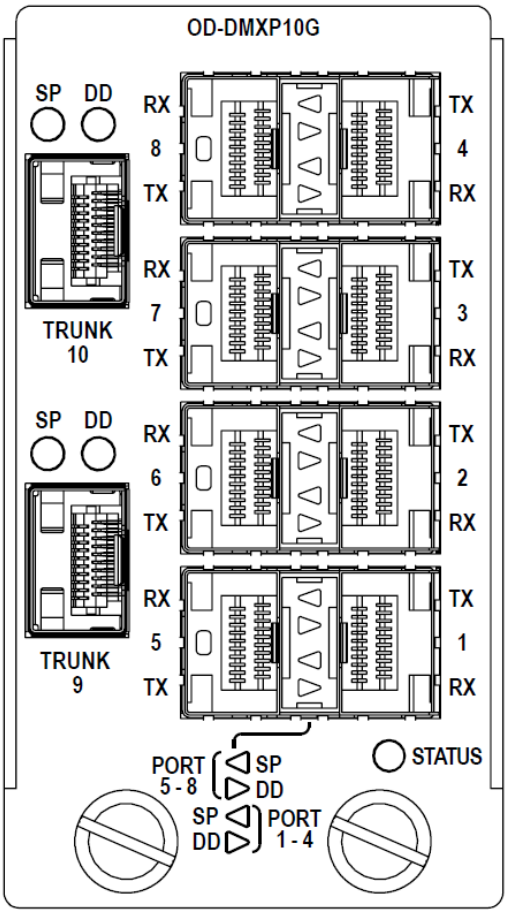
10G Muxponder with Trunk Link OTN/FEC

OD-DMXP10G

Optical muxponders combine and separate lower-rate optical signals to share a common higher-rate optical fiber path. Supported data rates and number of ports are the most significant distinguishing feature between muxponder modules.



The 10G muxponder provides two trunk ports using OTN2 with FEC between a pair of OD-DMXP10G modules for a highly-reliable point-to-point link. The eight module access ports support several Ethernet and SONET protocol options. Other protocols and applications may be added in future updates.

The 10G trunk (line) interfaces can be used independently, together as an aggregated 20G link, or to carry mission-critical data over separate optical links. Client signals are delivered to a remote OD-DMXP10G module over dedicated fibers using OTN2 with FEC options for extended range and signal integrity.

Trunk Port Configurations

The OD-DMXP10G trunk ports each support a 10G multiplexed optical link. When used together, they can pass 20G aggregate data between “bookend” modules or form a linear data chain. The second trunk also may be used to define a “secondary” redundant path for the “primary” trunk.

Express paths also may be defined through Optical Bandwidth Allocation (OBA) to pass optical signals between trunk ports. These express paths through the module support linear bus or circular ring network topologies.

- 10G Muxponder

Connect each trunk directly to an independent remote 10G OTN port.

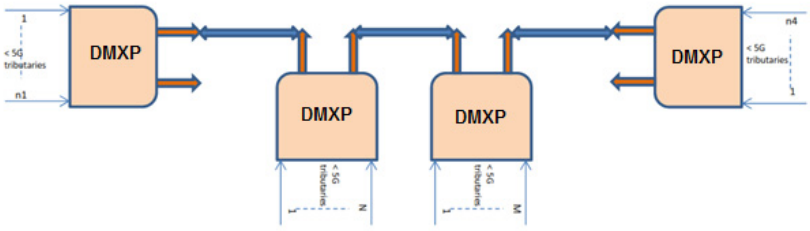
- 20G Muxponder (Aggregate Trunks)

Connect both trunks to the trunks of a remote OD-DMSP10G module for full trunk bandwidth.

