Digital Transport

Prisma IP™ 10 GbE VOD Line Card

Description

The Prisma IP™ 10 GbE Line Card family of products consists of Transmitter (OTX), Receiver (ORX), and Transceiver (OTR) modules. These modules combine a 10 Gbps long haul interface and a 10 Port Ethernet Switch, enabling the ability to create 10 Gbps IP networks. The front card contains the 10 GbE optics and electronics with the switch fabric. The rear card contains 10 SFP cages for insertion of optical modules.

The Prisma IP 10 GbE OTX / ORX / OTR long haul interface ensures transport at optimum cost efficiency, while also supporting the requirements of a variety of VOD networks. Tunable DWDM optics are available to provide maximum network flexibility and enable a cost-efficient Automated 'Broadcast and Select' architecture. The 'Broadcast and Select' approach offers lower cost network scaling by eliminating expensive muxes/demuxes and enabling bandwidth upgrades through remote provisioning. In addition to tunable optics the Prisma IP 10 GbE Line Cards support 1310 nm transmission for short range 10 Gbps network interfaces. On the client side, short, medium and long haul (up to 70 km) GbE SFP modules are available.

The integrated switch assures maximum bandwidth use and reduces server bottlenecks. This switch is an Ethernet backbone switch providing 10 full duplex GbE ports. The switch supports full rate switching and port trunking.

Features

- Three card types – OTR (transceiver), OTX (transmitter), ORX (receiver)
- Available tunable DWDM optics offering network cost efficiency and flexible sparing – CH.13 through CH.61
- Support for 10 full duplex 1000 Base-T or 1000 Base SX Gigabit Ethernet ports in conjunction with rear card
- Line rate 10.3125 Gbps (10GBASE-X, LAN PHY)
- Supports bi-directional or uni-directional long haul interconnection
- Line rate switching
- Support for standard and jumbo-frames (9K)
- Data packet buffering
- Packet flow control (802.3x)
- Head of Line Blocking prevention
- MAC Address Table with auto-learning
- The 10 ports can be defined into 6 trunks with a maximum of 12 GbE ports per trunk – trunking based on IP addresses
- Automatic packet aging
- SNMP manageable
- Single slot card in Prisma IP chassis

Prisma IP 10 GbE VOD Line Card

Specifications

General Specifications	
Ambient temperature range	
Operation	0° to 50°C / 32° to 122°F *(extended operation above 40°C / 104°F not recommended)*
Storage	-40°C to 70°C / -40°F to 158°F
Power supply	
Nominal	-48 V DC ± 20%
Normal service voltage range	-38 to -58 V DC
Power consumption (nominal)	50 W
Weight	Approx. 1.0 kg / 2.2 lbs
Dimensions (W x H)	280 mm x 300 mm / 11.02 in. x 11.81 in.
Module width	1 slot

Switch Specifications	
Switch	Layer 2
Switch speed	21 Mpackets/s switching (line rate)
MAC-address table	32K-entries, self learning
Ageing	Automatic
Data packet memory	1M
Flow control	802.3x

10 GbE Optical interface – 1310nm Transmitter (12km)	
Type	10GBASE-LR per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Distance	Up to 12 km
Laser type	EML (EA)
Wavelength	1310 nm (min. 1290 nm - max. 1330 nm)
Output power	Typ -2 dBm (min. -4 dBm, max. -1 dBm)
IEC laser class	Class 1

10 GbE Optical interface – DWDM Transmitter (40km)	
Type	10GBASE-ER per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Distance	Up to 40 km
Laser type	EML (EA)
Wavelength	ITU ch. 21 up to ch. 44 (100 GHz spacing standard)
Dispersion	Max. 800 ps/nm (2 dB dispersion penalty)
Output power	Typ. 0 dBm (min. -1 dBm, max. +2 dBm)
IEC laser class	Class 1

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Specifications, continued

10 GbE Optical interface – DWDM Transmitter (80km)	
Type	10GBASE-ER per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Distance	Up to 80 km
Laser type	EML (LiNbO3)
Wavelength	ITU ch. 21 up to ch. 44 (100 GHz spacing standard)
Dispersion	Max. 1600 ps/nm (2 dB dispersion penalty)
Output power	Typ +5 dBm (min. +4 dBm, max. +7 dBm)
IEC laser class	Class 1M

10 GbE Optical interface – Tunable DWDM Transmitter (80km)	
Type	10GBASE-ER per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Distance	Up to 80 km
Laser type	EML (LiNbO3)
Wavelength	Full C-band (ch. 13 to ch. 61) 100Ghz spacing
Dispersion	Max. 1600 ps/nm (2 dB dispersion penalty)
Output power	Typ +5 dBm (min. +4 dBm, max. +7 dBm)
IEC laser class	Class 1M

10 GbE Optical interface – PIN receiver	
Type	10GBASE-LR per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Detector type	PIN
Max. input power	Min. -1 dBm
Sensitivity @ 1550 nm (1 dB penalty for 1310 nm)	Typ. -19 dBm @ BER 10-12 (min. -16 dBm)

10 GbE Optical interface – APD receiver	
Type	10GBASE-ER per IEEE 802.3ae
Bit rate nominal	10.3125 Gbps (± 100 ppm)
Connector	SC/PC
Detector type	APD
Max. input power	Min. -5 dBm
Sensitivity @ 1550 nm (1 dB penalty for 1310 nm)	Typ. -26 dBm @ BER 10-12 (min. -23 dBm)

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Ordering Information

Ordering information is indicated in table below. All types have SC/PC connectors for the 10 GbE port.

