	CP48688HDVNBL	–	–			2		**2**	
Strain Relief Bar	Strain Relief Bar, 7 in. depth	SRB19D7BL	**2**	16			12		**28**	
POWER DISTRIBUTION										
60A 415V PDU	Monitored & Switched per Outlet PDU, Dual Rated 60/63 amp 415V three phase PDU with (21) C13/C15, (21) C13/C15/C19/C21 outlets, IEC60309 3P+N+E 60/63A (IP44) input plug and 10 ft. power cord, Black	P42D21G	**2**	16	–	2	2	–	**20**	Dependant on server and preference for rack mount or vertical PDU
C13/14 PDU Power Cords (if not supplied)	Dual-Locking IT Power Cord, IEC C20 to IEC C13, 2 ft. (0.6m), Black, 10 Pack	LPCA11-X	–	–		–	10		**10**	–
C19/20 PDU Power Cords (if not supplied)	Dual-Locking IT Power Cord, IEC C20 to IEC C19, 2 ft. (0.6m), Black, 10 Pack	LPCB11-X	**24**	192		8 or 16	–		**200 or 208**	8 for SN5600 or 16 for QM9700

Recommended BOM for DGX H200 Air Cooled SuperPod

Product	Description	Panduit Part Number	GPU Node Racks (8)		GPU Node Racks to Network Racks	Network Racks (2)		Network Racks to Spine/ Storage/ Mgmt	Total	Notes
			Qty/ Rack	Qty/ Pod		Leaf	Storage/ Mgmt			
CABLE MANAGEMENT										
Horizontal Cable Manager, 1U	PatchRunner2 Horizontal Single-sided Manager, 1 RU, Black	PR2HF1	–	–	–	3	–	–	**3**	–
Horizontal Cable Manager, 2U	PatchRunner2 Horizontal Single-sided Manager, 2 RU, Black	PR2HF2				2			**2**	
Cable Management Bracket	HD Flex Cable Management 1 RU Universal Bracket 19 in.	FLEX-CM-1UBKIT					2		**4**	
COPPER CABLING										
Cat6 Patch Cord	Cat6 28 AWG UTP Copper Patch Cord, Blue	UTP28SP*BU	**7 to 12**	56 to 88	56 to 88	4	4	–	**64 to 96**	Quantity dependent on how many PDUs and sensors are used. Lengths will vary. Change the last 3 -4 digits to modify length (Feet) and color
Cat6 Port Replication Patch Cords	Cat6 28AWG UTP Copper Patch Cord, Blue, 8 in.	UTP28SPINBU	–	–	–	–	64 to 88		**64 to 88**	–
FIBER CABLING										
8 Fiber MMF Interconnect F-F	BASE-8, 8 Fiber, Female-Female MPO, OM4, APC, Plenum	GZ8RPJPJPYN****	**48**	384	–	256	128	–	**768**	Lengths will vary. Change the last 4 digits to modify length (M for meters, F for Feet) Ex. 15 feet = F015 Change the first P to L for LSZH
8 Fiber MMF Interconnect M-M	BASE-8, 8 Fiber, Male-Male MPO, OM4, APC, Plenum	GZ8RPKPKPYN****	–	–	384	–	–		**384**	
8 Fiber SMF Interconnect	BASE-8, 8 Fiber, Female-Female MPO, OS2, APC, Ultra Low Loss, Plenum	G98RPJPJPLN****			–	256	128			
64 Fiber SMF Trunk	BASE-8, 64 Fiber, Male-Male MPO, OS2, APC, Ultra Low Loss, Pulling Eye	G9MYPKGKGLA****				–	–	48	**48**	
GROUNDING & BONDING										
Grounding	Grounding Strip Kit, Ten 90.90 in. length, 52 RU Threaded Rail Fasteners	RGS13452-10-1	–	1	–	–	–	–	**1**	–
	Jumper Kits, Common bonding Network (CBN), #6 AWG (16mm²) Jumper, 60 in. Length	RGCBNJ660P22		10					**10**	
	Jumper Kits, Equipment Grounding, #10 AWG (6mm²) Jumper, Factory Terminated Both Ends	RGEJ1024PFY		44					**44**	
PATHWAYS										
FiberRunner - Fiber Trough	Contact Panduit Sales as design requirements will differ per building	–	–	–	–	–	–	–	–	Consult Panduit Design Team to assist with component selection
Wire Basket										

