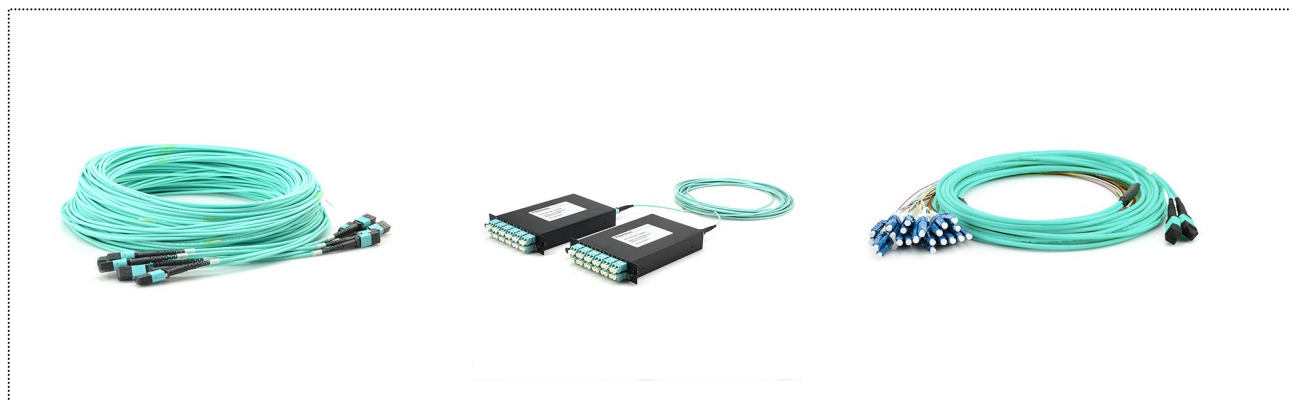


## Data Center: 10G to 40G/100G Migration Solution- MPO/MTP Application

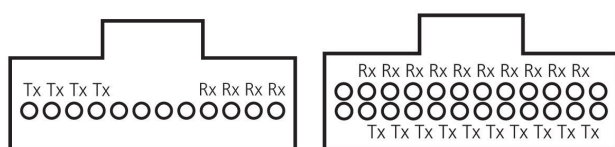


The number of network connections in data centers is on the rise caused 12 or 24-Fiber channel 40/100G Ethernet migration plan is quickly becoming a matter of survival, as 12 or 24-Fiber will accelerate the transmission than 2-Fiber channel 10Gig Ethernet. Create a simple, cost-effective migration path by installing a structured cabling system that can support your future 40/100G networking needs.

40G and 100G Ethernet employ parallel optics. Data is transmitted and received simultaneously on MTP interfaces through 10G simplex transmission over each individual strand of the array cable.

Current IEEE channel/lane assignments for active equipment interfaces determine the transmission methodology.

### Parallel Optics



40G

100G-24 Fiber



100G- 2 x 12 Fiber

### Application

- Data Centre Infrastructure.
- Storage Area Network- Fiber Channel.
- Parallel Optics: 40 and 100Gbps Protocols.
- InfinibandData Centre Infrastructure.
- Storage Area Network- Fiber Channel.
- Parallel Optics: 40 and 100Gbps Protocols.

10-1

### How to migrate 10G to 40G data rate?

### Solution-1:

Migration from 10G to a 40G system replace LC with MTP/MPO components, the IEEE ratified the 40GBASE-SR4 (MPO/MTP interface) standard that uses 4 lanes at 10 Gig SFP+ (LC interface) per lane over multimode fiber for a total of 8 fibers.

Parallel optics 40GBASE-SR4 uses 8 out of 12 MPO/MTP interface fibers transmitting 4 x Duplex channels (4 x Transmit and 4 x Receive), just like below of picture 10-2.

