

Digital Transport

Prisma IP™ HD/SD-SDI Video Transport Cards

Overview

The Prisma IP™ HD/SD-SDI Video Transport cards are a series of line cards that can be used in most of the Prisma IP family of chassis. These cards incorporate their own SONET/SDH optical trunk interfaces to permit express optical transport of high-bandwidth high definition (HD) and standard definition (SD) serial data interface (SDI) video services.

Description

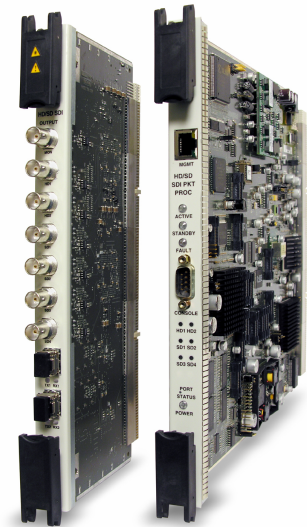
The HD/SD-SDI card sets offer three operating configurations. The primary approach aggregates one uncompressed full-rate HD-SDI video input with up to three SD-SDI, SDTI or ASI video signals into a single 2.488 Gbps (OC-48c, STM-16c) data stream that is transmitted over the SFP-based optical transport link. After transport, recovered data stream is de-multiplexed back into the original signals. A second configuration leverages the DPCM compression option enabling transport of up to two full-rate HD-SDI, or one HD-SDI with four SD-SDI/SDTI/ASI signals with no discernible degradation. A final configuration can transport up to six SD-SDI, SDTI or ASI signals.

The HD/SD-SDI video transport card sets utilize a common front controller card design – the HD/SD-SDI Video Packet Processor (VPP) card. The HD/SD-SDI VPP front card is responsible for all digital video multiplexing, de-multiplexing, and video processing.

The HD/SD-SDI transport card sets utilize the HD/SD-SDI VPP front card along with one of two types of rear-mounted cards – HD/SD-SDI Input or Output. These cards contain the dual-rate SDI local interfaces (SMPTE-292M and SMPTE 259M-C) and the optical transport interfaces. The rear cards interface to external HD-SDI and SD-SDI video equipment through industry-standard BNC connectors and coaxial cables.

Seven coaxial video ports are available on each rear card. The HD/SD-SDI Input card has six video input connectors. The HD/SD-SDI Output card has six video output connectors. Both card versions include one software selectable video monitor connector. Two of the video ports are fully software configurable for HD-SDI, SD-SDI, SDTI, or ASI operation and the remaining four I/O card video ports are fully software configurable for SD-SDI, SDTI, or ASI operation. In addition to the video input/output connectors, the rear cards contain two SFP (small form-factor pluggable) optical interface slots to insert industry standard SFP-based optical transceiver modules for the optical trunking interface. SFP transceiver modules are available in a variety of wavelengths and distance options, including 1310nm, 1550nm, CWDM and ITU-grid DWDM versions.

The cards can be managed in several ways. There is a local RS-232 management port on the front of the VPP card for basic card provisioning and monitoring via the Command Line Interface (CLI). There is also an Ethernet 10/100Base-T port on the front of the VPP card to permit remote provisioning and monitoring via Web Browser, Telnet or SNMP. A MIB is available to permit remote provisioning and monitoring via SNMP managers, such as Prisma IP EMS, ROSA and other SNMP-based element/network management systems. The SNMP agent also supports traps to forward critical alarm information to remote management systems. When the modules are configured for full duplex optical transport, there is a portion of the trunking bandwidth reserved for an in-band element management path from the remote hub site back to the headend site.



Product Features

- Uncompressed transport of one HD and up to three SD-SDI video signals, or up to six SD-SDI video signals
- Optional DPCM compression for transport of two HD-SDI signals, or one HD-SDI and up to four SD-SDI signals for bandwidth efficiency
- Loop-back port for local monitoring of video services
- Dual SFP (small form-factor pluggable) optical interface slots uses industry standard SFP optical modules
- Compatible with Prisma IP M-Series, C-Series, and Micro-Node chassis
- One-way configurable for efficient “drop and continue” architectures
- 2.488 Gbps optical data rate (OC-48c / STM-16c)
- Command Line Interface (CLI) via local serial port and/or remote Telnet session
- Remote manageable via SNMP

