

**AFLHYPERSCALE.**

# Data Center Interconnect (DCI)

Connectorized Solutions



Reference Architecture Document



# Contents

## **03** Introduction

Data Center Interconnect (DCI) Connectorized Solutions

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## **05** Product Overview

- Ultra-High Fiber Count MPO Trunk Assembly
- Ultra-High Fiber Count MPO Patch Frame
- MPO Trunk Assemblies
- ASCEND® Housing
- ASCEND Cassettes

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## **08** Bill of Material Examples (BOM)

# Seamlessly Connect Your Data Centers With Speed

## Data Center Interconnect (DCI) Connectorized Solutions

As the demand for high-performance data centers continues to soar, we understand the critical need for efficient and cost-effective solutions. Quickly and easily cross connect data centers with our DCI Connectorized solution, simplifying data center design, build and deployment. Our cable and connectivity solutions ensure rapid and reliable communication throughout your data center, resulting in reduced costs and enhanced operational efficiency.



### Decrease deployment Time

Simplify installation with our connectorized DCI solutions. This approach can reduce deployment time by up to 70%, ultimately lowering the total cost of implementation.



### Optimize Network Efficiency

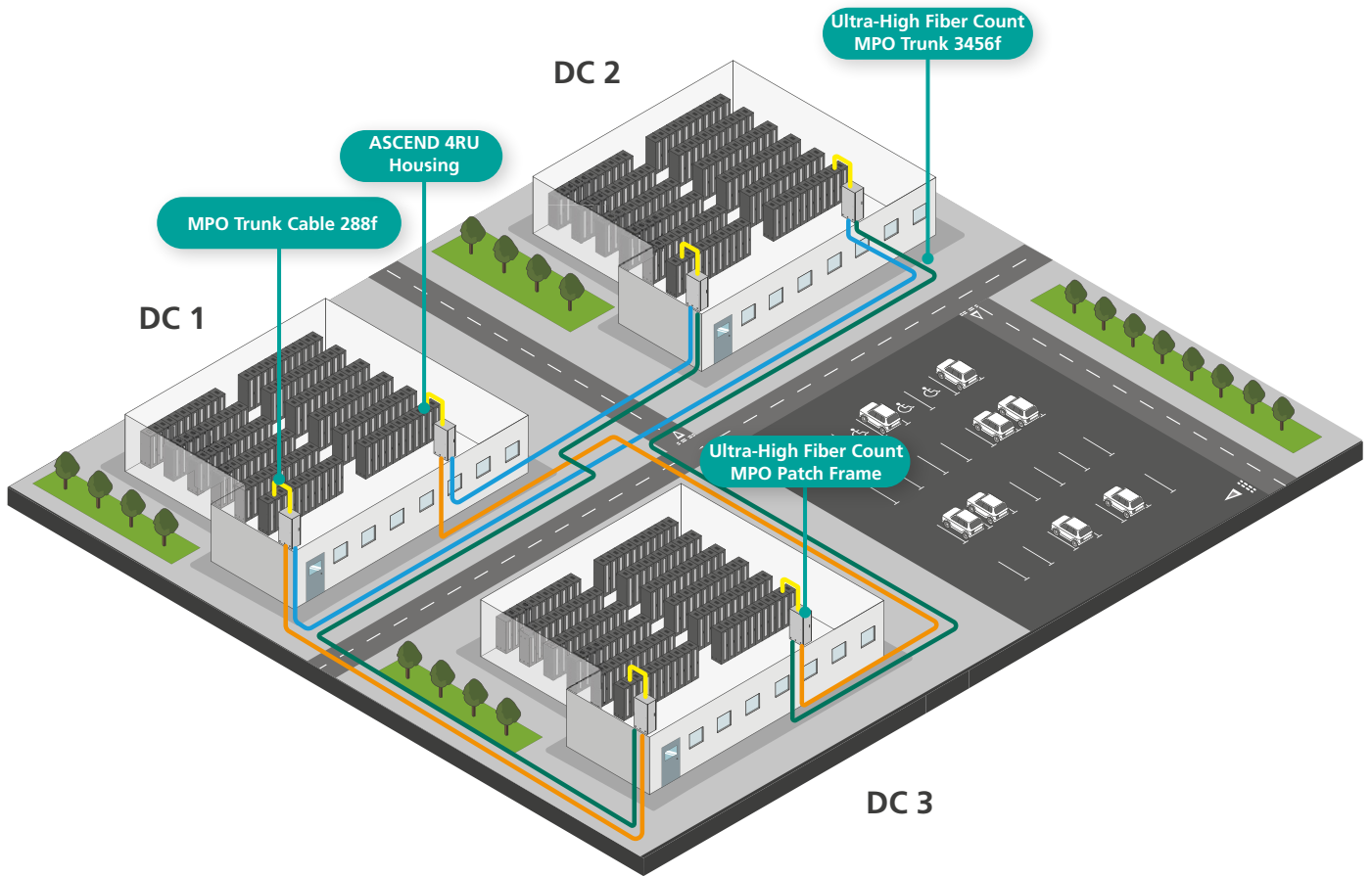
Connect multiple data centers using Ultra-High Fiber Count MPO Trunk Assemblies to build a cohesive data center infrastructure and enhance network reach, scalability, and cost-effectiveness.