DGX H100/H200/ B200/B300 Liquid Cooled SuperPOD Structured Cabling

Architecture Guide

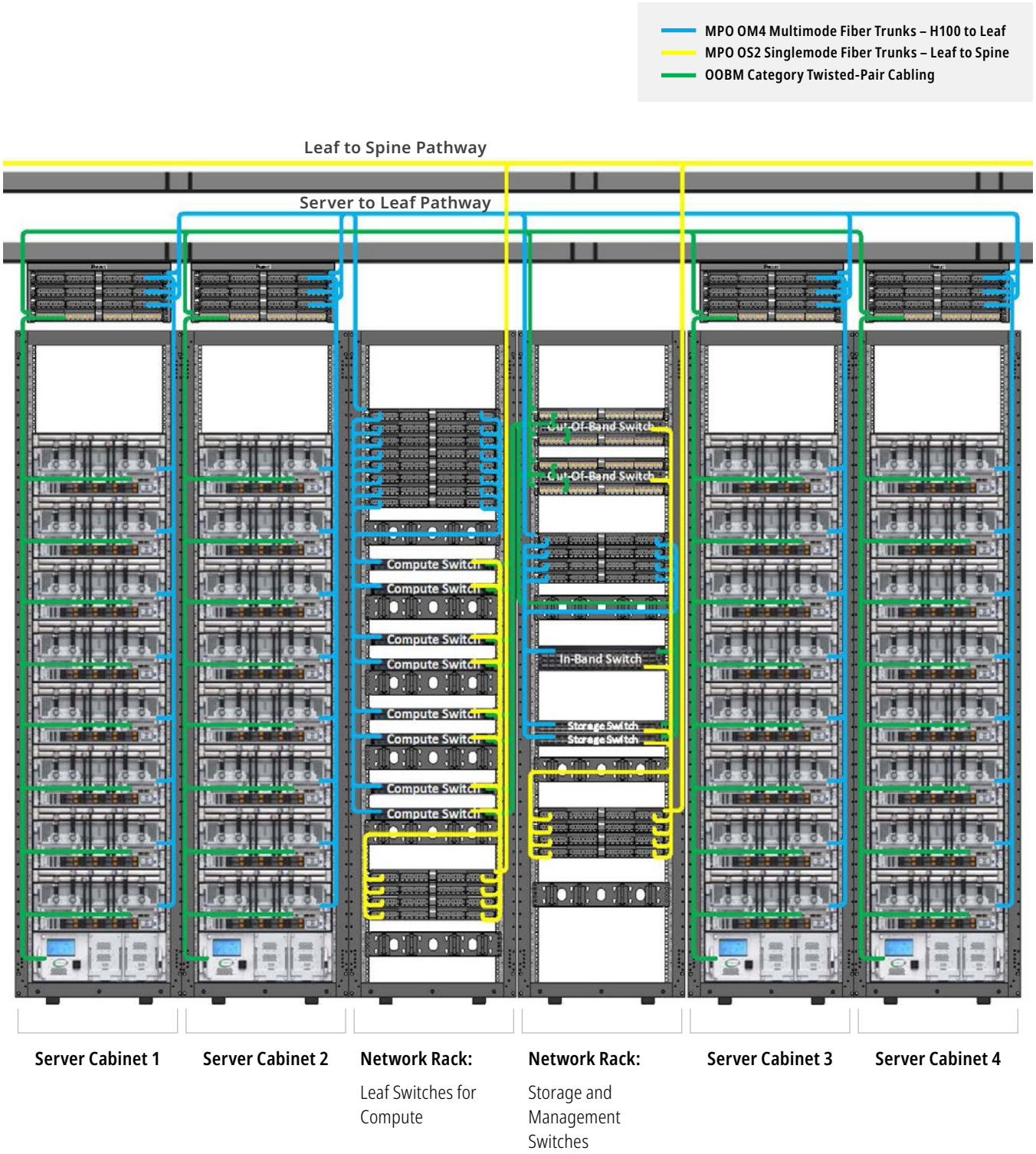


Please note: Liquid cooled H100, H200, B200, and B300 all use the same cabling architecture