Specifications

Electrical Specifications	
HD-SDI Signal Protocol	1.485 or 1.485/1.001 Gbps Serial Interface per ANSI/SMPTE-292M
SD-SDI/SDTI Signal Protocol	• 270 Mbps Serial Interface per ITU-R BT.656-4 and ANSI/SMPTE-259M-1997 Level C support only (259M-C) • 270 Mbps Serial Digital Video interface supporting 525L/60 and 625L/50 Component Video per SMPTE-125M and ITU-R (CCIR) BT.601 / 656-2 • 270 Mbps SDTI Interface per SMPTE-305M-98
DVB ASI Signal Protocol	• ITU ASI-C • 270 Mbps Link Rate • 213.726 Mbps Input Data Rate (max) • Transparent Transport
Port Configuration for HD-SDI Input I/O Card	• Seven (7) total available dual-rate SDI ports • Two (2) ports configured for HD-SDI, SD-SDI, SDTI or ASI video input • Four (4) ports configured for SD-SDI, SDTI or ASI video input • One (1) port software configurable for video monitor port
Port Configuration for HD-SDI Output I/O Card	• Seven (7) total available dual-rate ports • Two (2) ports configured for HD-SDI video output • Four (4) ports configured for SD-SDI, SDTI or ASI video output • One (1) port software configurable for video monitor port
HD-SDI / SDI Interface Connector Type	Type BNC female
Input / Output Return Loss	• SD Ports - >15 dB from 5 MHz to 270 MHz • HD Ports - >15 dB from 5 MHz to 1485 MHz
Connecting Cable	• SD Ports - Belden 8281 or equivalent, 300 meters maximum • HD Ports - Belden 1694A or equivalent, 100 meters maximum
Forward Error Correction	Reed-Solomon, T=1 (SONET / SDH payload only)
Signal Processing	SDI EDH (Error Detection and Handling)
Ancillary Data	Transparent forwarding of 2 AES/EBU audio groups (4 stereo or 8 mono)
Physical Specifications	
Line Card Configuration	Single-wide card slot, front and rear, Prisma IP chassis
Chassis Compatible	Prisma IP M-Series, C-Series, and Micro Node
Power	40 W max.
Operating Temperature	0°C to 50°C / 32°F to 122°F (extended operation above 40° C / 104° F not recommended)
Storage Temperature	-40°C to 70°C / -40°F to 158°F
Relative Humidity	5% to 85% (non condensing)
Emissions	FCC Part 15B and CE
Safety	UL, CUL, and TÜV

Ordering Information

Description	Part Number
HD/SD-SDI Video Packet Processor Front Card (VPP) (Front card – required for all HD-SDI input and output applications)	4007684
6-Port HD/SD-SDI Video Input with dual SPF optics interfaces	4010075
6-Port HD/SD-SDI Video Output with dual SPF optics interfaces	4010338

Ordering Notes:

For a video input application, order one HD/SD-SDI VPP front card, one SDI video input card, and one or two SFP optical transceiver modules.

For a video output application, order one HD/SD-SDI VPP front card, one SDI video output card, and one or two SFP optical transceiver modules.

SFP - 1310 nm / 1550 nm

Description	Part Number
SFP, 1310, OC48, 5 Km	1002399
SFP, 1310, OC48, 10 Km	1003271
SFP, 1310, OC48, 20 Km	1002391
SFP, 1310, OC48, 45 Km	1002400
SFP, 1550, OC48, 80Km	1002393

SFP - CWDM

Description	Part Number
SFP, 1470NM CWDM, OC48, LR, 70KM	1002415
SFP, 1490NM CWDM, OC48, LR, 70KM	1002416
SFP, 1510NM CWDM, OC48, LR, 70KM	1002417
SFP, 1530NM CWDM, OC48, LR, 70KM	1002418
SFP, 1550NM CWDM, OC48, LR, 70KM	1002026
SFP, 1570NM CWDM, OC48, LR, 70KM	1002419
SFP, 1590NM CWDM, OC48, LR, 70KM	1002420
SFP, 1610NM CWDM, OC48, LR, 70KM	1002421

Ordering Information, continued

SFP - DWDM

Description	Part Number
DWDM SFP, OC48, Ch 17, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009375
DWDM SFP, OC48, Ch 18, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009703
DWDM SFP, OC48, Ch 19, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009376
DWDM SFP, OC48, Ch 20, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009704
DWDM SFP, OC48, Ch 21, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009377
DWDM SFP, OC48, Ch 22, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009705
DWDM SFP, OC48, Ch 23, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009378
DWDM SFP, OC48, Ch 24, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009706
DWDM SFP, OC48, Ch 25, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009379
DWDM SFP, OC48, Ch 26, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009707
DWDM SFP, OC48, Ch 27, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009380
DWDM SFP, OC48, Ch 28, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009708
DWDM SFP, OC48, Ch 29, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009381
DWDM SFP, OC48, Ch 30, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009709
DWDM SFP, OC48, Ch 31, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009382
DWDM SFP, OC48, Ch 32, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009710
DWDM SFP, OC48, Ch 33, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009383
DWDM SFP, OC48, Ch 34, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009711
DWDM SFP, OC48, Ch 35, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009384
DWDM SFP, OC48, Ch 36, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009712
DWDM SFP, OC48, Ch 37, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009385
DWDM SFP, OC48, Ch 38, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009713
DWDM SFP, OC48, Ch 39, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009386
DWDM SFP, OC48, Ch 40, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009714
DWDM SFP, OC48, Ch 41, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009387
DWDM SFP, OC48, Ch 42, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009715
DWDM SFP, OC48, Ch 43, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009388
DWDM SFP, OC48, Ch 44, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009716
DWDM SFP, OC48, Ch 45, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009389
DWDM SFP, OC48, Ch 46, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009717
DWDM SFP, OC48, Ch 47, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009390
DWDM SFP, OC48, Ch 48, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009718
DWDM SFP, OC48, Ch 49, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009391
DWDM SFP, OC48, Ch 50, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009719
DWDM SFP, OC48, Ch 51, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009392
DWDM SFP, OC48, Ch 52, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009720
DWDM SFP, OC48, Ch 53, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009393
DWDM SFP, OC48, Ch 54, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009721
DWDM SFP, OC48, Ch 55, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009394
DWDM SFP, OC48, Ch 56, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009722
DWDM SFP, OC48, Ch 57, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009395
DWDM SFP, OC48, Ch 58, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009723
DWDM SFP, OC48, Ch 59, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009396
DWDM SFP, OC48, Ch 60, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009724
DWDM SFP, OC48, Ch 61, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009397
DWDM SFP, OC48, Ch 62, 0dBm Output, -28dBm Sensitivity, 100 Km Dispersion Limit	4009725



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