



# Data Center Cabling Solutions for NVIDIA AI Networks

COMMSCOPE®



<b>Introduction</b>	<b>3</b>
<b>Ethernet and InfiniBand—Optical Applications</b>	<b>4</b>
Ethernet Applications .....	5
InfiniBand Applications .....	6
<b>Key Solution Set for Generative AI</b>	<b>7</b>
<b>NVIDIA Fiber Optic Transceivers—Direct MPO and LC Cable Connections</b>	<b>9</b>
NVIDIA Transceivers—100G-PAM4 Applications .....	10
NVIDIA Transceivers—50G-PAM4 Applications .....	11
<b>NVIDIA Fiber Optic Transceivers—Structured Cabling Solutions</b>	<b>12</b>
Parallel To Parallel 800G or 400G Ports—MPO8 Backbone .....	13
Why MPO16 and MPO8 Structured Cabling Solutions .....	15
Parallel To Parallel 800G or 400G Ports—MPO16 Backbone .....	16
Parallel To Parallel Optical Ports—NVIDIA Spectrum -3/-4 Switches—MPO16 Backbone .....	18
Serial to Serial Optical Ports 800G or 400G—MPO16 or MPO8 Backbone Architecture .....	19
800G to 4x200G Switch to NVIDIA AI Node Link .....	20
200G to 200G Switch to NVIDIA AI Switch or Node Link .....	21
400G to 2x200G Switch to NVIDIA AI Node Link .....	22
<b>Mesh Architectures</b>	<b>23</b>
Mesh Architecture .....	24
400G to 400G Mesh .....	25
<b>Fiber Polarity Schemes</b>	<b>26</b>
<b>Fiber System Performance</b>	<b>31</b>
<b>CommScope® Key Solution Set for Gen AI</b>	<b>32</b>
<b>Propel™ Fiber Cabling Platform</b>	<b>33</b>
Propel Panels .....	34
Propel MPO8 Cable Assemblies .....	35
Propel MPO16 Cable Assemblies .....	37
Propel SN Modules and Trunks .....	40
Propel SN Cable Assemblies .....	41

<b>Cable Management</b>	<b>42</b>
<b>SYSTIMAX® Copper Cabling Solutions</b>	<b>44</b>
Scalable Unit (SU) Out-of-Band Copper Cabling .....	45
<b>FiberGuide® System</b>	<b>46</b>
FiberGuide® Application Overview .....	47
FiberGuide System .....	49
<b>Cabling Reference Designs</b>	<b>51</b>
Introduction to Reference Designs .....	52
<b>NVIDIA Scalable Unit (SU) DGX H100 Reference Design</b>	<b>53</b>
NVIDIA Scalable Unit DGX H100 .....	54
Reference Design for Compute Cabinets, MPO8 APC Backbone .....	55
Cabling from Compute to Management Cabinets .....	56
Reference Design NVIDIA Scalable Unit DGX H100 .....	57
Structured Cabling Fiber, MPO8 APC Backbone .....	58
Patch Cords to Connect Inband Equipment to Structured Fiber Cabling .....	59
Patch Cords to Connect Compute and Storage Equipment to Structured Fiber Cabling .....	60
Out of Band Network .....	61
Cable Management .....	62
<b>NVIDIA SuperPOD DGX H100 Reference Design</b>	<b>63</b>
NVIDIA DGX H100 SuperPOD (4 x SU) .....	64
Reference Design for Compute Cabinets, MPO8 APC Backbone .....	65
Reference Design for DGX H100 SuperPOD Management Cabinets .....	66
Cabling a SuperPOD .....	67
Structured Cabling Fiber, MPO8 APC Backbone .....	68
Patch Cords to Connect Inband Equipment to Structured Fiber Cabling .....	70
Patch Cords to Connect Compute and Storage Equipment to Structured Fiber Cabling .....	71
Out of Band Network .....	72
Cable Management .....	73



## Introduction

### **Make the most of your AI opportunity**

Artificial intelligence (AI) chips are quickly transforming the data center. Network managers must adapt the design and build of their physical layer connectivity to support scalable and manageable fiber-dense mesh networks. A variety of options are available; selecting the best option largely depends on the network's size and update cadence. We have developed this ordering guide to help you navigate this new landscape.

### **Smaller, less complex networks**

Relatively small networks may only upgrade their cabling every three to five years. In this case, application-specific direct attach cables (DACs), active electrical cables (AECs) or active optics cables (AOCs) can often be selected. As an application-specific solution, however, the cabling must be replaced for every upgrade, a time-consuming and sometimes risky process.

DAC or AEC assemblies can be difficult to remove as their stiff copper construction makes the cable hard to maneuver through crowded cabinets. Removing longer reach AOC assemblies is also challenging; they are typically threaded through multiple cabinets or pathways across the cabinet row.

So, the added cost, time and environmental impact should be factored into the overall upgrade budget.

### **Large, highly complex networks**

Large enterprise, cloud and hyperscale data centers are often early adopters of new equipment that can boost network efficiency and capacity. Their

port counts are typically much higher and refresh cycles much shorter than smaller networks. One AI cluster cabinet row may require several hundred cable assemblies to connect the AI nodes to the leaf switches. Assuming a typical one- to two-year refresh cycle, DAC, AEC and AOC assemblies may not be cost-effective nor environmentally sustainable.

In this case, ultra-low-loss structured cabling provides a more efficient and elegant solution. Re-usable trunk and equipment cable can support multiple generations of application and speed upgrades. And because the core network remains untouched and intact, installation, modifications and upgrades are faster and easier with reduced risk. By eliminating frequent cable replacements, this strategy also reduces the environmental impacts.

### **Supporting your transition to AI data networking**

Regardless of your network environment, CommScope® offers the infrastructure solutions to empower your AI applications. This ordering guide features end-to-end fiber and copper solutions for both Ethernet and InfiniBand, with modular components and connectivity for faster deployment, easier management and long-term growth. You'll also find innovative design and distribution strategies to help you leverage the full potential of your AI investment. And if you need more information about anything in this ordering guide, we're just a call or click away. So, you can evolve with confidence.

# Ethernet and InfiniBand— Optical Applications



The following pages outline the current Ethernet and InfiniBand transmission standards; both protocols are commonly found in AI networks.

Structured cabling can support both Ethernet and InfiniBand protocols.

Data Rate	Multimode		Reach	# of Fibers	# of Wavelengths	Lane Rate	IEEE project / MSA	Publication
	PMD	Media						
1,600G	SR8.2	8-pair MM	100 m	16	2	100G	Terabit BiDi MSA	2023
	VR8.2	8-pair MM	50 m	16	2	100G	Terabit BiDi MSA	2023
	DR8	8-pair SM	500 m	16	1	200G	802.3dj	2026
	DR8-2	8-pair SM	2,000 m	16	1	200G	802.3dj	2026
800G	SR8	8-pair MM	100 m	16	1	100G	802.3df	2024
	VR8	8-pair MM	50 m	16	1	100G	802.3df	2024
	SR4.2	4-pair MM	100 m	8	2	100G	Terabit BiDi MSA	2023
	VR4.2	4-pair MM	50 m	8	2	100G	Terabit BiDi MSA	2023
	DR8	8-pair SM	500 m	16	1	100G	802.3df	2024
	DR8-2	8-pair SM	2,000 m	16	1	100G	802.3df	2024
	FR4	1-pair SM	2,000 m	2	4	200G	802.3dj	2026
	DR4	4-pair SM	500 m	8	1	200G	802.3dj	2026
	DR4-2	4-pair SM	2,000 m	8	1	200G	802.3dj	2026
400G	SR8	8-pair MM	100 m	16	1	50G	802.3cm	2019
	SR4.2	4-pair MM	100 m	8	2	50G	802.3cm	2019
	SR4	4-pair MM	100 m	8	1	100G	802.3db	2022
	VR4	4-pair MM	50 m	8	1	100G	802.3db	2022
	DR4	4-pair SM	500 m	8	1	100G	802.3cm	2019
	FR4	4-pair SM	2,000 m	2	4	100G	802.3cm	2019
	DR2	2-pair SM	500 m	4	1	200G	802.3dj	2026
200G	SR4	4-pair MM	100 m	8	1	50G	802.3bs	2017
	SR2	2-pair MM	100 m	4	1	100G	802.3db	2022
	DR4	4-pair SM	500 m	8	1	50G	802.3bs	2017
	FR4	1-pair SM	2,000 m	2	4	50G	802.3bs	2017
	DR1	1-pair SM	500 m	2	1	200G	802.3dj	2026
	FR1	1-pair SM	2,000 m	2	4	200G	802.3dj	2026
100G	SR4	4-pair MM	100 m	8	1	25G	802.3bm	2015
	SR2	2-pair MM	100 m	4	1	50G	802.3cd	2018
	SR1	1-pair MM	100 m	2	1	100G	802.3db	2022
	VR1	1-pair MM	50 m	2	1	100G	802.3db	2022
	DR1	1-pair SM	500 m	2	1	100G	802.3cd	2018
	CWDM4	1-pair SM	2,000 m	2	4	25G	CWDM4 MSA	2014
	PSM4	4-pair SM	500 m	8	1	25G	PSM4 MSA	2014

■ Multi-mode Fiber OM4/OM5 for multi-wavelength multi-mode applications  
 ■ Single-mode Fiber OS2

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

Data Rate	Multi-mode		Reach	# of Fibers	Multi-wavelengths		Lane Rate	ITA Spec
	PMD	Media			# of Wavelengths			
800G	SR8	8-pair MM	50 m	16	1	200G	XDR	
	DR8	8-pair SM	500 m	16	1	200G	XDR	
	FR4	1-pair SM	2,000 m	2	4	200G	XDR	
800G (2 x 400G-DR4)	SR8	2 x 4-pair MM	50 m	16 (2x8)	1	100G	NDR	
	DR8	2 x 4-pair SM	500 m	16 (2x8)	1	100G	NDR	
800G	2 x FR4	2 x 1-pair SM	2,000 m	4 (2x2)	4	100G	NDR	
400G	SR4	4-pair MM	50 m	8	1	100G	NDR	
	DR4	4-pair SM	500 m	8	1	100G	NDR	
200G	SR4	4-pair MM	100 m	8	1	50G	HDR	
	FR4	1-pair SM	2,000 m	2	4	50G	HDR	
100G	SR4	4-pair MM	100 m	8	1	25G	EDR	
	CWDM4	1-pair SM	2,000 m	2	4	25G	EDR	
	PSM4	4-pair SM	500 m	8	1	25G	EDR	

■ Multi-mode Fiber OM4  
■ Single-mode Fiber OS2

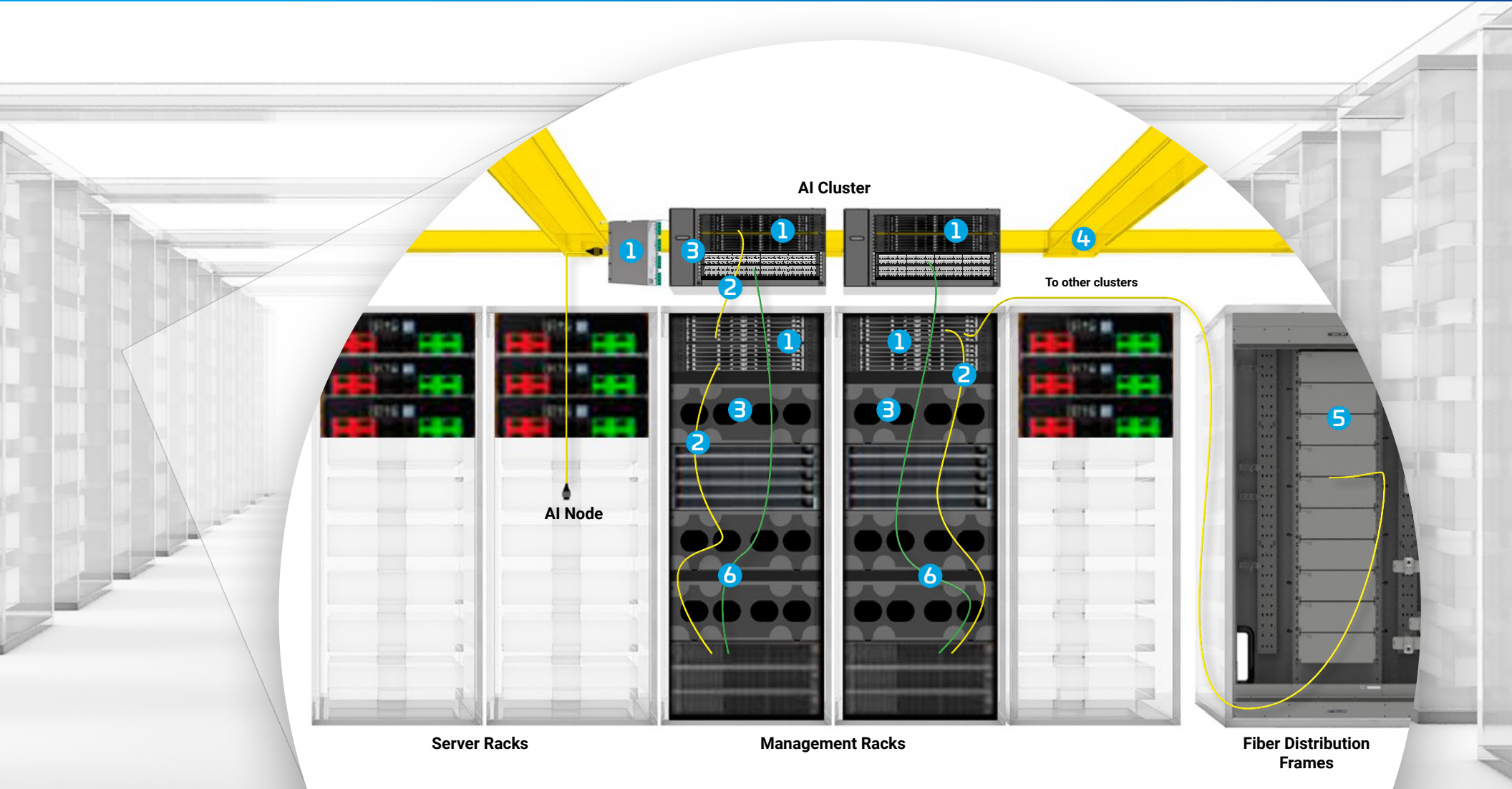
### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# Key Solution Set for Generative AI



**1**  
Fiber Panels

**2**  
MPO/VSFF Cable Assemblies

**3**  
Cable Management Solutions

**4**  
Fiber Raceway Systems

**5**  
Fiber Distribution Frames

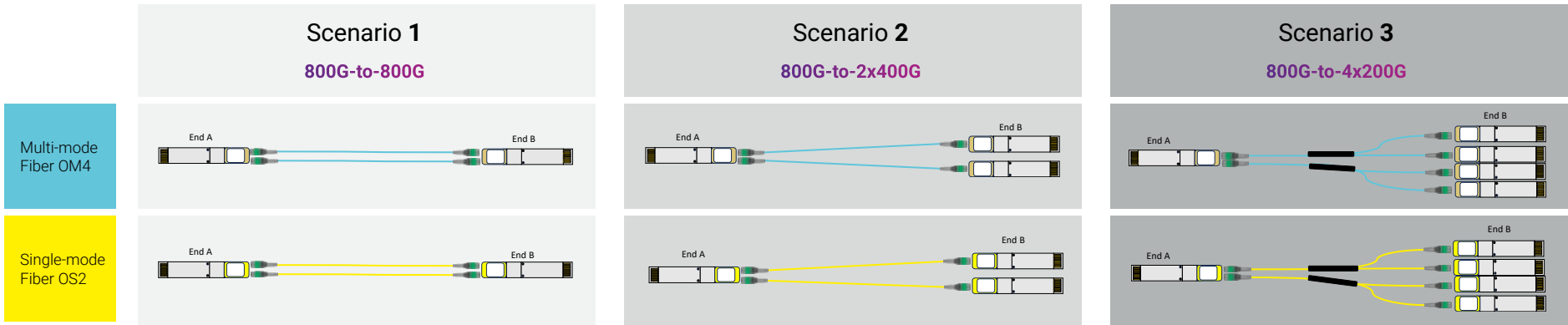
**6**  
Copper Cabling Systems

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

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NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
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# NVIDIA Fiber Optic Transceivers— Direct MPO and LC Cable Connections



Scenario	End A				CommScope® Products		End B		
	NVIDIA Transceiver	Bandwidth	Fiber Type	Reach	CommScope Direct Connect MPO8 cable		NVIDIA cable part number	NVIDIA Transceiver	Bandwidth
1	MMA4Z00-NS or MMA4Z00-NS-FLT	2 x 400Gb/s SR4	OM4	50 m	LSZH/Riser cable: <a href="#">URXQVQVF8 (2x)</a> Plenum cable: <a href="#">UQXQVQVF8 (2x)</a>	MFP7E10-N0XX	MMA4Z00-NS or MMA4Z00-NS-FLT	2 x 400Gb/s SR4	
2	MMA4Z00-NS	2 x 400Gb/s SR4	OM4	50 m	LSZH/Riser cable: <a href="#">URXQVQVF8 (2x)</a> Plenum cable: <a href="#">UQXQVQVF8 (2x)</a>	MFP7E10-N0XX	MMA4Z00-NS400 (2x)	2 x 400Gb/s SR4	
2	MMA4Z00-NS	2 x 400Gb/s SR4	OM4	50 m	LSZH/Riser cable: <a href="#">URXQVQVF8 (2x)</a> Plenum cable: <a href="#">UQXQVQVF8 (2x)</a>	MFP7E10-N0XX	MMA1Z00-NS400 (2x)	2 x 400Gb/s SR4	
3	MMA4Z00-NS	2 x 400Gb/s SR4	OM4	50 m	LSZH/Riser cable: <a href="#">URXQVBVF8 (2x)</a>	MFP7E20-N0XX	MMA4Z00-NS400 (4x)	4 x 200Gb/s SR2	
3	MMA4Z00-NS	2 x 400Gb/s SR4	OM4	50 m	LSZH/Riser cable: <a href="#">URXQVBVF8 (2x)</a>	MFP7E20-N0XX	MMA1Z00-NS400 (4x)	4 x 200Gb/s SR2	
1	MMS4X00-NS or MMS4X00-NS-FLT	2 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQPQPF8 (2x)</a> Plenum cable: <a href="#">UQGQPQPF8 (2x)</a>	MFP7E30-NXXX	MMS4X00-NS or MMS4X00-NS-FLT	2 x 400Gb/s DR4	
1	MMS4X00-NM or MMS4X00-NM-FLT	2 x 400Gb/s DR4	OS2	500 m	LSZH/Riser cable: <a href="#">URGQPQPF8 (2x)</a> Plenum cable: <a href="#">UQGQPQPF8 (2x)</a>	MFP7E30-NXXX	MMS4X00-NM or MMS4X00-NM-FLT	2 x 400Gb/s DR4	
2	MMS4X00-NS	2 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQPQPF8 (2x)</a> Plenum cable: <a href="#">UQGQPQPF8 (2x)</a>	MFP7E30-NXXX	MMS4X00-NS400 (2x)	2 x 400Gb/s DR4	
2	MMS4X00-NS	2 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQPQPF8 (2x)</a> Plenum cable: <a href="#">UQGQPQPF8 (2x)</a>	MFP7E30-NXXX	MMS1X00-NS400 (2x)	2 x 400Gb/s DR4	
3	MMS4X00-NS	2 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQBPBF8 (2x)</a>	MFP7E40-NXXX	MMS4X00-NS400 (4x)	4 x 200Gb/s DR2	
3	MMS4X00-NS	2 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQBPBF8 (2x)</a>	MFP7E40-NXXX	MMS1X00-NS400 (4x)	4 x 200Gb/s DR2	

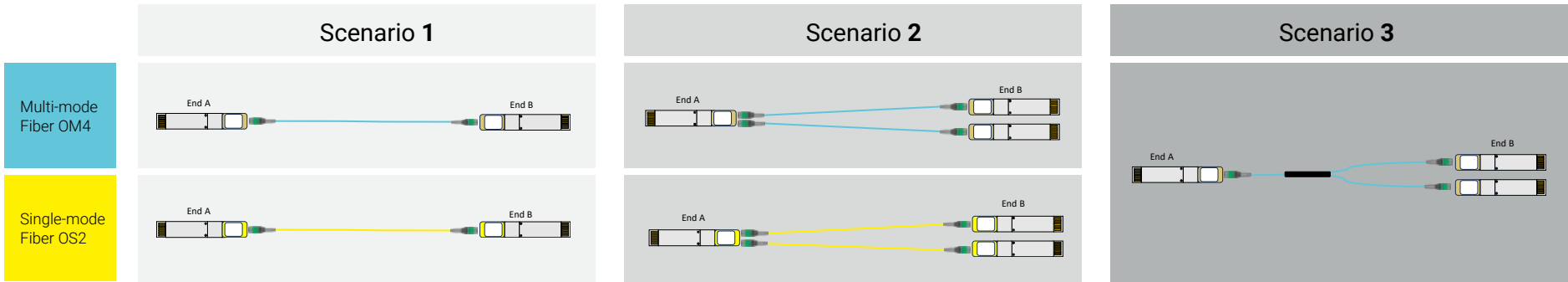
■ Multi-mode Fiber OM4  
■ Single-mode Fiber OS2

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Scenario	End A				CommScope® Products		End B	
	NVIDIA Transceiver	Bandwidth	Fiber Type	Reach	Commscope Direct Connect MPO8 cable		NVIDIA Transceiver	Bandwidth
1	T-DQ8FNS-N00-M	1 x 400Gb/s SR8	OM4	100 m	LSZH/Riser cable: <a href="#">URXRVRV7R</a> Plenum cable: <a href="#">UQXRVRV7R</a>		T-DQ8FNS-N00-M	1 x 400Gb/s SR8
1	MMA1T00-VS or MMA1T00-HS	1 x 200Gb/s SR4	OM4	100 m	LSZH/Riser cable (UPC): <a href="#">URXQPQPF8</a> Plenum cable (UPC): <a href="#">UQXQPQPF8</a>		MMA1T00-VS or MMA1T00-HS	1 x 200Gb/s SR4
3	T-DQ8FNS-N00-M	1 x 400Gb/s SR8	OM4	100 m	LSZH/Riser cable: <a href="#">URXQVBYF8</a>		MMA1T00-VS (2x)	2 x 200Gb/s SR4
1	MMS1V00-WM	1 x 400Gb/s DR4	OS2	500 m	LSZH/Riser cable: <a href="#">URGQPQPF8</a> Plenum cable: <a href="#">UQGQPQPF8</a>		MMS1V00-WM	1 x 400Gb/s DR4
1	MMS1V50-WM	1 x 400Gb/s FR4	OS2	2,000 m	LSZH/Riser cable: <a href="#">UFGLLULK2</a> Plenum cable: <a href="#">UDGLLULK2</a>		MMS1V50-WM	1 x 400Gb/s FR4
1	MMS1V90-WM	1 x 400Gb/s LR4	OS2	10,000 m	LSZH/Riser cable: <a href="#">UFGLLULK2</a> Plenum cable: <a href="#">UDGLLULK2</a>		MMS1V90-WM	1 x 400Gb/s LR4
1	MMS1V00-WM	1 x 400Gb/s DR4	OS2	100 m	LSZH/Riser cable: <a href="#">URGQPQPF8</a> Plenum cable: <a href="#">UQGQPQPF8</a>		MMS4X00-NS400	1 x 400Gb/s DR4
1	MMS1W50-HM	1 x 200Gb/s FR4	OS2	2,000 m	LSZH/Riser cable: <a href="#">UFGLLULK2</a> Plenum cable: <a href="#">UDGLLULK2</a>		MMS1W50-HM	1 x 200Gb/s FR4
2	MMS4X00-NS (FLT) (100 m) or MMS4X00-NM (500 m)	2 x 400Gb/s DR4	OS2	100 m or 500 m	LSZH/Riser cable: <a href="#">URGQPQPF8</a> (2x) Plenum cable: <a href="#">UQGQPQPF8</a> (2x)		MMS1V00-WM (2x)	2 x 400Gb/s DR4