DGX H200/B300 SuperPOD – Liquid Cooled

Structured Cabling Architecture – Middle of Row

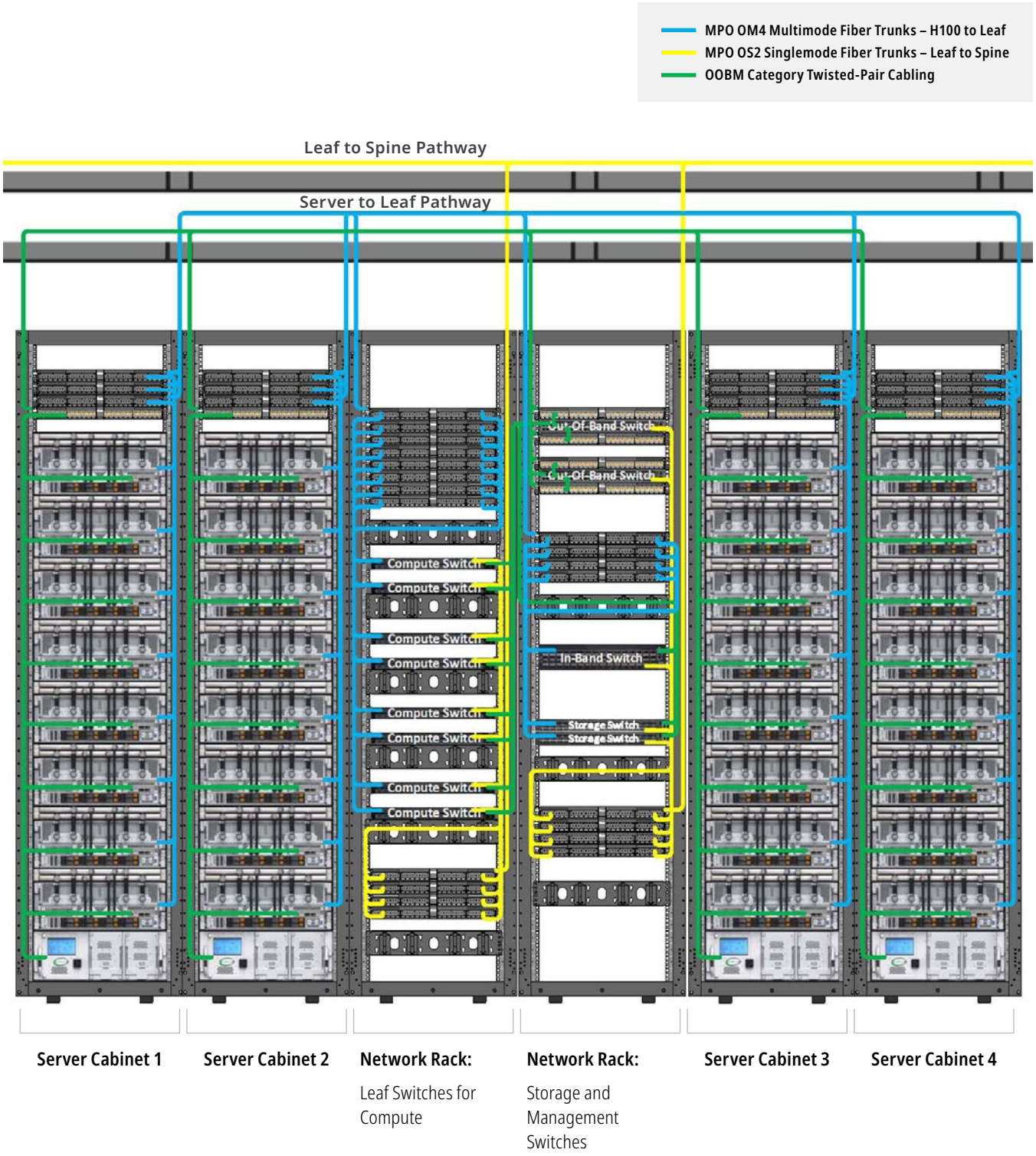
Overhead Distribution Racks allow for Rack and Roll