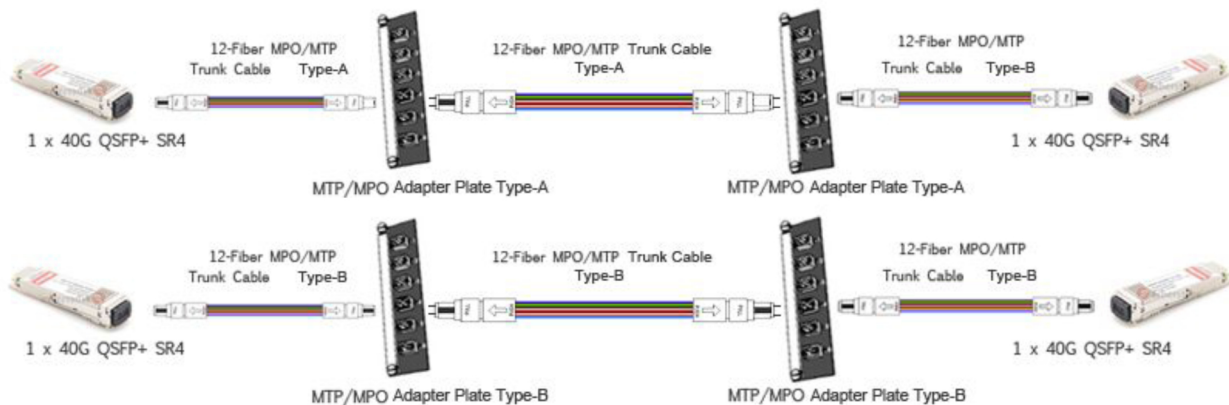
QSFP+ to SFP+ Fanout is 8 x Fibres MTP/MPO to LC(DX) Ruggedized Fan-out assembly.



10-2

### Solution-2:

If the 10G switches with 40G versions, MPO/MTP adapter plates can be installed easily to make the next adaptation, just like below of picture 10-3.



10-3

#### \*Notes:

1. Adapter Plate Type-A is key up & key down.
2. Adapter Plate Type-B is key up or key down.
3. The 12/24-fiber MTP/MPO Trunk Cable installer has to keep in mind the **polarity method** used. Please back to product page to view polarity details.

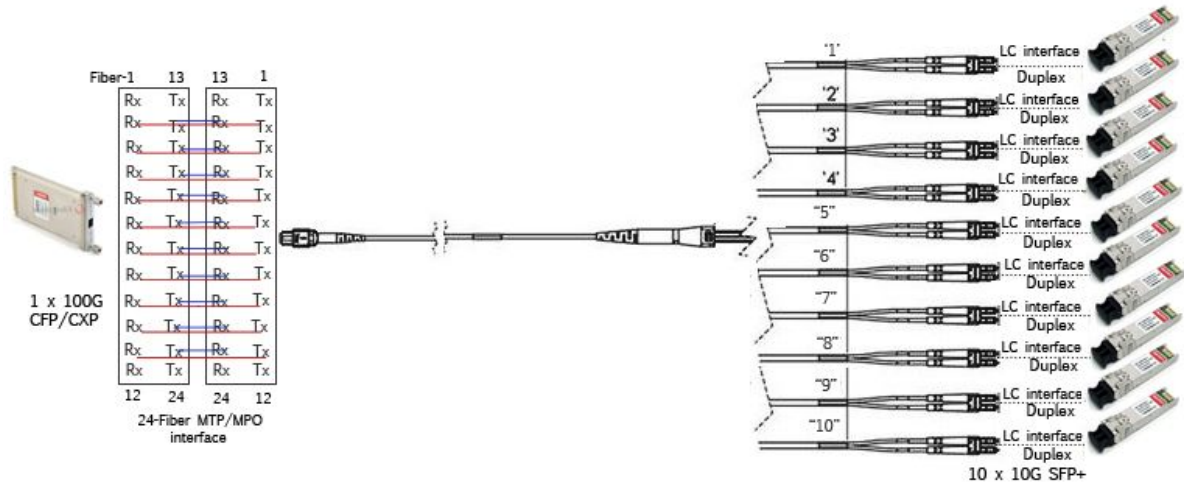
## How to migrate 10G to 100G data rate?