■ Multi-mode Fiber OM4  
■ Single-mode Fiber OS2

### Interactive Content Menu

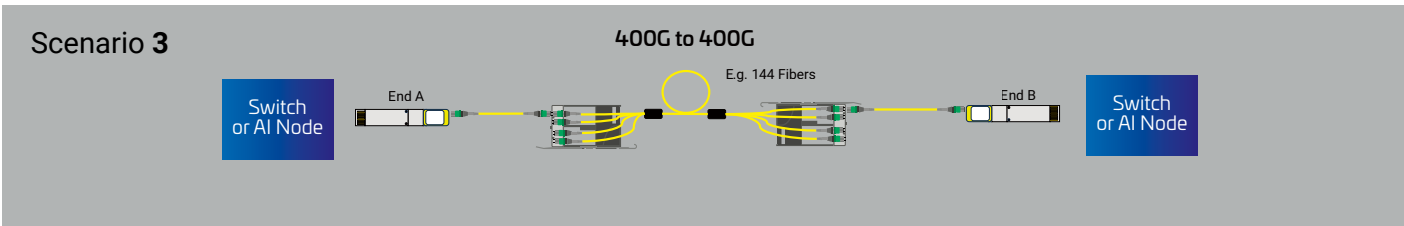
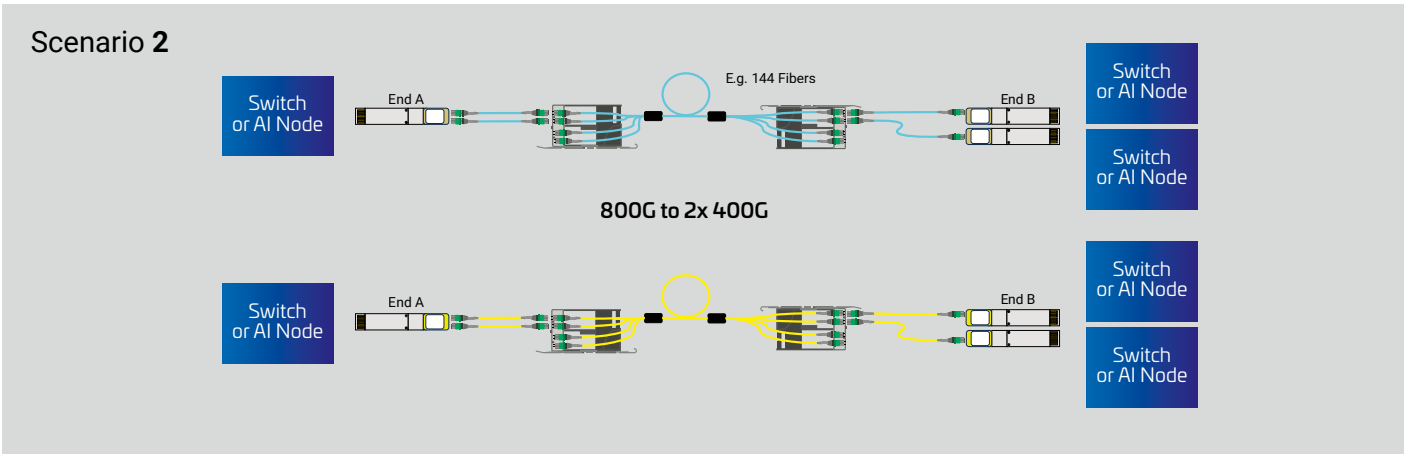
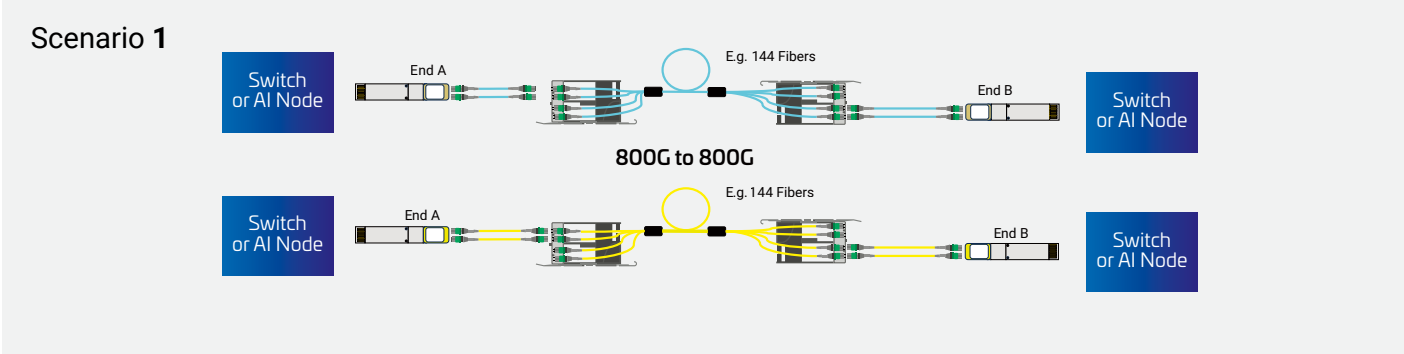
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# NVIDIA Fiber Optic Transceivers— Structured Cabling Solutions





Multi-mode Fiber OM4  
Single-mode Fiber OS2

Adapters Packs are mounted in Propel panels, see page 34 of this guide.

#### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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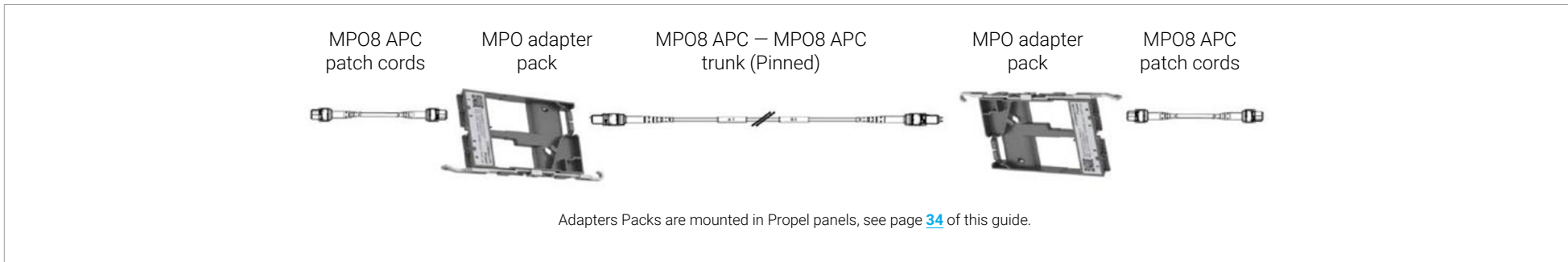
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

End A						CommScope® Products					End B		
Scenario	NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
1	MMA4Z00-NS	2x 400Gb/s SR8	OM4 / OM5	2x MPO12 APC	50 m	Plenum OM4 - UQXQVQVF8 OM5 - UQVQVQVF8	PPL-AP-y-MPO-ALL-B	Plenum OM4 - UGXQZQZTn OM5 - UGVQZQZTn CPR B2 <sub>CA</sub> OM4 - U3XQZQZTn OM5 - U3VQZQZTn Dual-Rated OM4 - UJXQZQZTn OM5 - UJVQZQZTn	PPL-AP-y-MPO-ALL-B	Plenum OM4 - UQXQVQVF8 OM5 - UQVQVQVF8	2x MPO12 APC	MMA4Z00-NS	2x 400Gb/s SR8
												MMA4Z00-NS-FLT	
2	MMA4Z00-NS	2x 400Gb/s SR8	OM4 / OM5	2x MPO12 APC	50 m	Dual-Rated (ORNR/LSZH) OM4 - URXQVQVF8 OM5 - URVQVQVF8	PPL-AP-y-MPO-ALL-B	Plenum UGGQXQXTn CPR B2 <sub>CA</sub> U3GQXQXTn Dual-Rated UJGQXQXTn	PPL-AP-y-MPO-ALL-B	Dual-Rated (ORNR/LSZH) OM4 - URXQVQVF8 OM5 - URVQVQVF8	1x MPO12 APC	2x MMA4Z00-NS400	1x 400Gb/s SR4
												2x MMA1Z00-NS400	
1	MMS4X00-NS	2x 400Gb/s DR4	OS2	2x MPO12 APC	100 m	Plenum UJGQPPPF8 Dual-Rated (ORNR/LSZH) URGQPPPF8	PPL-AP-y-MPO-ALL-B	Plenum UGGQXQXTn CPR B2 <sub>CA</sub> U3GQXQXTn Dual-Rated UJGQXQXTn	PPL-AP-y-MPO-ALL-B	Plenum UJGQPPPF8 Dual-Rated (ORNR/LSZH) URGQPPPF8	2x MPO12 APC	MMS4X00-NM	2x 400Gb/s
	MMS4X00-NS-FLT										MMS4X00-NS-FLT		
	MMS1V00-WM	1x 400Gb/s		1x MPO12 APC	500 m						1x MPO12 APC	500 m	MMS1V00-WM
2	MMS4X00-NS	2x 400Gb/s	OS2	2x MPO12 APC	100 m	Dual-Rated (ORNR/LSZH) URGQPPPF8	PPL-AP-y-MPO-ALL-B	Plenum UGGQXQXTn CPR B2 <sub>CA</sub> U3GQXQXTn Dual-Rated UJGQXQXTn	PPL-AP-y-MPO-ALL-B	Dual-Rated (ORNR/LSZH) URGQPPPF8	1x MPO12 APC	2x MMS4X00-NS400	1x 400Gb/s
	MMS4X00-NM				500 m							2x MMS1V00-WM	
	MMS4X00-NS-FLT				100 m							2x MMS1V00-WM	
												2x MMS1V00-WM	
3	2x MMS1V00-WM	1x 400Gb/s	OS2	1x MPO12 APC	500 m	Dual-Rated (ORNR/LSZH) URGQPPPF8	PPL-AP-y-MPO-ALL-B	Plenum UGGQXQXTn CPR B2 <sub>CA</sub> U3GQXQXTn Dual-Rated UJGQXQXTn	PPL-AP-y-MPO-ALL-B	Dual-Rated (ORNR/LSZH) URGQPPPF8	1x MPO12 APC	2x MMS1V00-WM	1x 400Gb/s
					100 m							2x MMS1X00-NS400	

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Multi-mode Fiber OM4/OM5  
■ Single-mode Fiber OS2

y = Number of MPO Ports Per Module - Select 4, 8, or 12  
n = Number of fibers in trunk - Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192



\* Detailed information about Propel polarity schemes can be found [here](#).

Many of the transceiver interface options today are MPO12 or MPO8 based, which has proved to be an adequate presentation of fibers to support duplex and parallel optical transmission protocols.

The data center environment is constantly changing, especially with the advent of Generative AI. Data rates and the number of fibers required in this environment are increasing whilst the demand for improved efficiency is being asked of every installed system.

Looking at the future of Ethernet optical standards, there is a mixture of 8 and 16 fiber interfaces up to 800G, and currently, 16 fiber interfaces are the only option available for both multi-mode and single-mode fibers above this speed. When compared side by side with the roadmap of Gen AI hardware manufacturers, its apparent that these higher speeds are going to be required sooner than the industry first expected.

MPO8 is sufficient to support many parallel data rates and can be used to aggregate 4x duplex data rates (e.g., 10G, 25G). Whereas MPO16 can support native 16-fiber applications, 2x 8-fiber applications, and 8x duplex-based transmission standards all over a single MPO16 fiber trunk cable, making it a dense fiber connector option.

When the request for a 16-fiber transmission standard is required for higher speeds (i.e., 8 Tx fibers and 8 Rx fibers), using an MPO8 cabling system can make the management and installation of the backbone complex.

When using MPO8 connectivity to support a 16-fiber application, 2x MPO8 trunks will need to be ordered, shipped, stored onsite, installed, inspected, and correctly audited. Each of these steps can add time and additional effort to the data center installation, whilst the request of the industry is to build faster and respond to change quicker.

Importantly, a single MPO16 trunk cable can bring space savings to pathways and conduits when compared to deploying two MPO8 trunk cables. (See the diagram opposite).

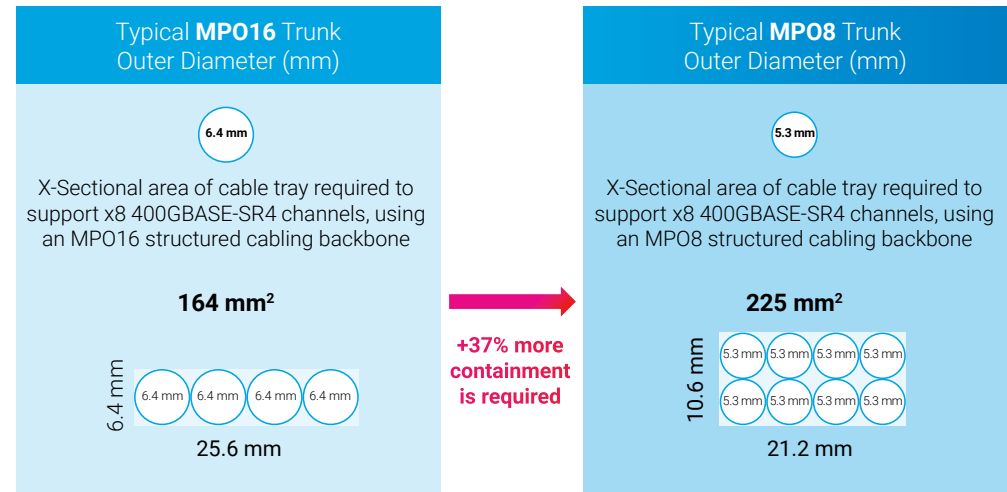
Finally, looking back at the Ethernet optical roadmap, it's clear that there will be a continuous migration of connectivity required, from duplex to MPO8 to MPO16, and a toggling between those interfaces to achieve the optimum balance between performance and cost.

An MPO16 structured cabling system is a solution to seamlessly support these migrations.

## MPO16 and MPO8 - A Single Cable Backbone Comparison

	MPO8 Backbone	MPO16 Backbone
Channel densities	1x 8F MPO / 4x LC Duplex	1x 16F MPO / 2x 8F MPO / 8x LC Duplex
Matches to mainstream Ethernet and Infiniband optical interface standards between 100G and 1,600G	No	Yes
Project complexity in high cable count channels: (Supply chain / cable installation / system audit / on-going operational management)	Higher Complexity	Lower Complexity
Pathway and conduit efficiency in high cable count channels	Uses 37% more space than MPO16 at higher data rates	Better suited

## MPO16 and MPO8 Containment Comparison



What 400GBASE-SR16 can teach us about higher-speed migration [blog](#).

### 8-fiber MPO (MPO8)



### 16-fiber MPO (MPO16)

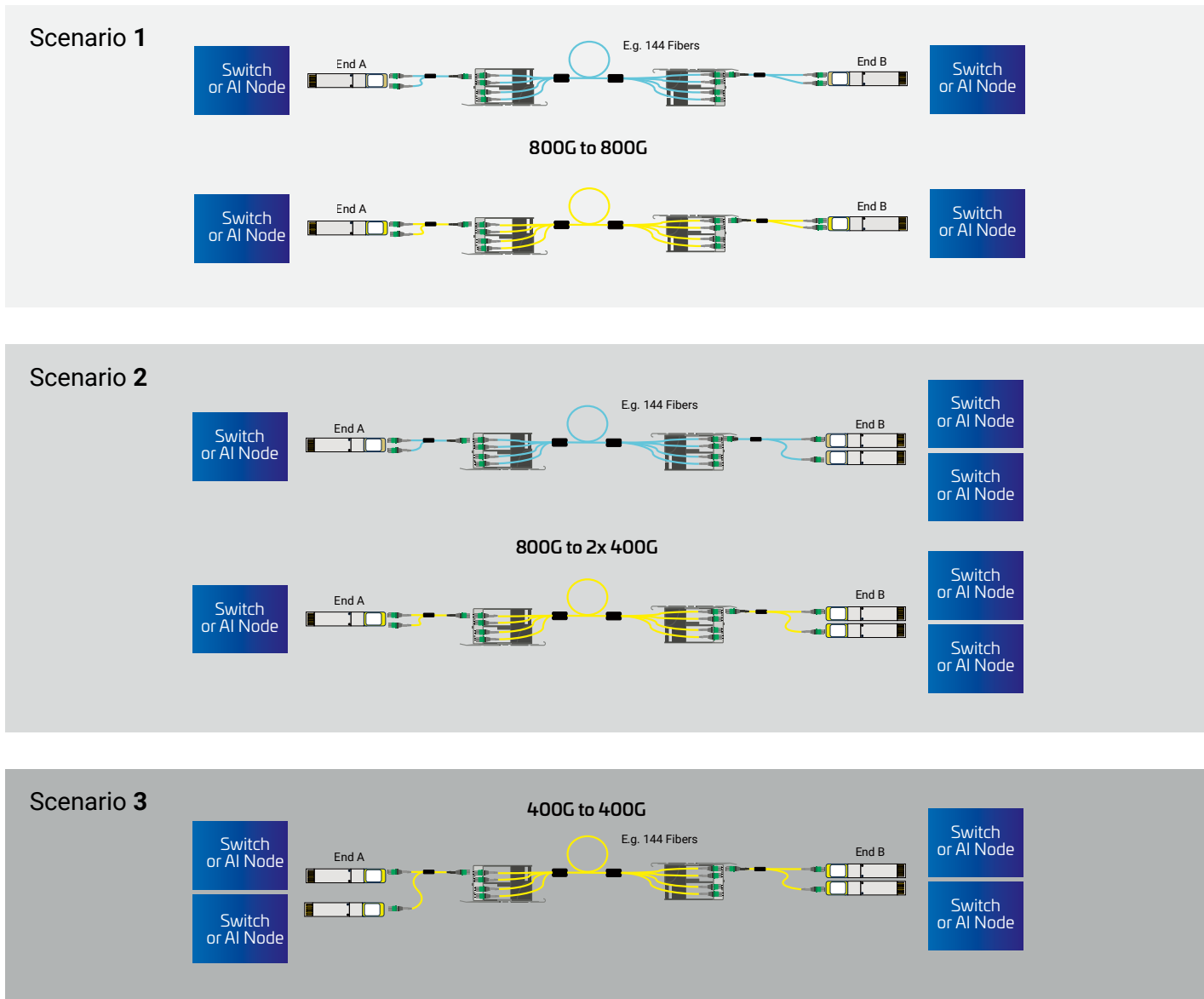


#### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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#### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Adapters Packs are mounted in Propel panels, see page 34 of this guide.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

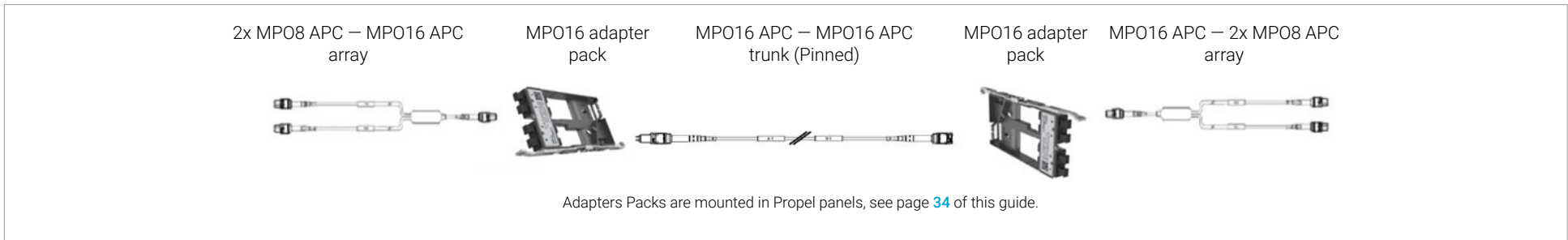


End A						CommScope® Products					End B		
Scenario	NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
1		MMA4Z00-NS 2x 400Gb/s SR8 OM4 / OM5 2x MPO12 APC 50m				Plenum OM4 - UQXRVOV7R OM5 - UQVRVOV7R	PPL-AP-y-MPO16-ALL-B	Plenum OM4 - UGXZRZR8n OM5 - UGVZRZR8n  CPR B2 <sup>ca</sup> OM4 - U3XRZR8n OM5 - U3VRZR8n  Dual-Rated OM4 - UJXRZR8n OM5 - UJVZR8n	PPL-AP-y-MPO16-ALL-B	Plenum OM4 - UQXRVOV7R OM5 - UQVRVOV7R	2x MPO12 APC	MMA4Z00-NS MMA4Z00-NS-FLT	2x 400Gb/s SR8
2		MMA4Z00-NS 2x 400Gb/s SR8 OM4 / OM5 2x MPO12 APC 50m				Dual-Rated (OFNR/LSZH) OM4 - URXRVOV7R OM5 - URVRVOV7R	PPL-AP-y-MPO16-ALL-B		PPL-AP-y-MPO16-ALL-B	Dual-Rated (OFNR/LSZH) OM4 - URXRVOV7R OM5 - URVRVOV7R	1x MPO12 APC	2x MMA4Z00-NS400 2x MMA1Z00-NS400	1x 400Gb/s SR4
1	MMS4X00-NS	2x 400Gb/s DR4	OS2	2x MPO12 APC	100 m	Plenum UQGRPQP7R	PPL-AP-y-MPO16-ALL-B	Plenum UGGRXR8n CPR B2 <sup>ca</sup> U3GRXR8n Dual-Rated (OFNR/LSZH) UJGRXR8n	PPL-AP-y-MPO16-ALL-B	Plenum UQGRPQP7R	2x MPO12 APC	MMS4X00-NS-FLT	2x 400Gb/s
	MMS4X00-NS												
	MMS1V00-WM	1x 400Gb/s										1x MPO12 APC	500 m
2	MMS4X00-NS	2x 400Gb/s	OS2	2x MPO12 APC	100 m	Dual-Rated (OFNR/LSZH) URGRPQP7R	PPL-AP-y-MPO16-ALL-B	Dual-Rated (OFNR/LSZH) UJGRXR8n	PPL-AP-y-MPO16-ALL-B	Dual-Rated (OFNR/LSZH) URGRPQP7R	1x MPO12 APC	2x MMS4X00-NS400	1x 400Gb/s
	MMS4X00-NM				500 m							2x MMS1V00-WM	
	MMS4X00-NS-FLT				100 m							2x MMS1V00-WM	
3	2x MMS1V00-WM	1x 400Gb/s	OS2	1x MPO12 APC	500 m	Plenum UQGRPQP7R	PPL-AP-y-MPO16-ALL-B	Plenum UGGRXR8n CPR B2 <sup>ca</sup> U3GRXR8n Dual-Rated (OFNR/LSZH) UJGRXR8n	PPL-AP-y-MPO16-ALL-B	Plenum UQGRPQP7R	1x MPO12 APC	2x MMS1V00-WM	1x 400Gb/s
					100 m							2x MMS1X00-NS400	

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Multi-mode Fiber OM4/OM5  
■ Single-mode Fiber OS2

y = Number of MPO Ports Per Module - Select 4, 8, or 12  
n = Number of fibers in trunk - Select R=16, S=32, U=64, L=96, Q=128, M=144, N=192



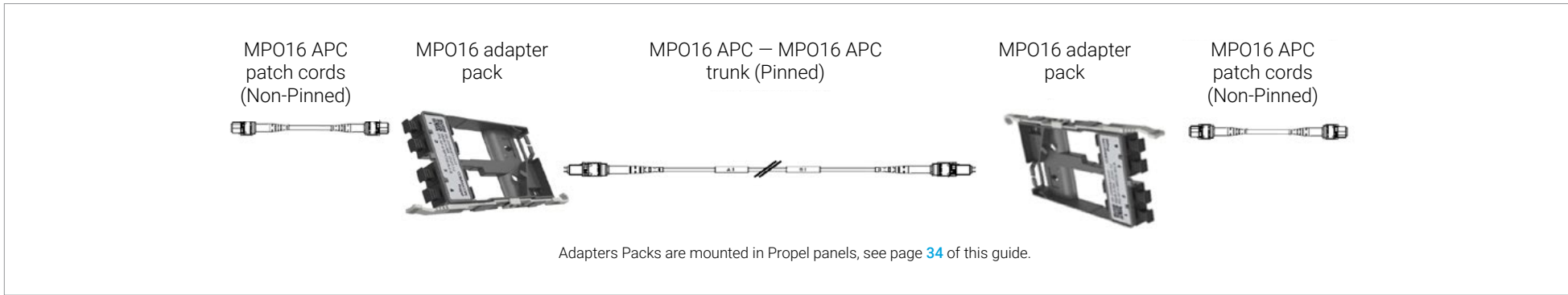
\* Detailed information about Propel polarity schemes can be found [here](#).

NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	CommScope® Products					End B		
					Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
T-DQ8FNS-N00-M	1x 400Gb/s SR8	OM4/OM5	1x MPO16 APC	100 m	<b>Plenum</b> OM4 - <a href="#">UQXRVRV7R</a> OM5 - <a href="#">UQVRVRV7R</a> <b>Dual-Rated(OFNR/LSZH)</b> OM4 - <a href="#">URXRVRV7R</a> OM5 - <a href="#">URVRVRV7R</a>	<a href="#">PPL-AP-y-MPO16-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UGXRZRZ8n</a> OM5 - <a href="#">UGVRZRZ8n</a> <b>CPR B2<sub>CA</sub></b> OM4 - <a href="#">U3XRZRZ8n</a> OM5 - <a href="#">U3VRZRZ8n</a> <b>Dual-Rated</b> OM4 - <a href="#">UJXRZRZ8n</a> OM5 - <a href="#">UJVZRZRZ8n</a>	<a href="#">PPL-AP-y-MPO16-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UQXRVRV7R</a> OM5 - <a href="#">UQVRVRV7R</a> <b>Dual-Rated(OFNR/LSZH)</b> OM4 - <a href="#">URXRVRV7R</a> OM5 - <a href="#">URVRVRV7R</a>	1x MPO16 APC	T-DQ8FNS-N00-M	1x 400Gb/s SR8

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

Multi-mode Fiber OM4/OM5

**y** = Number of MPO Ports Per Module – Select 4, 8, or 12  
**n** = Number of fibers in trunk - Select R=16, S=32, U=64, L=96, Q=128, M=144, N=192



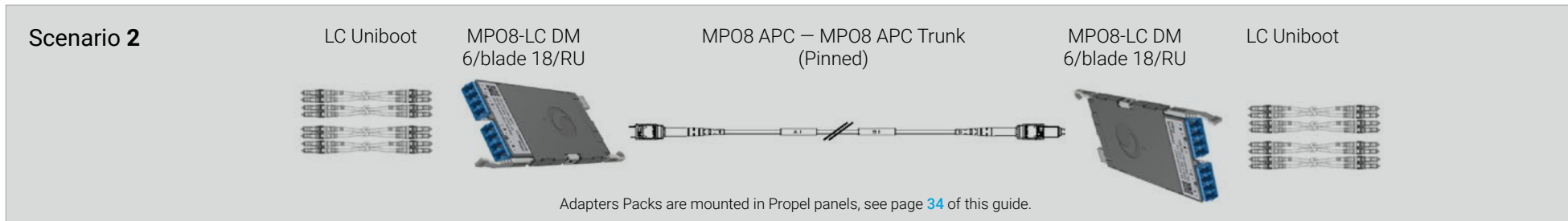
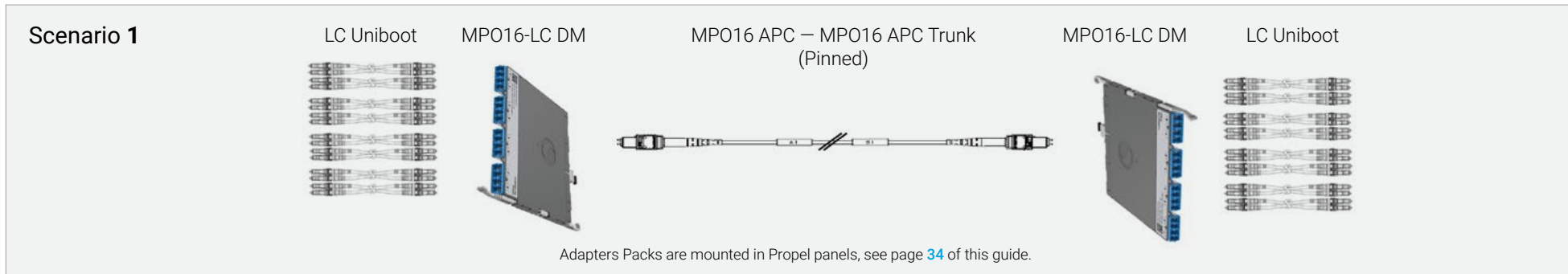
\* Detailed information about Propel polarity schemes can be found [here](#).

End A						CommScope® Products					End B		
Scenario	NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Patch Cord	Module	Trunk*	Module	Patch Cord	Transceiver Interface	NVIDIA Transceiver	Bandwidth
1	MMS4X50-NM	2x 400Gb/s FR4	OS2	2x Duplex LC	2,000 m	Plenum UDGLULUK2 Dual-Rated (OFNR/LSZH) UFGULULUK2	PPL-DM-16AU-16LC-SM-BEU	Plenum UGGRXR8n CPR B2 <sub>CA</sub> U3RXX8n Dual-Rated UJGRXR8n	PPL-DM-16AU-16LC-SM-BEU	Plenum UDGLULUK2 Dual-Rated (OFNR/LSZH) UFGULULUK2	2x Duplex LC	MMS4X50-NM	2x 400Gb/s FR4
	MMS1V50-WM	1x 400Gb/s FR4		1x Duplex LC							1x Duplex LC	MMS1V50-WM	1x 400Gb/s FR4
	MMS1V90-WR			MMS1V90-WR							1x 400Gb/s FR4		
2	MMS4X50-NM	2x 400Gb/s FR4	OS2	2x Duplex LC	2,000 m	Plenum UDGLULUK2 Dual-Rated (OFNR/LSZH) UFGULULUK2	PPL-DM-8AU-8LC-SM-BEU	Plenum UGGQXQTn CPR B2 <sub>CA</sub> U3GQXQTn Dual-Rated UJGQXQTn	PPL-DM-8AU-8LC-SM-BEU	Plenum UDGLULUK2 Dual-Rated (OFNR/LSZH) UFGULULUK2	2x Duplex LC	MMS1V50-WM (2km) 400G	2x 400Gb/s FR4
	MMS1V50-WM	1x 400Gb/s FR4		1x Duplex LC							MMS1V50-WM (2km)	1x 400Gb/s FR4	
	MMS1V90-WR			MMS1V90-WR (10km)									

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Single-mode Fiber OS2

**For 16 fiber systems** n = Number of fibers in trunk – Select R=16, S=32, U=64, L=96, Q=128, M=144, N=192  
**For 8 fiber systems** n = Number of fibers in trunk – Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192



## Parallel-To-Parallel Optical Ports

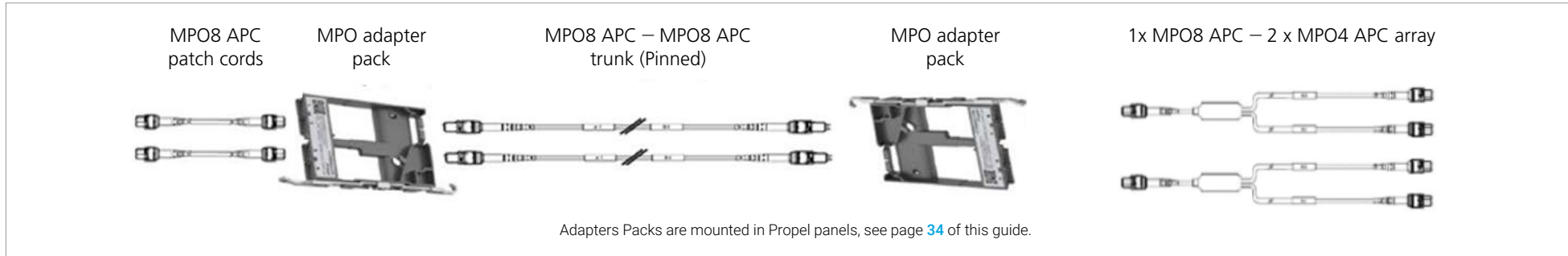
800G Switch to 4 x 200G Switch or Node (2x400G to 4x200G)

End A					CommScope® Products					End B		
NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
MMA4Z00-NS	2x 400Gb/s SR4	OM4 / OM5	2x MPO12 APC	50 m	<b>Plenum</b> OM4 - <a href="#">UQXQVQVF8</a> OM5 - <a href="#">UQVQVQVF8</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">URXQVQVF8</a> OM5 - <a href="#">URVQVQVF8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UGXQZQZTn</a> OM5 - <a href="#">UGVQZQZTn</a> <b>CPR B2<sub>CA</sub></b> OM4 - <a href="#">U3XQZQZTn</a> OM5 - <a href="#">U3VQZQZTn</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">UJXQZQZTn</a> OM5 - <a href="#">UJVQZQZTn</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UQXQVBVF8</a> OM5 - <a href="#">UQVQVBVF8</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">URXQVBVF8</a> OM5 - <a href="#">URVQVBVF8</a>	1x MPO12 APC	4x MMA1Z00-NS400	1x 200Gb/s SR2
MMS4X00-NS	2x 400Gb/s DR4	OS2	2x MPO12 APC	100 m	<b>Plenum</b> <a href="#">UQGQPQPF8</a> <b>Dual-Rated (OFNR/LSZH)</b> <a href="#">URGQPQPF8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> <a href="#">UGGQXQXTn</a> <b>CPR B2<sub>CA</sub></b> <a href="#">U3GGQXQXTn</a> <b>Dual-Rated (OFNR/LSZH)</b> <a href="#">UJGGQXQXTn</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> <a href="#">UQGQPBPF8</a> <b>Dual-Rated (OFNR/LSZH)</b> <a href="#">URGQPBPF8</a>	1x MPO12 APC	4x MMS1V-00	1x 200Gb/s DR2

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Multi-mode Fiber OM4/OM5  
■ Single-mode Fiber OS2

**For 8 fiber systems n** = Number of fibers in trunk - Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192



\* Detailed information about Propel polarity schemes can be found [here](#).

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



## Parallel-To-Parallel Optical Ports

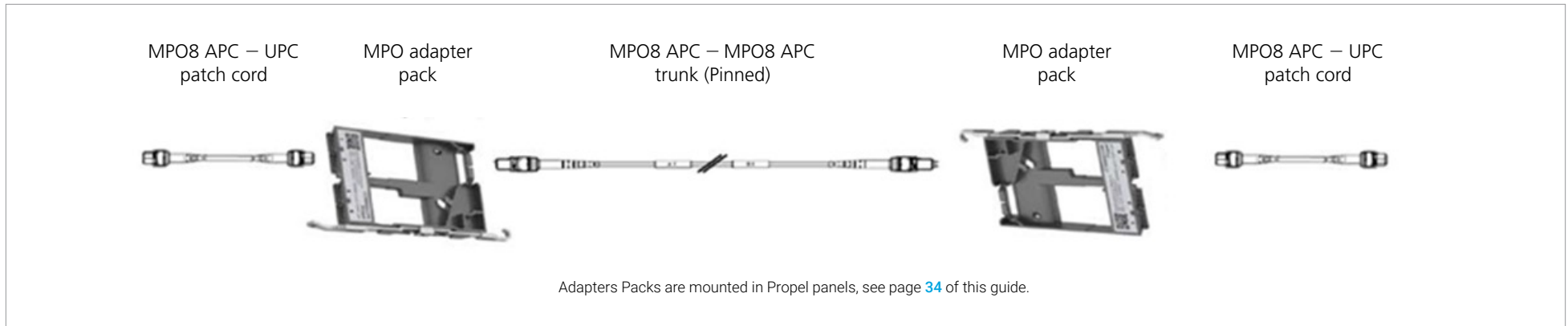
200G Switch to 200G Switch or Node

End A					CommScope® Products					End B		
NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
MMA1T00-VS (Ethernet) MMA1T00-HS (InfiniBand)	1x 200Gb/s SR4	OM4/OM5	1x MPO12 UPC	100 m	<b>Plenum</b> OM4 - <a href="#">UQXVQVQPF8</a> OM5 - <a href="#">UQVQVQPF8</a>  <b>Dual-Rated (ORNR/LSZH)</b> - OM4 - <a href="#">URXVQVQPF8</a> OM5 - <a href="#">URVQVQPF8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UGXQZQZTn</a> OM5 - <a href="#">UGVQZQZTn</a>  <b>CPR B2<sub>CA</sub></b> OM4 - <a href="#">U3XQZQZTn</a> OM5 - <a href="#">U3VQZQZTn</a>  <b>Dual-Rated (ORNR/LSZH)</b> - OM4 - <a href="#">UJXQZQZTn</a> OM5 - <a href="#">UJVQZQZTn</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UQXVQVQPF8</a> OM5 - <a href="#">UQVQVQPF8</a>  <b>Dual-Rated (ORNR/LSZH)</b> - OM4 - <a href="#">URXVQVQPF8</a> OM5 - <a href="#">URVQVQPF8</a>	1x MPO12 UPC	MMA1T00-VS (Ethernet) MMA1T00-HS (InfiniBand)	1x 200Gb/s SR4

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Multi-mode Fiber OM4/OM5

**For 8 fiber systems** n = Number of fibers in trunk - Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192



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Interactive Content Menu											
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Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

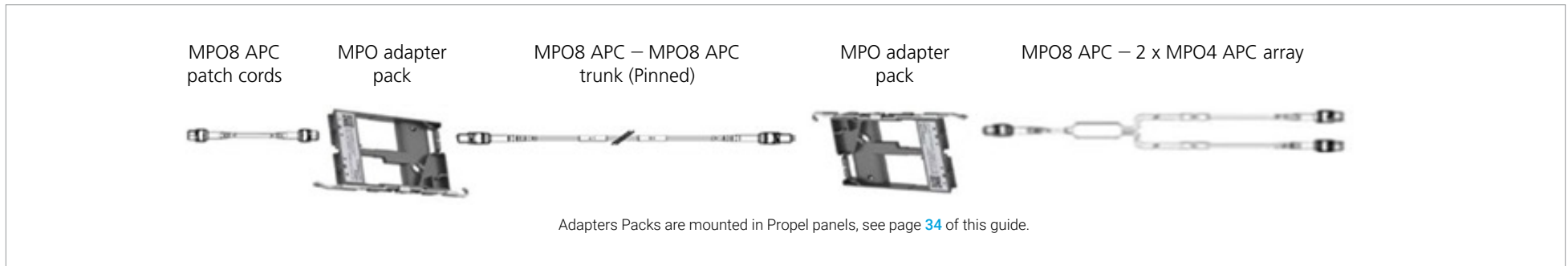
## Parallel-To-Parallel Optical Ports

End A					CommScope® Products					End B		
NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	Adapter Pack	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
MMA1Z00-NS400	400G - 2x 200G	OM4/OM5	1x MPO12 APC	50 m	<b>Plenum</b> OM4 - <a href="#">UQXQVQPF8</a> OM5 - <a href="#">UQVQVQPF8</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">URXQVQPF8</a> OM5 - <a href="#">URVQVQPF8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UGXQZQZT8</a> OM5 - <a href="#">UGVQZQZT8</a> <b>CPR B2<sub>CA</sub></b> OM4 - <a href="#">U3XQZQZTM</a> OM5 - <a href="#">U3VQZQZTM</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">UJXQZQZT8</a> OM5 - <a href="#">UJVQZQZT8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> OM4 - <a href="#">UQXQVBVF8</a> OM5 - <a href="#">UQVQVBVF8</a> <b>Dual-Rated (OFNR/LSZH)</b> OM4 - <a href="#">URXQVBVF8</a> OM5 - <a href="#">URVQVBVF8</a>	1x MPO4 APC	2x MMA1Z00-NS400	2x 200Gb/s SR2
MMS4X00-NS	400G - 2x200G	OS2	1x MPO12 APC	100 m	<b>Plenum</b> <a href="#">UQGQPQPF8</a> <b>Dual</b> <a href="#">URGQPQPF8</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> <a href="#">UGGQXQXTn</a> <b>CPR B2<sub>CA</sub></b> <a href="#">U3GQXQXTn</a> <b>Dual-Rated (OFNR/LSZH)</b> <a href="#">UJGQXQXTn</a>	<a href="#">PPL-AP-4-MPO-ALL-B</a>	<b>Plenum</b> <a href="#">UQGQPBPFF8</a> <b>Dual</b> <a href="#">URGQOBPF8</a>	2x MPO4 UPC	MMA1T00-VS (ENET only)	2x 200Gb/s DR2

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Multi-mode Fiber OM4/OM5  
 ■ Single-mode Fiber OS2

For 8 fiber systems n = Number of fibers in trunk - Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192



\* Detailed information about Propel polarity schemes can be found [here](#).

# Mesh Architectures

Risk-averse data center providers running mission-critical or possibly life-safety applications, or with limited onsite support, need to implement redundant networks to reduce the possibility of downtime. Implementing a mesh architecture can reduce the impact of port or switch failure while providing maximum native capacity between network layers.

In today's high-density data center networks, multi-pair transceivers provide higher data rates. These are typically 2, 4 or 8 pair applications, with 4 pair most common today. Each transmit/receive pair has the same data rate. For example: 400Gb/s is comprised of 4 x 100Gb/s pairs (lanes). Since they are common across a network, implementing those transceivers in a mesh design enables redundancy with optimal network performance and reduces the possibility of unplanned downtime.

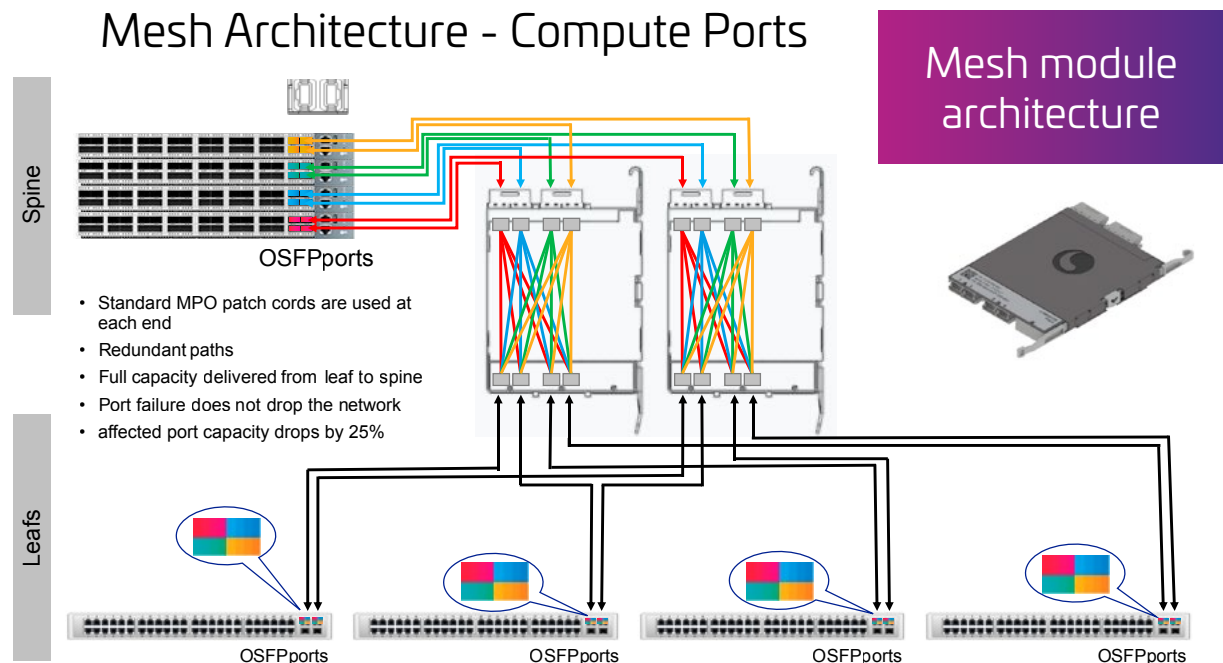
The mesh architecture provides full capacity between network layers by evenly distributing it across multiple physical paths. Uplink and downlink ports are grouped and connected using standard 4-pair (most common today), 8-pair (quickly emerging) or even 2-pair connections. A pair from each spine port is connected to each leaf port, as shown. The reference graphic can be 400Gb/s using 4 x 100Gb/s lanes. Each leaf switch receives 400Gb/s from the spine with 100Gb/s from each of the spine switches (shown with color coding). In practice, multiple ports would be used on each switch for higher capacity delivery.

If there is a switch or port failure, the network stays up. Traffic gets rerouted to the optimal physical path, and only the affected ports operate at a slightly reduced speed.

This architecture enables scheduled maintenance as needed until a qualified technician can remedy onsite. More information is available by contacting your local CommScope® technical team.

The values from a mesh architecture:

- Redundancy is simplified
- Patching complexity is reduced
- Space required compared to traditional breakouts is reduced
- Channel losses compared to traditional methods are reduced
- Cost of implementation is reduced



Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

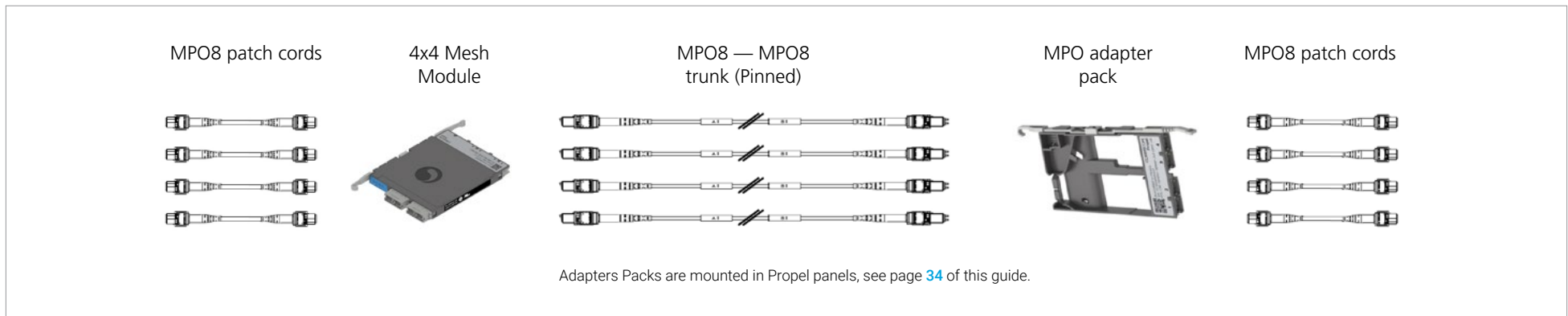
End A					CommScope® Products					End B		
NVIDIA Transceiver	Bandwidth	Fiber Type	Transceiver Interface	Reach	Array Base Code	4x4 Mesh Module	Trunk*	Adapter Pack	Array Base Code	Transceiver Interface	NVIDIA Transceiver	Bandwidth
MMS1V00-WM	1x 400Gb/s DR4	OS2	1x MPO12 APC	500 m	Plenum UJGQPQPF8	PPL-MM-8AU-8AP-SM-BEU	Plenum UGGQXQXTn	PPL-AP-4-MPO-ALL-B	Plenum UJGQPQPF8	1x MPO12 APC	MMS1V00-WM (500 m)	1x 400Gb/s DR4
					Dual-Rated (ORNR/LSZH) URGQPQPF8		CPR B2 <sup>CA</sup> U3GQXQXTn		Dual-Rated (ORNR/LSZH) URGQPQPF8	1x MPO12 APC	MMS4X00-NS400 (100 m)	1x 400Gb/s DR4
							Dual-Rated UJGQXQXTn			1x MPO12 APC	MMS1X00-NS400 (100 m)	1x 400Gb/s DR4

\* Trunk cables have a ruggedized sheath with a larger o/d, protecting the cables when dressed into pathways. Due to the number of cables required, network cabinets should be selected with sufficient vertical space to support AI builds (see reference design).

