AI data center connectivity

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HUBER+SUHNER

Discover how our solutions simplify your AI infrastructure

HUBER+SUHNER's advanced connectivity solutions empower your Artificial Intelligence(AI) data center to achieve unparalleled performance with innovative high-speed interconnects and robust network infrastructure. Our meticulously engineered products deliver exceptional data transfer rates, reduced latency, and enhanced reliability, ensuring your AI operations run smoothly and efficiently.

Designed with future AI requirements in mind, our versatile and scalable solutions seamlessly integrate into your evolving data center environment. Additionally, our dedicated team of experts excels at developing customized solutions tailored to your specific needs, enabling you to optimize your AI capabilities, secure your technology investment, and focus on driving breakthrough innovations.

Optimize your space

Make the most out of your space with high-density cable management solutions that keep it neat and organised.

Boost your performance

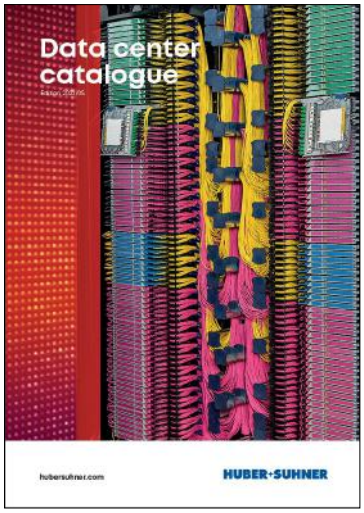
Improve the performance of your system by deploying simple solutions that are easy to maintain and manage.

Hassle-free procurement

Benefit from our one-stop-shop offering for all AI cabling solutions.

More to explore

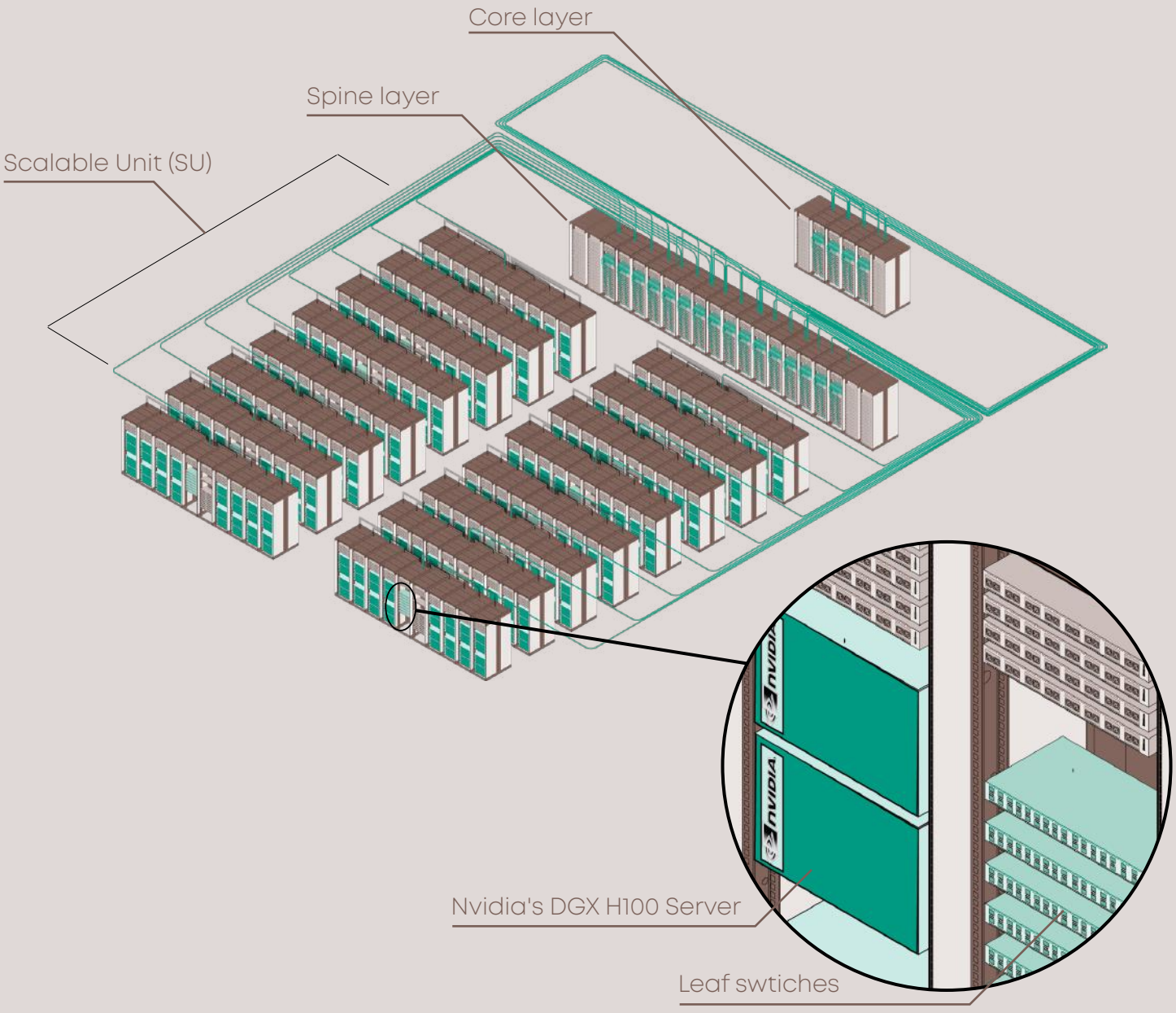
For more information on our entire portfolio of data center products, check out the HUBER+SUHNER data center catalogue.



AI data center zones

Within our AI data center portfolio, we deliver connectivity solutions engineered specifically for scalable units, spine layers, and core layers. By integrating our high-performance transceivers, fiber cable assemblies and cable management systems into your AI-optimized topology, you create a simplified, resilient, and upgradeable network infrastructure designed to support advanced AI applications.

In a typical AI data center deployment, scalable units are constructed from high-performance DGX servers , Quantum QM9700 leaf switches, and supporting management equipment. These components are interconnected using our state-of-the-art connectivity products, which ensure seamless and reliable data transmission. These scalable units feed into the spine layer, where high-capacity spine switches aggregate and efficiently route the data traffic. This spine layer is then linked to the core layer, delivering centralized, robust connectivity that ties the entire topology together for optimal performance and rapid data processing.



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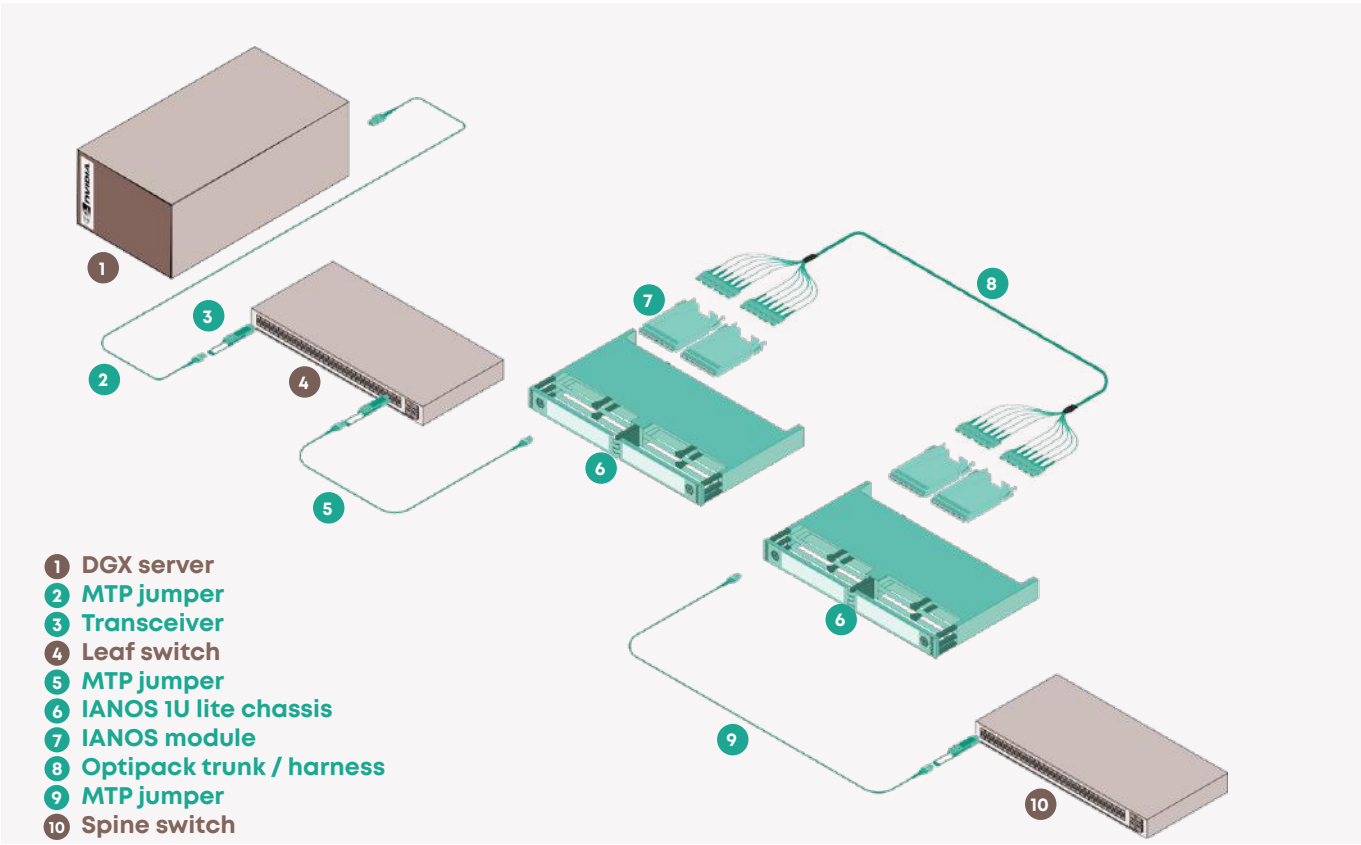
Seamless High-Performance Links

As AI continues to drive innovation, data centers must support the increasing need for high-speed, low-latency connections. NVIDIA DGX systems, built for AI and high-performance computing, produce massive amounts of data that require reliable and scalable cabling. HUBER+SUHNER meets these demands with advanced fiber optic solutions, including transceivers across the network & MTP jumpers that connect DGX servers to leaf switches. Also IANOS platform for linking leaf to spine switches. These solutions help data centers maintain strong performance while staying ready for future upgrades.

Most AI data centers use a leaf-spine architecture where leaf switches connect directly to servers and pass data on to spine switches. This setup minimizes delays and maximizes bandwidth, which is essential for AI and HPC environments. HUBER+SUHNER's MTP jumpers offer a high-density, low-loss connection that ensures data moves quickly and efficiently from DGX servers to leaf switches, while the plug-and-play design keeps deployment simple

For connections between leaf and spine switches, the IANOS fiber management system offers a flexible, modular platform that supports various connector types. It is designed to be space-efficient and ready to handle future upgrades, supporting higher data rates as needed. This combination of solutions provides data centers with scalable, reliable connectivity that can evolve with technology demands.