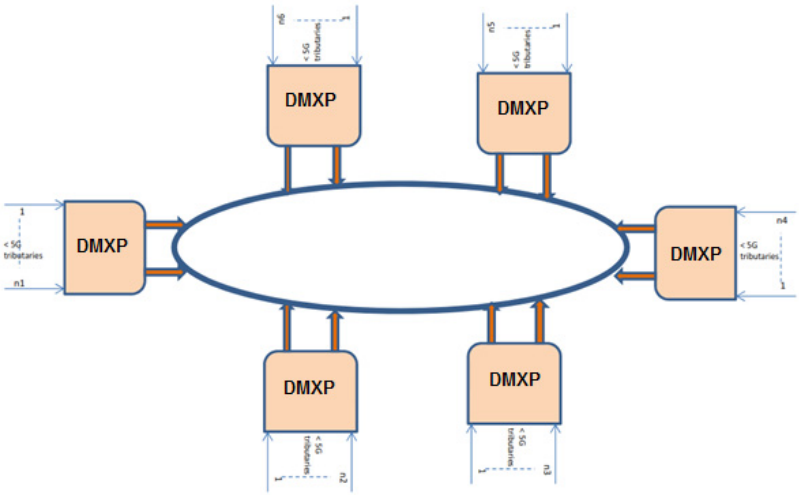
- Redundant OBAs(based on optical trunk link point-to-point 1+1 redundancy)

Define a primary OBA on one trunk and a secondary OBA on the other trunk for data protection.

- 10G Muxponder Express (Bus topology pass-through)