■ Single-mode OS2

y = Number of MPO Ports Per Module - Select 4, 8, or 12  
 n = Number of fibers in trunk - Select 8=8, R=16, F=24, S=32, H=48, U=64, K=72, L=96, M=144, N=192

Note: Adapters Packs and Mesh Modules are mounted in Propel panels, see page 34 of this guide

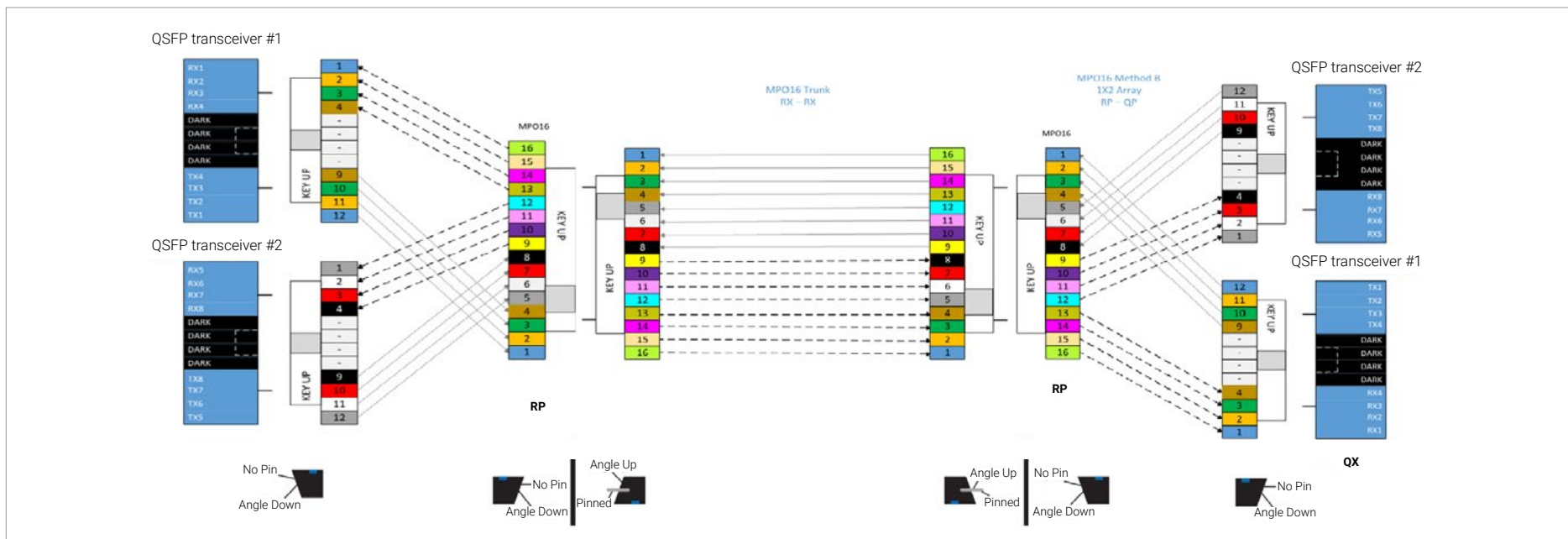


\* Detailed information about Propel polarity schemes can be found [here](#).

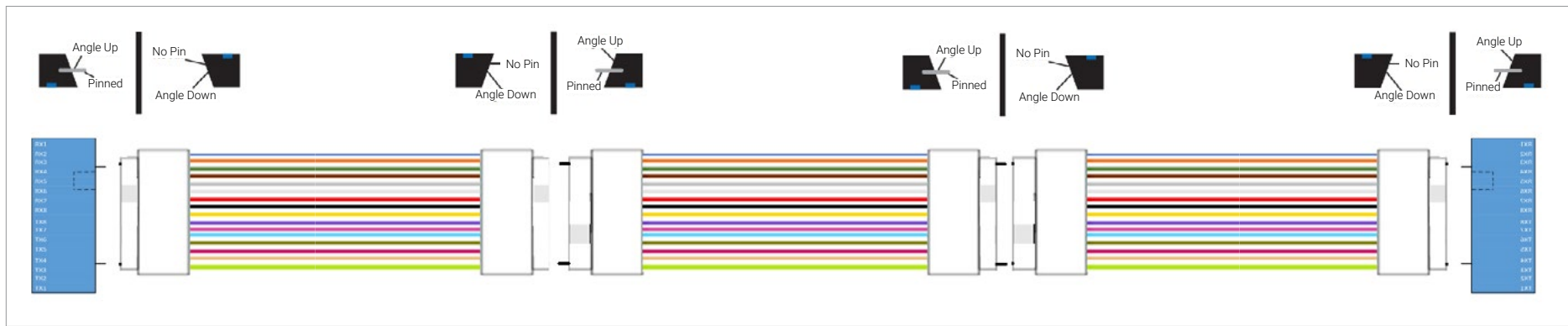
# Fiber Polarity Schemes



2x MPO8/12 APC to 2x MPO8/12 APC, using an MPO16 APC backbone trunk cable (See Page 17 for cabling and transceiver information).



1x MPO16 APC to 1x MPO16 APC, using an MPO16 APC backbone trunk cable (See Page 18 for cabling and transceiver information).



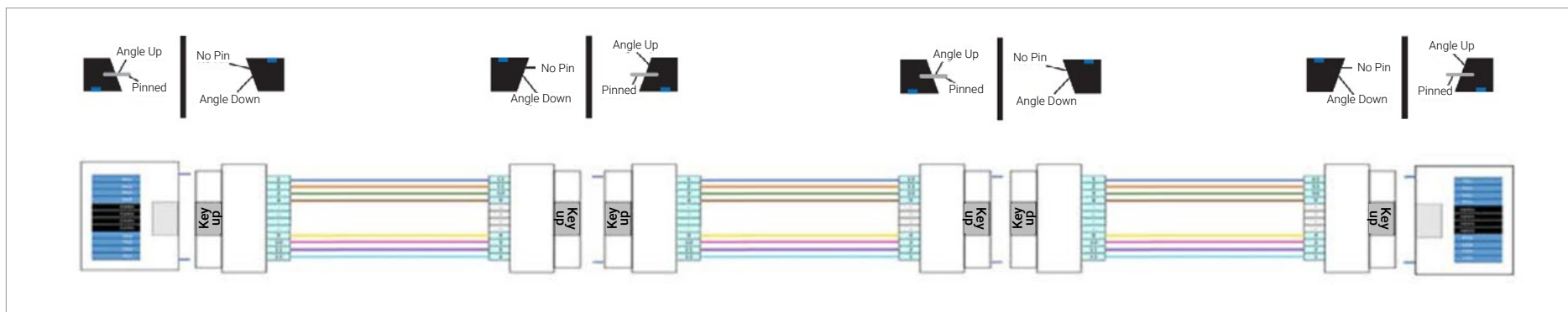
### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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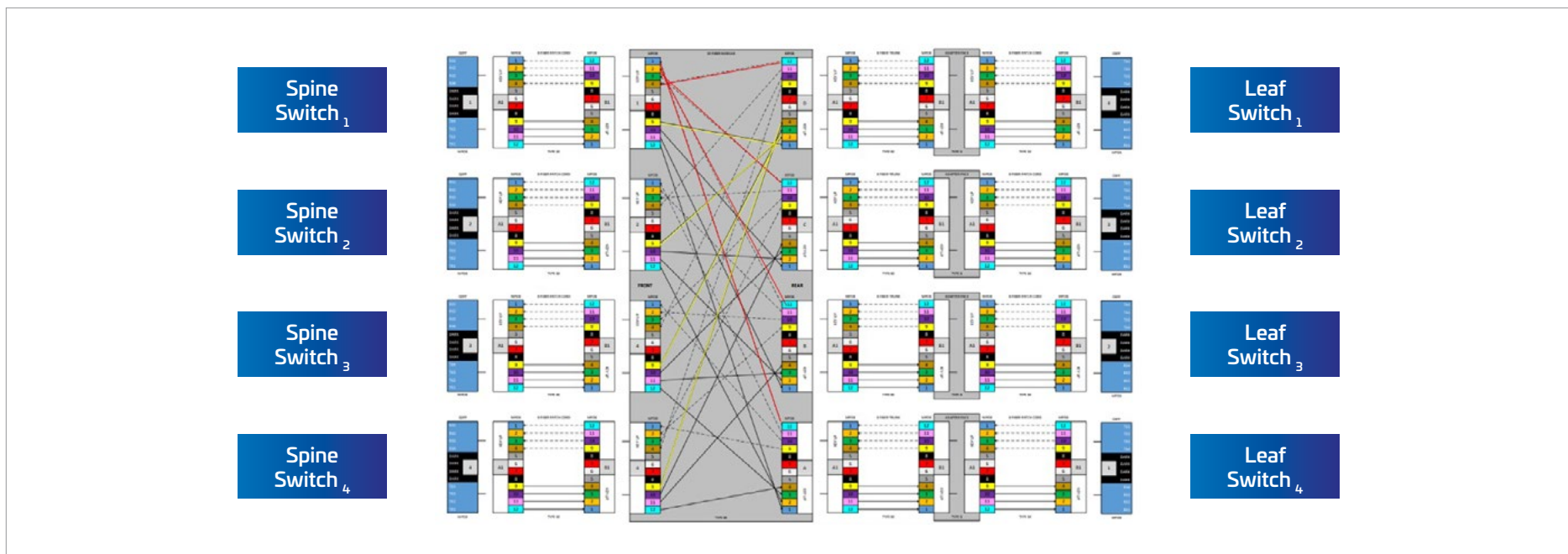
### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

1x MPO8/12 APC to 1x MPO8/12 APC, using an MPO8 APC backbone trunk cable (See Page 14 for cabling and transceiver information).



4 x 4 Mesh Module Polarity Scheme (see page 25 for cabling and transceiver information).



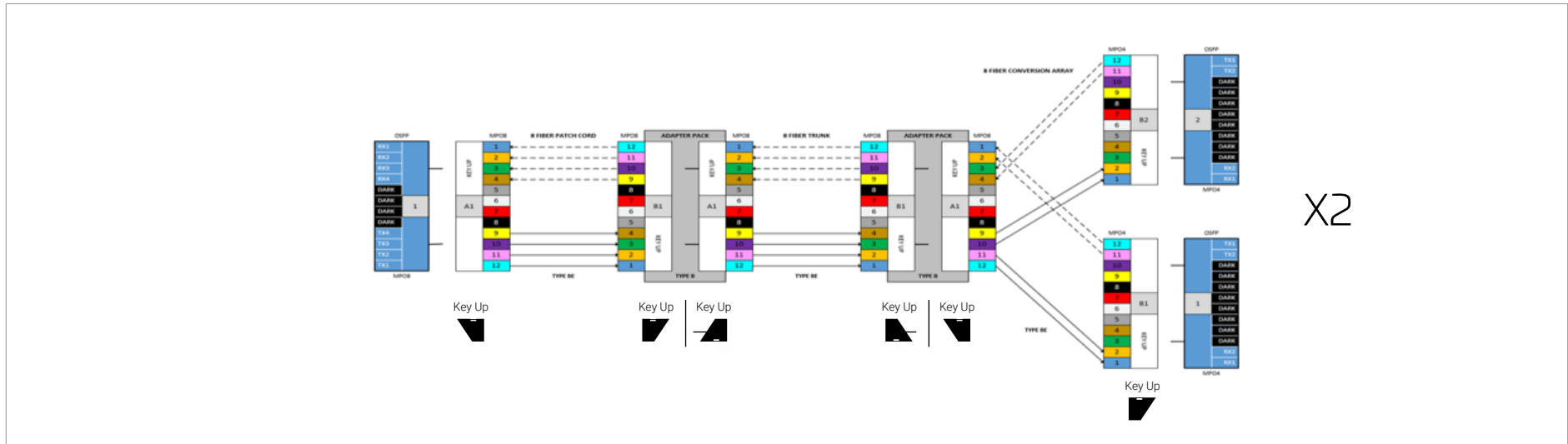
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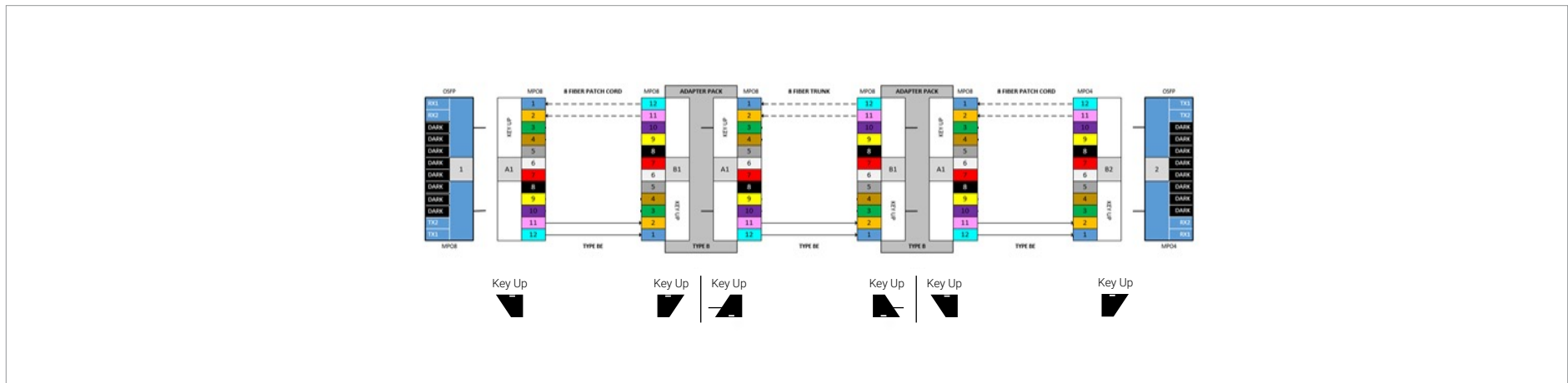
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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

2x MPO8/12 APC to 4x MPO8/12 UPC, using 2x MPO8 APC backbone trunk cables (See Page 20 for cabling and transceiver information).



1x MPO8/12 UPC to 1x MPO8/12 UPC, using an MPO8 APC backbone trunk cable (See Page 21 for cabling and transceiver information).



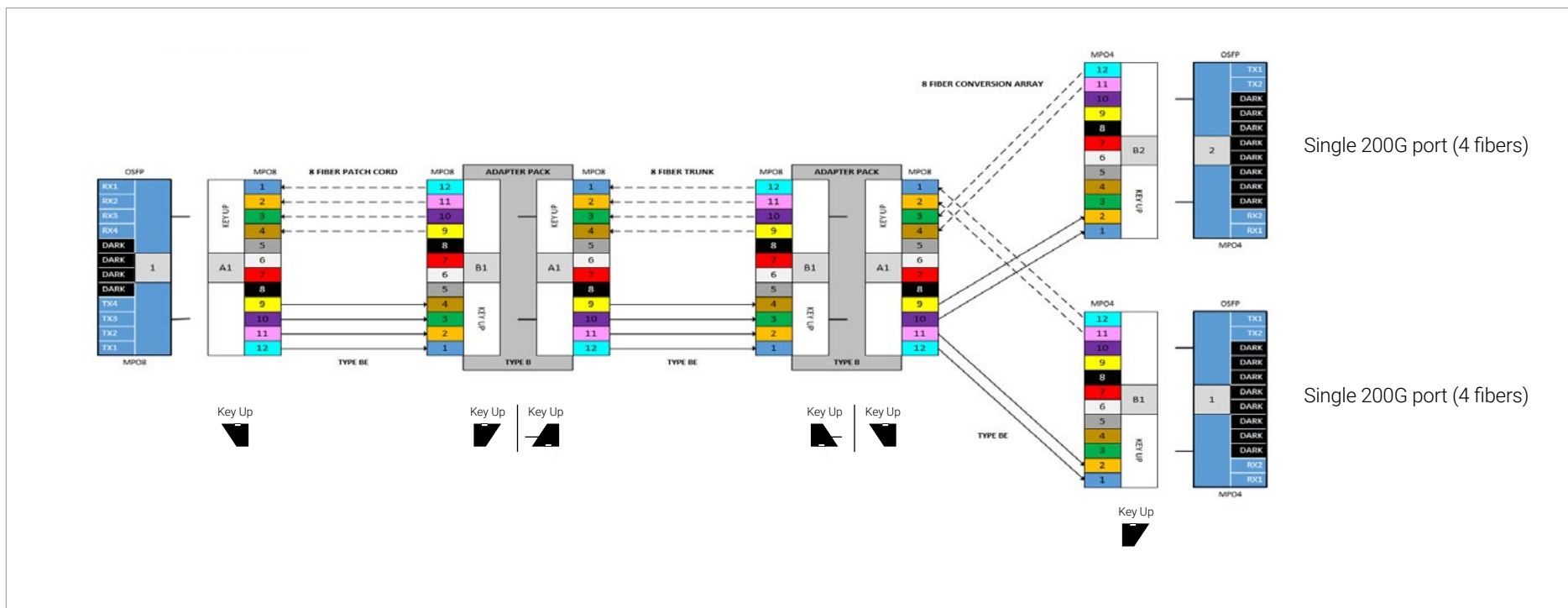
### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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1x MPO8/12 APC to 2x MPO4 UPC, using an MPO8 APC backbone trunk cable (See Page 22 for cabling and transceiver information).



### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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## Why is Ultra Low Loss Important for AI Networks?

Throughout this guide, you will find a variety of options for cabling implementation. In common, across each pre-terminated design, is CommScope® Ultra Low Loss (ULL) connector end-face and system performance. Regardless of your organization's data center needs, ULL assists migration to higher data-rate applications as needed. This level of performance provides longer distance support, additional connection flexibility, or both, in multi-mode OM5 and OM4, and single-mode. As your data center speeds grow beyond 10G to 100G, 400G and beyond, applications are more sensitive and fiber connector performance is critical. CommScope ULL delivers!

CommScope's ULL High Speed Migration portfolio uses industry standard Method B polarity, the simplest method for migration between duplex and parallel fiber cabling applications, along with CommScope Method B Enhanced polarity within the modules to simplify design, installation, and testing further.

### ULL - Ultra Low Loss Features

#### Method B Enhanced modules

- 24, 16, 12, or 8 fiber MPO rear connectors with duplex or MPO front
- No mixing or flipping of components needed to achieve polarity (Tx-Rx)
- Same module on each end of link – simplifies bill of material and designs
- Patch panel options to provide manageable high density for your environment

#### Pinned (male) MPO trunk cables

- Enable unpinned (female-female) patch cords throughout
- Simplifies installation and connections to active equipment

#### Single-mode and multi-mode cable options

- Support multi-wavelength and traditional applications
- Flexibility for your network architecture, TCO model, and network electronics choices

### Multi-Media Resources

- [Ultra low-loss fiber connectivity solutions: the best way to support higher speeds in your DC](#)
- [CommScope Method B Enhanced fiber polarity simplifies High-Speed Migration](#)
- [High-Speed Migration – Bandwidth without boundaries](#)

### Brochure

- [Data Center High-Speed Migration: Infrastructure issues, trends, drivers, and recommendations](#)

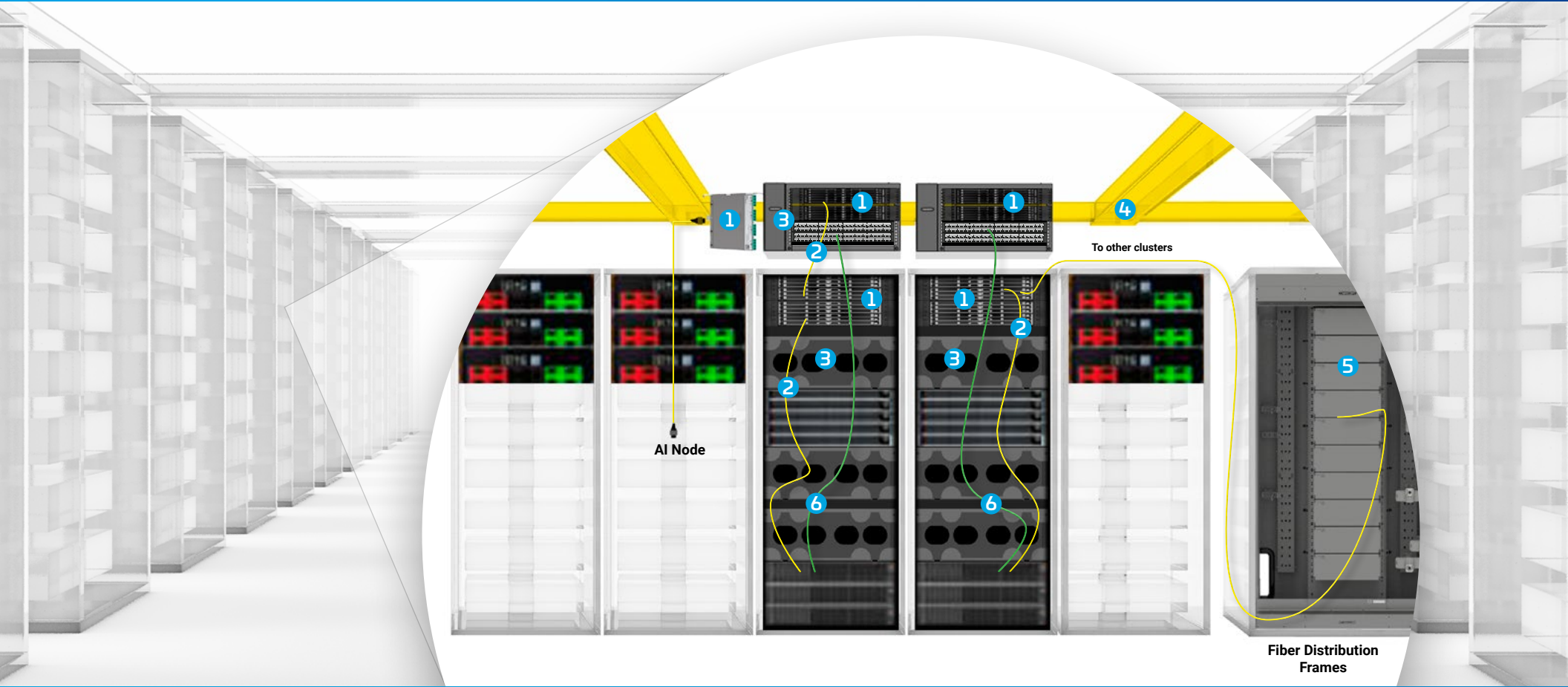
#### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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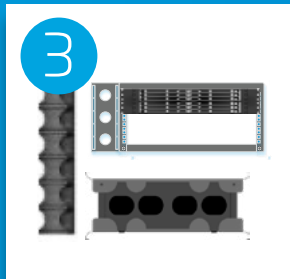




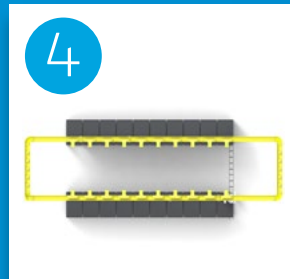
Propel Fiber Panels



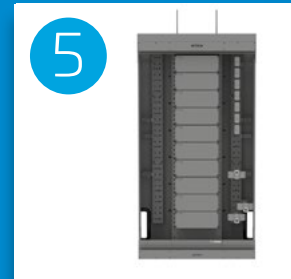
Propel Cable Assemblies



CommScope Cable Management Solutions



CommScope FiberGuide



CommScope Fiber Distribution Frames



SYSTIMAX Copper Cabling Solutions

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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# Propel™ Fiber Cabling Platform



Propel high-density panels are designed to adapt and grow as your needs change. Like all Propel components, the panels are completely modular and interchangeable. They support 16-fiber connectivity and up to 144 LC-connected fibers per RU—giving you the flexibility and density to smoothly advance to 400Gb, 800Gb, and beyond.