By integrating HUBER+SUHNER's cabling solutions, AI data centers can efficiently handle growing data loads, reduce latency, and easily scale their infrastructure to meet future challenges.



Building blocks

Modules and panels

Modules are needed to build permanent links between racks. They provide adapter interfaces to the end of the cables which connect the modules. Modules come in different types and sizes.

Patch modules

MTP or LC both from rear and front. To be used with MTP jumpers and duplex assemblies.

Transition modules

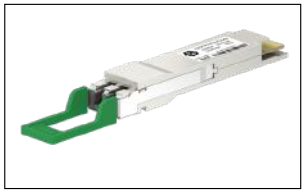
MTP at the rear and LC duplex at front. To be used with MTP jumpers. Allows rapid connections without the need for splicing.

Patch panels and accessories

Patch panels are enclosures for modules of different sizes and numbers. Typically they are mounted on the top of the racks.

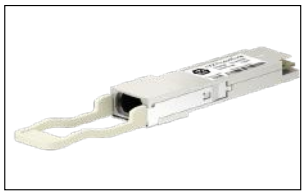
Transceivers

Transceivers are the interface between equipment and structured cabling. Which transceiver is used is determined by which equipment is being connected. At the same time it is important that your structured cabling setup matched the specific transceivers in your system (type of connector, singlemode or multimode as well as operating distance. An important consideration in cabling is the distinction between duplex and parallel transceivers, as each requires different cables.



Duplex transceivers

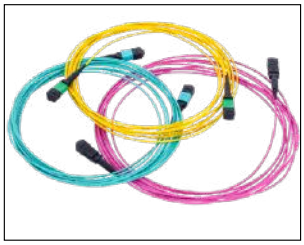
These transceivers use a singlemode fiber pair and usually have LC duplex interface.



Parallel transceivers

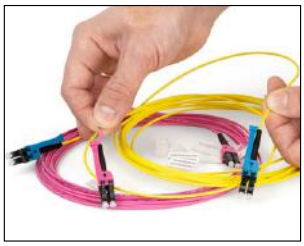
These transceivers normally use 8 fibers, 4 for transmit, 4 for receive. Depending on the distance they are for multimode or singlemode fiber.

Patch cords and assemblies



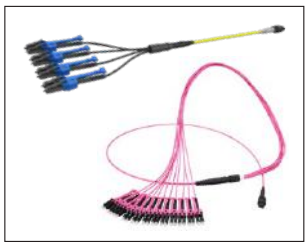
MTP jumpers

To be used for point-to-point connection or outside the rack with transition modules and patch modules to build links between racks.



Duplex assemblies

To be used inside racks for in-rack and direct-connections and also together with patch modules to build links between racks



Harness cables

Connect parallel to 4 duplex transceivers. To be used in direct-connect breakout applications scenarios inside the same rack or different.

Tools

Cleaning tools

Tools to clean end faces of fibers if needed.

Introduction

The rapid growth of artificial intelligence (AI) and machine learning (ML) is transforming industries and placing new demands on data center infrastructure. AI workloads require massive amounts of data processing, pushing data centers to adopt advanced network architectures that deliver exceptional speed, scalability, and efficiency. To keep up with these demands, high-speed and high-bandwidth solutions are crucial for enabling smooth communication between servers, storage systems, and computing components.

HUBER+SUHNER provides a versatile range of transceivers, cable assemblies, and structured cabling solutions specifically designed to meet the challenges of AI-driven applications. Built for outstanding performance, reliability, and scalability, our products help data centers manage complex AI workloads with ease while ensuring top-notch operational efficiency.

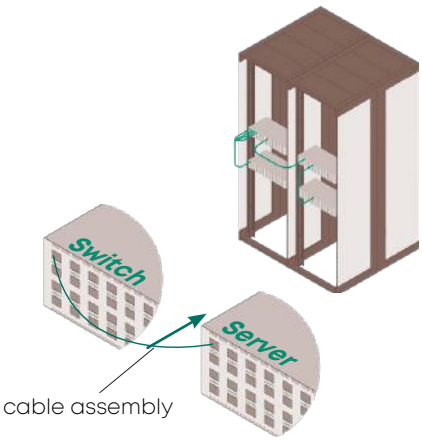
Cabling scenarios

Direct-connect

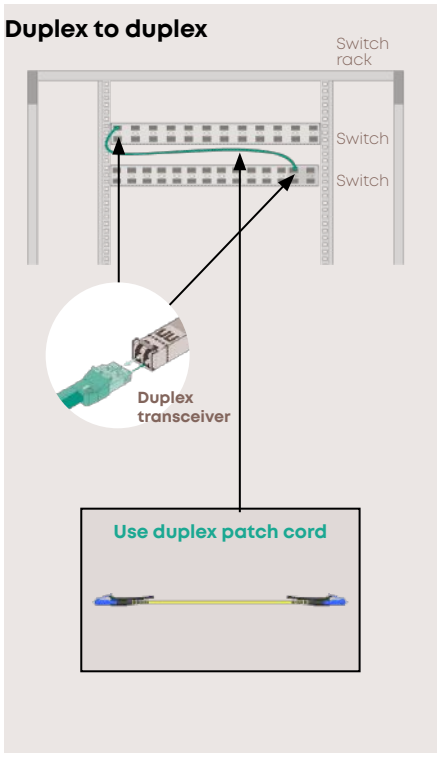
800G and 400G applications

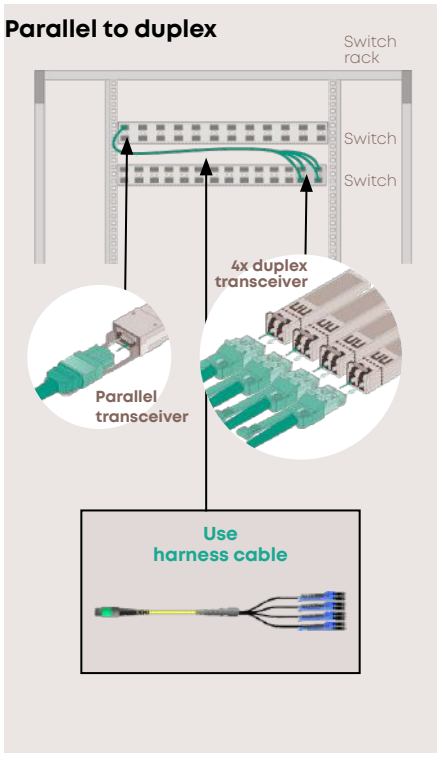
It is referred to as the direct connection between equipment within the same or adjacent racks.

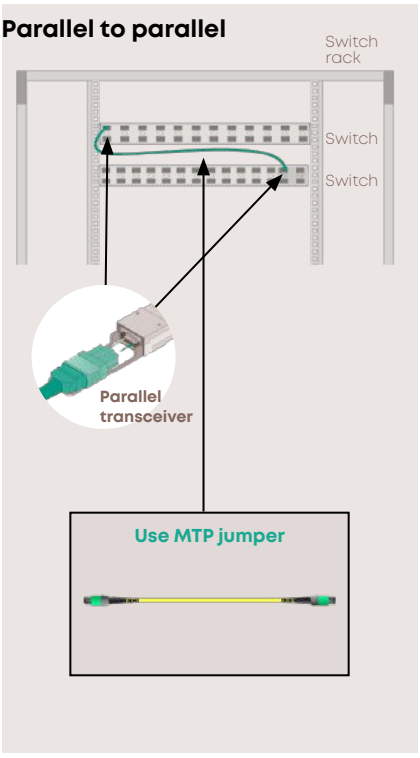
It typically involves point-to-point cabling to connect servers to leaf switches or connecting two switches within the same rack or row.



Direct-connect links for different types of transceivers







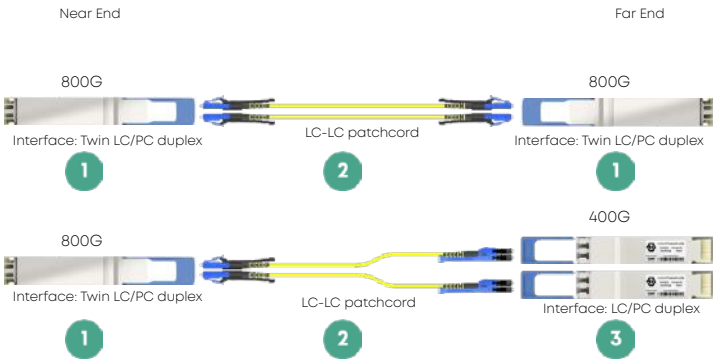
Duplex to duplex

Case 1

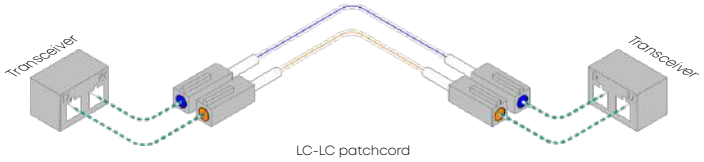
- 800G to 800G connection
- LC-XD uniboot patchcord
- Singlemode & multimode

Case 2

- 800G to 2x 400G connection
- LC-XD uniboot patchcord
- Singlemode & multimode



Polarity



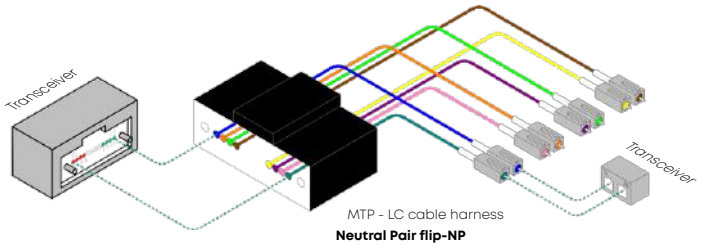
A-B / B-A

Parallel to duplex

Case 1

- 400G to 4x 100G connection
- MTP-LC cable harness
- Singlemode & multimode

Polarity



Neutral Pair flip-NP

800G OSFP112 FR4

COS-200A04NV11-13

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

LC duplex patch cord

LC uniboot push-pull XD to LC uniboot push-pull XD, duplex round 2.1mm, A-B / B-A