### Solution-1:

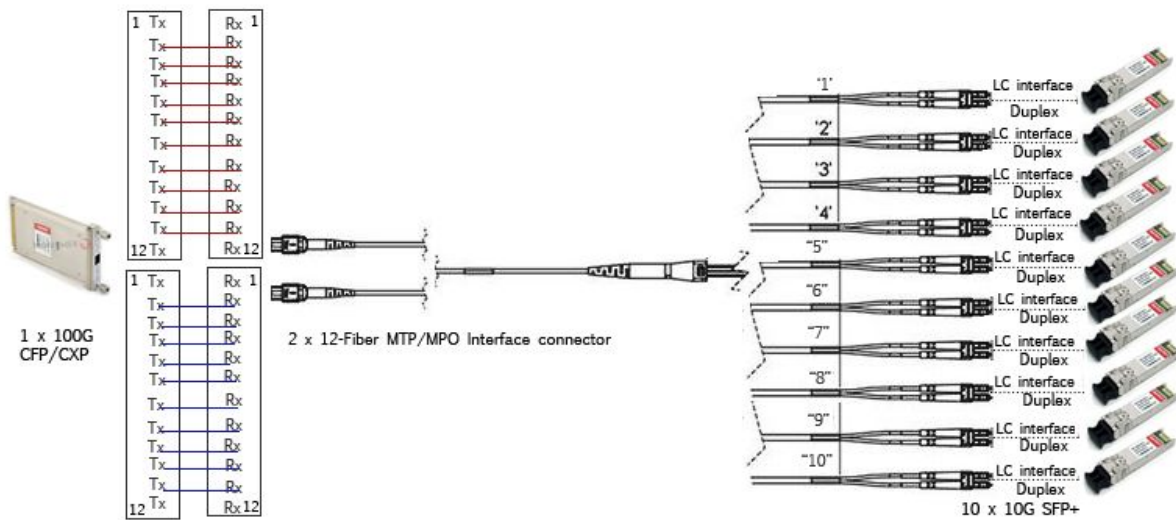
Migration from 10G to a 100G system replace LC with MTP/MPO components, the IEEE ratified the 100GBASE-SR10 (MPO/MTP interface) standard that uses 10 lanes at 10 Gig SFP+ (LC interface) per lane over multimode fiber for a total of 20 fibers.

Parallel optics 100GBASE-SR10 uses 20 out of 12 MPO/MTP interface fibers transmitting 10 x Duplex channels (10 x Transmit and 10 x Receive), just like below of picture 10-4&5.

QSFP+ to SFP+ Fanout is 20 x Fibres MTP/MPO to LC(DX) Ruggedized Fan-out assembly.



10-4



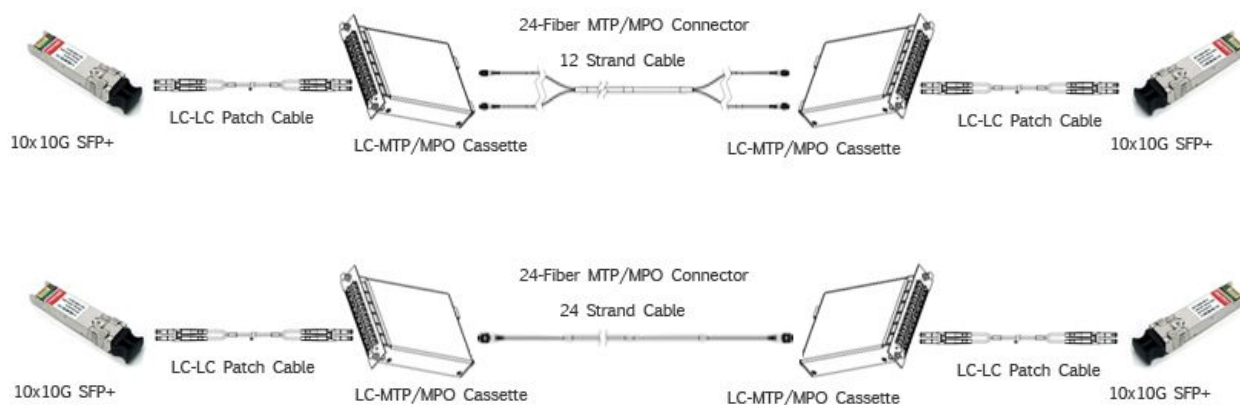
10-5

### \*Notes:

1. The CFP optics can also be CXP (100G form-factor pluggable).

### Solution-2:

If the 10G switches with 100G versions, MPO/MTP adapter modules can be installed easily to make the next adaptation, just like below of picture 10-6.