Propel panels incorporate unique design features that make them faster to deploy and easier to manage than older-generation panels. For example, panel blades can be removed with one hand for easier maintenance and changes by a single technician. When inserted, the blades lock in place on both sides to provide more secure patching. A re-designed rear cable management system allows more cable to be securely stored and attached.

At the same time, each panel is highly versatile. Module and adapter pack sizes can be scaled or mixed in each panel or blade.

Material ID	Product Number	Description	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Weight (lbs/kg)	Density
<a href="#">760252002</a>	PPL-1U	Propel 1RU sliding panel	1.75/44	19/483	18.52/470	11.7/5.3	72 duplex LC, 72 MPO, 144 SN
<a href="#">760252003</a>	PPL-2U	Propel 2RU sliding panel	3.50/89	19/483	18.52/470	17.3/7.9	144 duplex LC, 144 MPO, 288 SN
<a href="#">760252004</a>	PPL-4U	Propel 4RU sliding panel	7.00/178	19/483	18.52/470	30.5/13.8	288 duplex LC, 288 MPO, 576 SN
<a href="#">760255953</a>	PPL-1U-W	PPL-1U Propel 1RU white sliding panel	1.75/44	19/483	18.52/470	11.7/5.3	72 duplex LC, 72 MPO, 144 SN
<a href="#">760255954</a>	PPL-2U-W	PPL-2U Propel 2RU white sliding panel	3.50/89	19/483	18.52/470	17.3/7.9	144 duplex LC, 144 MPO, 288 SN
<a href="#">760255955</a>	PPL-4U-W	PPL-4U Propel 4RU white sliding panel	7.00/178	19/483	18.52/470	30.5/13.8	288 duplex LC, 288 MPO, 576 SN



### Modules and adapter packs per blade

Product Number	8-fiber modules/adapter packs	12-fiber modules/adapter packs	16-fiber modules/adapter packs	24-fiber modules/adapter packs
PPL-1U	Up to 6 per blade/18 per panel	Up to 4 per blade/12 per panel	Up to 3 per blade/9 per panel	Up to 2 per blade/6 per panel
PPL-2U	Up to 6 per blade/36 per panel	Up to 4 per blade/24 per panel	Up to 3 per blade/18 per panel	Up to 2 per blade/12 per panel
PPL-4U	Up to 6 per blade/72 per panel	Up to 4 per blade/48 per panel	Up to 3 per blade/36 per panel	Up to 2 per blade/24 per panel



#### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

## Propel ULL Trunk Cables

Propel trunk cables are supplied with a fastening clip for panel mounting

Propel pulling elements (pulling grip) enable a pulling force of up to 100 lbs (45 kg)

Pre-assembled and tested with test protocol

Polarity method: Method B Enhanced



## MPO8 Trunk Cables

1 U	2 G	3 X	4 Q	5 X	6 Q	7 X	8 T	9 8	10 -	11 M	12 K	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> 3 Trunk, LSZH CPR B2ca G Trunk, Plenum J Trunk, Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (A2)	<b>Connector 1</b> QX 8f MM UPC MPO (Pinned) QZ 8f MPO MM APC (Pinned) QX 8f MPO SM APC (Pinned)		<b>Connector 2</b> QX 8f MM UPC MPO (Pinned) QZ 8f MPO MM APC (Pinned) QX 8f MPO SM APC (Pinned)		<b>Cordage size</b> T 8f PmP Trunk, 2.0mm SU	<b>Fiber count</b> 8 8-fiber R 16-fiber S 32-fiber H 48-fiber U 64-fiber L 96-fiber Q 128-fiber M 144-fiber N 192-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow OS2	<b>Breakout length</b> J 22" Break Propel No Pull <b>Grip</b> K 22" Break Propel Pull Grip	<b>UOM</b> F Feet M Meter	<b>Length</b> 010-999 ft 003-305 m	

## Propel ULL Array Cables

MPO/LC Uniboot breakout cable with 2 mm breakout construction for mechanical strength

Pre-assembled and tested with test protocol



## MPO8 MPO/LC Array Cords

1 U	2 Q	3 X	4 Q	5 P	6 L	7 U	8 F	9 8	10 -	11 M	12 D	13 F	14-16 003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> Q Plenum Array R Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (A2)	<b>Connector 1</b> QP 8f MPO MM UPC (Non-Pinned) QX 8f MPO MM UPC (Pinned) QV 8f MPO MM APC (Non-Pinned) QZ 8f MPO MM APC (Pinned) QP 8f MPO MM APC (Non-Pinned) QX 8f MPO SM APC (Pinned)		<b>Connector 2</b> LU LC Uniboot	<b>Cordage size</b> F 8f PmP Array Cord, 2mm	<b>Fiber count</b> 8 8-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow OS2	<b>Breakout length</b> D 12" E 24" H 48" L 72"	<b>UOM</b> F Feet M Meter	<b>Length</b> 12 in 3-999 ft 24 in 4-999 ft 48 in 6-999 ft 72 in 8-999 ft 12 in 1-305 m 24-48 in 2-305 m 72 in 3-305 m		

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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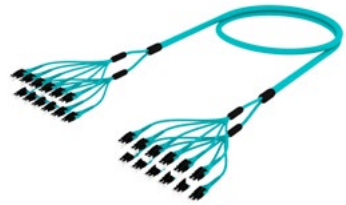
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

**ULL LC-LC distribution cable**

Pre-assembled LC/LC distribution cables with test protocol

LC Duplex Uniboot connectors for installations with high packing density

Possibility of polarity change (A/B -> A/A)



## SYSTIMAX ULL Ruggedized LC/LC Distribution Cable

1 U	2 Q	3 X	4 M	5 P	6 L	7 C	8 G	9 D	10 -	11 M	12 E	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> N LSZH array Dca	<b>Fiber type</b> G TeraSPEED single-mode (A2) X LazrSPEED 550 multi-mode V LazrSPEED OM5 WB multi-mode	<b>Connector 1</b> LU LC Uniboot	<b>Connector 2</b> LU LC Uniboot	<b>Cordage size</b> C 12-fiber PmP		<b>Fiber count for MX/MP</b> D 12-fiber F 24-fiber H 48-fiber K 72-fiber L 96-fiber M 144-fiber	<b>Color</b> M Aqua N Lime green J Yellow  LazrSPEED OM4 standard is aqua LazrSPEED OM5 standard is lime green  TeraSPEED single-mode standard is yellow	<b>Breakout length</b> D 12 in breakout, no gland E 24 in breakout, no gland H 48 in breakout, no gland L 72 in breakout, no gland P 96 in breakout, no gland		<b>Unit of measure</b> F Feet M Meter	<b>Length minimal length based on breakout</b> 12 in 3-999 ft 24 in 4-999 ft 48 in 6-999 ft 72 in 8-999 ft 96 in 10-999 ft  12 in 1-305 m 24-48 in 2-305 m 72 in 3-305 m 96 in 4-305 m  Other breakout lengths available upon request	

## MPO8 Patch Cords

1 U	2 Q	3 X	4 Q	5 P	6 Q	7 P	8 F	9 8	10 -	11 M	12 A	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> Q Plenum Array R Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (A2)	<b>Connector 1</b> QP 8f MM UPC MPO (Non-Pinned) QV 8f MPO MM APC (Non-Pinned) QP 8f MPO SM APC (Non-Pinned)	<b>Connector 2</b> QP 8f MM UPC MPO (Non-Pinned) QV 8f MPO MM APC (Non-Pinned) QP 8f MPO SM APC (Non-Pinned)	<b>Cordage size</b> F 8f PmP Array Cord, 2mm		<b>Fiber count</b> 8 8-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow OS2	<b>Breakout length</b> A No gland		<b>UOM</b> F Feet M Meter	<b>Length</b> 003-999 ft 001-305 m	

## SYSTIMAX ULL Patch Cords

Description	Patch Cord Type	Application	Fiber Type	Description Code	Part Number
Ultra Low Loss (ULL) LazrSPEED® 550 OM4 LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 mm Duplex, LSZH/Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OM4	UFXLULUK2	<a href="#">UFXLULUK2</a>
Ultra Low Loss (ULL) LazrSPEED 550 WideBand OM5 LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 mm Duplex, LSZH/ Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OM5	UFVLULUK2	<a href="#">UFVLULUK2</a>
Ultra Low Loss (ULL) TeraSpeed® LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 mm Duplex, LSZH/ Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OS2	UFGLULUK2	<a href="#">UFGLULUK2</a>
Ultra Low Loss (ULL) LazrSPEED 550 OM4 LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OM4	UFXLULU62	<a href="#">UFXLULU62</a>
Ultra Low Loss (ULL) LazrSPEED 550 WideBand OM5 LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OM5	UFVLULU62	<a href="#">UFVLULU62</a>
Ultra Low Loss (ULL) TeraSpeed LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OS2	UFGLULU62	<a href="#">UFGLULU62</a>

### Interactive Content Menu

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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

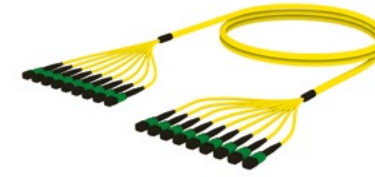
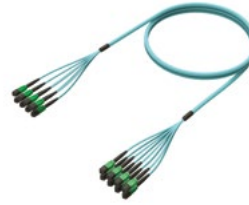
## Propel ULL Trunk Cables

Propel trunk cables are supplied with a fastening clip for panel mounting

Propel pulling elements (pulling grip) enable a pulling force of up to 100 lbs (45 kg)

Pre-assembled and tested with test protocol

Polarity method: Method B Enhanced



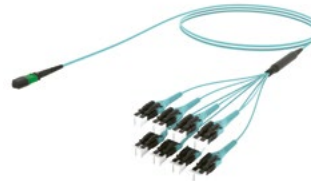
## MPO16 APC Trunk Cables

1 U	2 G	3 X	4 R	5 Z	6 R	7 Z	8 8	9 R	10 -	11 M	12 J	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> 3 Trunk, BZ <sub>CA</sub> Trunk, Plenum G Trunk, Plenum J Trunk, Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (AZ)	<b>Connector 1</b> RZ 16f MPO MM APC (Pinned) RX 16f MPO SM APC (Pinned)		<b>Connector 2</b> RZ 16f MPO MM APC (Pinned) UC unconnectorized (Stub) RX 16f MPO SM APC (Pinned)		<b>Cordage size</b> 8 16f PmP Trunk, 3.0mm SU	<b>Fiber count</b> R 16-fiber S 32-fiber H 48-fiber U 64-fiber L 96-fiber Q 128-fiber M 144-fiber N 192-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J SM Yellow		<b>Breakout length</b> J 22" Break Propel No Pull  <b>Grip</b> K 22" Break Propel Pull Grip	<b>UOM</b> F Feet M Meter	<b>Length</b> 010-999 ft 003-305 m

## Propel ULL Array Cables

MPO/LC Uniboot breakout cable with 2 mm breakout construction for mechanical strength

Pre-assembled and tested with test protocol



## MPO16 APC/LC Duplex UPC Array Cords

1 U	2 Q	3 X	4 R	5 V	6 L	7 U	8 7	9 R	10 -	11 M	12 D	13 F	14-16 003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> Q Plenum Array R Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (AZ)	<b>Connector 1</b> RV 16f MPO MM APC (Non-Pinned) RZ 16f MPO MM APC (Pinned) RP 16f MPO SM APC (Non-Pinned) RX 16f MPO SM APC (Pinned)		<b>Connector 2</b> LU LC Uniboot		<b>Cordage size</b> 7 16f PmP Array Cord, 3mm	<b>Fiber count</b> R 16-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow		<b>Breakout length</b> D 12" E 24" H 48" L 72"	<b>UOM</b> F Feet M Meter	<b>Length</b> 12 in 3-999 ft 24 in 4-999 ft 48 in 6-999 ft 72 in 8-999 ft 12 in 1-305 m 24-48 in 2-305 m 72 in 3-305 m

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

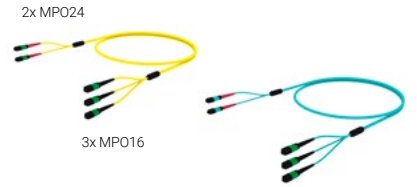
## MP016 1x2 Conversion Array Cords

1	2	3	4	5	6	7	8	9	10	11	12	13	14-16
U	Q	X	R	V	Q	P	7	R	-	M	D	F	003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> R Dual-Rated (OFNR/LSZH) Q Plenum Array	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (A2)	<b>Connector 1</b> RV 16f MPO MM APC (Non-Pinned) RP 16f MPO SM APC (Non-Pinned)	<b>Connector 2</b> QP 8f MPO MM UPC (Non-Pinned) QV 8f MPO MM APC (Non-Pinned) QP 8f MPO SM APC (Non-Pinned)	<b>Cordage size</b> 7 16f PmP Array Cord, 3mm	<b>Fiber count</b> R 16-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow OS2	<b>Breakout length</b> D 12" E 24" H 48" L 72"	<b>UOM</b> F Feet M Meter	<b>Length</b> 12 in 3-999 ft 24 in 4-999 ft 48 in 6-999 ft 72 in 8-999 ft 12 in 1-305 m 24-48 in 2-305 m 72 in 3-305 m			



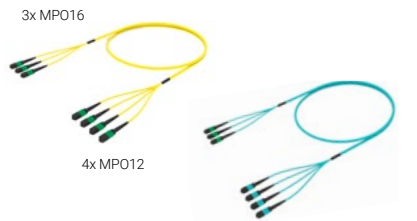
## MP016 2x3 Conversion Array Cords

1	2	3	4	5	6	7	8	9	10	11	12	13	14-16
U	Q	X	2	P	R	V	B	H	-	M	D	F	003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> R Dual-Rated (OFNR/LSZH) Q Plenum Array	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Teraspeed SM 6.657 A2	<b>Connector 1</b> 2P 24f MPO MM (Non-Pinned) 2X 24f MPO MM (Pinned)	<b>Connector 2</b> RV 16f MPO APC (Non-Pinned)	<b>Cordage size</b> B 24f PmP Array Cord, 3.6mm	<b>Fiber count</b> H 48-fiber	<b>Color</b> M Aqua N Lime green J Yellow	<b>Breakout length</b> D 12" No Gland E 24" No Gland H 48" No Gland L 72" No Gland	<b>UOM</b> F Feet M Meter	<b>Length</b> 004-999 ft 002-305 m			



## MP016 3x4 Conversion Array Cords

1	2	3	4	5	6	7	8	9	10	11	12	13	14-16
U	Q	X	R	V	M	P	A	H	-	M	D	F	003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> R Dual-Rated (OFNR/LSZH) Q Plenum Array	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Teraspeed SM 6.657 A2	<b>Connector 1</b> RV 16f MPO MM APC (Non-Pinned) RP 16f MPO SM APC (Non-Pinned)	<b>Connector 2</b> MP 12f MPO MM UPC (Non-Pinned) MX 12f MPO (Pinned)	<b>Cordage size</b> A 12f PmP Array Cord, 3mm	<b>Fiber count</b> H 48-fiber	<b>Color</b> M Aqua N Lime green	<b>Breakout length</b> D 12" No Gland E 24" No Gland H 48" No Gland L 72" No Gland	<b>UOM</b> F Feet M Meter	<b>Length</b> 004-999 ft 002-305 m			



Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

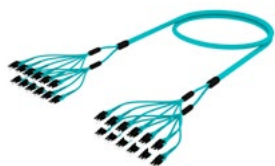
Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

**ULL LC-LC distribution cable**

Pre-assembled LC/LC distribution cables with test protocol

LC Duplex Uniboot connectors for installations with high packing density

Possibility of polarity change (A/B -> A/A)



## SYSTIMAX ULL ruggedized LC/LC distribution cable

1 U	2 Q	3 X	4 M	5 P	6 L	7 C	8 G	9 D	10 -	11 M	12 E	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> N LSZH array Dca	<b>Fiber type</b> G TeraSPEED single-mode (A2) X LazrSPEED 550 multi-mode V LazrSPEED OM5 WB multi-mode	<b>Connector 1</b> LU LC Uniboot	<b>Connector 2</b> LU LC Uniboot	<b>Cordage size</b> C 12-fiber PmP	<b>Fiber count for MX/MP</b> D 12-fiber F 24-fiber H 48-fiber K 72-fiber L 96-fiber M 144-fiber	<b>Color</b> M Aqua N Lime green J Yellow  LazrSPEED OM4 standard is aqua  LazrSPEED OM5 standard is lime green  TeraSPEED single-mode standard is yellow	<b>Breakout length</b> D 12 in breakout, no gland E 24 in breakout, no gland H 48 in breakout, no gland L 72 in breakout, no gland P 96 in breakout, no gland	<b>Unit of measure</b> F Feet M Meter	<b>Length minimal length based on breakout</b> 12 in 3-999 ft 24 in 4-999 ft 48 in 6-999 ft 72 in 8-999 ft 96 in 10-999 ft  12 in 1-305 m 24-48 in 2-305 m 72 in 3-305 m 96 in 4-305 m  Other breakout lengths available upon request			

## MPO16 APC Patch Cords

1 U	2 Q	3 X	4 R	5 V	6 R	7 V	8 7	9 R	10 -	11 M	12 A	13 F	14-16 003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable family</b> R Dual-Rated (OFNR/LSZH) Q Plenum Array	<b>Fiber type</b> X OM4 multi-mode V OM5 WB multi-mode G Single-mode (A2)	<b>Connector 1</b> RV 16f MPO MM APC (Non-Pinned) RP 16f MPO SM APC (Non-Pinned)	<b>Connector 2</b> RV 16f MPO MM APC (Non-Pinned) RP 16f MPO SM APC (Non-Pinned)	<b>Cordage size</b> 7 16f PmP Array Cord, 3mm	<b>Fiber count</b> R 16-fiber	<b>Color</b> M OM4 Aqua N OM5 Lime green J Yellow	<b>Breakout length</b> A No gland	<b>UOM</b> F Feet M Meter	<b>Length</b> 003-999 ft 001-305 m			

## SYSTIMAX ULL Uniboot Patch Cords

Description	Patch Cord Type	Application	Fiber Type	Part Number
Ultra Low Loss (ULL) LazrSPEED® 550 OM4 LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 mm Duplex, LSZH/Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OM4	<a href="#">UFXLULUK2</a>
Ultra Low Loss (ULL) LazrSPEED 550 WideBand OM5 LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 m Duplex, LSZH/ Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OM5	<a href="#">UFVLULUK2</a>
Ultra Low Loss (ULL) TeraSpeed® LC Uniboot to LC Uniboot, Fiber Patch Cord, 1.5 m Duplex, LSZH/ Riser	LC-D to LC-D, 1.5 mm diameter, LSZH/Riser	Distribution/XC	OS2	<a href="#">UFGLULUK2</a>
Ultra Low Loss (ULL) LazrSPEED 550 OM4 LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OM4	<a href="#">UFXLULU62</a>
Ultra Low Loss (ULL) LazrSPEED 550 OWideBand OM5 LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OM5	<a href="#">UFVLULU62</a>
Ultra Low Loss (ULL) TeraSpeed LC Uniboot to LC Uniboot, Fiber Patch Cord, 2.0 mm Duplex, LSZH/Riser	LC-D to LC-D, 2 mm diameter, LSZH/Riser	Equipment Area	OS2	<a href="#">UFGLULU62</a>

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

## SN Modules

Description	Fiber Type	Fiber Count	Front interface	Rear interface	Description Code	Part Number
Propel ULL distribution module, Method B Enhanced, 18 per 1 RU	OS2	16	8 SNs with dust caps	2 MPO8/APC non-pinned with internal shutters	PPL-DM-8AU-8SN-SM-BEU	<a href="#">760252342</a>
Propel ULL distribution module, Method B Enhanced, 18 per 1 RU	OS2	16	8 SNs with dust caps	1 MPO16/APC non-pinned with dust cap	PPL-DM-16AU-8SN-SM-BEU	<a href="#">760252355</a>



## MPO16 Single-mode APC Trunk Cables

1	2	3	4	5	6	7	8	9	10	11	12	13	14-16
U	G	X	R	Z	R	Z	8	R	-	M	J	F	010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> 3 Trunk, B2 <sub>CA</sub> G Trunk, Plenum J Trunk, Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> G Single-mode (AZ)	<b>Connector 1</b> RX 16f MPO SM APC (Pinned)		<b>Connector 2</b> RX 16f MPO SM APC (Pinned)		<b>Cordage size</b> 8 16f PmP Trunk, 3.0 SU	<b>Fiber count</b> R 16-fiber S 32-fiber H 48-fiber U 64-fiber L 96-fiber Q 128-fiber M 144-fiber N 192-fiber		<b>Color</b> J SM Yellow	<b>Breakout length</b> J 22" Break Propel No Pull Grip K 22" Break Propel Pull Grip	<b>Unit of measure</b> F Feet M Meter	<b>Length</b> 010-999 ft 003-305 m



## MPO8 Single-mode Trunk Cables

1	2	3	4	5	6	7	8	9	10	11	12	13	14-16
U	G	X	Q	X	Q	X	T	8	-	M	K	F	010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> 3 Trunk, B2 <sub>CA</sub> G Trunk, Plenum J Trunk, Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> G Single-mode (AZ)	<b>Connector 1</b> QX 8f MPO SM APC (Pinned)		<b>Connector 2</b> QX 8f MPO SM APC (Pinned)		<b>Cordage size</b> T 8f PmP Trunk, 2.0mm SU	<b>Fiber count</b> 8 8-fiber R 16-fiber S 32-fiber H 48-fiber U 64-fiber L 96-fiber Q 128-fiber M 144-fiber N 192-fiber		<b>Color</b> J Yellow OS2	<b>Breakout length</b> J 22" Break Propel No Pull Grip K 22" Break Propel Pull Grip	<b>Unit of measure</b> F Feet M Meter	<b>Length</b> 010-999 ft 003-305 m