400G QSFP FR4

CQS-100A04

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

400G QSFP112

COS-101A03NV11-13
COM-100A02NV11-85

single port QSFP, MPO 8/12 APC, both SM & MM

MTP-LC cable harness

OH08NPL-DB0zzzF-0000MF-5100LPz
OH08NPL-DB4zzzF-0000MF-5100LP

8F, SM, 1xMTP8 female to 4xLC-XD6, Polarity NP, fan-out 100cm

100G QSFP28

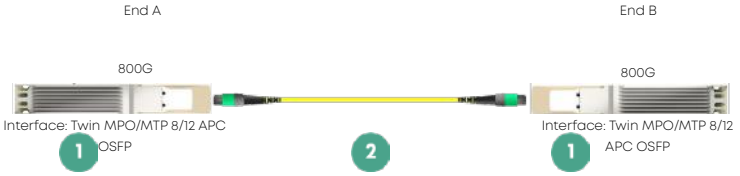
CQS-931A07
CQM-914A03

QSFP, LC duplex, SM/MM

Parallel to parallel

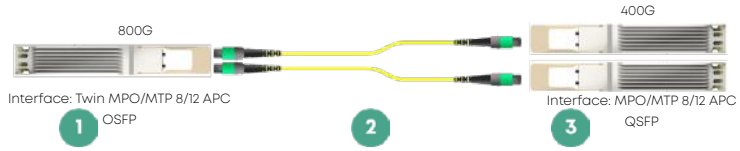
Case 1

- 800G to 800G
- MTP12 female to MTP12 female jumper
- Singlemode & Multimode



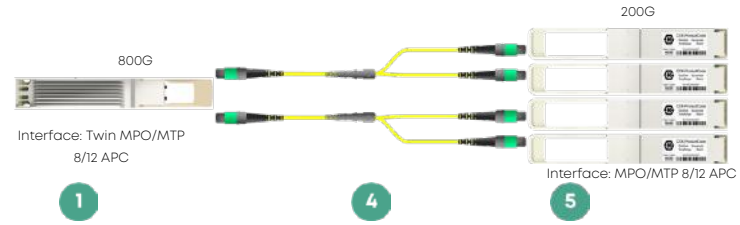
Case 2

- 800G to 2X400G
- MTP12 female to MTP12 female jumper
- Singlemode & Multimode

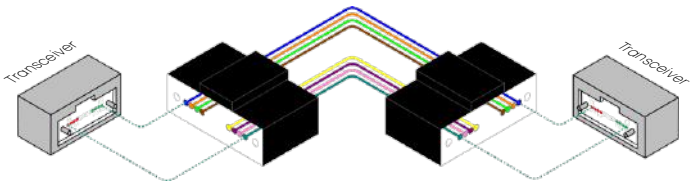


Case 3

- 800G to 4X200G
- MTP12 female to MTP12 female conversion harness
- Singlemode & Multimode



Polarity



MTP - MTP jumpers
Polarity B

1

800G twin-port OSFP
CQS-937A03
CQM-917A04
2x400Gb/s, dual MPO 8/12 APC, SM/MM

2

MTP jumper
MB12_MTAF_MTAF_A230y_zz.z_BB
MB12_MTAF_MTAF_A130R_zz.z_BB
MB12_MTAF_MTAF_O430y_zz.z_LL
MB12_MTAF_MTAF_O430R_zz.z_LLx
MTP12 female to MTP12 female, APC, 3mm, polarity B, both LSFH & OFNR

3

400G QSFP112
COS-101A03NV11-13
COM-100A02NV11-85
single port QSFP, MPO 8/12 APC, both SM & MM

4

Optipack Conversion Harness(MTP-MTP)
OCSXS-RF0zzzD-0000MF-5280MF
OCSXL-RF4zzzD-0000MF-5280MF
Optipack Conversion Harness, 8F, 1 x MTP12-Female(4F)to 2xMTP12-Female (4F), with fan-out 60cm

5

MTP-LC cable harness
OH08NPL-DB0zzzF-0000MF-5100LPz
OH08NPL-DB4zzzF-0000MF-5100LP
8F, SM, 1xMTP8 female to 4xLC-XD6, Polarity NP, fan-out 100cm

Understanding cabling within a Scalable Unit (SU)

In AI data centers, a Scalable Unit (SU) is a modular and standardized infrastructure block that includes compute, storage, and networking resources optimized for AI workloads. It allows data centers to expand incrementally by adding more units, ensuring consistent performance as demand grows. SUs typically include high-performance GPUs, TPUs, or AI accelerators, along with high-speed networking for low-latency communication. They enable seamless horizontal scaling and efficient workload management, making it easier to handle large-scale AI tasks like training and inference.

1 SU contains 32 Nodes/Server and 1 Server has 8 GPUs. Each of the server (DGX) has 4 compute dual ports(OSFP interface). Each GPU is connected to these ports. The number of leaf switches, spine switches or core switches will depend on how large is the cluster or POD in a network.

DGX SuperPOD is designed for large-scale AI deployments, offering extensive computational power through numerous DGX systems, advanced networking, and integrated software, making it ideal for enterprises handling massive AI workloads. DGX SuperPOD configurations utilize networks:

- Compute (we discuss only compute networks in this document)
- Storage
- In-Band management
- Out-of-Band mangement

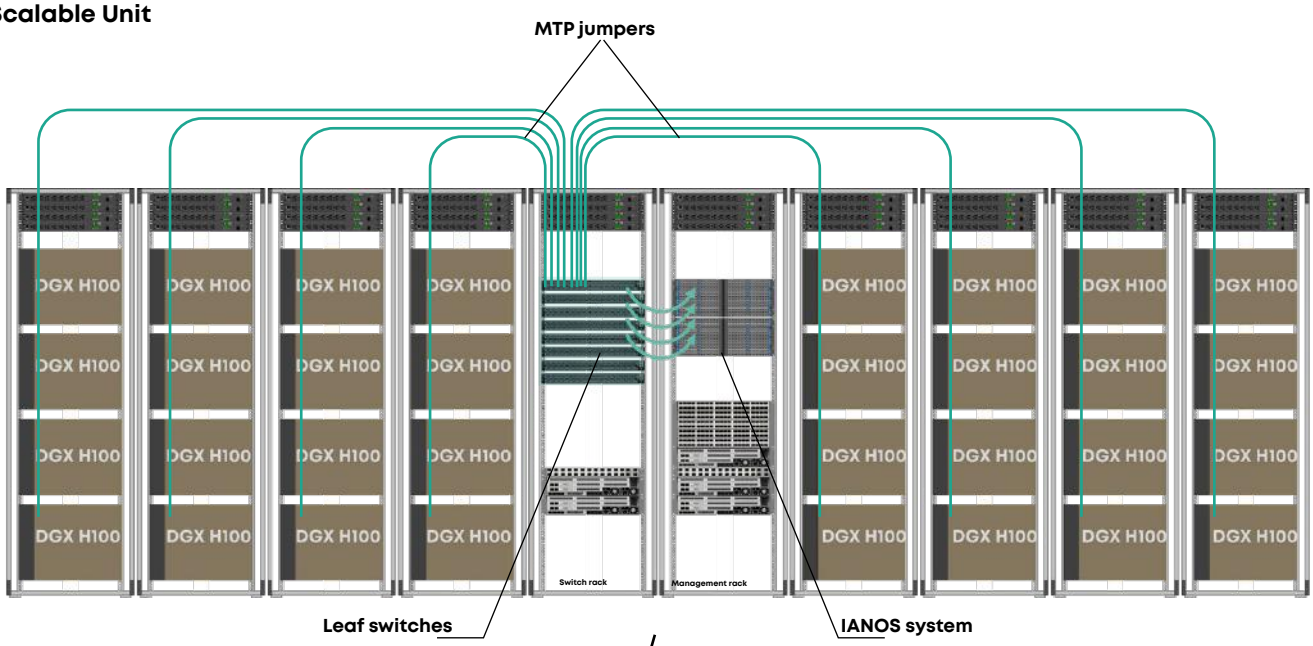
The compute ports have twin MPO 8/12 interface each 400Gb/s, therefore a server has 8 MPO interfaces. These connections could be both singlemode or multimode.

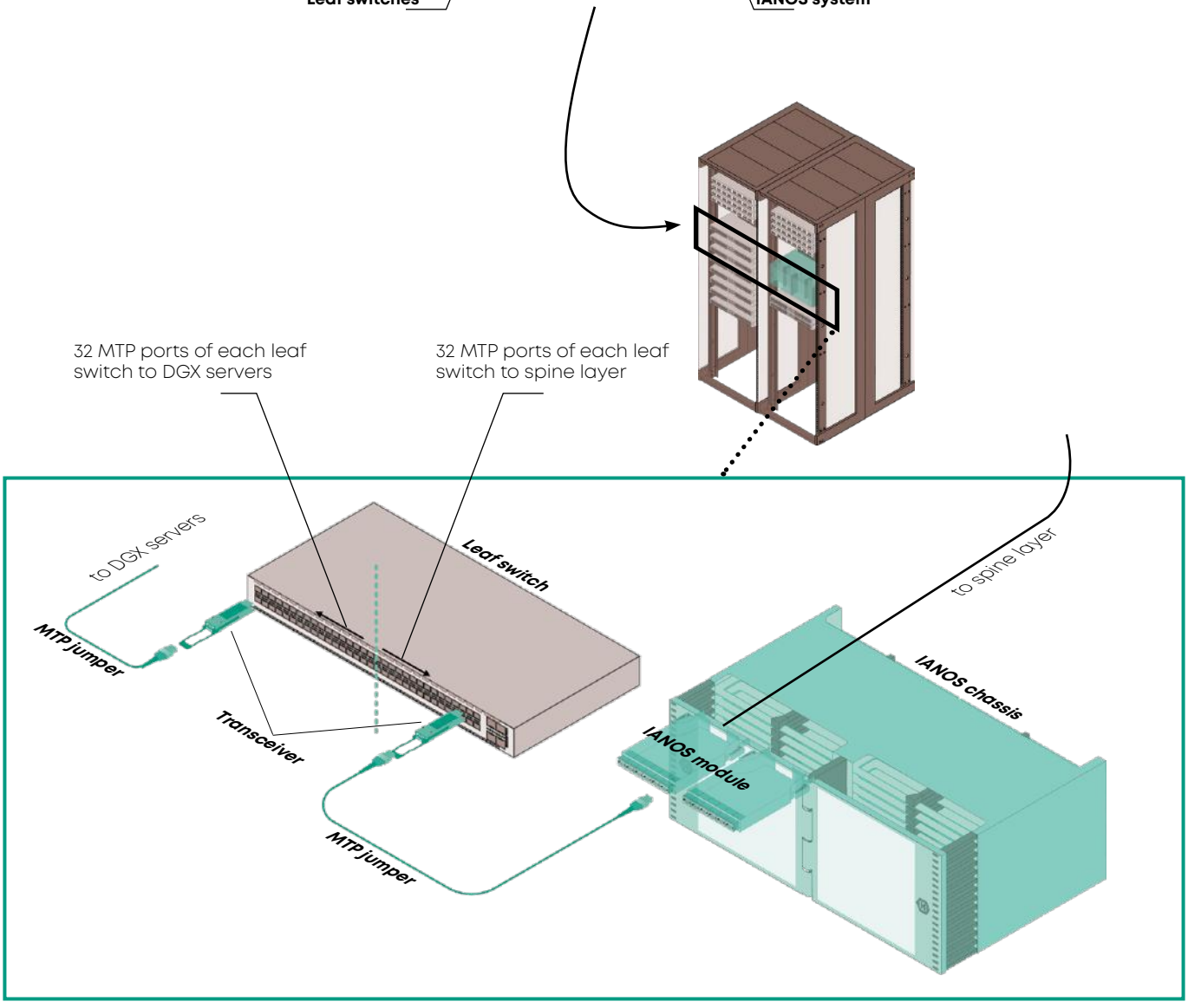
And each leaf switch has 64ports (32ports used to connect DGX server & rest 32ports to connect spine switch in spine layer). **It is generally seen that point-to-point or direct cabling is used connecting the server and leaf switches within a scalable unit.**

In here if we consider 16 SU, the number of servers needed are 512 and therefore the GPU count is 4096. Also the leaf switch and spine switch count should be 128 each. The below table is the reference for different SU count and their respective cable count needed.