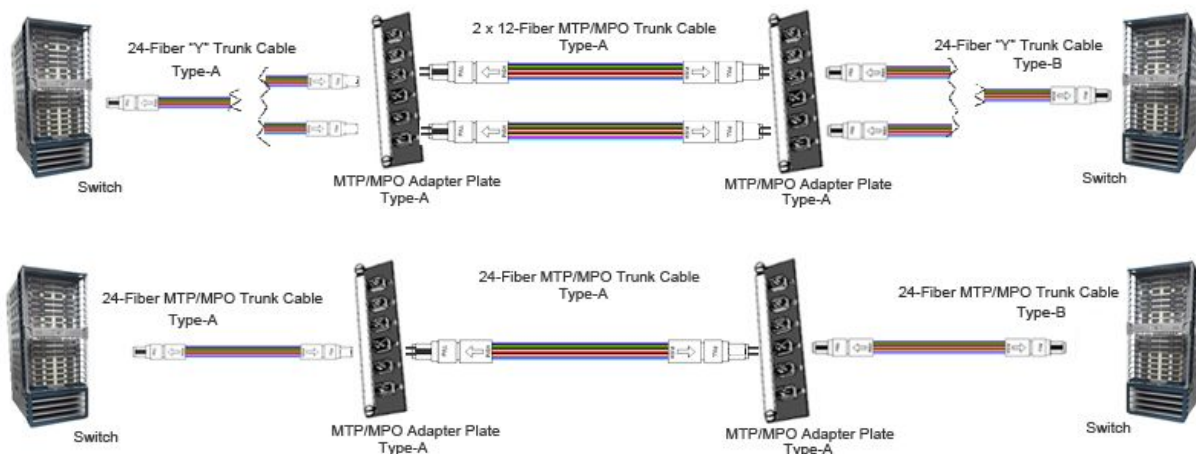
10-6

\*Notes:

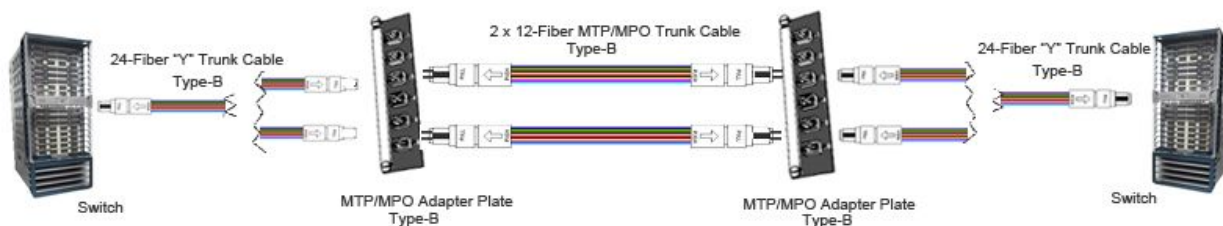
1.The 12/24-fiber MTP/MPO Trunk Cable installer has to keep in mind the polarity method used, Please back to product page view polarity details.

### How to migrate 40G to 100G data rate?

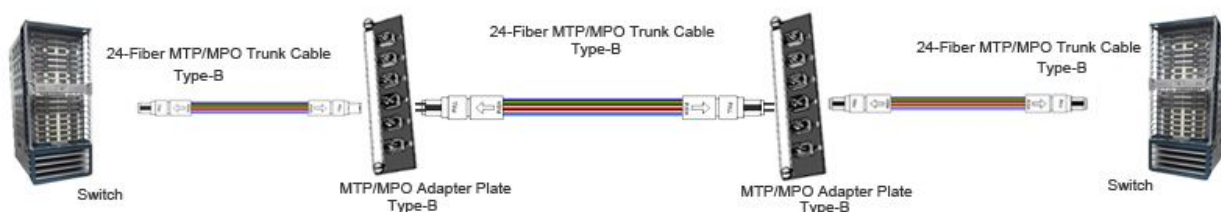
100G switches are installed, migration 40G to 100G need to use the 24-fiber MTP/MPO interface trunk cables or 2 x 12-fiber MTP/MPO interface trunk cable, just like below of picture 10-7&8.



