10.76 112G Single Port Tunable Coherent Mux Transponder - 10 clients (112SCX10, 112SNX10)

10.76.1 Overview

The 112SCX10 and 112SNX10 OTs support one line interface (non-pluggable) and ten client interfaces with XFP modules (B&W, CWDM). The line side optics of the 112SCX10 and 112SNX10 OT can be tuned to utilize all 88 channels in the C-band. The 112SNX10 provides improved optics components that provide 15.2 dB OSNR, improved from 16.2 dB supported on 112SCX10.

> **i** **Note:** To support one or more 100Gb/s coherent Add/Drop OTs and/or 10x10Gb/s coherent Muxponder OTs installed in a 1830 PSS-32 shelf, a high capacity fan unit (PN 8DG59606AB) must be installed in the shelf.

10.76.2 Physical design

The 112SCX10 and 112SNX10 OTs are three-slot wide, full-height packs, that support multiplexing of up to ten 10G client signals into one OTU4 line interface. The 112SCX10 and 112SNX10 support one line interface (non-pluggable) and ten client interfaces with XFP modules (B&W, CWDM). The line side optics of the 112SCX10 and 112SNX10 OT can be tuned to utilize all 88 channels in the C-band. The 112SNX10 provides improved optics components that provide 15.2 dB OSNR, improved from 16.2 dB supported on 112SCX10. Each port has a dedicated port status LED and a dynamic Ethernet activity LED. When Ethernet data is transmitted or received, the LED blinks Green. When no Ethernet data is moving (idle), the LED is off.

> **i** **Note:** The Ethernet activity LED is used only when the port is provisioned with an Ethernet signal type.

10.76.3 112SCX10/112SNX10 functional description

The following illustration shows a block diagram of the 112SCX10/112SNX10 OT.

Figure 10-261   112SCX10/112SNX10 OT block diagram

The 112SCX10/112SNX10 provides client access through up to ten XFP modules (B & W, CWDM). Short, long, and extended reach XFP modules are supported. Client signal processing includes Status, Alarms, PM, FEC, pre-mapping of the client signal into p-ODTU24.
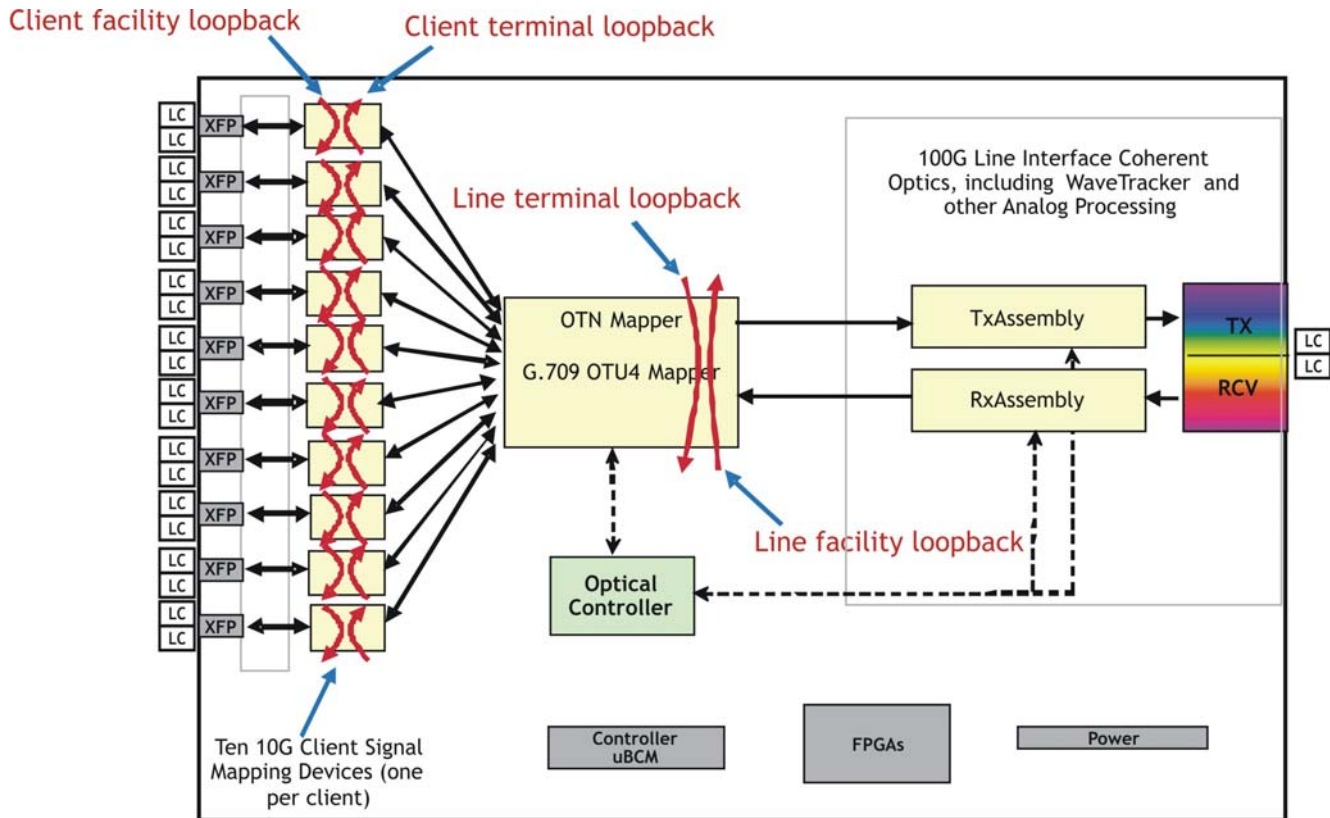
The 112SCX10/112SNX10 OT supports the following functional features:

- Facility and Terminal Loopbacks, Optical Performance Monitoring (OPR, OPT), Digital Performance Monitoring (RMON, SONET/SDH, OTN - Client Side, OTUk/ODUk Monitoring – Line Side)

- Hardware ready to support full ITU-T G.709 functionality, including GCC0 and TCM

- Line side supports the following features:
  - PM-QPSK modulation (Dual Polarization Quadrature Phase Shift Keying)
  - Line side coherent receiver, combined with a DSP to compensate for linear transmission impairments (CD and PMD) and mitigate non-linear impairments (SPM and non-linear phase noise)
  - OTU4 facility and terminal loopbacks
  - Support Nokia Enhanced FEC (~9.2 dB coding gain at 1E-15 for ~7-% overhead)
  - OSNR: 16.2 db (112SCX10), 15.2 dB (112SNX10)
  - Wavelength tracker supporting optical power auto-management. User configurable option to disable the WT for the interoperability application with other systems without WT

- Client side supports the following features:
  - Standard FEC (RS-FEC)
  - Supports OC-192/STM-64, 10 GbE, 8G FC, OTU1e and OTU22 client interfaces
  - OC-192, OTU2, 10GbE facility and terminal loopbacks

- Hardware ready to support full ITU-T G.709 functionality, including GCC0 and TCM

Optical interfaces

The 112SCX10/112SNX10 supports both B&W XFPs for single-channel applications and CWDM XFPs for multiple channel applications (up to eight channels).

Client XFPs

The 112SCX10/112SNX10 OT supports the following types of client XFPs:

- 10GB-SR (B & W, 850 nm, 10G BASE-SR)
- 10GB-ZR (B & W, 10 GBE)
- L64.2 (B & W)
- XI-64.1
- XS-64.2b
- XS-64.2c
- XL-64.2c

For more details about the XFPs available for the 112SCX10 and 112SNX10, including ordering information, see Table 10-41, "112SCX10, 112SNX10, 130SCX10, and 130SNX10 Client XFPs" (p. 809).

Client signal types

The 112SCX10/112SNX10 supports the following client signal types.