SU count	Node count	GPU count	Infiniband switch count			Cable count		
			Leaf	Spine	Core	Node-Leaf	Leaf-Spine	Spine-Core
4	128	1024	32	16	-	1024	1024	1024
8	256	2048	64	32	-	2048	2048	2048
16	512	4096	128	128	64	4096	4096	4096
32	1024	8192	256	256	128	8192	8192	8192
64	2048	16384	512	512	256	16384	16384	16384

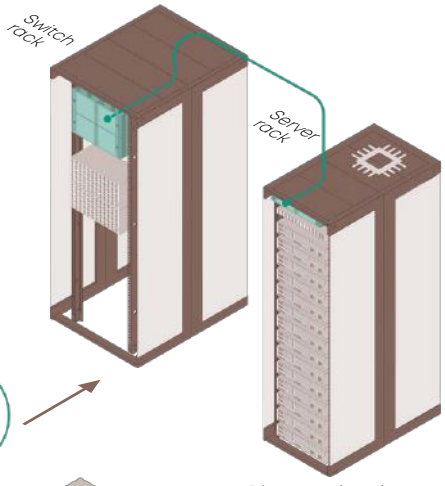
1 Scalable Unit





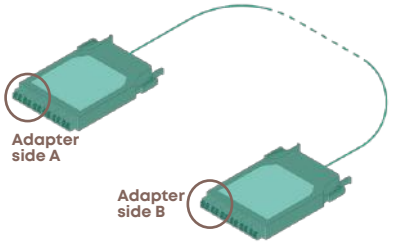
Inter-connect

Apply this for connections between equipment in distanced racks by adding permanent links. For example, connect a spine switch with leaf switches. Or end of row switch with servers. The connection is done via panels.

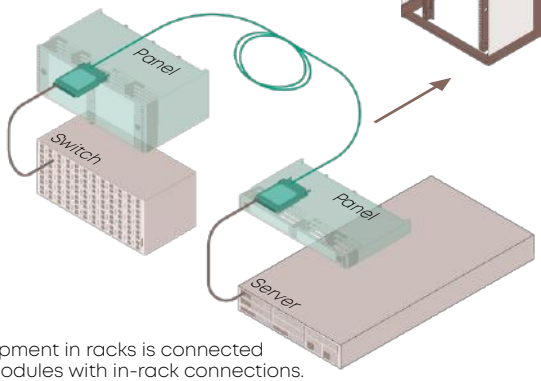


Distanced racks

Permanent link between modules in distant racks.



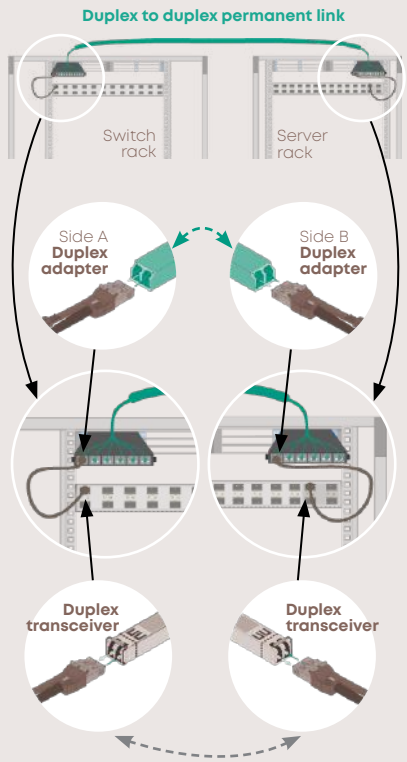
The permanent link has adapters on both sides.



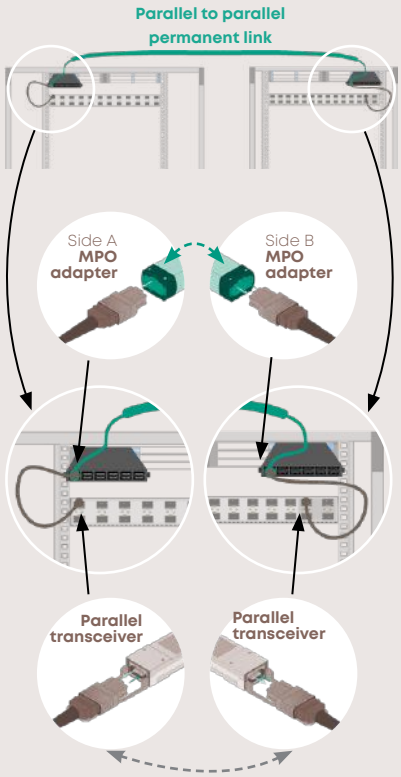
Equipment in racks is connected to modules with in-rack connections.

Permanent links for different types of transceivers

Duplex to duplex

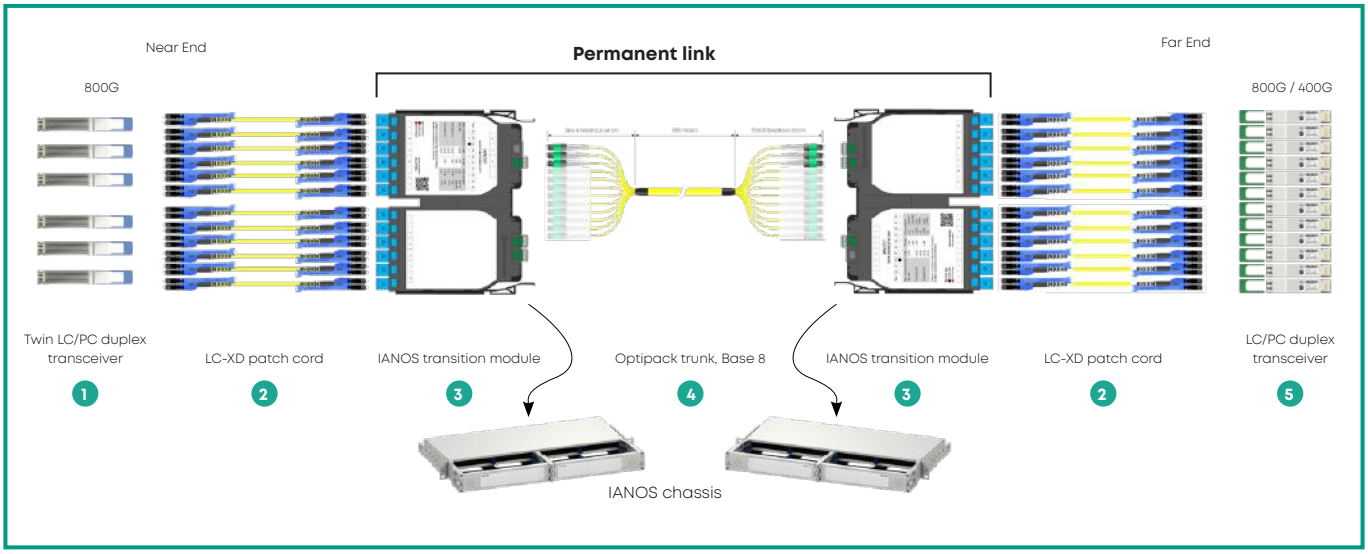


Parallel to parallel

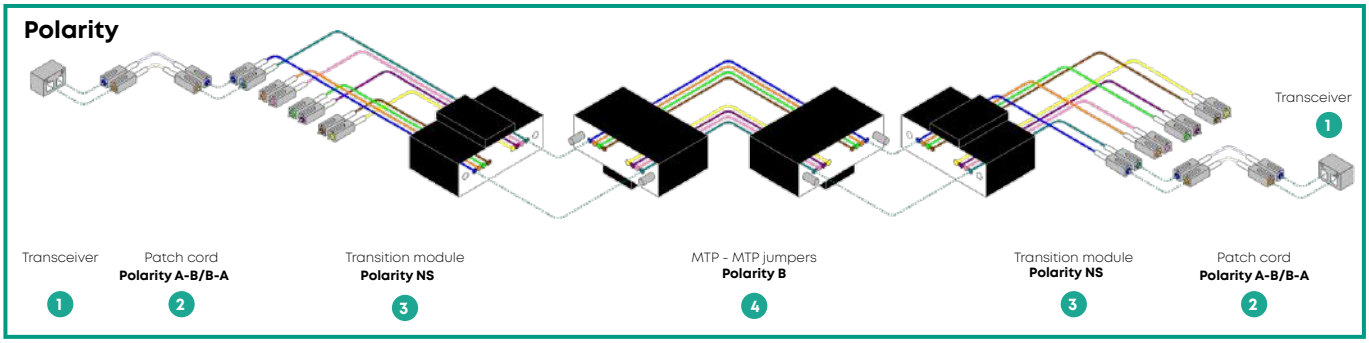


Duplex to duplex

Permanent link with 'IANOS transition module'



The twin LC/PC duplex transceiver is connected to two LC-XD patch cord, which is connected to the permanent link (transition module+optipack trunk+transition module) on both near end & far end. Connection between two switches (leaf to spine/spine to core) follow this application.