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management





## SN Single-mode Arrays

1 U	2 L	3 G	4 S	5 N	6 S	7 N	8 T	9 8	10 -	11 J	12 J	13 F	14-16 010
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> L Rugged F/O-Plenum N Rugged F/O-LSZH	<b>Fiber type</b> G Single-mode	<b>Connector 1</b> SN SN		<b>Connector 2</b> SN SN LU LC Uniboot		<b>Cordage size</b> T 8f PmP Trunk, 2.0mm SU	<b>Fiber count</b> 8 8-fiber R 16-fiber S 32-fiber K 72-fiber		<b>Color</b> J Yellow	<b>Breakout length</b> E 24" Both No Gland F 24" Both with Gland H 48" Both No Gland J 48" Both with Glad L 72" Both No Gland M 72" Both With Gland	<b>Unit of measure</b> F Feet M Meter	<b>Length</b> 008-999 ft 003-999 m



## SN Single-mode Patch Cords

1 U	2 D	3 G	4 S	5 N	6 S	7 N	8 K	9 2	10 -	11 J	12 X	13 F	14-16 003
<b>Construction type</b> U Ultra-Low Loss	<b>Cable Family</b> D Plenum F Dual-Rated (OFNR/LSZH)	<b>Fiber type</b> G Single-mode	<b>Connector 1</b> SN SN		<b>Connector 2</b> SN SN LU LC Uniboot		<b>Cordage size</b> K 1.5 mm	<b>Fiber count</b> 2 2-fiber	<b>Color</b> J Yellow	<b>Breakout length</b> X No Breakout	<b>Unit of measure</b> F Feet M Meter	<b>Length</b> 001-999 ft 001-999 m	

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# Cable Management

Cable Management	Description Code	Part Number
Overlength storage, 5U		<a href="#">1671711-1</a>
Horizontal cable trough, 2U, single sided	HKT-19-SS-2U	<a href="#">760072959</a>
Horizontal cable trough, 3U, single sided	HKT-19-SS-3U	<a href="#">760072967</a>
Cable Manager 1U		<a href="#">1671495-1</a>
Cable Manager 2U		<a href="#">1671495-2</a>
Cable Manager 4U		<a href="#">1671495-4</a>
Cable Manager 6U		<a href="#">1671495-6</a>
Cable Manager 15U		<a href="#">1-1671495-5</a>
Filler/Blank Panel, 1U x 19 in, Solid, Black	FPANEL-19-1U	<a href="#">760162065</a>
1U Patch cord Management – D ring style	HCM-19-SS-1U	<a href="#">760038240</a>
2U Patch cord Management – D ring Style	HCM-19-SS-2U	<a href="#">760038257</a>
Horizontal Trough Kit, 1 RU, 19 in, single sided	HTK-19-SS-1U	<a href="#">760072942</a>
Horizontal Trough Kit, 2 RU, 19 in, single sided	HTK-19-SS-2U	<a href="#">760072959</a>
Horizontal Trough Kit, 3 RU, 19 in, single sided	HTK-19-SS-3U	<a href="#">760072967</a>



Blanking Panels	Description Code	Part Number
Blanking Panel, 1U, Black	CPP-FPANEL-19-1U	<a href="#">760162065</a>
Blanking Panel, 2U, Black	CPP-FPANEL-19-2U	<a href="#">760162073</a>
Blanking Panel, 3U, Black	CPP-FPANEL-19-3U	<a href="#">760162081</a>

## VERTICAL CABLE MANAGERS (VCM) OVERHEAD

Material ID	Catalog number	Description
<a href="#">760158592</a>	OVRHDRACKVCM	3 in (76 mm) Channel x 9.4 in (239 mm) H – 19 in (482.6 mm) Overhead Patch Panel Rack (4U) 3/8 Sq Punch, with Mini Vertical Cable Management, Black
<a href="#">760169599</a>	OVRHDRACKVCM6	3 in (76 mm) Channel x 12.9 in (327.66 mm) H – 19 in (482.6 mm) Overhead Patch Panel Rack (6U) 3/8 Sq Punch, with Mini Vertical Cable Management, Black
<a href="#">760169607</a>	OVRHDVCM6U	Mini Vertical Cable Management for Overhead Patch Panel Rack, 6U, black
<a href="#">760164061</a>	OVRHDVCM4U	Mini Vertical Cable Management for Overhead Patch Panel Rack, 4U, black
<a href="#">760169581</a>	OVRHDRACK6U	3 in (76 mm) Channel x 9.5 in (239 mm) H – 19 in (482.6 mm) Overhead Patch Panel Rack (6U) 3/8 Sq Punch, Black
<a href="#">760157800</a>	OVRHDRACK4U	3 in (76 mm) Channel x 9.4 in (239 mm) H – 19 in (482.6 mm) Overhead Patch Panel Rack (4U) 3/8 Sq Punch, Black







### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# SYSTIMAX<sup>®</sup> Copper Cabling Solutions

Description	Part Number	
M2400 1U Modular Panel, 24 port (MGS600 / MGS400 / UNJ10GT / UNJ10G / UNJ600 / UNJ500 ), Black	<a href="#">760118323</a>   <b>M2400-1U-GS</b>	
M4800 1U Modular Panel, 48 port (MGS600 / MGS400 / UNJ10GT / UNJ10G / UNJ600 / UNJ500), Black	<a href="#">760105429</a>   <b>M4800-1U-GS</b>	
M4800 Blank Kit, Black (50 ea/pkg)	<a href="#">760193409</a>   <b>M4800 Blank Kit</b>	
GigaSPEED X10D® MGS600 to MGS600 on 1091B Cable Pre-terminated Cord Solid	White – <a href="#">CPCUUM2-88Mxxx</a> Gray – <a href="#">CPCUUM2-3CMxxx</a> Light Blue – <a href="#">CPCUUM2-2ZMxxx</a>	 <p>Additional Color and Configuration options available with InstaPATCH® Cu connectivity system</p>
GigaSPEED X10D MGS600 to MGS600 on 2091B Plenum Cable Pre-terminated Cord Solid	White – <a href="#">CPCUUO2-88Mxxx</a> Gray – <a href="#">CPCUUO2-3CMxxx</a> Light Blue – <a href="#">CPCUUO2-2ZMxxx</a>	
GigaSPEED X10D MGS600 to MGS600 on 3091B Low Smoke Zero Halogen Cable Pre-terminated Cord Solid	White – <a href="#">CPCUW2-88Mxxx</a> Gray – <a href="#">CPCUW2-3CMxxx</a> Light Blue – <a href="#">CPCUW2-2ZMxxx</a>	
MiNo6A Cat 6A U/UTP Reduced Diameter RJ45 Patch Cord, LS-CM Dual Rated	White – <a href="#">CO199K2-08Mxxx</a> Gray – <a href="#">CO199K2-03Mxxx</a> Light Blue – <a href="#">CO199K2-02Mxxx</a>	

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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# FiberGuide<sup>®</sup> System

A FiberGuide system in a Gen AI enabled data center is an essential system. Why? Because the power required by Generative AI operations does not match the sq meter/sq foot power and cooling systems that are supplied by a traditional data center, thus leading to highly distributed switching layers. Plus, today AI Nodes are installed into cabinets that are constructed offsite, meaning that they are built separately to the Data Center (DC) backbone, and then simply rack-and-rolled into the required position on the DC floor.

The FiberGuide system offers a number of benefits to support this shift in DC design thinking. Firstly, in a complex build environment, it offers a dedicated pathway for high-speed optical fiber cabling. Secondly, it offers physical protection to the optical fiber as it transitions between the now highly disaggregated switch layers located in different areas of the DC (Figure 1). Finally, the FiberGuide system offers a perfect point to handoff backbone cabling to a demarcation point for the backbone cabling, in readiness for the rack-and-roll cabinets to quickly and simply be patched (Figure 2).

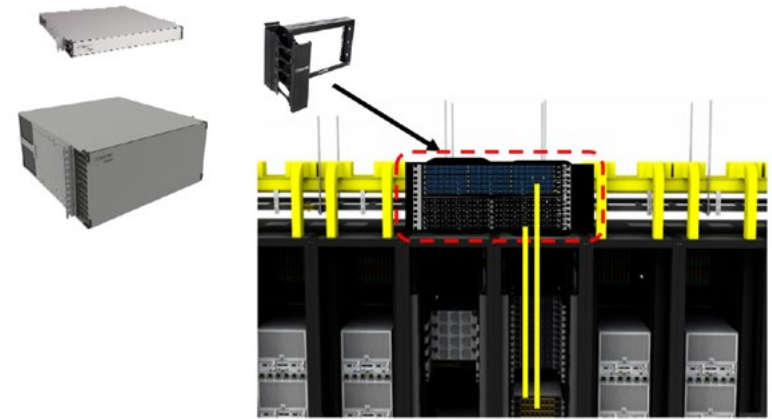


Figure 2: A 4U Propel Panel with LC and MPO presentation housed in XTRA-U Aerial Holder.



Figure 1 - Example Gen DC AI layout using the FiberGuide system. The switching layers have more physical separation than traditional designs, allowing for the power and cooling constraints of a traditional data center construction.

FiberGuide Design Pro is a software tool allowing Data Center Engineers to configure raceway architectures and visualize how alternative build options can support a specific network layout.

## FiberGuide Design Pro Configurator Tool

[CommScope® Technical Assistance Center \(TAC\)](#) can answer FiberGuide and design tool questions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



## The Industry’s Most Comprehensive Optical Raceway System

The FiberGuide fiber management systems offer the greatest breadth of optical raceway products in the industry. FiberGuide systems add greater flexibility and drive down installation time to assist with a smooth deployment.

The FiberGuide raceway system is designed to protect and route fiber optic patch cords, multi-fiber cable assemblies and intrafacility fiber cable (IFC) to and from fiber splice enclosures, fiber distribution frames and fiber optic terminal devices. The FiberGuide raceway system is designed to maintain a two-inch minimum bend radius throughout the system. Tool-less, Snap-Fit junction options can significantly reduce the amount of time required for installation.

The FiberGuide system is a complete set of products designed and manufactured to support total off-frame protection and ease of use. Basic components include horizontal and vertical straight sections, horizontal and vertical elbows, downspouts, junctions and numerous support hardware and flex vertical kits.

Available in a variety of sizes:

4x6 – Features the same benefits of the 4-inch system and a maximum trough capacity of 2,400, 2 mm patch cords.

4x12 – The 12-inch-wide trough has a maximum capacity to support nearly 5,000, 2 mm patch cords. Perfect for runs over fiber-frame lineups and perimeter routes.

4x24 – The 4x24-inch system is the ultimate raceway solution to securely route and protect patch cords over high-density optical distribution frames including CommScope® Next Generation Frame (NGF) and Next Generation 3 Frame (NG3®). Designed for maximum capacity, this robust system provides the same support and flexibility as the traditional 4x12-inch system while doubling capacity.





Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTMIX Copper Solutions	CommScope FiberGuide

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## 4"x6" FiberGuide System

Description	Part Number	
4x6 Horizontal Straight Section, 6' long, yellow	<a href="#">FGS-MSHS-B</a>	
4x6 Horizontal Stack Storage Section, yellow	<a href="#">FGS-MSHS-STOR-B</a>	
4x6 Horizontal T, yellow	<a href="#">FGS-MHRT-B</a>	
4x6 Horizontal Cross, yellow	<a href="#">FGS-MHXP-B</a>	
4x6 Horizontal Elbow 90°, yellow	<a href="#">FGS-MH9E-B</a>	
4x6 Down Spout, yellow	<a href="#">FGS-MDSP-B</a>	
4x6 Trumpet Flare, yellow	<a href="#">FGS-MTRM-B</a>	
4x6 Down Elbow 45°, yellow	<a href="#">FGS-MD4E-B</a>	
4x6 Up Elbow 45°, yellow	<a href="#">FGS-MU4E-B</a>	
4x6 Junction	<a href="#">FGS-MFAW-B</a>	
4x6 End Cap, black	<a href="#">FGS-HMEC-B</a>	

## 4"x6" Supports

Description	Part Number	
L Bay Support Bracket	<a href="#">FGS-HLBK</a>	
Center Support Bracket Kit (xx = size: 1/2", 5/8", 12 mm, 14 mm, 16 mm)	<a href="#">FGS-HTUB-XX</a>	
Unistrut Kit; 10 Quick Knob T-Bolt	<a href="#">FGS-ACC532</a>	

## Express Exit®

Description	Part Number	
4" Express Exit with 4x4 exit opening, yellow	<a href="#">FGS-MEXP-E-A/B/F</a>	
2x2 Trumpet Flare for 2" Express Exit, yellow	<a href="#">FGS-MTRM-C</a>	
Single 2" Flex Tube Attachment 2" flex tube and 2x2 junction to attach to Express Exit		
5' length	<a href="#">FGS-MEX1-C-5F</a>	
10' length	<a href="#">FGS-MEX1-C-10F</a>	
15' length	<a href="#">FGS-MEX1-C-15F</a>	

Note: For additional FiberGuide products, see online catalog available [here](#).

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

## 4"x12" FiberGuide System

Description	Part Number	
4x12 Horizontal Straight Section, 6' long, yellow	<a href="#">FGS-MSHS-F</a>	
4x12 Horizontal Slack Storage Section, yellow	<a href="#">FGS-MSHS-STOR-F</a>	
4x12 Horizontal T, yellow	<a href="#">FGS-MHRT-F</a>	
4x12 Horizontal Cross, yellow	<a href="#">FGS-MHXP-F</a>	
4x12 Horizontal Elbow 90°, yellow	<a href="#">FGS-MH9E-F</a>	
4x12 Down Spout, yellow	<a href="#">FGS-MDSP-F</a>	
4x12 Trumpet Flare, yellow	<a href="#">FGS-MTRM-F</a>	
4x12 Horizontal Cross with two 6" exit, yellow	<a href="#">FGS-MHXP-F</a>	
4x12 Down Elbow 45°, yellow	<a href="#">FGS-MD4E-F</a>	
4x12 Up Elbow 45°, yellow	<a href="#">FGS-MU4E-F</a>	
4x12 Junction	<a href="#">FGS-MFAW-F</a>	
4x12 End Cap	<a href="#">FGS-HMEC-F</a>	
Trapeze Bracket Kit (xx = size: 1/2", 5/8", 12 mm, 14 mm, 16 mm)	<a href="#">FGS-HNTP-F-XX</a>	

## 4"x24" FiberGuide System

Description	Part Number	
4x24 Horizontal Straight Section, 6" long, yellow	<a href="#">FGS-MSHS-H</a>	
4x24 Horizontal T, with single 12" exit, yellow	<a href="#">FGS-MHRT-H/F</a>	
4x24 Horizontal T with three 24" exits, yellow	<a href="#">FGS-MHRT-H</a>	
4x24 Horizontal Cross, yellow	<a href="#">FGS-MHXP-H</a>	
4x24 Horizontal Cross with dual 12" exits	<a href="#">FGS-MHXP-F/H</a>	
4x24 Horizontal Elbow 45°, yellow	<a href="#">FGS-MH4E-H</a>	
4x24 Down Elbow 45°, yellow	<a href="#">FGS-MD4E-H</a>	
4x24 Up Elbow 45°, yellow	<a href="#">FGS-MU4E-H</a>	
4x24 Junction	<a href="#">FGS-MFAW-H</a>	
4x24 End Cap	<a href="#">FGS-HMEC-H</a>	
Threaded Rod Trapeze Bracket Kit for New, 5/8"	<a href="#">FGS-HNTP-H-5/8</a>	

Note: For additional FiberGuide products, see online catalog available [here](#).

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# Cabling Reference Designs

The purpose of the reference designs in this document is to show how NVIDIA Scalable Units and NVIDIA DGX SuperPOD configurations can be cabled with the use of structured cabling. The designs highlight the hardware requirements of the NVIDIA configurations and are offering a best practice for developing a cabling infrastructure to support AI configurations. The guiding principles for these designs have been:

- Design Simplification
- Readiness for future network applications
- Effective Cable Management
- Easy operation

Cabling NVIDIA Scalable Units and NVIDIA DGX SuperPOD configurations can be made in many ways. Hence, the reference designs in this section are meant to be an example of best practices that can be adopted for different cable types, connector types etc.

The cabling designs in this document are based on the use of an MPO8 APC backbone (see section “Structured Cabling” in this document for more information). The design can be converted to using an MPO16 APC backbone instead, resulting in a more future-proof design with less connectors in the patch panels, and more efficient use of precious data center cable pathways and conduit.

### Interactive Content Menu

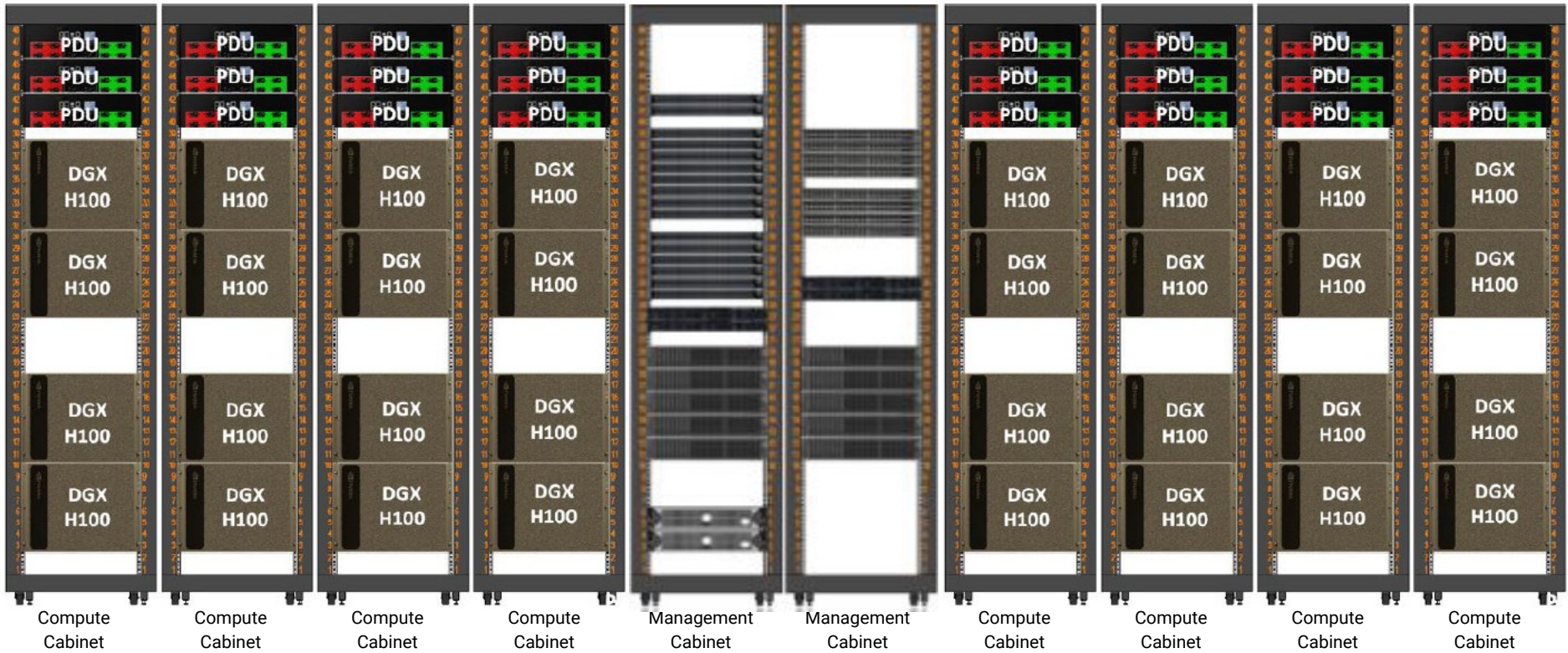
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
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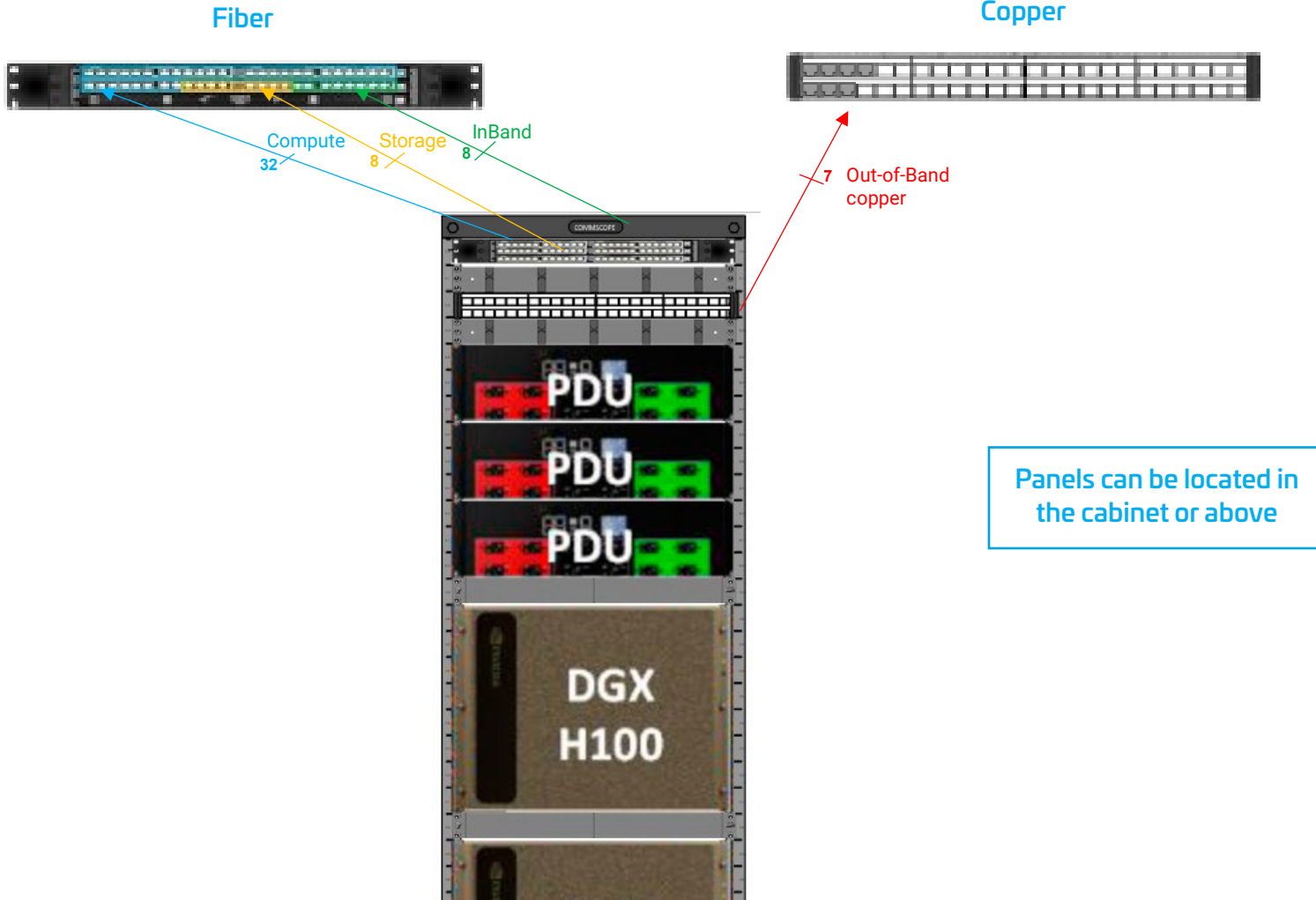
# NVIDIA Scalable Unit (SU) DGX H100 Reference Design