### Maximize Pathway Space

By minimizing the size of network infrastructure components, we allow more fibers to fit into existing duct space. This strategy avoids expensive civil works and lessens the risk of damaging existing buried infrastructure.

This document outlines the cable and connectivity products required to build high-performance data center interconnections, along with Bill of Materials and ordering information for each configuration.



## Connectorized Data Center Interconnect (DCI) Solutions

While data center interconnection (DCI) traditionally served the purposes of business continuity and disaster recovery, its role has evolved significantly in today's digital landscape. It has become an integral tool for data center operators to effectively manage resources and perform crucial load-balancing tasks across multiple data centers. This functionality has become increasingly essential as the internet traffic expands and the need for cloud migration escalates.

In the past, companies primarily handled north-south traffic, referring to data originating from outside the data center. However, the surge in east-west traffic – data traversing across the data center and between multiple data centers – has elevated the importance of optical connections in data center architectures.

Here at AFL Hyperscale, we offer DCI Connectorized Solutions, enabling swift and effective communication across a campus or within a metro environment. This document highlights our innovative solutions that leverage market-leading Wrapping Tube Cable (WTC) featuring SpiderWeb Ribbon® (SWR®) technology. These small diameter, high fiber count cables can be factory connectorized to create high-density, high-performance trunk cables that can be installed swiftly and efficiently without the need for splicing, thereby reducing cost, deployment time, and maximizing efficiency.

Our pre-connectorized assemblies provide a viable alternative to traditional splicing solutions, substantially reducing deployment times and installation costs. When these assemblies are presented in a patching frame, they offer users the flexibility to re-configure the links as required.

## The solution includes the following components:

- 1. Ultra-High Fiber Count MPO Trunk Assemblies:**  
 These trunks, available in fiber counts from 288F to 3456F, use Base-24 MPO connectivity for installation between buildings. They can also be customized to use Base-12 or Base-16 MPO connectors based on the user's requirements. Each assembly is equipped with a small diameter pulling grip at either one or both ends, allowing multiple cables to be pulled through existing ducts.
- 2. Ultra-High Fiber Count Patch Frame:**  
 This frame is used to consolidate and present the Ultra-High Fiber Count Trunk cables at a Point of Entry, Meet Me Room (MMR), External Network Interface (ENI), or within the white space. Each frame consists of 12 trays, each supporting 24 MPO ports and allowing for a maximum fiber count of 6912F using Base-24 MPO connectors (3456F using Base-12 and 4608F using Base-16 MPO connectors).