1

800G OSFP112 FR4

COS-200A04NV11-13

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

2

LC duplex patch cord

LC uniboot push-pull XD to LC uniboot push-pull XD, duplex round 2.1mm, A-B / B-A

3

IANOS transition module (MTP-LC)

85072956 ITD-12-LCUD-03-08CF-SM-NS-00WW
85072955 ITD-12-LCMD-03-08AF-OM-NS-00UU
85260627 ITD-12-LCMD-03-08AF-O4-NS-00UUx

Double size, base-12, front 12x LCD adapter, rear 2x MTP12, non-pinned, fiber allocation NS

4

Optipack trunk, 144f

OTI2CBL-CA0zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MMx

144F, 12xMTP12 male to 12xMTP12 male, polarity B, fan-out 60cm

5

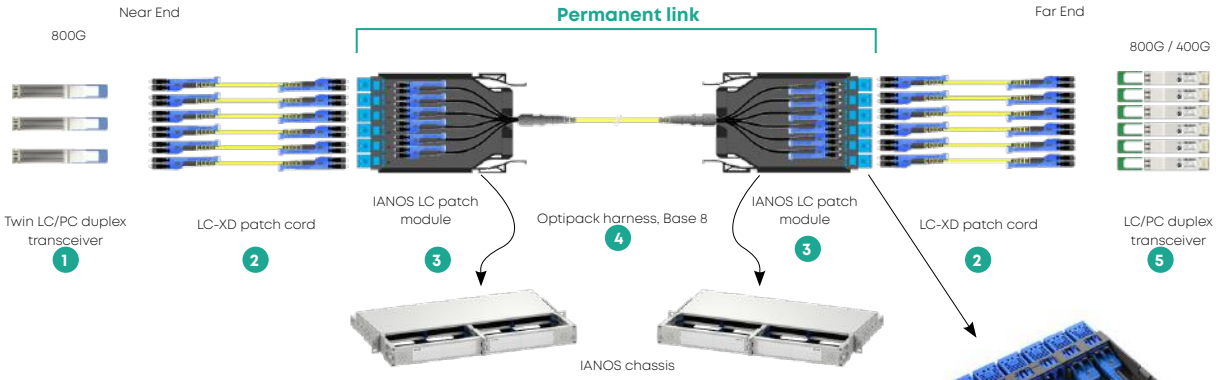
400G QSFP FR4

CQS-100A04

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

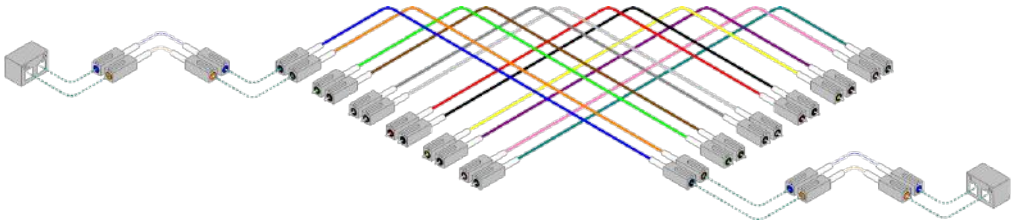
Duplex to duplex

Permanent link with 'IANOS patch module'



The twin LC/PC duplex transceiver is connected to two LC-XD patch cord, which is connected to the permanent link (patch module + LC-LC optipack harness + patch module) on both end A and end B. Connection between two switches (leaf to spine/spine to core) follow this application.

Polarity



IANOS LC patch module is not shown in polarity drawing as it contains only adapter packs which doesn't affect the polarity

1

800G OSFP112 FR4

COS-200A04NV11-13

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

2

LC duplex patch cord

LC uniboot push-pull XD to LC uniboot push-pull XD, duplex round 2.1mm, A-B / B-A

3

IANOS transition module (MTP-LC)

85072956 ITD-12-LCUD-03-08CF-SM-NS-00WW
85072955 ITD-12-LCMD-03-08AF-04-NS-00UU
85260627 ITD-12-LCMD-03-08AF-04-NS-00UUx
Double size, base-12, front 12x LCD adapter, rear 2x MTP12, non-pinned, fiber allocation NS

4

Optipack trunk, 144f

OTI2CBL-CA0zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MMx
144F, 12xMTP12 male to 12xMTP12 male, polarity B, fan-out 60cm

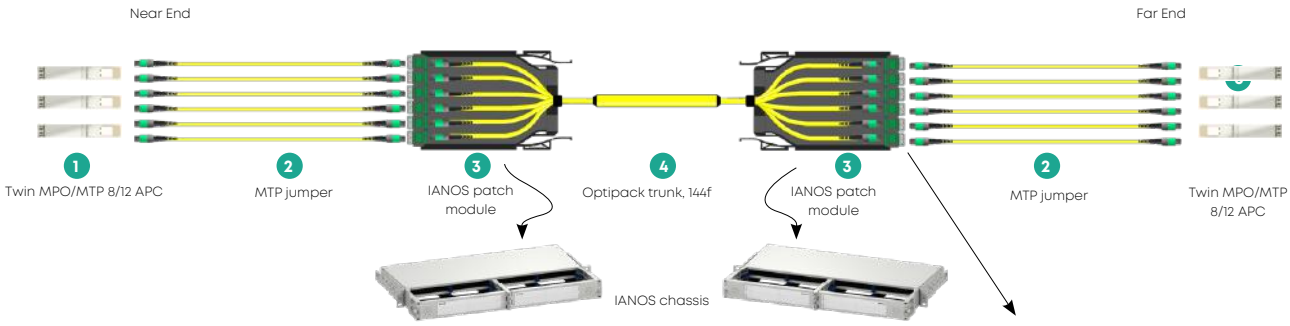
5

400G QSFP FR4

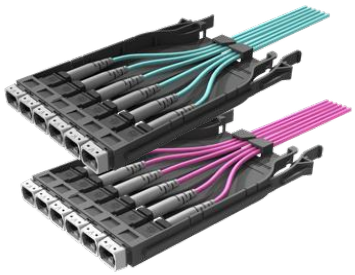
CQS-100A04

2km, 1310nm, 2x LC/PC duplex, singlemode, PAM4

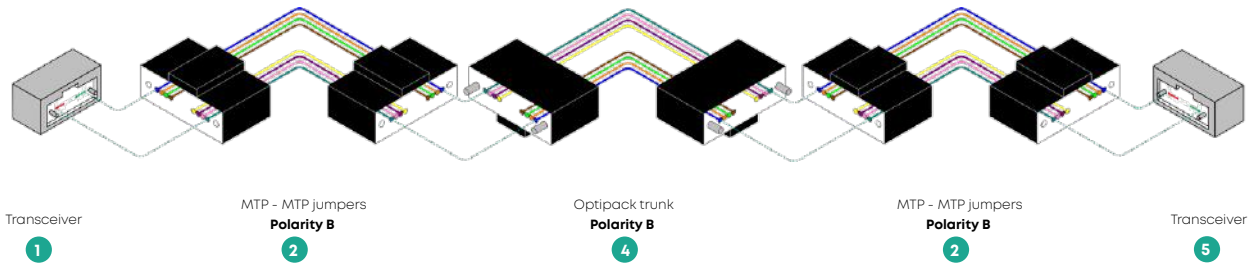
Parallel to parallel



This structure is most appropriate to connect leaf to spine switches and also spine to core switches when they are placed in different location within the datacenter. The twin MTP transceiver is connected to MTP jumper, which is connected to the permanent link (MTP patch module + optipack trunk + MTP patch module) and routed to twin MTP transceiver at far end



Polarity



1

800G twin-port OSFP

CQS-937A03
CQM-917A04

2x400Gb/s, dual MPO 8/12 APC, SM/MM

2

MTP jumper

MB12_MTAF_MTAF_A230y_zz.z_BB
MB12_MTAF_MTAF_A130R_zz.z_BB
MB12_MTAF_MTAF_O430y_zz.z_LL
MB12_MTAF_MTAF_O430R_zz.z_LLx

MTP12 female to MTP12 female, APC, 3mm, polarity B, both LSFH & OFNR

3

IANOS patch module (MTP-MTP)

85120991 IPS-06-08AF-00-0000-00-00-0000

Patch module for MTP to MTP connection, single size, base-8, 6x MTP8 adaptors, SM/MM

4

Optipack trunk, 144f

OTI2CBL-CA0zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MM
OTI2CBL-CA4zzzF-5060MM-5060MMx

144F, 12xMTP12 male to 12xMTP12 male, polarity B, fan-out 60cm

5

400G QSFP112

COS-101A03NV11-13
COM-100A02NV11-85

single port QSFP, MPO 8/12 APC, both SM & MM

IANOS® transition module

IANOS transition modules are built using fiber optic assembly, which transitions the MTP female at the rear side inside of the module to the LC duplex on the front side. Transition modules are used to build various plug-and-play structured cabling permanent links.

Transition modules are available in single or double versions and can be of Base-8 or Base-12e methods.

Modules are compatible with MTP-12 fiber jumpers or MTP-MTP trunk cable systems of matching fiber type.

Applications

Base-8 transition modules

- Duplex to duplex interconnection with MTP trunk & transition module as permanent link

Features

- Fast tool-less snapping in to a chassis from front or rear
- Optical low-loss performance
- Compatible with any IANOS chassis
- Factory cleaned, tested

Double transition module Base-8

Technical data

Fiber assembly type	3x transition circuits Base-8		
Type of fiber	E9/125A2, ITU-T G.657.A2	G50/125-OM4, ITU-T G.651.1 Bend-optimized	G50/125-OM4, ITU-T G.651.1 Bend-optimized
Number of fibers	24		
Front	12x LC UPC duplex (blue)	12x LC duplex (heather violet)	12x LC duplex (aqua)
Rear	3x MPO adapter (type A: key up/key down), green body, with MTP-8 female connector. Adapter has grey shroud.	3x MPO reversable adapter (default: type A, key up/key down), black body with MTP-8 APC female connector. Adapter has grey shroud.	3x MPO reversable adapter (default: type A, key up/key down), black body with MTP-8 APC female connector. Adapter has grey shroud.
Insertion loss	Max. 0.50 dB (for each fiber, both connectors included)	Max. 0.35 dB (for each fiber, both connectors included)	Max. 0.35 dB (for each fiber, both connectors included)
Return loss	Min. 50 dB (for each fiber, both connectors included)	Min. 30 dB (for each fiber, both connectors included)	Min. 30 dB (for each fiber, both connectors included)
Polarity	Universal polarity NS (Type U1 as per TIA-568.3-E)		
Ordering information	85072956 ITD-12-LCUD-03-08CF-SM-NS-00WW	85264021 ITD-12-LCMD-03-08XF-O4-NS-00UU	85264038 ITD-12-LCQD-03-08XF-O4-NS-00UU

IANOS® patch module

IANOS patch modules allow MTP and LC jumpers or patch cables to be connected directly to patch cords.

Duplex patching modules provide a fast plug-and-play alternative to transition or splice termination methods, and the MPO module is designed to support various application with parallel optics.

Applications

Duplex patch modules

- Duplex to duplex permanent link
- Parallel to parallel permanent links

Features

- Fast tool-less snapping in to a chassis from front or rear
- Lid for additional identification
- Compatible with any IANOS chassis

MPO patch modules

Technical data	
Front	6x MPO reversable adapters (suitable for both singlemode and multimode). Black adapter with grey shroud.
Ordering information	85120991 IPS-06-08AF-00-0000-00-00-0000

Duplex patch modules

Technical data			
Front	6x LC UPC duplex (blue)	6x LC duplex (heather violet) (rest of world)	6x LC duplex (aqua) (Americas)
Ordering information	85072924 IPS-06-LCUD-00-0000-SM-00-0000	85073355 IPS-06-LCMD-00-0000-O4-00-0000	85260628 IPS-06-LCQD-00-0000-O4-00-0000

IANOS® chassis

The IANOS chassis comes in a standard design and is suitable for applications where connections to servers and switches are required in the same or adjacent racks.

It is mounted in a network cabinet which could contain IANOS single module or IANOS double module

For more information about the IANOS chassis, please visit the official website at the following link **IANOS chassis**

IANOS® accessories

IANOS-CABLE-MANAGER-FRONT-1U
used in 750+ wide cabinets

IANOS-REAR-CABLE-MGR-1U-T4
used in 600+ wide cabinets

IANOS-REAR-CABLE-MGR-1U-T4
used in 600+ wide cabinets

Technical data			
Description	IANOS cable manager front, 1U	IANOS rear cable manager, 1U, grey	IANOS rear cable manager, 1U, grey
Ordering information	85108769 IANOS-CABLE-MANAGER-FRONT-1U	85069473 IANOS-REAR-CABLE-MGR-1U-T4	85107331 IANOS-LITE-REAR-CAB-MGR-1U-T4

Parallel transceivers

Parallel transceivers are ideal for short-reach applications in AI datacenters, offering a cost-effective alternative to duplex transceivers. Their simplified design—eliminating the need for multiplexers, DSPs, and complex lasers—reduces both component costs and power consumption.