DGX H200/B300 SuperPOD – Liquid Cooled

Structured Cabling Architecture – Middle of Row

Patch Panels in Each Server Rack



Recommended BOM for Liquid Cooled SuperPODs

Based on using (8) 700mm x 1200mm x 48 RU cabinets each with overhead Patch Panels and (2) vertical PDUs to house the GPU Node Servers and (2) 800mm x 1200mm x 48 RU Network cabinets to house the Leaf, Storage, Management, and OOB switch gear.

Product	Description	Panduit Part Number	GPU Node Racks (4)		GPU Node Racks to Network Racks	Network Racks (2)		Network Racks to Spine/ Storage/ Mgmt	Total	Notes
			Qty/ Rack	Qty/ Pod		Leaf	Storage/ Mgmt			
CABINET & ACCESSORIES										
Server Cabinet	FlexFusion 700mm x 48 RU x 1200mm, White, Hardware Mount Rail, Top Cap w/ Brush Seal, Single Hinge Perforated Door, Split Perforated Rear Door, Standard Locks, Left and Right PDU Brackets, Left and Right Side Vertical Cable Managers, Casters	XG74822WS000F	**1**	4	–	–	–	–	**4**	–
Network Cabinet	FlexFusion 800mm x 48 RU x 1200mm, White, Hardware Mount Rail, Top Cap w/ Brush Seal, Single Hinge Perforated Door, Split Perforated Rear Door, Standard Locks, Left PDU Brackets, Left and Right Side Vertical Cable Managers, Casters	XG84822WS002J	**–**	–	–	1	1	–	**2**	
Cabinet VCM	FlexFusion Cable Vertical Management Panel	XG-VCM45W					–		**1**	
Blanking Panel, 1 RU	Blanking Panel for 19 in. rails, 1 RU, Black	TLBP1S-V							**1**	Dependent on Cabinet and need for aesthetics or air containment
Blanking Panel, 2 RU	Blanking Panel for 19 in. rails, 2 RU, Black	TLBP2S-V	**5**	20		12	18		**50**	
PATCH PANELS										
Overhead Distribution Rack	2-Post, 4 RU, #12-24 Threaded E-Rails, Black	PZLRB4U	**1**	4	–	–	–	–	**4**	–
Patch Panel	SFQ Patch Panel, holds 4 Adapter Panels, Flat, Black, 1 RU	QPP32BL								
Patch Panel, High Density	SFQ High Density Patch Panel, holds 8 Adapter Panels, Flat, Black, 1 RU	QPP64HDBL				8	4		**16**	Will replace QPP48HDBL
Fiber Adapter Panel	SFQ 8 MPO Key-Up/Key-Down Adapter Panel	FQMAP85BL	**12**	48	–	–	–	–	**48**	–
Copper Coupler Panel, 24 ports	24 Coupler Panel, Flat, 1 RU	CP24688BL	**1**	4					**4**	
Copper Coupler Panel, 48 ports	48 Coupler Panel, Flat, 1 RU	CP48688HDVNBL	–	–			2		**2**	New part number
Strain Relief Bar	Strain Relief Bar, 7 in. depth	SRB19D7BL	**3**	12			12		**24**	
POWER DISTRIBUTION										
60A 415V PDU	Monitored & Switched per Outlet PDU, Dual Rated 60/63 amp 415V three phase PDU with (21) C13/ C15, (21) C13/C15/C19/C21 outlets, IEC60309 3P+N+E 60/63A (IP44) input plug and 10 ft. power cord, Black	P42D21G	**4**	16	–	2	2	–	**20**	Dependant on server and preference for rack mount or vertical PDU
C13/14 PDU Power Cords (if not supplied)	Dual-Locking IT Power Cord, IEC C20 to IEC C13, 4 ft. (1.2m), Black, 10 Pack	LPCA12-X	**–**	–		–	10		**10**	–
C19/20 PDU Power Cords (if not supplied)	Dual-Locking IT Power Cord, IEC C20 to IEC C19, 4 ft. (1.2m), Black, 10 Pack	LPCB12-X	**48**	192		8 or 16	–		**200 or 208**	8 for SN5600 or 16 for QM9700