- 3. MPO Trunk Assemblies:**  
 These assemblies are configured using Base-12 or Base-24 MPO connectors at the patch frame end and Base-12 MPO connectors in the whitespace at the equipment end of the link. These assemblies are typically 144 or 288 fiber. Base-8 options are also available.
- 4. ASCEND® Housings and ASCEND MPO Patch Cassettes:**  
 These components are used to present the connectivity in the required user configuration, allowing for maximum flexibility in the network. In the example shown, 1RU housings are deployed allowing for a maximum of 12x 6 port MPO cassettes per 1RU housing in a Base-12 format (72 MPO ports), higher density ASCEND housings are available allowing configuration to support a maximum of 288 MPO ports in 4RU or 144 MPO ports in 2RU.

These presented ports are then available for the user to patch directly to the equipment, having an MPO interface at the patch panel maintains the ability to patch to LC ports, using a MPO-LC assembly and/or directly to MPO ports with the use of an MPO patch cord allowing for maximum flexibility in the network.

Bills of Materials are available towards the end of this Reference Architecture Document, providing additional detail about two variations of the solution described here.

## Ultra-High Fiber Count MPO Trunk Assembly

These Ultra High Fiber Count pre-term MPO Trunks provide high-density interconnection between data center buildings, offering up to 3456f and indoor/outdoor cable options, field splicing is eliminated, resulting in reduced labour costs and installation time.

### Built with industry-leading Wrapping Tube Cable (WTC) and SpiderWeb Ribbon® (SWR®) Cable

- Ultra-high-fiber count assemblies ranging from 288 to 3456 fibers
- Smallest cable diameter and the lowest weight in the industry
- Superior climactic and water-blocking properties

### MPO Interface

- MPO Connectors both ends or one end
- Base-12, Base-16, Base-24 connectors with various Polarity options available

### Ultra-High Fiber Count Trunk for Easy Installation:

- Convenient pulling grip, available on one or both ends.
- Customizable fanout tail length and breakout module position can be tailored to specific needs



[View Product Datasheet](#)

## Ultra-High Fiber Count MPO Patch Frame

Upgrade your data center campus network for unmatched efficiency and performance with our Ultra-High Fiber Count MPO Patch Frame. A high-density solution that improves network reliability, reduces installation costs, and accelerates deployment time. Effortlessly consolidate and organize inter-data center links in your Meet Me Room (MMR), External Network Interface (ENI), building entry point or white space.

### Land Ultra-High Fiber Count MPO Trunks Into Your Data Center

- Capable of handling up to 6912f in Ultra-High Fiber Count MPO Trunks, with configurations of 2 x 3456f trunks, 4 x 1728f trunks, or 8 x 864f trunks

### Ultra-High Fiber Count Demarcation Patch Frame

- Expertly designed to patch an Ultra-High Fiber Count MPO Trunk Cable Assembly and break it out to a high-fiber MPO trunk for indoor distribution.

### Comprehensive Cable Management

- Top and side cable management options
- Strain relief brackets for up to 10 incoming and 20 outgoing cables



[View Product Datasheet](#)

## MPO Trunk Assemblies

These MPO trunk assemblies are manufactured using reduced diameter MicroCore cable technology and provide a high-performance plug-and-play solution for data center applications where space is limited. The small-diameter cables occupy less space in cable trays, raceways, conduits and vertical cable managers and allow for smaller bend radii.

### MPO Interface

- MPO components feature superior optical and mechanical properties
- Female and Male MPO connectors available
- MPO Base-8, Base-12, and Base-24 connectors with various Polarity options available

### Trunk Cable Designed for Ease of Installation

- Reduced diameter MicroCore cable
- Pulling eye option available
- Tailored fanout tail length and breakout module position



[View Product Datasheet](#)

## Product Overview:

# ASCEND<sup>®</sup> Housings

Available in 1RU, 2RU, and 4RU, ASCEND Housings are designed to support both incremental growth or a full-scale deployment, providing the ultimate experience in ease-of-use and fiber management.

### Network Speeds from 10G to 400G and beyond

- High density housings that facilitate migration to higher speeds. Compatible with Base-8, Base-12, Base-16 and Base-24 ASCEND MPO Fanout Cassettes.

### Easy Moves, Adds, and Changes (MACs)

- The trays can slide and lock in a position for simplified patching and feature integrated routing rings on the front.