SR4 models utilize multimode fiber, while DR4 models are designed for singlemode fiber.

- Singlemode

800G OSFP112 2×400G DR4 MPO APC

400G OSFP112 2×400G FR4 LC duplex

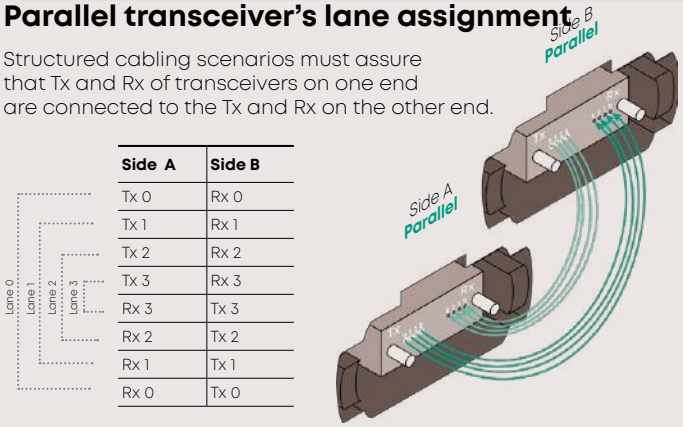
- Multimode

800G OSFP112 2×400G SR4 MPO APC

Parallel transceiver's lane assignment

Structured cabling scenarios must assure that Tx and Rx of transceivers on one end are connected to the Tx and Rx on the other end.

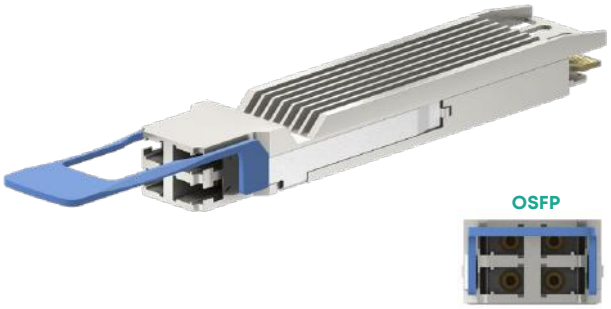
Side A	Side B
Tx 0	Rx 0
Tx 1	Rx 1
Tx 2	Rx 2
Tx 3	Rx 3
Rx 3	Tx 3
Rx 2	Tx 2
Rx 1	Tx 1
Rx 0	Tx 0



Duplex transceivers

Duplex transceivers are ideal for longer-distance links, requiring just a pair of fibers—one for transmit and one for receive. They typically use singlemode fiber and feature LC duplex connectors, making them a standard choice in scalable, flexible network architectures such as leaf-spine switch topologies.

Below are the most commonly used Ethernet transceivers with LC duplex interfaces

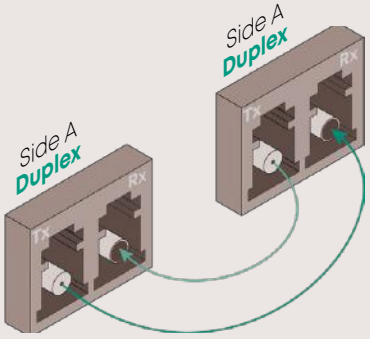


- Singlemode

400G OSFP112 FR4 LC duplex

Duplex transceiver's lane assignment

Structured cabling scenarios must assure that Tx and Rx of duplex transceivers on one end are connected to Tx and Rx on the other end.



Side A	Side B
Tx A	Rx B
Rx A	Tx B

Transceiver Specifications Overview

Description	Form Factor	Reach	NVIDIA Part Number	HUBER+SUHNER Part Number
2×400Gb/s 2×FR4 Singlemode	Twin-port OSFP Dual LC Duplex	2km 7W	MMS4X50-NM	**COS-200A04NV11-13**
400Gb/s FR4 Singlemode	Single port QSFP LC Duplex	2km 10W	MMS1V50-WM	**CQS-100A04**
2×400Gb/s 2×DR4 Singlemode	Twin-port OSFP Dual MPO-8/12/APC	100m 17W	MMS4X00-NS (Finned top)	COS-204A03NV11-13
			MMS4X00-NS-FLT (Flat top)	COS-203A03NV11-13
		500m 17W	MMS4X00-NM (Finned top)	**COS-202A03NV11-13**
			MMS4X00-NM-FLT (Flat top)	**COS-201A03NV11-13**
400Gb/s DR4 Singlemode	Single-port OSFP MPO-8/12/APC	100m 9W	MMS4X00-NS400	**COS-101A03NV11-13**
200Gb/s DR4 Singlemode	Single-port OSFP MPO-8/12/APC	100m 17W	QSFP112 MMS1X00-NS400	**CQS-110A03NV11-13**
2×400Gb/s 2×SR4 Multimode	Twin-port OSFP Dual MPO-8/12/APC	50m 17W	MMA4Z00-NS (Finned top)	COM-201A02NV11-85
			MMA4Z00-NS-FLT (Flat top)	COM-200A02NV11-85
400Gb/s SR4 Multimode	Single-port OSFP MPO-8/12/APC	50m 17W	OSFP MMA4Z00-NS400	COM-100A02NV11-85
200Gb/s SR4 Multimode	Single-port OSFP MPO-8/12/APC	50m 17W	QSFP112 MMA1Z00-NS400	CQM-102A02NV11-85

Click to see more transceivers

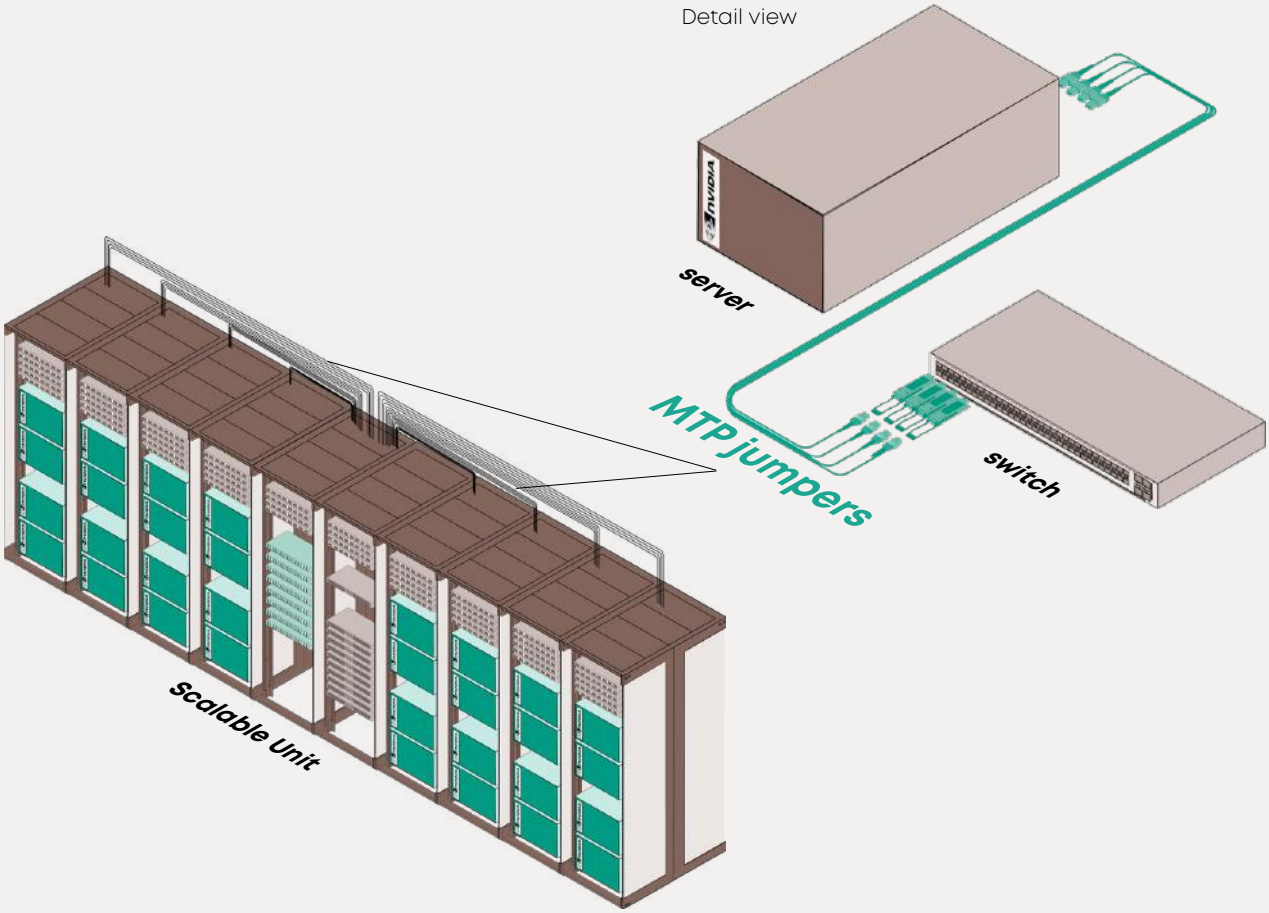
MTP jumpers

MTP jumpers are 8/12 fiber Optipack cables terminated with MTP female connectors on both sides. They are designed to provide high-density, low-loss connectivity in data centers, ensuring reliable and efficient data transmission.

MTP jumpers are used for point-to-point connections between the server and leaf switch in a scalable unit, and they can also be deployed between leaf to spine and spine to core switches to facilitate high-speed data flow across the network. These jumpers are ideal for high-bandwidth applications, supporting rapid deployment and minimizing cable clutter. Their compact design and ability to handle multiple fibers in a single connector make them a preferred choice for environments where space and performance are critical.