Recommended BOM for Liquid Cooled SuperPODs (continued)

Product	Description	Panduit Part Number	GPU Node Racks (4)		GPU Node Racks to Network Racks	Network Racks (2)		Network Racks to Spine/ Storage/ Mgmt	Total	Notes
			Qty/ Rack	Qty/ Pod		Leaf	Storage/ Mgmt			
CABLE MANAGEMENT										
Horizontal Cable Manager, 1U	PatchRunner2 Horizontal Single-sided Manager, 1 RU, Black	PR2HF1	–	–	–	3	–	–	**3**	–
Horizontal Cable Manager, 2U	PatchRunner2 Horizontal Single-sided Manager, 2 RU, Black	PR2HF2				2			**2**	
Cable Management Bracket	HD Flex Cable Management 1 RU Universal Bracket 19 in.	FLEX-CM-1UBKIT					2		**4**	
COPPER CABLING										
Cat6 Patch Cord	Cat6 28 AWG UTP Copper Patch Cord, Blue	UTP28SP*BU	**12 to 22**	48 to 88	48 to 88	4	4	–	**56 to 96**	Quantity dependent on how many PDUs and sensors are used. Lengths will vary. Change the last 3 -4 digits to modify length (Feet) and color
Cat6 Port Replicate Patch Cord	Cat6 28 AWG UTP Copper Patch Cord, Blue, 8 in.	UTP28SP8inBU	–	–	–	–	56 to 88		**56 to 88**	–
FIBER CABLING										
8 Fiber MMF Interconnect F-F	BASE-8, 8 Fiber, Female-Female MPO, OM4, APC, Plenum	GZ8RPJPJPYN****	**96**	384	–	256	128	–	**768**	Lengths will vary. Change the last 4 digits to modify length (M for meters, F for Feet) Ex. 15 feet = F015
8 Fiber MMF Interconnect M-M	BASE-8, 8 Fiber, Male-Male MPO, OM4, APC, Plenum	GZ8RPKPKPYN****	–	–	384	–	–		**384**	
8 Fiber SMF Interconnect F-F	BASE-8, 8 Fiber, Female-Female MPO, OS2, APC, Ultra Low Loss, Plenum	G98RPJPJPLN****			–	256	128			
64 Fiber SMF Trunk M-M	BASE-8, 64 Fiber, Male-Male MPO, OS2, APC, Ultra Low Loss, Pulling Eye	G9MYPKGKGLA****				–	–	48	**48**	
GROUNDING & BONDING										
Grounding	Grounding Strip Kit, Ten 90.90 in. length, 52 RU Threaded Rail Fasteners	RGS13452-10-1	–	1	–	–	–	–	**1**	–
	Jumper Kits, Common bonding Network (CBN), #6 AWG (16mm²) Jumper, 60 in. length	RGCBNJ660P22		6					**6**	
	Jumper Kits, Equipment Grounding, #10 AWG (6mm²) Jumper, Factory Terminated Both Ends	RGEJ1024PFY		44					**44**	
PATHWAYS										
FiberRunner - Fiber Trough	Contact Panduit Sales as design requirements will differ per building	–	–	–	–	–	–	–	–	Contact Panduit for component selection
Wire Basket										

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