### Front and Rear Cable Management

- Cassettes can be installed from the front or rear of the ASCEND housings, allowing for easy access for efficient cable loading and patching



[View Product Datasheet](#)

## ASCEND Cassettes

The range of ASCEND Cassettes ensures you have every option available to support incremental growth or a full-scale deployment in data center and enterprise applications, as well as transition from one BASE platform to another, or deploy effective monitoring into your fiber network.

### Network Speeds from 10G to 400G and Beyond

- Cassettes can be used throughout multiple active equipment upgrades in order to futureproof your network and facilitate paths to parallel optic transmissions.

### Maximize Fiber Density

- All our modular cassettes allow you to scale density as and when needed and to fully utilize all fibers.



[View Product Datasheet](#)

# Bill of Material (BOM) Examples

MPO: 3456f with 288 Breakout	Part number	Qty
UHFC Pre-term trunk, SM 3456f Indoor/Outdoor HIO WTC, LSZH / Riser / CPR (Cca-s1,d0,a1), MPO24 Male to MPO24 Male, Polarity B, Pulling Grip both ends, XXXX metres	M711NC8PTT-B101-MXXXX	1
AFLHS HC Patch Frame 288 Port MPO 485x445x2069mm GY 7035 (12x 24 Port Tray MPO Key UP/Key Down adapters)	FXHIXXDXXX-01CN	2
MPO Trunk Cable, 288f Fiber, Single-mode, HIO Indoor/Outdoor, LSZH / Riser / CPR (Cca-s1a,d0,a1), MPO24 Female to MPO12 Female, Pulling Grip, Polarity A, XXXX metres	M711VC8PSU-A058-MXXXX	24
AFL ASCEND® 4RU Housing, 12X Base-12 Trays	ASCEND-4RU-12-RT	2
AFL ASCEND® Patch Cassette, 6 Port, MPO Base-12, Key Up/Down	A12-PC-M1	96

MPO: 864f with 144 Breakout	Part number	Qty
Trunk Cable WTC SWR, 864 Fiber, Single-mode I/O OS2, LSZH / Riser / CPR (B2ca-s1b,d0,a1), 24f MPO M to 24f MPO M Trunk, Polarity B, Pulling Grip, XXXX metres	M711YC8PTT-B101-MXXXX	1
AFLHS HC Patch Frame 288 Port MPO 485x445x2069mm GY 7035 (12x 24 Port Tray MPO Key UP/Key Down adapters)	FXHIXXDXXX-01CN	2
MPO Trunk Cable, 144f Fiber, Single-mode, MicroCore Indoor, LSZH / Riser / CPR (Cca-s1a,d0,a1), MPO24 Female to MPO12 Female, Pulling Grip, Polarity A, XXXX metres	M7EDTC9PSU-A058-MXXXX	12
*AFL ASCEND® 1RU Housing, Base-12 Trays	ASCEND-1RU-12-RT	2
AFL ASCEND® Patch Cassette, 6 Port, MPO Base-12, Key Up/Down	A12-PC-M1	24

\*ASCEND 2RU and 4RU Housing also available in the solution





# AFL HYPERSCALE®

## Data Center Cabling and Connectivity Experts

AFL Hyperscale is the first cabling and connectivity solution provider focused on the ever-evolving needs of data centers.

Hyperscale, colocation, and enterprise data centers are united in their pursuit to connect the unconnected, yet their infrastructure, performance, and operational challenges are totally unique.

We work collaboratively with our customers to create connectivity solutions tailored to their current needs and to the requirements of future networks. We then use our responsive, global operational capabilities and distribution network for fast delivery.

This approach has transformed how many data centers grow worldwide and is built on 70 years' combined experience in the design and manufacture of high-performance optical fiber networks, a global presence, and the backing and innovation sharing of our parent and grandparent companies, AFL and Fujikura, the pioneer in optical technology. AFL Hyperscale is your dependable partner to build a more connected world.

AFL Hyperscale - The World, Connected.

[www.aflhyperscale.com](http://www.aflhyperscale.com)