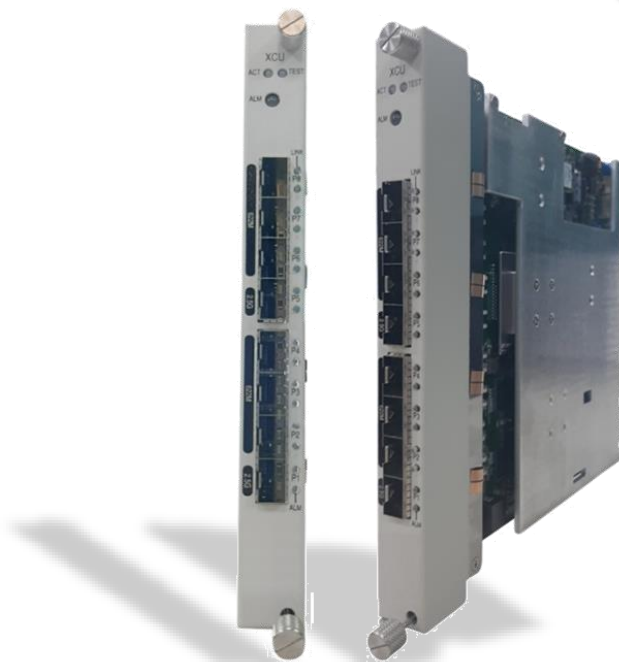


XCU Card for HX9800

Features

- SDH/SONET cross-connect card
- Supports 240 VC3 x 240 VC3* and 4032 TU-11 x 4032 TU-11 external interface
- Supports 2 x STM-16, 8 x STM-4/1, or combination 1 x STM-16 + 4 x STM-4/1 and comparable OC-n rates
- Protection Schemes
 - MSP1+1, SNCP/UPSR
 - SNCP Port 1:1 Protection
- Circuit Emulation and Encapsulation for TDM data over Packet Switched Network (SAToP, CESoPSN, CEP)
- Vertical MSP protection support on the same card
- Software-configurable port speeds



Description

The XCU plug-in card is a cross-connect card helping facilitate SDH/SONET traffic in conjunction with other cards. XCU can be used together with other HX9800 cards (e.g. TE1-FR, DS3, B2G5, EoS cards) for TDM traffic via Circuit Emulation. It is designed for the single slot of HX9800.

For TDM encapsulation technologies, XCU supports TDMoE, TDMoIP, and TDMoMPLS. For Circuit Emulation, XCU supports SAToP (Unframed E1/T1) and CEP (SDH/SONET paths). The capacity of a XCU module reaches up to one STM-16/OC-48 worth of TDM traffic.

Ordering Information

To specify options, choose from the list below.

Note 1: RoHS compliant units are identified by the letter **G** appearing at the end of ordering code.

Note 2: Before purchasing, please check the G7800 main brochure to see if the following models are supported by the controller to be used with.

Model	Description	Notes
HX9800-XCU- LoSW410-a-G	SDH/SONET cross-connect card (XCU) • Group-based multi-rate SDH/SONET Interface Software-configurable to support: • 2 x STM-16 (OC-48) • 1 x STM-16 (OC-48) + 4 x STM-1/4 (OC-3/12)* • 8 x STM-1/4 (OC-3/12)* • Integrated TDM Cross-Connect Matrix	• The HX9800 XGU module is supported exclusively in slot 7 and slot 8. • STM-1/4 (OC-3/12) is software configured by port group: ▪ Group 1: Ports 1–4 ▪ Group 2: Ports 5–8

	• HO 240 × 240 AU-3 (STS-1) • LO 4,032 × 4,032 VC-12 (5,376 × 5,376 VT1.5) • Advanced Circuit Emulation Services • Aggregate data rate up to 2.5 Gbps • Supported emulation methods: ○ CEP for VC-x/TU-x ○ SAToP/CESoPSN* for E1 or T1	• Single XCU module provides: ▪ MSP 1+1 (up to 4) ▪ SNCP (up to 4) ▪ CEM 2.5G capacity • Dual XCU modules provide: ▪ MSP 1+1 (up to 8)* ▪ SNCP (up to 8)* ▪ CEM 2.5G capacity*
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Product Specifications for XCU Card

Number of ports	Up to 8 x STM-n/OC-n ports per XCU card
Physical Interface	2.5G/622M/155M SFP interfaces
Connector	SFP

Diagnostics

Loopback Test	Local loopback, payload loopback, line loopback
BERT Test	Optical interface Direction: to optical lines