Client signal type	Operating bit rate	Standard
10GbE LAN	10.3125 Gb/s	10GbE (IEEE802.3e)
FC800	8.5 Gb/s	ANSI INCITS 364-2003
OC-192	9.95328 Gb/s	GR-253-CORE
STM-64	9.95328 Gb/s	ITU-T G.707
OTU2 [1] (OTU1e) (OTU2e)	10.709 Gb/s 11.049 Gb/s (overclocked) 11.096 Gb/s (overclocked)	ITU-T G.709

Notes:

1. Using the CLI, the client port can be set to one of the following values: OC-192, STM-64, 10GbE, OTU2 or FC800. When configured for OTN the client port is set to OTU2, and the OTURATE parameter is configured for either 10.709, 11.049, or 11.096, where 10.709 is OTU2, 11.049 is OTU1e, and 11.096 is OTU2e.

For more details about the XFPs available for the 130SNX10, including ordering information, see Table 10-41, "112SCX10, 112SNX10, 130SCX10, and 130SNX10 Client XFPs" (p. 809).
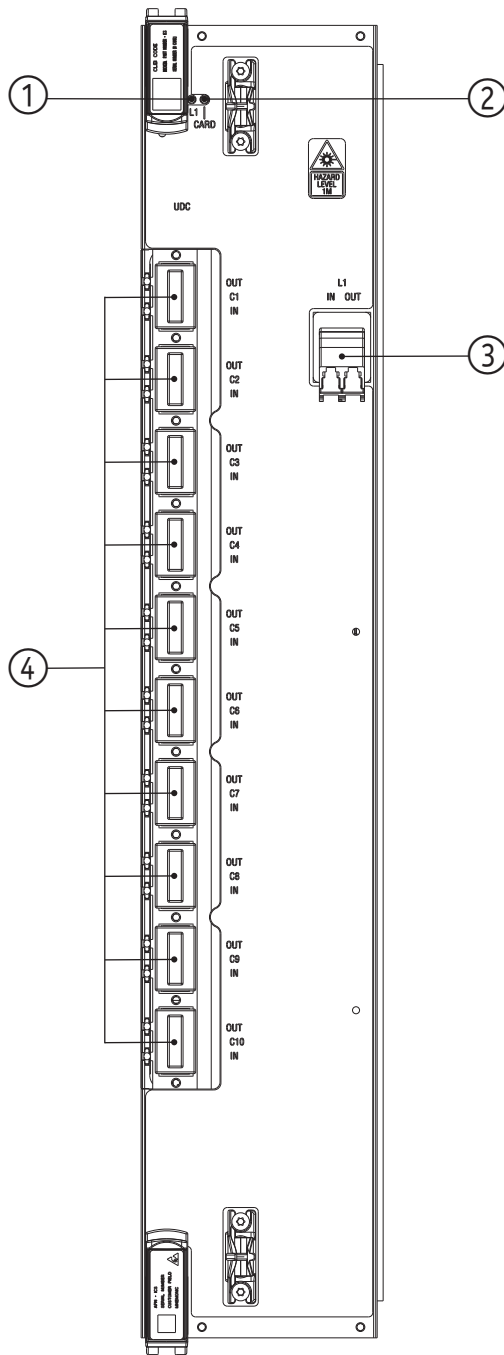
10.76.4 Protection

Protection configurations supported include:

- OCH (OPSA) exceed 50 ms switch time
- OSNCP (Y-cable)
- OMSP

10.76.5 112SCX10/112SNX10 front view

The following figure illustrates a front view of the faceplate of the 112SCX10/112SNX10.

Figure 10-262   112SCX10/112SNX10 faceplate

Legend:

1	LEDs "L1"

2	LEDs "CARD"
3	"L1" interface
4	"C1"-"C10" interfaces

10.76.6 Visual Indications

For information about the LEDs on the front panel, see 11.9 "Common LEDs of WDM cards" (p. 1426).

10.76.7 Location

The 112SCX10/112SNX10 can be installed in 1830 PSS-32 slots 2 to 15.