

XTM SERIES

FRONTHAUL 10 Gb/s MUXPONDER

Unique Aggregation of Fronthaul Formats

The **Fronthaul Muxponder 10 Gb/s (FH-MXP10 Gb/s)** is part of the Infinera XTM Series, optimized for cost-efficient transport in packet-optical networks.

Optimized for Mobile Fronthaul Applications Due to Low and Stable Latency and Superior Sync Performance

The FH-MXP10 Gb/s is a unique time-division multiplexing (TDM) multiplexer for mobile fronthaul applications. The low and stable latency enables multiplexing of multiple fronthaul formats into one wavelength that normally would need to be transported separately over multiple wavelengths.

The signals are multiplexed into a 10 gigabit per second (Gb/s) digital frame while maintaining the original sync of each client signal. Each client signal is therefore transported independently and transparently end to end both from a data and sync perspective.

The digital frame also provides performance monitoring (PM) of the line signal and inserts an embedded management channel for remote management connectivity. The latter removes the need for optical supervisor channels (OSC) or a special data communication network (DCN) for the internal management traffic.

FEC for Improved Transmission Performance

The line signal is also coded using forward error correction (FEC) which is primarily designed to improve transmission performance in amplified networks (i.e. noise limited), but also has a positive impact on dispersion-limited designs (e.g. coarse wavelength-division multiplexing [CWDM]).

In a cloud-based radio access network (C-RAN) architecture, there are typically three or more common public radio interface (CPRI) signals to be transported between the base band unit and the remote radio heads (RRH), i.e. there is one FH-MXP10 Gb/s deployed per group of three RRH units at the cell site.



Key benefits:

- Aggregation of CPRI and synchronous Ethernet (SyncE) signals onto a single 10 Gb/s wavelength
- Low and stable latency and superior sync performance to meet tough CPRI requirements
- Superior sync capabilities, with each client signal transported independently and transparently
- High flexibility and Layer 2 awareness
- Built-in FEC improves transmission performance
- Technology agnostic. Pluggable transceivers enable usage in CWDM as well as dense wavelength-division multiplexing (DWDM) networks

In addition to transporting CPRI signals, the FH-MXP10 Gb/s unit can also transport SyncE signals on the same wavelength.

Resilience Option

The FH-MXP10 Gb/s has two line ports, and the second port can be initiated to provide a sub 50 ms 1+1 line protection configuration.

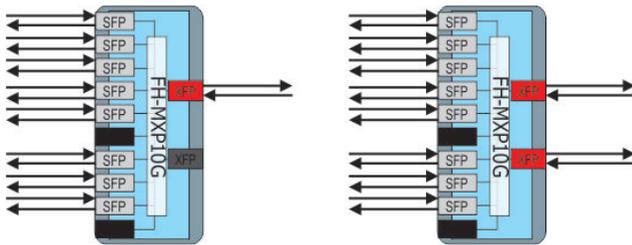


Fig 1. Unprotected vs. 1+1 Line Protection Configuration.

Example: Point-to-point Configuration

Since the FH-MXP10 Gb/s performs TDM of multiple formats on a single wavelength channel, it can be used directly on the fiber pair without the need for any CWDM or DWDM filters. This would be the best option if the connection is a point-to-point configuration. The most compact option is to mount the FH-MXP10 Gb/s in a TM-102 chassis.

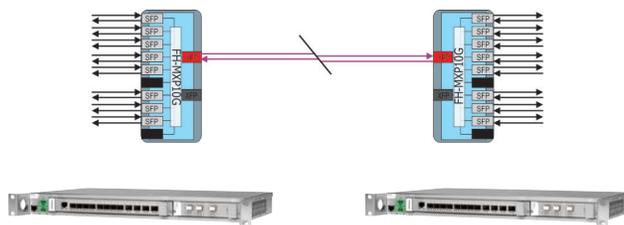


Fig 2. FH-MXP10 Gb/s in a TM-102 Point-to-point Configuration..

Example: Shared Fiber Configuration

If the fiber is to be shared with other connections, a CWDM single fiber configuration can be an option, as shown in the figure below.

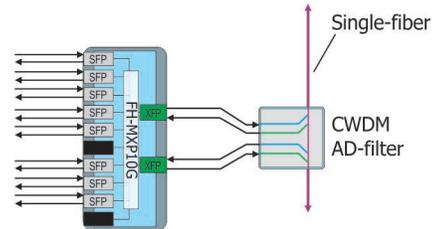


Fig 3. Add-drop Node, Protected, Single-fiber.

The FH-MXP10 Gb/s can manage the passive plug-in unit that the TM-102 chassis provides (in the half-sized slot).

Layer 2 Management VLANs

Remote access to a Layer 2 client that is connected to the gigabit Ethernet (GbE) port is easily provided via management virtual local area network (VLAN) capabilities. This provides an integrated solution for management of both Layer 1 and Layer 2 devices in the same network.

Tailored Network Element Options

The FH-MXP10 Gb/s unit can be mounted in a TM-3000/II (11U), a TM-301 (3U) or a TM-102 chassis. This enables a tailored setup depending on current and future capacity needs of the site.

Low Power Design

A fully equipped FH-MXP10 Gb/s consumes less than 32 watts (W). Low power consumption in combination with a small footprint reduces site costs and enables more capacity to be handled at sites with restrictions on power consumption, cooling and space.



Specifications

Supported Traffic Formats	3x 2457.6 Mb/s + 2x GbE (3x CPRI3 and 2x SyncE) (2457.6 Mb/s equals CPRI line bit rate option 3 as specified in "CPRI specification V6.0) 3x 3072.0 Mb/s + 1x GbE (3x CPRI4 and 1x SyncE) (3072.0 Mb/s equals CPRI line bit rate option 4 as specified in "CPRI specification V6.0)
Layer 1 Performance Monitoring	Client GbE: Based on CRC Client CPRI: Based on 8B10B coding errors Line: Based on CRC 15 min/24 h statistics presented according to G.826
Synchronization	Through-timing. Supports SyncE transport (G.8262/Y.1362 option 1)
Latency	GbE (SyncE): 15.8 μ s CPRI 2457.6 Mb/s: 8 μ s CPRI3072.0 Mb/s: 7 μ s
Interfaces	Client interfaces: SFP-based. Supporting grey or colored optics Line interfaces: XFP-based, SM, MM, CWDM, DWDM tunable
Layer 2 Features	Ethernet utilization PM (in %) per GbE port Inject and extract of management VLAN on all GbE ports
Protection	1+1 Line protection. Non-revertive switching typically <20 ms
Power Consumption	Max 32 W worst case (with all client ports active and using DWDM transceivers)
Misc. Line Interface Features	Embedded management channels on line signals Trail trace insertion to validate connection
Layer 2 Features	GbE utilization PM (in %) per GbE port Inject and extract of management VLAN on all GbE ports

Specifications and Features Are Subject to Change

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