MPO8 APC Backbone



Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

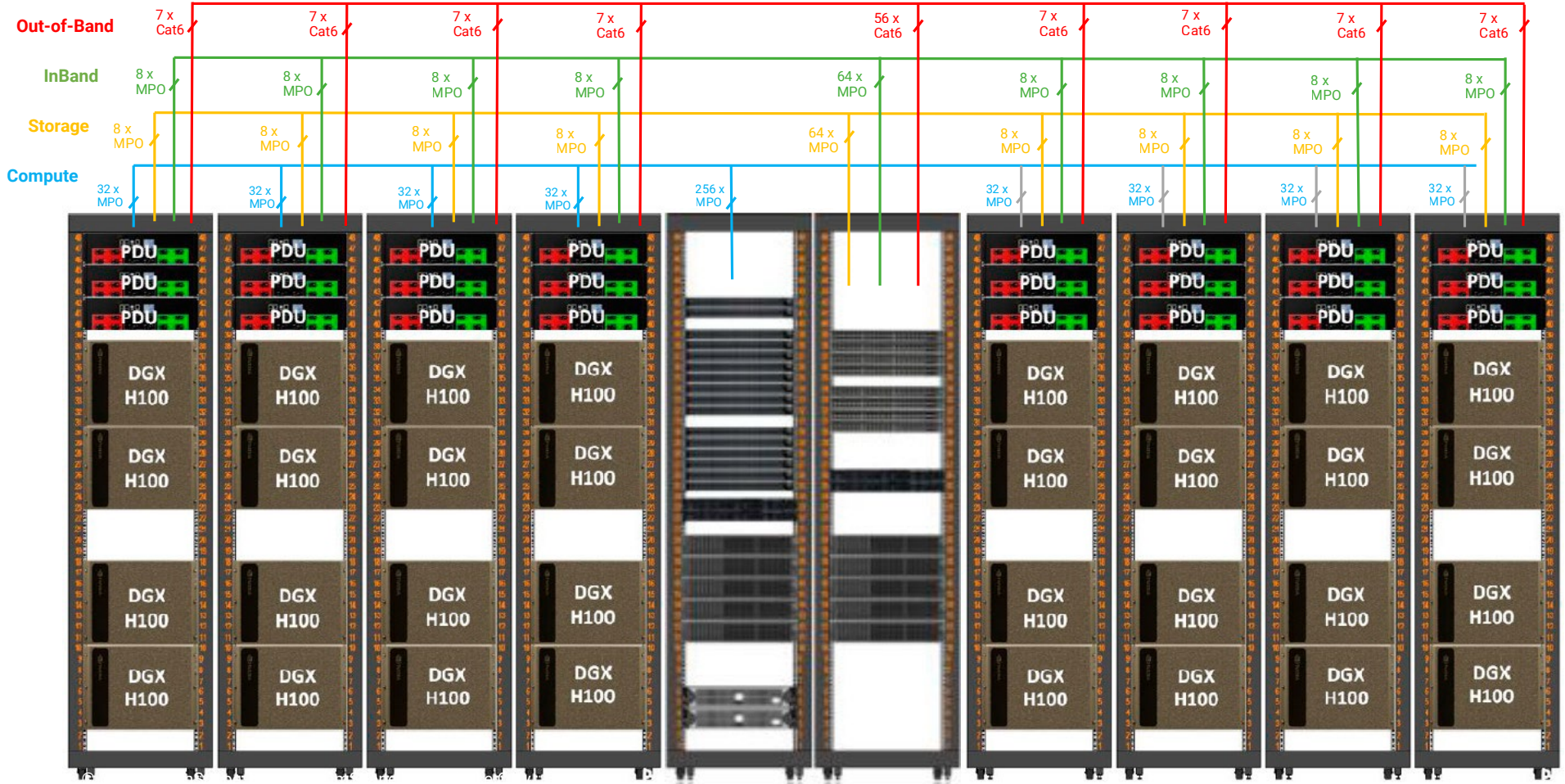
Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



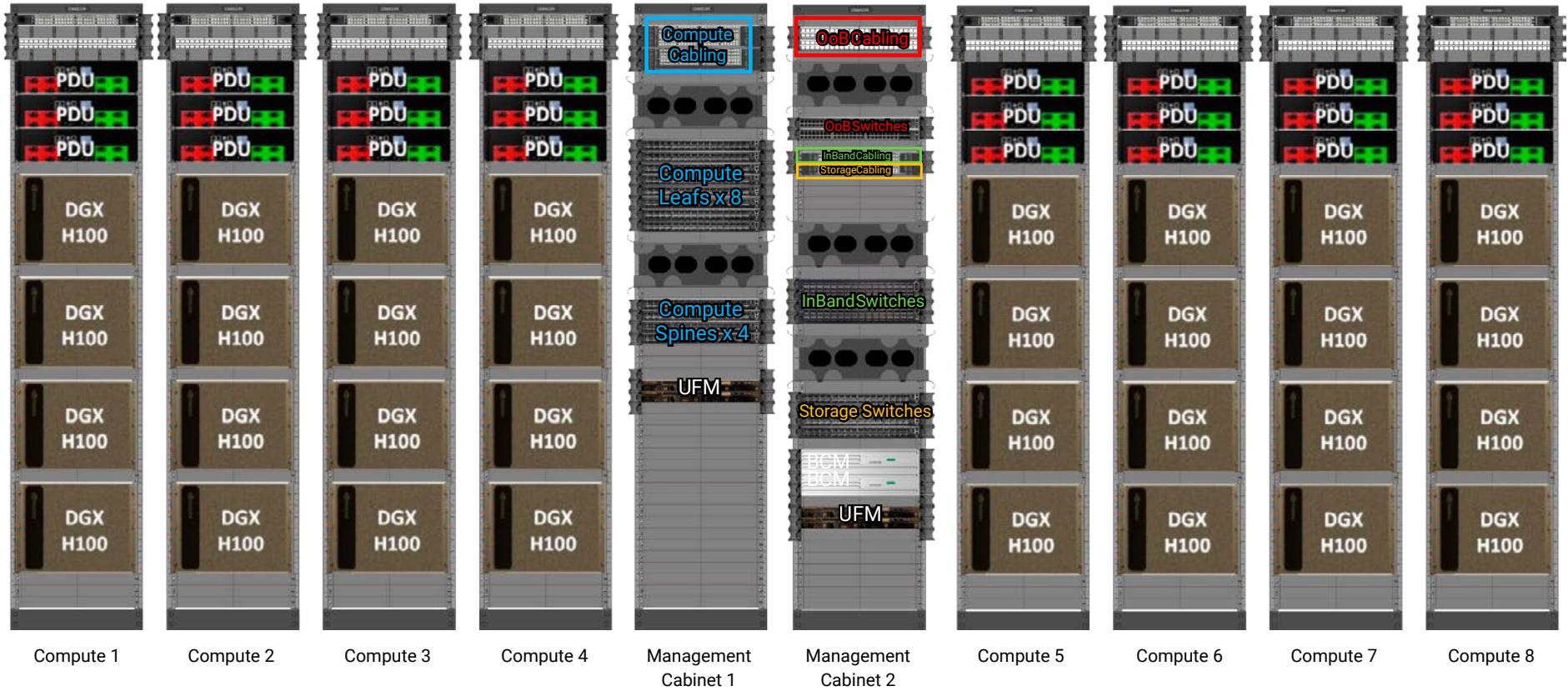


### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Suggested Passive Infrastructure Panel Locations

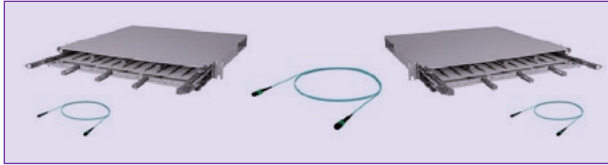
- Out-of-Band
- InBand
- Storage
- Compute

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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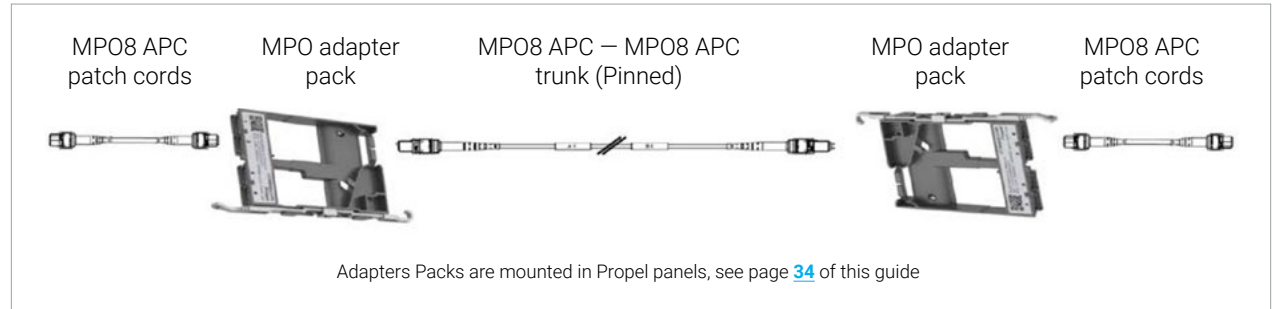


8 x Compute Cabinets



Management Cabinets

## Cabling Channel



**Note:** - The structured cabling backbone is built with MPO8 APC connectors to be ready for 400G + applications.

Product	Code	Material ID	Structured Cabling between Compute Cabinets and Management Cabinets		
			Panels in/above Compute Cabinets/ quantity	Panels in Management Cabinets quantity	
Propel 1RU sliding tray fiber panel, accepts Propel ULL modules or adapter packs, providing up to 72 duplex LC ports, 72 MPO ports or 144 SN ports (288f)	PPL-1U	<a href="#">760252002</a>	8		
Propel 2RU sliding tray fiber panel, accepts Propel ULL modules or adapter packs, providing up to 144 duplex LC ports, 144 MPO ports or 288 SN ports (576f)	PPL-2U	<a href="#">760252003</a>		3	
Propel pass-through adapter pack, 12 x MPO8-12-24 ports, Type B	PPL-AP-12-MPO-ALL-B	<a href="#">760252374</a>	32	36	
<b>Panel-to-Panel Fiber Assemblies, MPO8 Multi-mode Backbone:</b> Ultra Low Loss (ULL) OM4 MPO8 APC (Pinned) to MPO8 APC (Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)		<a href="#">URXQZQZF8</a>	384		LSZH/Riser
or			or		
Ultra Low Loss (ULL) OM4 MPO8 APC (Pinned) to MPO8 APC (Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Plenum		<a href="#">UQXQZQZF8</a>	384		Plenum
<b>Panel-to-Panel Fiber Assemblies, MPO8 Single-mode Backbone:</b> Ultra Low Loss (ULL) Single-mode MPO8 (Pinned) to MPO8 (Pinned), Fiber Patch Cord, 8-Fiber, Dual-Rated (OFNR/LSZH)		<a href="#">URGQXQXF8</a>	384		LSZH/Riser
or			or		
Ultra Low Loss (ULL) Single-mode MPO8 (Pinned) to MPO8 (Pinned), Fiber Patch Cord, 8-Fiber, Plenum		<a href="#">UQGQXQXF8</a>	384		Plenum

**Note:** This bill of material for the reference design uses single MPO8 fiber array assemblies. This assembly type demands the least space in pathways and cabinets. In case of a requirement to use B2<sub>CA</sub> CPR-rated cable assemblies for the panel-to-panel connections, please select these cables from the MPO8 APC backbone pages in this document. B2<sub>CA</sub> cables assemblies have a larger diameter, resulting in higher space requirements in pathway and cabinet spaces.

The structured cabling in this design is built with MPO8 trunks for simplification reasons. It is recommended to use Multi-MPO trunks to reduce installation work. For selecting Multi-MPO trunks, please see the section about structured cabling in this document.

**Notes:** – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

Product	Material ID	InBand		
		Compute Cabinets quantity	Management Cabinets quantity	Patch Cords for structured cabling between Management Cabinets
<b>Multi-mode OM4 Patch Cords:</b> Ultra Low Loss (ULL) OM4 MPO8 APC (Non-Pinned) to MPO8 UPC (Non-Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URXQVQPF8</a>	64	64	20
<b>Single-mode OS2 Patch Cords:</b> Ultra Low Loss (ULL) Single-mode MPO8 (Non-Pinned) to MPO8 (Non-Pinned), Fiber Array Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URGQPQPF8</a>	64	64	20

**Notes:** Inband requires MPO UPC for Ethernet Multi-mode 100G & 200G Transceivers—plenum patch cords can be found in the section “Structured Cabling Solutions” in this document.

**Select multi-mode or single-mode according to the fiber type used in the structured cabling.**

**For Multi-mode, a MPO8 APC to MPO8 UPC patch cord must be used to patch to the MPO8 APC backbone.**

**Note:** – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
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Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

Product	Material ID	Compute			Storage		
		Patch Cords for structured cabling between Compute Cabinets and Management Cabinets		Patch Cords for Spine/Leaf connections	Patch Cords for structured cabling between Compute Cabs and Management Cabinets		Patch Cords for Spine/Leaf connections
		Compute Cabinets quantity	Management Cabinets quantity	Management Cabinets quantity	Compute Cabinets quantity	Management Cabinets quantity	Management Cabinets quantity
<b>Multi-mode OM4 Patch Cords:</b> Ultra Low Loss (ULL) OM4 MPO8 APC (Non-Pinned) to MPO8 APC (Non-Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URXQVQVF8</a>	254	254	254	64	64	64
<b>Single-mode OS2 Patch Cords:</b> Ultra Low Loss (ULL) Single-mode MPO8 (Non-Pinned) to MPO8 (Non-Pinned), Fiber Array Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URGQPQPF8</a>	254	254	254	64	64	64

Notes: – plenum patch cords and MPO splitter cables (1xMPO16 to 2xMPO8 for 400G -> 2 x 200G) to connect storage devices can be found in the section “Structured Cabling Solutions” in this document.

Select multi-mode or single-mode according the fiber type used in the structured cabling.

Note: – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide

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8 x Compute Cabinets



Management Cabinets

Product	Copper Technology	Description Code	Part Number	Structured Cabling between Compute Cabinets and Management Cabinets		Patch Cords for OoB Intra-Management Cabinet Connections
				Panels in/above Compute Cabinets/Quantity	Panels in Management Cabinets quantity	Panels in Management Cabinets quantity
<b>Modular Copper Patch Panel</b>						
M4800 1U Modular Panel, 48-port (MGS600 / MGS400 / UNJ10GT / UNJ10G / UNJ600 / UNJ500), Black	U/UTP	M4800-1U-GS	<a href="#">760105429</a>	8	2	
<b>Panel Accessories</b>						
M4800 Blank Kit, Black (50 ea/pkg)		M4800 Blank Kit	<a href="#">760193409</a>			
<b>Pre-Terminated Copper Cord</b>						
GigaSPEED X10D® MGS600 to MGS600 on 1091B Cable Pre-terminated Cord, Black Jacket–Non Plenum	U/UTP, C6A		<a href="#">CPCUUM2</a>	56		
Or				Or		
GigaSPEED X10D® MGS600 to MGS600 on 2091B Plenum Cable Pre-terminated Cord, Red Jacket–Plenum	U/UTP, C6A		<a href="#">CPCUU02</a>	56		
Or				Or		
GigaSPEED X10D® MGS600 to MGS600 on 3091B Low-Smoke Zero Halogen Cable Pre-terminated Cord–LSZH	U/UTP, C6A		<a href="#">CPCUUW2</a>	56		
<b>Copper Patch Cords</b>						
Min06A Cat 6A U/UTP Reduced Diameter RJ45 Patch Cord, LS-CM Dual-Rated	U/UTP, C6A		<a href="#">C0199K2</a>	56	56	20

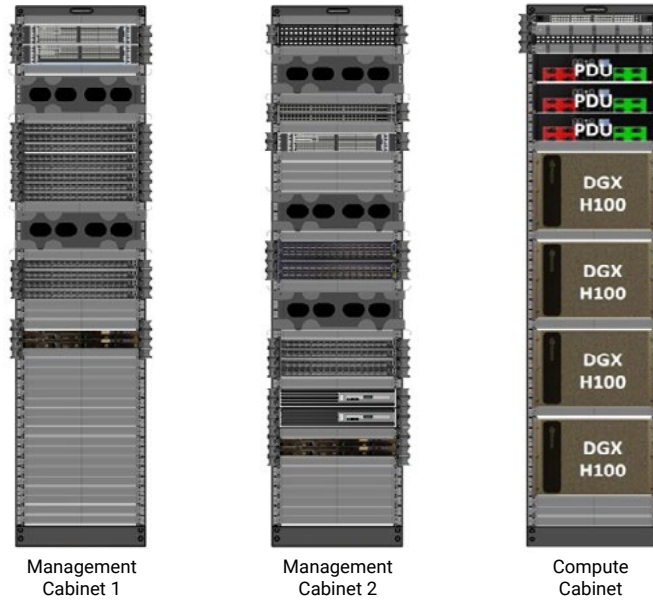
Note: – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Product	Material ID	Management Cabinets 1	Management Cabinets 2	Each of the 8 Compute Cabinets
Overlength storage, 5U	<a href="#">1671711-1</a>	2	3	
Cable Manager 2U	<a href="#">1671495-2</a>		6	
Cable Manager 4U	<a href="#">1671495-4</a>	10	8	16
Filler/Blank Panel, 1U x 19", Solid, Black	<a href="#">760162065</a>	25	19	

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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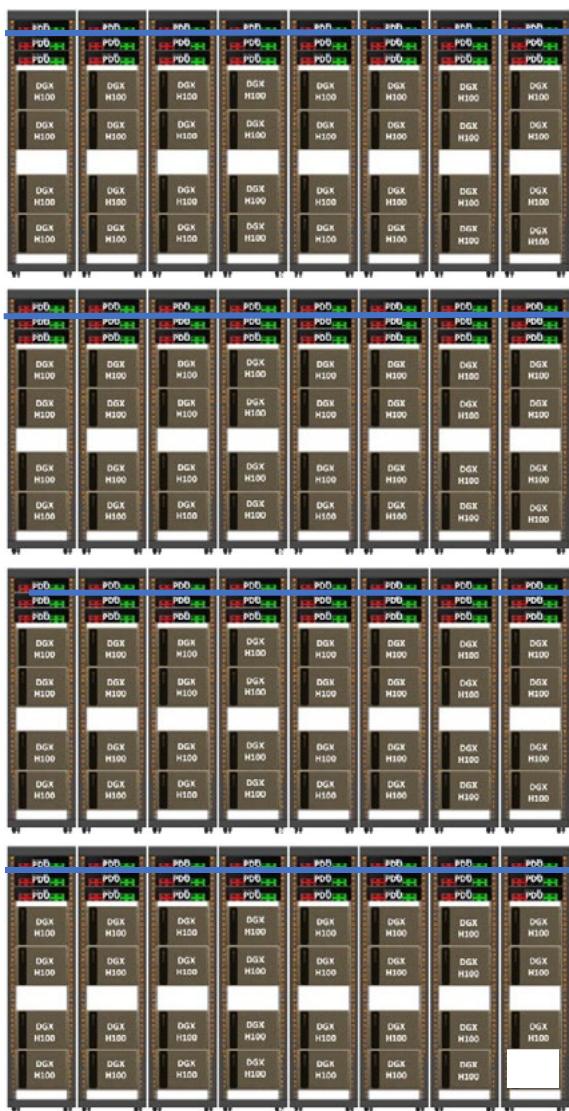
### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

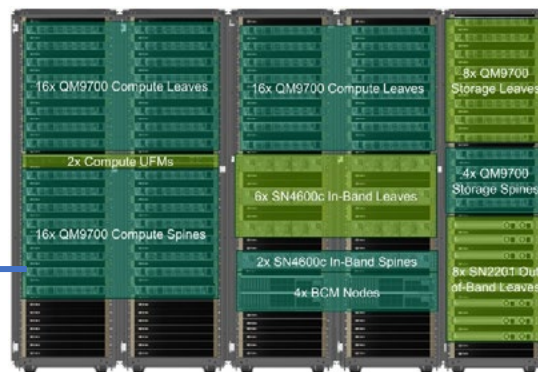
# NVIDIA SuperPOD DGX H100 Reference Design

MPO8 APC Backbone





## SuperPOD Management Racks



DGX SuperPOD with 127x DGX H100 systems

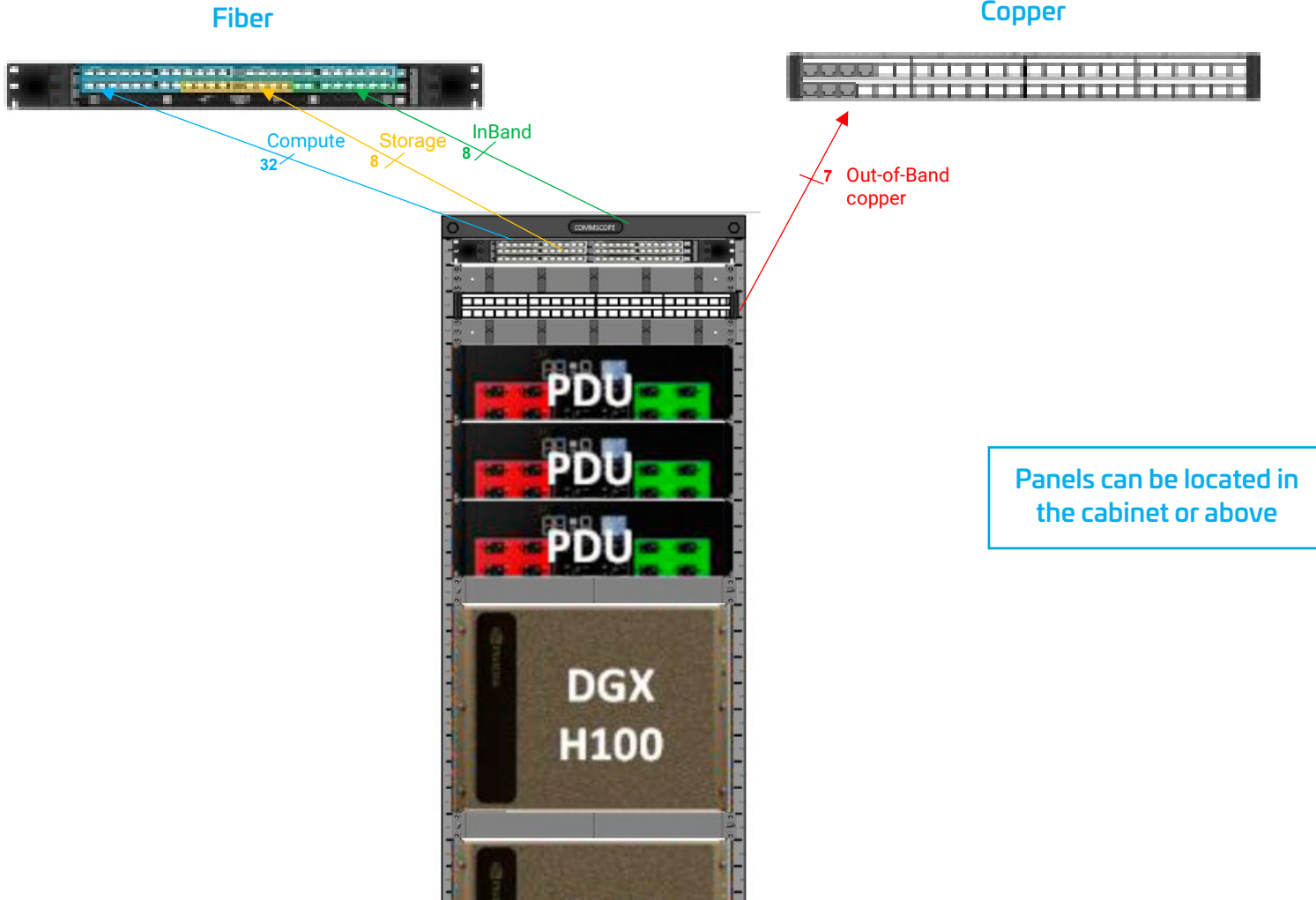
Note: In a SuperPOD, the management racks of the scalable units usually are moved out of the row and consolidated.