Applications

- Duplex to duplex permanent link
- Parallel to parallel permanent links



Singlemode
LFSH cable

Length in mtr	Order information		Description
3	85142238	MB12_MTAF_MTAF_A230y_03.0_BB	MTP12 female-MTP12 female, SM, polarity B, yellow, LSFH rated 3mm cable, APC polished connectors
5	85114883	MB12_MTAF_MTAF_A230y_05.0_BB	
7	85114885	MB12_MTAF_MTAF_A230y_07.0_BB	
10	85145686	MB12_MTAF_MTAF_A230y_10.0_BB	
15	85114889	MB12_MTAF_MTAF_A230y_15.0_BB	
20	84384176	MB12_MTAF_MTAF_A230y_20.0_BB	
30	84384178	MB12_MTAF_MTAF_A230y_30.0_BB	
50	85206482	MB12_MTAF_MTAF_A230y_50.0_BB	
100	85093614	MB12_MTAF_MTAF_A230y_0100_BB	
150	85259006	MB12_MTAF_MTAF_A230y_0150_BB	

Singlemode
OFNR cable

Length in mtr	Order information		Description
3	85114243	MB12_MTAF_MTAF_A130R_03.0_BB	MTP12 female-MTP12 female, SM, polarity B, yellow, OFNR riser rated 3mm cable, APC polished connectors
5	85106649	MB12_MTAF_MTAF_A130R_05.0_BB	
7	85106650	MB12_MTAF_MTAF_A130R_07.0_BB	
10	85100341	MB12_MTAF_MTAF_A130R_10.0_BB	
15	85101304	MB12_MTAF_MTAF_A130R_15.0_BB	
20	85101305	MB12_MTAF_MTAF_A130R_20.0_BB	
30	85101307	MB12_MTAF_MTAF_A130R_30.0_BB	
50	85101311	MB12_MTAF_MTAF_A130R_50.0_BB	
100	85245108	MB12_MTAF_MTAF_A130R_0100_BB	
150	85245227	MB12_MTAF_MTAF_A130R_0150_BB	

Multimode
LFSH cable

Length in mtr	Order information		Description
3	on request	MB12_MTMF_MTMF_O430y_03.0_LLx	MTP12 female-MTP12 female, MM, polarity B, heather violet, LSFH rated 3mm cable, APC polished connectors
5		MB12_MTMF_MTMF_O430y_05.0_LLx	
7		MB12_MTMF_MTMF_O430y_07.0_LLx	
10		MB12_MTMF_MTMF_O430y_10.0_LLx	
15		MB12_MTMF_MTMF_O430y_15.0_LLx	
20		MB12_MTMF_MTMF_O430y_20.0_LLx	
25		MB12_MTMF_MTMF_O430y_25.0_LLx	
30		MB12_MTMF_MTMF_O430y_30.0_LLx	
35		MB12_MTMF_MTMF_O430y_35.0_LLx	
40		MB12_MTMF_MTMF_O430y_40.0_LLx	
50		MB12_MTMF_MTMF_O430y_50.0_LLx	

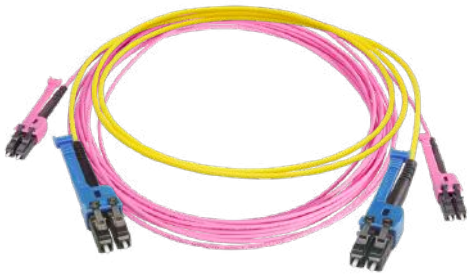
Multimode
OFNR cable

Length in mtr	Order information		Description
3	85244956	MB12_MTAF_MTAF_O430R_03.0_LLx	MTP12 female-MTP12 female, MM, polarity B, aqua, OFNR rated 3mm cable, APC polished connectors
5	85244954	MB12_MTAF_MTAF_O430R_05.0_LLx	
7	85244238	MB12_MTAF_MTAF_O430R_07.0_LLx	
10	85243711	MB12_MTAF_MTAF_O430R_10.0_LLx	
15	85243710	MB12_MTAF_MTAF_O430R_15.0_LLx	
20	85243709	MB12_MTAF_MTAF_O430R_20.0_LLx	
25	85243708	MB12_MTAF_MTAF_O430R_25.0_LLx	
30	85240382	MB12_MTAF_MTAF_O430R_30.0_LLx	
35	85243707	MB12_MTAF_MTAF_O430R_35.0_LLx	
40	85243706	MB12_MTAF_MTAF_O430R_40.0_LLx	
50	85243705	MB12_MTAF_MTAF_O430R_50.0_LLx	

Duplex assemblies

Duplex assemblies, also called duplex patch cords, are 2-fiber cables terminated with LC duplex connectors on both sides.

The LC-XD connector is a HUBER+SUHNER patented connector that sets new standards for packing density and handling. It allows for adding and removing patch cords in a dense environment.



Applications

- Duplex to duplex direct-connect
- Duplex to duplex inter-connect, with transiton modules
- Duplex to duplex permanent link, with patch modules

Features

- Polarity flipping without tool
- Reduced cable diameters
- Push-pull mechanism, pulling antigrip tab
- Labelling possibility

Singlemode
LFSH cable

Singlemode
OFNR cable

Length in mtr	Order information		Description
1	85016597	PCRS_LCUX_LCUX_A221T_01.0_SS	Duplex patch cord, LC uniboot push-pull XD to LC uniboot push-pull XD, UPC, duplex round 2.1mm yellow, SM LSFH, A-B / B-A
2	85016599	PCRS_LCUX_LCUX_A221T_02.0_SS	
3	85016600	PCRS_LCUX_LCUX_A221T_03.0_SS	
3.5	85020818	PCRS_LCUX_LCUX_A221T_03.5_SS	
4	85019951	PCRS_LCUX_LCUX_A221T_04.0_SS	
5	85016601	PCRS_LCUX_LCUX_A221T_05.0_SS	
6	85020819	PCRS_LCUX_LCUX_A221T_06.0_SS	
7	85020820	PCRS_LCUX_LCUX_A221T_07.0_SS	
8	85074243	PCRS_LCUX_LCUX_A221T_08.0_SS	
9	85098855	PCRS_LCUX_LCUX_A221T_09.0_SS	
10	85016602	PCRS_LCUX_LCUX_A221T_10.0_SS	
11	85119362	PCRS_LCUX_LCUX_A221T_11.0_SS	
12	85085713	PCRS_LCUX_LCUX_A221T_12.0_SS	
14	85143487	PCRS_LCUX_LCUX_A221T_14.0_SS	
15	85020821	PCRS_LCUX_LCUX_A221T_15.0_SS	
16	85142891	PCRS_LCUX_LCUX_A221T_16.0_SS	
17	85144374	PCRS_LCUX_LCUX_A221T_17.0_SS	
19	85144375	PCRS_LCUX_LCUX_A221T_19.0_SS	
20	85020822	PCRS_LCUX_LCUX_A221T_20.0_SS	
25	85025976	PCRS_LCUX_LCUX_A221T_25.0_SS	
30	85025977	PCRS_LCUX_LCUX_A221T_30.0_SS	

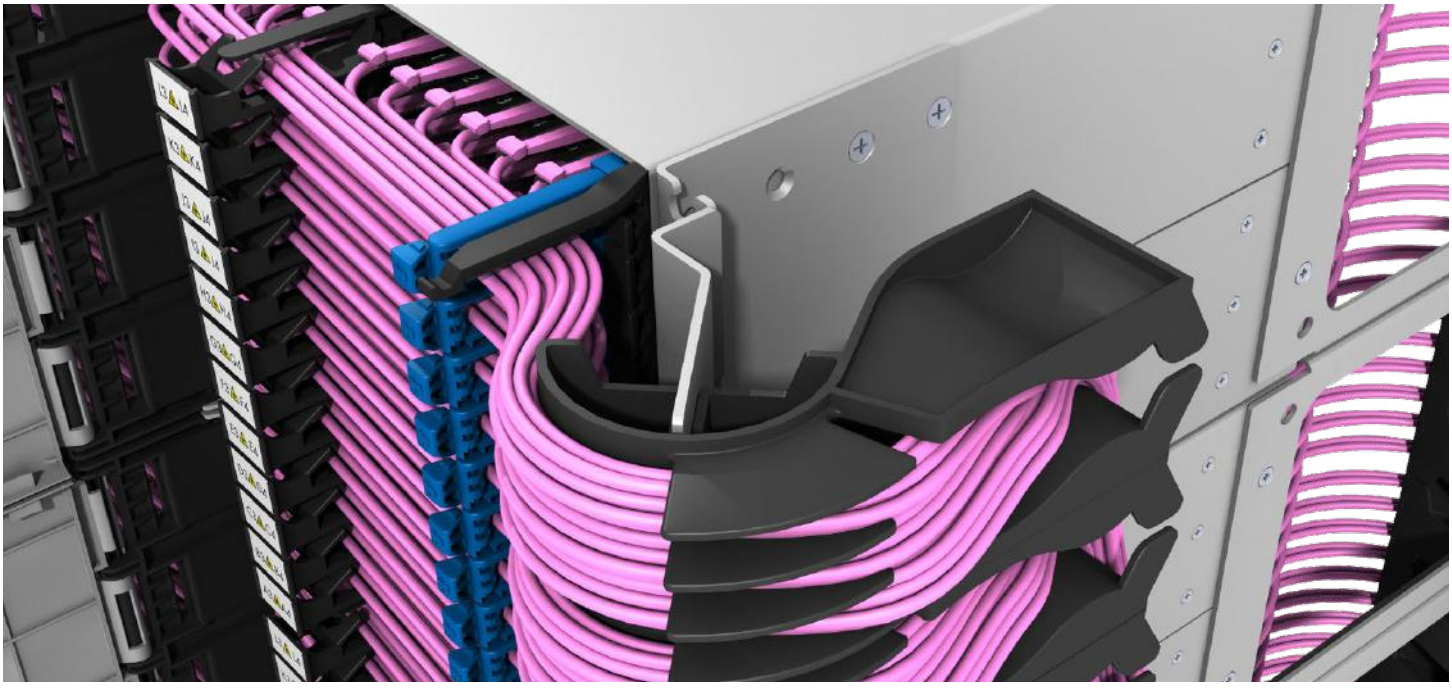
Length in mtr	Order information		Description
1	85096501	PCRS_LCUX_LCUX_A221R_01.0_SS	Duplex patch cord, LC uniboot push-pull XD to LC uniboot push-pull XD, UPC, duplex round 2.1mm yellow, SM OFNR, A-B / B-A
2	85095446	PCRS_LCUX_LCUX_A221R_02.0_SS	
3	85259087	PCRS_LCUX_LCUX_A221R_03.0_SS	
3.5	85090209	PCRS_LCUX_LCUX_A221R_03.5_SS	
4	85089028	PCRS_LCUX_LCUX_A221R_04.0_SS	
5	85104746	PCRS_LCUX_LCUX_A221R_05.0_SS	
6	85104225	PCRS_LCUX_LCUX_A221R_06.0_SS	
7	85090210	PCRS_LCUX_LCUX_A221R_07.0_SS	
8	85089029	PCRS_LCUX_LCUX_A221R_08.0_SS	
9	85104747	PCRS_LCUX_LCUX_A221R_09.0_SS	
10	85088924	PCRS_LCUX_LCUX_A221R_10.0_SS	
11	85259088	PCRS_LCUX_LCUX_A221R_11.0_SS	
12	85259089	PCRS_LCUX_LCUX_A221R_12.0_SS	
13	85103358	PCRS_LCUX_LCUX_A221R_13.0_SS	
14	85195011	PCRS_LCUX_LCUX_A221R_14.0_SS	
15	85259090	PCRS_LCUX_LCUX_A221R_15.0_SS	
16	85110632	PCRS_LCUX_LCUX_A221R_16.0_SS	
17	85259091	PCRS_LCUX_LCUX_A221R_17.0_SS	
18	85259093	PCRS_LCUX_LCUX_A221R_18.0_SS	
19	85259094	PCRS_LCUX_LCUX_A221R_19.0_SS	
20	85100113	PCRS_LCUX_LCUX_A221R_20.0_SS	
25	85168269	PCRS_LCUX_LCUX_A221R_25.0_SS	
30	85100114	PCRS_LCUX_LCUX_A221R_30.0_SS	