10-7







10-8

\*Notes:

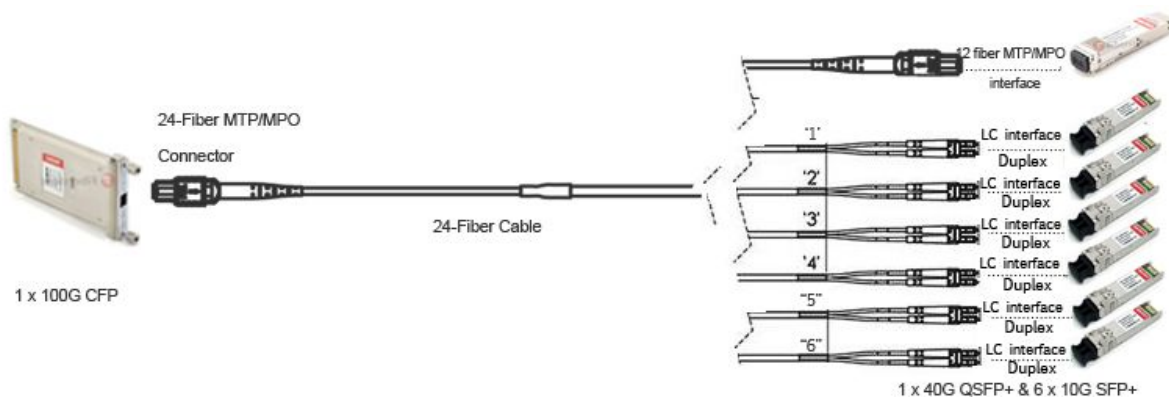
1. Adapter Plate Type-A is key up & key down.
2. Adapter Plate Type-B is key up or key down.
3. The 12/24-fiber MTP/MPO Trunk Cable installer has to keep in mind the **polarity method** used. Please back to product page to view polarity details.

### How to migrate 10G+40G to 100G data rate?

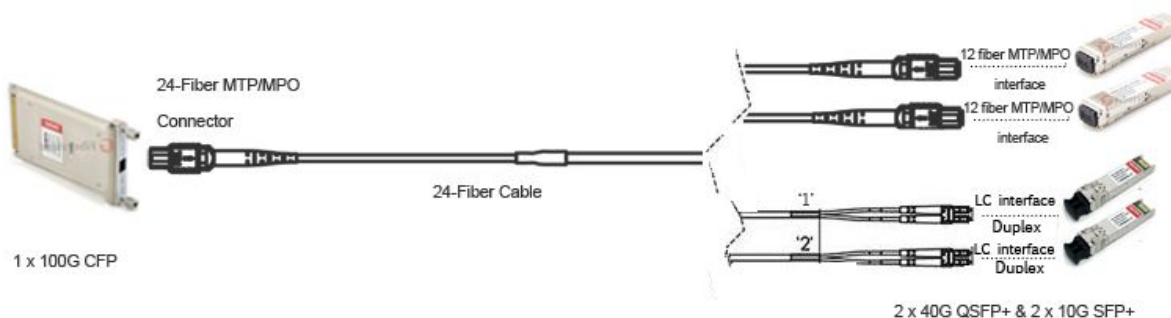
Migration from 10G and 40G to a 100G system replace LC + MTP/MPO with MTP/MPO components, the IEEE ratified the 100GBASE-SR10 (MPO/MTP interface) standard that uses 6 lanes at 10 Gig SFP+ (LC interface) and 1 lanes at 40G QSFP+(MTP/MPO interface) for total of 24 fibers.

Parallel optics 100GBASE-SR10 uses 24 out of 24 MTP/MPO or 24 out of 2 x 12 MTP/MPO interface fibers transmitting 6 x Duplex channels (6 x Transmit and 6 x Receive) and 1 x 12 fiber MTP/MPO, just like below of picture 10-9&10.

QSFP+ + SFP+ to CFP Fanout is 24 Fibres MTP/MPO to LC(DX)+12 Fibers MTP/MPO Ruggedized Fan-out assembly.



10-9



10-10

### \*Notes:

1. The CFP optics can also be CXP (100G form-factor pluggable).
2. OM3 850nm Ethernet distance: 40G - 100m/ 100G - 100m.
3. OM4 850nm Ethernet distance: 40G - 150m/ 100G - 150m.

### Summary

The need for bandwidth continues to rise steadily and the next technologies are already waiting in the wings with 40 GbE and 100 GbE. Data centers will make broad use of FO lines even though copper solutions involving parallel twisted-pair cables will continue to be justified for short links. A look in the labs where engineers are already working meticulously on 1000 GbE confirms this general trend all the more.

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