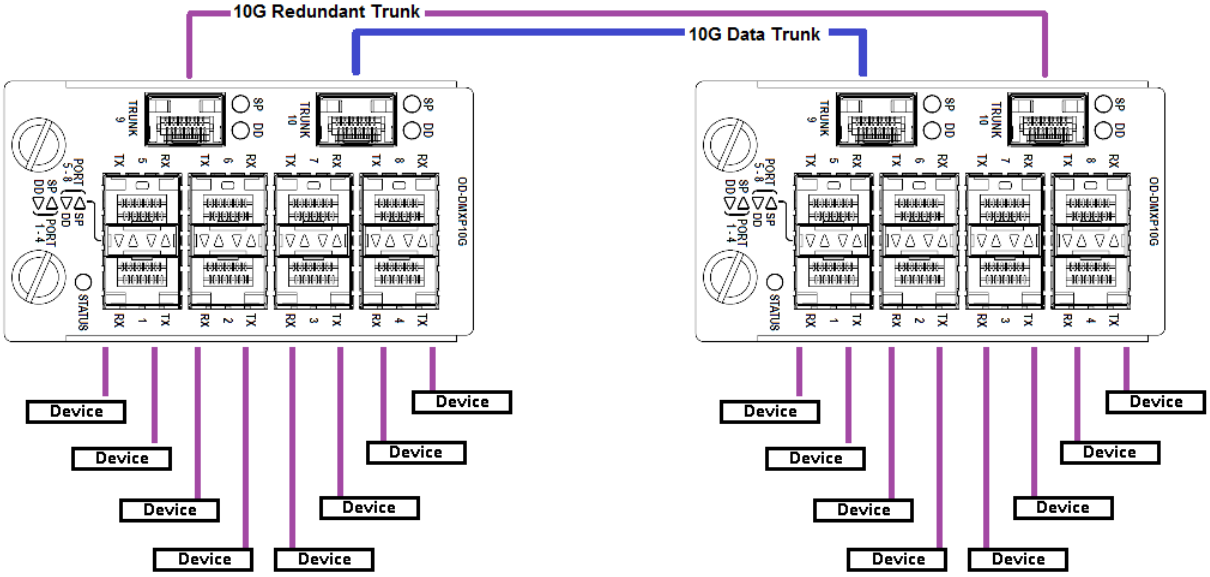
- 10G Muxponder ADM Ring



Applications

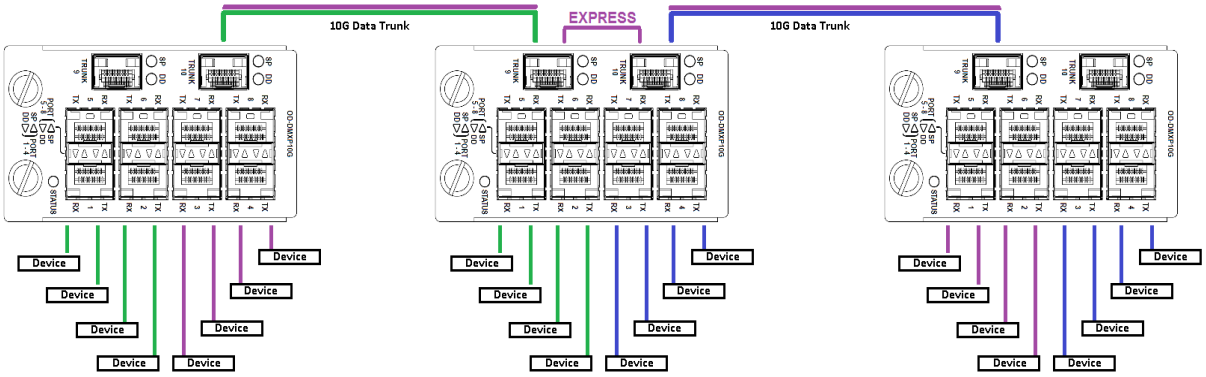
The OD-DMXP10G multiplexes and de-multiplexes access traffic from eight SFP ports through a 10G (SFP+) OTU2 trunk line.

In the 10G Muxponder application example below, two OD-DMXP10G modules are connected by a trunk line in a "bookend" configuration. This trunk could be a direct fiber link or an aggregated signal route through intermediate DWDM devices. The second trunk on each module may be connected as a redundant link.



The example above shows local device connections at each end. Any of these individual devices could be intermediate network routing devices to further distribute the architecture.

The example below shows an intermediate module using express paths between trunks to forward selected optical signals (purple) up and down the data stream. The blue and green data links are point-to-point only. This model supports both bus and ring topologies.



Highlights

Feature	Description
Trunk ports (2 SFP+ receptacles)	• 20G aggregated • 10G each (two primary trunks) • Redundant data paths definable on alternate trunk • Express pass-through of select signals between trunk ports
Access ports	8 SFP receptacles (< 5G per port)
MSA-compliance	SFP and SFP+ support including Digital Diagnostics (DD)
Status LEDs	Front panel indicators for status, port link, and digital diagnostics
Re-loadable firmware	On-site upgrades to support new technology
Hot swap	Runtime hardware configuration changes in chassis
Safety	Temperature monitoring and alarms including automatic laser shutdown (ALS)
Management interfaces	Provided through the management module
Loopback	Data circuit testing
PRBS testing	Bit sequence generation and checking
Link Integrity Notification	(LIN) Link error propagation for proactive management (Sonet/SDH, Ethernet bidi)
Performance monitoring	Individual port status and statistics with alarms
Protocols (Trunk)	OTU2
Forward Error Correction (Trunk)	GFEC, EFEC
Protocols (Access)	• Ethernet (10/100/1000 Mbps)) • SONET/SDH (OC3, OC12, OC48) • Fibre Channel (FC-100, FC-200, FC-400) • Digital Video (50Hz, 60Hz) • OTN (OTU-1) • Infiniband 2.5/5 Gbps • ESCON • CPRI: 614.4, 1228.8, 2457.6, 3072, 4915.2 • OBSAI: 768, 1536, 3072
GCC support	Bidirectional GCC0 tunnel over OTN for remote OD-NM access and management
Programmable Data Paths	Optical bandwidth allocation for data flow through module

Module features shared with other OD modules are described in the OD Operations Guide. Contact customer support for additional OptiDriver details and customized solutions.

Specifications

Electrical Power (typical / maximum)		
OD-DMXP10G	empty (typical / maximum)	15 Watts / 26 Watts
OD-DMXP10G	optics in (typical / maximum)	24 Watts / 39 Watts (sampled)

Physical		
H x W	slots	1 x 2
H x W x D	mm	75 x 51 x 225
H x W x D	inches	3.0 x 2.0 x 9.0
Weight	kg	0.8
Weight	lbs	1.8

Environment	
Temperature (storage)	-40° C to 70° C (-40° F to 158° F)
Temperature (operating)	0° C to 50° C (32° F to 122° F)
Relative Humidity	85% maximum, non-condensing
Regulatory Compliance	• FCC Part 15, Class A • IC, Class A • EMC Directive: Emission (Class A) and immunity • WEEE Directive: Wheelie Bin Mark • RoHS 2 Directive • China RoHS

Operational	
Latency (observed)	55 us to 75 us (for Gigabit Ethernet access and GFEC trunk)