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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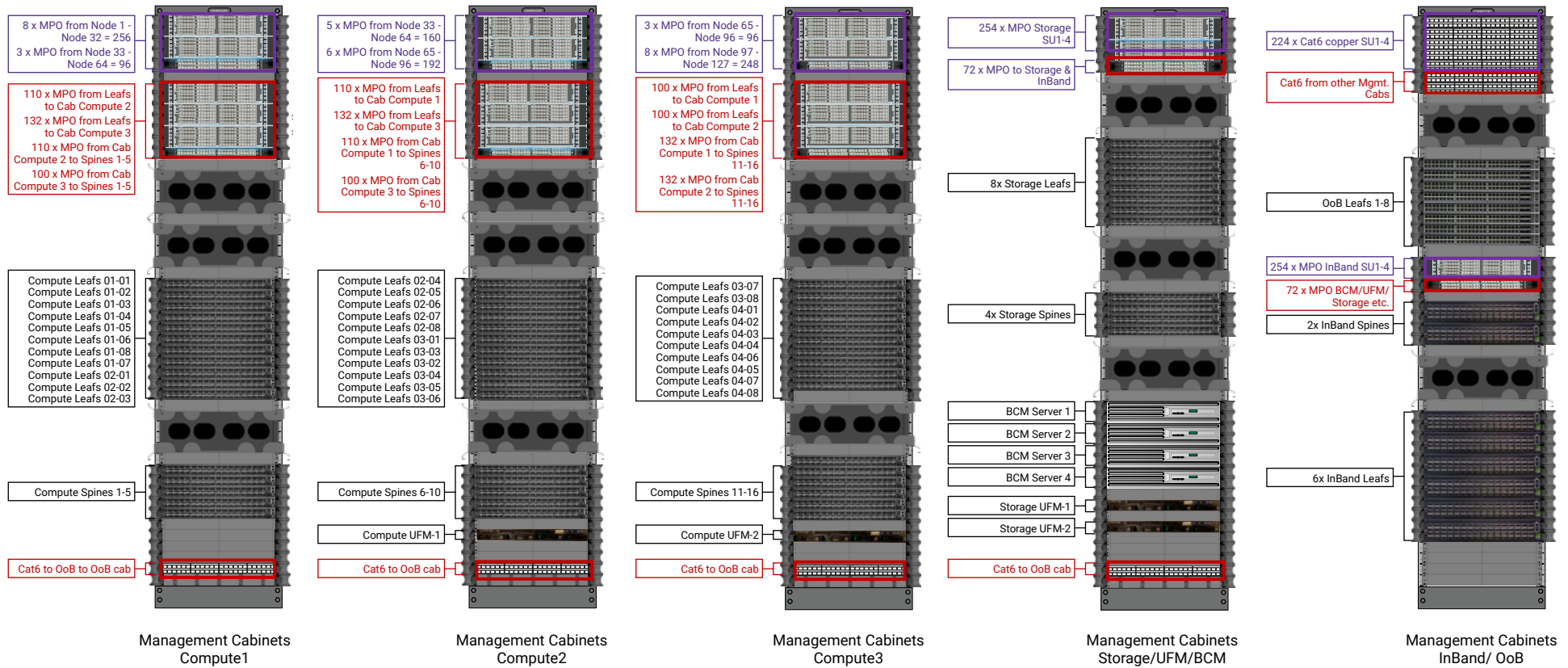
### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Suggested Location of Passive Infrastructure Patching Panels From Compute Cabinets

Suggested Location of Passive Infrastructure Patching Panels Between Management Cabinets

Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

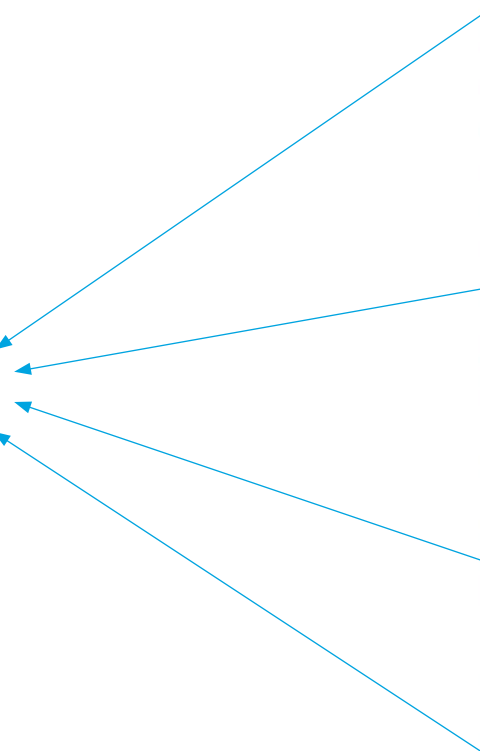
## 4 different network types:

- Out-of-Band Management (Ethernet)
- Inband Management (Ethernet)
- Compute (InfiniBand)
- Storage (InfiniBand)

Table 8. Estimate of cables required for a 4 SU, 127-node DGX SuperPOD

Count	Component	Connection	Recommended Model
<b>In-Band Ethernet Cables</b>			
254	200 Gbps QSFP56 to QSFP56 AOC	DGX H200 system	980-9I440-00H030
8	100 Gbps QSFP28 to QSFP28 AOC	Management nodes	980-9I13N-00C030
4	100 Gbps QSFP28 CWD4 Single mode 2km Transceiver	Uplink to core DC	980-9I17Q-00CM00
6	100 Gbps QSFP-QSFP DAC Passive Copper cable	ISL Cables	980-9I620-00C001
8	100 Gbps QSFP28 to QSFP28 AOC	NFS Storage	980-9I13N-00C030
24	100 Gbps QSFP28 to QSFP28 AOC	Leaf - Core cables	980-9I13N-00C030
<b>OOB Ethernet Cables</b>			
127	1 Gbps	DGX H200 systems	Cat5e
64	1 Gbps	InfiniBand Switches	Cat5e
8	1 Gbps	Management/UFM nodes	Cat5e
8	1 Gbps	In-band Ethernet switches	Cat5e
2	1 Gbps	UFM Back-to-Back	Cat5e
108	1 Gbps	PDUJs	Cat5e
4	QSFP to SFP+ Adapter	For the UFM connections	980-9I71G-00J000
4	Ethernet Module SFP BaseT 1G	For the UFM connections	980-9I251-00IS00
16	100 Gbps AOC QSFP28 to QSFP28 Cable	Two uplinks per OOB to in-band	980-9I13N-00C030
Varies	1 Gbps	Storage	Cat5e
<b>Compute InfiniBand Cabling</b>			
2044	NDR Fiber Cables <sup>1</sup> , 400 Gbps	DGX H200 systems to leaf, leaf to spine, UFM to leaf ports	980-9I570-00N030
1536	Switch 2x400G OSFP Finned-top Multimode Transceivers	Leaf and spine transceivers	980-9I510-00NS00
508	System 2x400G OSFP Flat-top Multimode Transceivers	Transceivers in the DGX H200 systems	980-9I51A-00NS00
4	UFM System 400G OSFP Multimode Transceivers	UFM to leaf connections	980-9I51S-00NS00
<b>Storage InfiniBand Cables<sup>1,2</sup></b>			
502	NDR Fiber Cables, 400 Gbps	DGX H200 systems to leaf, leaf to spine, UFM to leaf connections, to SLURM nodes	980-9I570-00N030
48	NDR AOC Cables, 2x 200 Gbps QSFP56-QSFP56	Storage	980-9I117-00H030
8	400G OSFP Multimode Transceivers	UFM to leaf connections SLURM to leaf connections	980-9I51S-00NS00
369	Switch 2x400G OSFP Finned-top Multimode Transceivers	Leaf and spine transceivers	980-9I510-00NS00
254	DGX System 400G OSFP112 Multimode Transceivers	QSFP112 transceivers	980-9I693-00NS00
Varies	Storage Cables, 400 Gbps to 2x200 Gbps AOC Cables	Varies	980-9I117-00H030

1. Part number will depend on exact cable lengths needed based on data center requirements.  
2. Count and cable type required depend on specific storage selected.



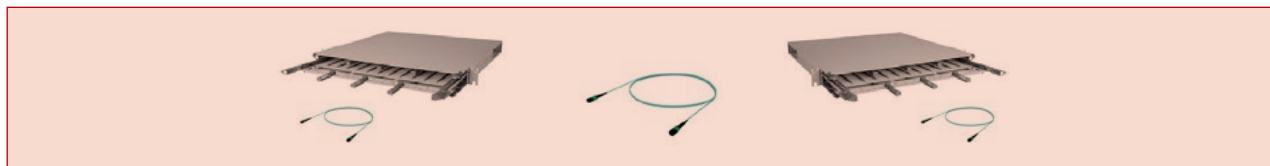
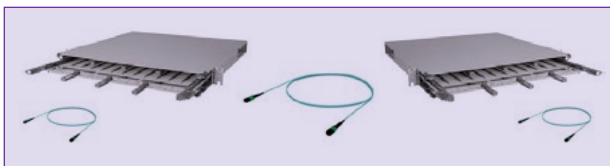
### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



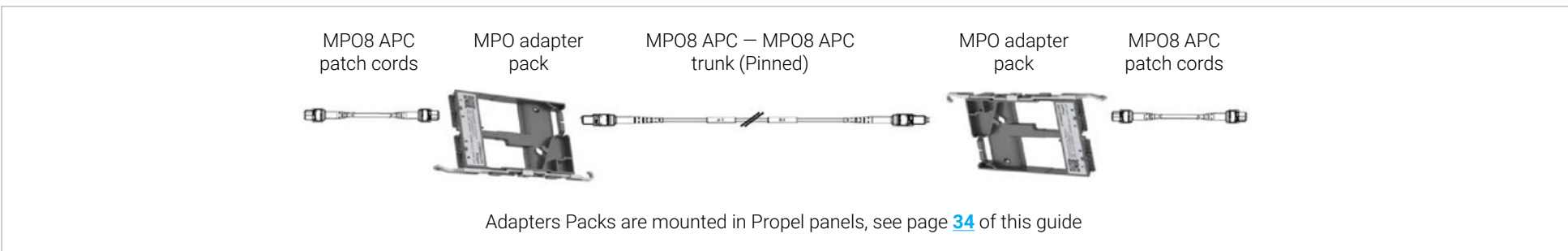


32 x Compute Cabs



DGX SuperPOD Management Cabinets

## Cabling Channel



**Note:** The structured cabling backbone is built with MPO8 APC connectors to be ready for 400G + applications.

**Note:** – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

## Example bill of material (MPO8 Backbone) for NVIDIA DGX SuperPOD configurations with DGX H100, DGX H200 and DGX B200 systems

Product	Code	Material ID	Structured Cabling between Compute Cabinets and Management Cabinets		Structured Cabling between Management Cabinets	
			Panels in/above 32 Compute Cabinets/ quantity	Panels in Management Cabinets quantity	Panels in Management Cabinets quantity	
Propel 1RU sliding tray fiber panel, accepts Propel ULL modules or adapter packs, providing up to 72 duplex LC ports, 72 MPO ports or 144 SN ports (288f)	PPL-1U	<a href="#">760252002</a>	32	3	5	
Propel 2RU sliding tray fiber panel, accepts Propel ULL modules or adapter packs, providing up to 144 duplex LC ports, 144 MPO ports or 288 SN ports (576f)	PPL-2U	<a href="#">760252003</a>		9	9	
Propel pass-through adapter pack, 12 x MPO8-12-24 ports, Type B	PPL-AP-12-MPO-ALL-B	<a href="#">760252374</a>	128	134	139	
<b>Panel to Panel Fiber Assemblies, MPO8 Multi-mode Backbone:</b>						
Ultra Low Loss (ULL) OM4 MPO8 APC (Pinned) to MPO8 APC (Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)		<a href="#">URXQZQZF8</a>	1536		1668	LSZH/Riser
or			or		or	
Ultra Low Loss (ULL) OM4 MPO8 APC (Pinned) to MPO8 APC (Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Plenum		<a href="#">UQXQZQZF8</a>	1536		1668	Plenum
<b>Panel to Panel Fiber Assemblies, MPO8 Single-mode Backbone:</b>						
Ultra Low Loss (ULL) Single-mode MPO8 (Pinned) to MPO8 (Pinned), Fiber Patch Cord, 8-Fiber, Dual-Rated (OFNR/LSZH)		<a href="#">URGQXQXF8</a>	1536		1668	LSZH/Riser
or			or		or	
Ultra Low Loss (ULL) Single-mode MPO8 (Pinned) to MPO8 (Pinned), Fiber Patch Cord, 8-Fiber, Plenum		<a href="#">UQGQXQXF8</a>	1536		1668	Plenum

Note: In case of a requirement to use B2<sub>ca</sub> CPR-rated cable assemblies for the panel-to-panel connections, please select these cables from the MPO8 APC backbone pages in this document.

B2<sub>ca</sub> cables assemblies have a larger diameter, resulting in higher space requirements in pathway and cabinet spaces.

The structured cabling in this design is built with MPO8 trunks for simplification reasons. It is recommended to use Multi-MPO trunks to reduce to reduce installation work. To select Multi-MPO trunks, please see the section about structured cabling in this document.

Note: – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu									
NVIDIA Scalable Unit (SU) DGX H100 Reference Design					NVIDIA SuperPOD DGX H100 Reference Design				
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management		Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	

## NVIDIA's recommended SuperPOD configuration

In-Band Ethernet Cables			
254	200 Gbps QSFP56 to QSFP56 AOC	DGX H200 system	980-9I440-00H030
8	100 Gbps QSFP28 to QSFP28 AOC	Management nodes	980-9I13N-00C030
4	100 Gbps QSFP28 CWDM4 Single mode 2km Transceiver	Uplink to core DC	980-9I17Q-00CM00
6	100 Gbps QSFP-QSFP DAC Passive Copper cable	ISL Cables	980-9I620-00C001
8	100 Gbps QSFP28 to QSFP28 AOC	NFS Storage	980-9I13N-00C030
24	100 Gbps QSFP28 to QSFP28 AOC	Leaf - Core cables	980-9I13N-00C030

Product	Material ID	InBand		
		Compute Cabinets quantity	Management Cabinets quantity	Patch Cords for structured cabling between Compute Cabinets and Management Cabinets
<b>Multi-mode OM4 Patch Cords:</b> Ultra Low Loss (ULL) OM4 MPO8 APC (Non-Pinned) to MPO8 UPC (Non-Pinned), Fiber Trunk Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URXQVQPF8</a>	254	254	50
<b>Single-mode OS2 Patch Cords:</b> Ultra Low Loss (ULL) Single-mode MPO8 (Non-Pinned) to MPO8 (Non-Pinned), Fiber Array Cable Assembly, 8-Fiber, Dual-Rated (OFNR/LSZH)	<a href="#">URGQPQPF8</a>	254	254	50

Notes: – Inband uses UPC Ethernet multi-mode transceivers for 100G & 200G—plenum patch cords can be found in the section “Structured Cabling Solutions” in this document

**Select multi-mode or single-mode according to the fiber type used in the structured cabling.**  
**For multi-mode, a MPO8 APC to MPO8 UPC patch cord must be used to patch to the MPO8 APC backbone.**

Note: – all quantities are estimations based on NVIDIA documents and CommScope® assumptions.

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

## NVIDIA's recommended SuperPOD configuration

Compute InfiniBand Cabling			
2044	NDR Fiber Cables <sup>1</sup> , 400 Gbps	DGX H200 systems to leaf, leaf to spine, UFM to leaf ports	980-91570-00N030
1536	Switch 2x400G OSFP Finned-top Multimode Transceivers	Leaf and spine transceivers	980-91510-00NS00
508	System 2x400G OSFP Flat-top Multimode Transceivers	Transceivers in the DGX H200 systems	980-9151A-00NS00
4	UFM System 400G OSFP Multimode Transceivers	UFM to leaf connections	980-9151S-00NS00

Storage InfiniBand Cables <sup>1,2</sup>			
494	NDR Cables, 400 Gbps	DGX H100 systems to leaf, leaf to spine	980-91570-00N030
48	NDR Cables, 2x 200 Gbps	Storage	980-91117-00H030
4	UFM System Transceivers	UFM to leaf connections	980-9151S-00NS00
369	Switch Transceivers	Leaf and spine transceivers	980-91510-00NS00
254	DGX System Transceivers	QSFP112 transceivers	980-91693-00NS00
2	NDR Cables, 200 Gbps	UFM to leaf ports	980-91557-00N030
4	HDR 400 Gbps to 2x200 Gbps	Slurm management	980-91117-00H030
Varies	Storage Cables, NDR200	Varies	980-91117-00H030

1. Part number will depend on exact cable lengths needed based on data center requirements.  
2. Count and cable type required depend on specific storage selected.

Product	Copper Technology	Description Code	Part Number	Structured Cabling between Compute Cabinets and Management Cabinets		Structured Cabling between Management Cabinets
				Panels in/above Compute Cabinets/ Quantity	Panels in Management Cabinets quantity	Panels in Management Cabinets quantity
<b>Modular Copper Patch Panel</b>						
M4800 1U Modular Panel, 48-port (MGS600 / MGS400 / UNJ10GT / UNJ10G / UNJ600 / UNJ500), Black	U/UTP	M4800-1U-GS	<a href="#">760105429</a>	32	5	6
<b>Panel Accessories</b>						
M4800 Blank Kit, Black (50 ea/pkg)		M4800 Blank Kit	<a href="#">760193409</a>			
<b>Pre-Terminated Copper Cord</b>						
GigaSPEED X10D® MGS600 to MGS600 on 1091B Cable Pre-terminated Cord, Black Jacket—Non Plenum	U/UTP, C6A		<a href="#">CPCUUM2</a>	235		100
Or				Or		Or
GigaSPEED X10D® MGS600 to MGS600 on 2091B Plenum Cable Pre-terminated Cord, Red Jacket—Plenum	U/UTP, C6A		<a href="#">CPCUUO2</a>	235		100
Or				Or		Or
GigaSPEED X10D® MGS600 to MGS600 on 3091B Low-Smoke Zero Halogen Cable Pre-terminated Cord—LSZH	U/UTP, C6A		<a href="#">CPCUJW2</a>	235		100
<b>Copper Patch Cords</b>						
MiNo6A Cat 6A U/UTP Reduced Diameter RJ45 Patch Cord, LS-CM Dual-Rated	U/UTP, C6A		<a href="#">CO199K2</a>	235	235	Approx. 200

Notes: – plenum patch cords and MPO splitter cables (1xMPO16 to 2xMPO8) to connect storage devices (see green box above) can be found in the section “Structured Cabling Solutions” in this document.

Select multi-mode or single-mode according to the fiber type used in the structured cabling.

Note: – all quantities are estimations based on NVIDIA documents and CommScope® assumptions

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu									
NVIDIA Scalable Unit (SU) DGX H100 Reference Design					NVIDIA SuperPOD DGX H100 Reference Design				
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management		





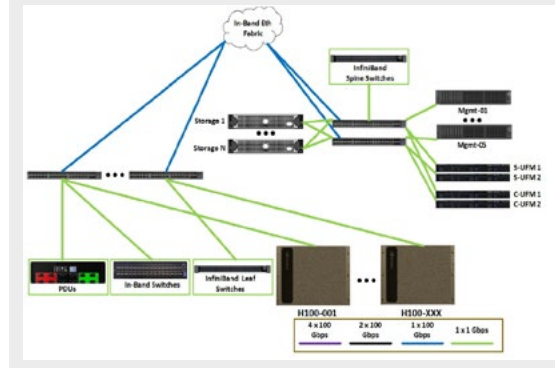
32 x Compute Cabinets



DGX SuperPOD Management Cabinets

## NVIDIA's SuperPOD Reference Architecture

OOB Ethernet Cables		
127	1 Gbps	DGX H200 systems
64	1 Gbps	InfiniBand Switches
8	1 Gbps	Management/UFM nodes
8	1 Gbps	In-band Ethernet switches
2	1 Gbps	UFM Back-to-Back
108	1 Gbps	PDUs
4	QSFP to SFP+ Adapter	For the UFM connections
4	Ethernet Module SFP BaseT 1G	For the UFM connections
16	100 Gbps AOC QSFP28 to QSFP28 Cable	Two uplinks per OOB to in-band
Varies	1 Gbps	Storage



Product	Code	Material ID	Structured Cabling between Compute Cabinets and Management Cabinets		Structured Cabling between Management Cabinets
			Panels in/above Compute Cabinets/ quantity	Panels in Management Cabinets quantity	Panels in Management Cabinets quantity
Unshielded Discrete Distribution Module Panel, Cat 6, Coupler, 1U, 48-port, Black	CPP-6-UDDM-CPLR-1U-48	760258687	32	5	6
Coupler, RJ45, Cat6 Unshielded, Black	CPLR-UTP-6-BK	760258688	235	235	200
GigaSPEED XL® GS8E U/UTP Patch Cord, Cat.6, <b>Plenum</b> , for panel-to-panel connections		<a href="#">CA133P2</a>	235		100
or			or		or
GigaSPEED XL® GS8E U/UTP Patch Cord, Cat.6, <b>LSZH</b> , for panel-to-panel connections		<a href="#">CPP3392</a>	235		100
Copper MINo6 Cat.6 patch cord, LSZH/Riser, for equipment connection		<a href="#">CO166S2</a>	235	235	Appr. 200

### Notes:

- The fiber used to connect the Out of Band to InBand networks (see blue box) are covered in the InBand section of this document
- all quantities are estimations based on NVIDIA documents and CommScope assumptions

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management



Product	Material ID	Management Cabinets 1	Management Cabinets 2	Management Cabinets 3	Management Cabinets 4	Management Cabinets 5	Each of the 32 Compute Cabs
Overlength storage, 4U	<a href="#">1671711-1</a>	3	3	3	3	2	
Cable Manager 1U	<a href="#">1671495-1</a>	6	6	6	4	2	
Cable Manager 4U	<a href="#">1671495-4</a>	4	4	4	16	8	2
Cable Manager 6U	<a href="#">1671495-6</a>	8	8	8		6	
Filler/Blank Panel, 1U x 19", Solid, Black	<a href="#">760162065</a>	10	9	9	11	10	
1U Patch cords Management	<a href="#">760038240</a>	1	1	1	1		2

### Interactive Content Menu

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G - 4x 200G 200G - 200G Parallel Applications	400G - 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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### Reference Design Menu

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

# Do you need help with CommScope® products?

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Central America, Latin-America, Caribbean: [tac.cala@commscope.com](mailto:tac.cala@commscope.com)

Asia-Pacific: [tac.apac@commscope.com](mailto:tac.apac@commscope.com)

**CommScope Data Center Support**

Interactive Content Menu											
Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTEMAX Copper Solutions	CommScope FiberGuide

Reference Design Menu							
NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management

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**Interactive Content Menu**

Ethernet And InfiniBand Applications	Gen AI Key Solutions	Direct Connect Cabling	800G/400G Parallel Applications	800G/400G Serial Applications	800G – 4x 200G 200G – 200G Parallel Applications	400G – 2x 200G Parallel Applications	Mesh Architectures	Parallel Polarity Schemes	CommScope Propel Solutions	SYSTIMAX Copper Solutions	CommScope FiberGuide
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**Reference Design Menu**

NVIDIA Scalable Unit (SU) DGX H100 Reference Design				NVIDIA SuperPOD DGX H100 Reference Design			
Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management	Compute Cabinet	Compute To Management Cabinets	Out of Band Network	Cable Management