Performance Monitor

Performance Reports	Performance Parameters: Error Block (EB), Background Block Error (BBE), Error Second(ES), Burst Error Second (BES), Severe Error Second (SES), Unavailable Second(UAS)
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Alarm History	SDH/SONET Line Alarm	SDH	Line	PI-LOS RS-LOF RS-TIM MS-SD MS-SF MS-AIS MS-RDI MS-REI B1-BIP B2-BIP
			Ho-Path	AU-LOP AU-AIS HP-SD HP-SF HP-UNEQ HP-PLM HP-TIM HP-RED-P HP-RDI-S HP-RDI-C HP-LOM HP-REI
			Lo-Path	TU-LOP TU-AIS LP-SD LP-SF LP-UNEQ LP-PLM LP-TIM LP-RDI-P LP-RDI-S LP-RDI-C LP-REI LP-BIP
		SONET	Line	LOS-PI, LOF-S, TIM-S, SD-L , SF-L , AIS-L , RDI-L , REI-L UAS, B1-BIP, B2-BIP
			STS-Path	LOP-P, AIS-P, SD-P, SF-P, UNEQ-P, PLM-P, TIM-P, RDI-P-P, RDI-S-P, RDI-C-P, RDI-P-P, LOM-P, REI-P, B3-BIP-P
			VT-Path	LOP-V, AIS-V, SD-V, SF-V, UNEQ-V, PLM-V, TIM-V, RDI-P-V, RDI-S-V, RDI-C-V, REI-V, BIP-V
Alarm Queue	Contains up to 10000 alarm records of latest alarm types, alarm severity, date, and time.			

Application Illustration

SNCP/UPSR is a SDH/SONET path-level protection mechanism by copying traffic onto two paths of any STM-n/OC-n channels. Two types of SNCP/UPSR rings are possible. Traffic is unidirectional for both primary and secondary paths. Traffic is counterclockwise on the primary path and clockwise on the secondary path. For each path, A-to-C traffic and C-to-A traffic traverse different intermediate nodes (Node B and D respectively).

SNCP/UPSR:

Traffic copied onto both paths

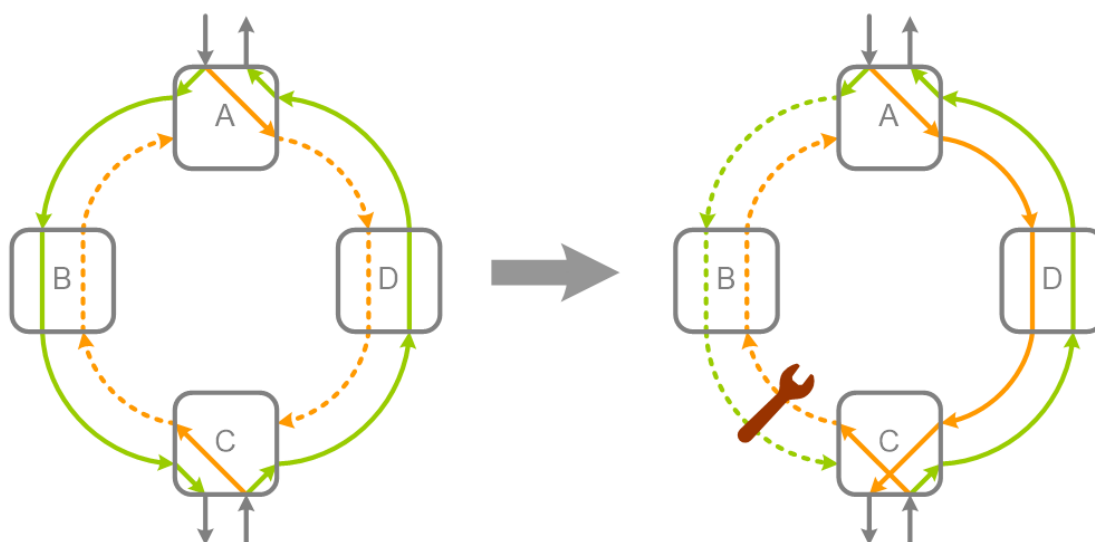
Selector at Rx selects traffic from either path



Primary Path



Secondary Path



Normal Condition:

A to C traffic selected from primary path

C to A traffic selected from primary path

Line between B&C failure:

A to C traffic switched to secondary path

C to A traffic still selected from primary path

SDH/SONET MSP (1+1) Protection

Multiplex section protection (MSP) is a linear protection scheme by pairing two physical ports together for line protection of a SDH/SONET line section between two nodes. Protection can be configured as port-level or card-level. In port-level protection, two ports on the same card are paired to protection against port failure but not card failure. In card-level protection, two ports on two different cards are paired to protection against port failure and card failure.



CXR 17 Rue de l'Ornette 28410 Abondant France
T +33 (0) 237 62 88 00 contact@cxr.com
www.cxr.com

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