multimode
LFSH cable

multimode
OFNR cable

Length in mtr	Order information		Description
1	85011862	PCRS_LCMX_LCMX_O421T_01.0_LL	Duplex patch cord, LC uniboot push-pull XD to LC uniboot push-pull XD, MM, LSFH, duplex round 2.1mm, OM4, A-B /B-A
2	85019837	PCRS_LCMX_LCMX_O421T_02.0_LL	
3	85019838	PCRS_LCMX_LCMX_O421T_03.0_LL	
3.5	85021394	PCRS_LCMX_LCMX_O421T_03.5_LL	
4	85019950	PCRS_LCMX_LCMX_O421T_04.0_LL	
5	85019839	PCRS_LCMX_LCMX_O421T_05.0_LL	
6	85021395	PCRS_LCMX_LCMX_O421T_06.0_LL	
7	85021396	PCRS_LCMX_LCMX_O421T_07.0_LL	
8	85086496	PCRS_LCMX_LCMX_O421T_08.0_LL	
9	85086497	PCRS_LCMX_LCMX_O421T_09.0_LL	
10	85019840	PCRS_LCMX_LCMX_O421T_10.0_LL	
11	85103030	PCRS_LCMX_LCMX_O421T_11.0_LL	
12	85126556	PCRS_LCMX_LCMX_O421T_12.0_LL	
13	85153271	PCRS_LCMX_LCMX_O421T_13.0_LL	
14	85147029	PCRS_LCMX_LCMX_O421T_14.0_LL	
15	85021397	PCRS_LCMX_LCMX_O421T_15.0_LL	
16	85126557	PCRS_LCMX_LCMX_O421T_16.0_LL	
17	85153272	PCRS_LCMX_LCMX_O421T_17.0_LL	
18	85145248	PCRS_LCMX_LCMX_O421T_18.0_LL	
19	85153273	PCRS_LCMX_LCMX_O421T_19.0_LL	
20	85021398	PCRS_LCMX_LCMX_O421T_20.0_LL	
25	85025988	PCRS_LCMX_LCMX_O421T_25.0_LL	
30	85025989	PCRS_LCMX_LCMX_O421T_30.0_LL	

Length in mtr	Order information		Description
1	85259095	PCRS_LCMX_LCMX_O421R_01.0_LL	Duplex patch cord, LC uniboot push-pull XD to LC uniboot push-pull XD, MM, OFNR, duplex round 2.1mm, OM4, A-B /B-A
2	85095828	PCRS_LCMX_LCMX_O421R_02.0_LL	
3	85097638	PCRS_LCMX_LCMX_O421R_03.0_LL	
3.5	85090226	PCRS_LCMX_LCMX_O421R_03.5_LL	
4	85096285	PCRS_LCMX_LCMX_O421R_04.0_LL	
5	85090227	PCRS_LCMX_LCMX_O421R_05.0_LL	
6	85259096	PCRS_LCMX_LCMX_O421R_06.0_LL	
7	85090228	PCRS_LCMX_LCMX_O421R_07.0_LL	
8	85111650	PCRS_LCMX_LCMX_O421R_08.0_LL	
9	85259097	PCRS_LCMX_LCMX_O421R_09.0_LL	
10	85090229	PCRS_LCMX_LCMX_O421R_10.0_LL	
11	85252524	PCRS_LCMX_LCMX_O421R_11.0_LL	
12	85258584	PCRS_LCMX_LCMX_O421R_12.0_LL	
13	85259098	PCRS_LCMX_LCMX_O421R_13.0_LL	
14	85249935	PCRS_LCMX_LCMX_O421R_14.0_LL	
15	85258585	PCRS_LCMX_LCMX_O421R_15.0_LL	
16	85259099	PCRS_LCMX_LCMX_O421R_16.0_LL	
17	85258586	PCRS_LCMX_LCMX_O421R_17.0_LL	
18	85259100	PCRS_LCMX_LCMX_O421R_18.0_LL	
19	85259101	PCRS_LCMX_LCMX_O421R_19.0_LL	
20	85259102	PCRS_LCMX_LCMX_O421R_20.0_LL	
25	85259103	PCRS_LCMX_LCMX_O421R_25.0_LL	



Optipack trunk

Optipack trunk cables are high density multi-stranded cables which form the backbone of the data center. Available in different fiber-counts up to 144 fibers, the Optipack trunks reduce the installation time by consolidating multiple sub-units into a single cable

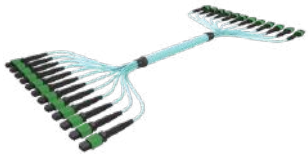
Applications

- Duplex to duplex, with IANOS transition module
- Parallel to parallel with IANOS patch module

Features

- Fast installations with pre-terminated MTPs
- Reduced cable diameters
- Highly flexible cable routing without impact on performance thanks to bend-insensitive fibers

Optipack trunk



Technical data			
Fiber type	E9/125A2, ITU G.657.A2	G50/125-OM4, ITU G.651 Bend-optimized	G50/125-OM4, ITU G.651 Bend-optimized
Cable type	Optipack cable, 96 fiber		
CPR	B2ca-s1a,d0,a1		
Polarity	B		
Connector side A	MTP-12 male		
Connector side B	MTP-12 male		
Ordering information	OT08CBL-BA0zzzF-5060MM-5060MM	OT08CBL-BA4zzzF-5060MM-5060MM	OT08CBL-BA4zzzF-5060MM-5060MMx

z : length of assembly (m)

Optipack harness

Harness cables are in-rack single jacketed cables with a MTP connector at one end and four duplex connectors on the other end. They are supposed to directly connect one parallel transceiver to four duplex transceivers (so called breakout mode) located in the same rack.

Harness cables can also be used in other structured cabling scenarios.

Applications

- Parallel to duplex direct-connect

Features

- Polarity flipping without tool
- Reduced cable diameters
- Push-pull mechanism, pulling antigrip tab
- Labelling possibility

Optipack harness

Technical data		
Fiber type	E9/125A2, ITU G.657.A2	G50/125-OM4, ITU G.651 Bend-optimized
Cable type	Optipack cable, 8 fiber	Optipack cable, 12 fiber
CPR	Dca-s1a,d0,a1	
Polarity	NP	AS
Connector side A	MTP female	6x LC-XD duplex
Connector side B	4x LC-XD duplex	6x LC-XD duplex
Ordering information	OH08NPL-DB0zzzF-0000MF-5100LP OH08NPL-DB4zzzF-0000MF-5100LP	OH12AAS-DB0zzzF-5070LP-5070LP OH12AAS-DB4zzzF-5070LP-5070LP

z : length of assembly (m)

Optipack Conversion harness

Optipack conversion harness is designed to efficiently adapt high-speed network connections, such as when an MTP-08 connector with 8 fibers (8F) is terminated into two MTP-08 connectors with 4 fibers (4F) each. This type of harness is commonly used in high-density data center environments to support 800G MTP twin-port transceivers, which require optimized fiber breakout configurations.

In this setup, the 800G twin-port transceiver connects to the harness, which then routes two separate 400G single-port transceivers,

Applications

- Point-to-point connection

Features

- Fast installations with pre-terminated MTPs
- Highly flexible cable routing without impact on performance thanks to bend-insensitive fibers

singlemode
LFSH cable

multimode
LFSH cable

Length in mtr	Order information		Length in mtr	Order information	
3	on request	OCSXS-DB0003D-0000MF-5280MF	3	on request	OCSXL-DB4003D-0000MF-5280MF
5		OCSXS-DB0005D-0000MF-5480MF	5		OCSXL-DB4005D-0000MF-5480MF
7		OCSXS-DB0007D-0000MF-5680MF	7		OCSXL-DB4007D-0000MF-5680MF
10		OCSXS-DB0010D-0000MF-5980MF	10		OCSXL-DB4010D-0000MF-5980MF
15		OCSXS-DB0015D-0000MF-51480MFZ	15		OCSXL-DB4015D-0000MF-51480MFZ
20		OCSXS-DB0020D-0000MF-51980MFZ	20		OCSXL-DB4020D-0000MF-51980MFZ
30		OCSXS-DB0030D-0000MF-52880MFZ	30		OCSXL-DB4030D-0000MF-52880MFZ
50		OCSXS-DB0050D-0000MF-54980MFZ	50		OCSXL-DB4050D-0000MF-54980MFZ

singlemode
OFNR cable

multimode
OFNR cable

Length in mtr	Order information		Length in mtr	Order information	
3	85245370	OCSXS-RF0003D-0000MF-5280MF	3	85245367	OCSXL-RF4003D-0000MF-5280MF
5	85245371	OCSXS-RF0005D-0000MF-5480MF	5	85245366	OCSXL-RF4005D-0000MF-5480MF
7	85245375	OCSXS-RF0007D-0000MF-5680MF	7	85245365	OCSXL-RF4007D-0000MF-5680MF
10	85245382	OCSXS-RF0010D-0000MF-5980MF	10	85245364	OCSXL-RF4010D-0000MF-5980MF
15	85245388	OCSXS-RF0015D-0000MF-51480MFZ	15	85245354	OCSXL-RF4015D-0000MF-51480MFZ
20	85245389	OCSXS-RF0020D-0000MF-51980MFZ	20	85245346	OCSXL-RF4020D-0000MF-51980MFZ
30	85245390	OCSXS-RF0030D-0000MF-52880MFZ	30	85240383	OCSXL-RF4030D-0000MF-52880MFZ
50	85245391	OCSXS-RF0050D-0000MF-54980MFZ	50	85245293	OCSXL-RF4050D-0000MF-54980MFZ

Cleaning tools

Always inspect a connector before any mating. If a connector is not clean, first try the dry cleaning method with the listed cleaning tools below. In most cases that is sufficient. However, sometimes wet cleaning is required. Please ask your partner for wet cleaning solutions.

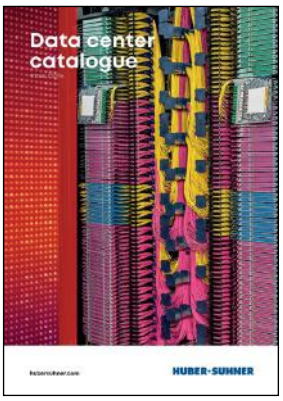
Features

- Universal push style cleaner for both adapter (behind the wall connector) and plug
- More than 525 cleans per one device

IBC™ push cleaners

Technical data		
Connector type	LC	MTP
Ferrule	1.25 mm	MT ferrule
Cleaning method	Dry	
Number of cleans per item	>525	>525
Ordering information	84065528 Cleaner, IBC, 1.25mm	84097537 MTP-IBC-7104

Connecting – today and beyond



More to explore

About HUBER+SUHNER

We are a leading global supplier of components and systems solutions. With our broad range of products and deep know-how, we serve the industry, communications and transportation markets with applications from the three technologies of radio frequency, fiber optics and low frequency. And as a global company with a presence in over 80 countries, we stay close to our customers. Always.

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