Prisma IP 10 GbE OTX Cards	Wavelength Channel	Part Number
10 GbE OTX, 1310 nm, up to 12 km		4004919009999
10 GbE OTX, 0 dBm, 800 ps/nm	CH 21, 1560.61 nm	4004919000821
10 GbE OTX, 0 dBm, 800 ps/nm	CH 23, 1558.98 nm	4004919000823
10 GbE OTX, 0 dBm, 800 ps/nm	CH 25, 1557.36 nm	4004919000825
10 GbE OTX, 0 dBm, 800 ps/nm	CH 27, 1555.75 nm	4004919000827
10 GbE OTX, 0 dBm, 800 ps/nm	CH 29, 1554.13 nm	4004919000829
10 GbE OTX, 0 dBm, 800 ps/nm	CH 31, 1552.52 nm	4004919000831
10 GbE OTX, 0 dBm, 800 ps/nm	CH 33, 1550.92 nm	4004919000833
10 GbE OTX, 0 dBm, 800 ps/nm	CH 35, 1549.32 nm	4004919000835
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 21, 1560.61 nm	4004919001621
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 23, 1558.98 nm	4004919001623
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 25, 1557.36 nm	4004919001625
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 27, 1555.75 nm	4004919001627
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 29, 1554.13 nm	4004919001629
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 31, 1552.52 nm	4004919001631
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 33, 1550.92 nm	4004919001633
10 GbE OTX, +5 dBm, 1600 ps/nm	CH 35, 1549.32 nm	4004919001635
10 GbE OTX, +5 dBm, 1600 ps/nm	Tunable, CH 13 to CH 61	4004919001690

Prisma IP 10 GbE OTR Cards	Wavelength Channel	Part Number
10 GbE OTR, 1310 nm, up to 12 km		4004919209999
10 GbE OTR, 0 dBm, 800 ps/nm	CH 21, 1560.61 nm	4004919200821
10 GbE OTR, 0 dBm, 800 ps/nm	CH 23, 1558.98 nm	4004919200823
10 GbE OTR, 0 dBm, 800 ps/nm	CH 25, 1557.36 nm	4004919200825
10 GbE OTR, 0 dBm, 800 ps/nm	CH 27, 1555.75 nm	4004919200827
10 GbE OTR, 0 dBm, 800 ps/nm	CH 29, 1554.13 nm	4004919200829
10 GbE OTR, 0 dBm, 800 ps/nm	CH 31, 1552.52 nm	4004919200831
10 GbE OTR, 0 dBm, 800 ps/nm	CH 33, 1550.92 nm	4004919200833
10 GbE OTR, 0 dBm, 800 ps/nm	CH 35, 1549.32 nm	4004919200835
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 21, 1560.61 nm	4004919201621
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 23, 1558.98 nm	4004919201623
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 25, 1557.36 nm	4004919201625
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 27, 1555.75 nm	4004919201627
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 29, 1554.13 nm	4004919201629
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 31, 1552.52 nm	4004919201631
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 33, 1550.92 nm	4004919201633
10 GbE OTR, +5 dBm, 1600 ps/nm	CH 35, 1549.32 nm	4004919201635
10 GbE OTR, +5 dBm, 1600 ps/nm	Tunable, CH 13 to CH 61	4004919201690

Prisma IP 10GbE ORX Card	Part number
10 GbE ORX, APD (Typical Sensitivity - 25 dBm @ BER 10E-12)	4004919100000

Prisma IP 10GbE Switch Card Without Optics	Part number
10 GbE Switch Only	4004919300000

10 GbE Rear Card	Part number
10 GbE Rear Card, 10-port Note: Does not contain SFP modules, must order separately	4004918

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Ordering Information, continued

SFP module	Part number
Prisma GbE SFP Module 1000Base-T Copper (RJ-45)	4006222
Prisma GbE SFP Module 850 nm (LC, up to 500 m)	4002019
Prisma GbE SFP Module 1310 nm (LC, up to 5 km)	4002020
Prisma GbE SFP Module 1310 nm (LC, up to 25 km)	4002021
Prisma GbE SFP Module 1550 nm (LC, up to 40 km)	4002022
Prisma GbE SFP Module 1550 nm (LC, up to 70 km)	4002023
Prisma GbE SFP CWDM 1470 nm (LC, up to 70 km)	4002011
Prisma GbE SFP CWDM 1490 nm (LC, up to 70 km)	4002012
Prisma GbE SFP CWDM 1510 nm (LC, up to 70 km)	4002013
Prisma GbE SFP CWDM 1530 nm (LC, up to 70 km)	4002014
Prisma GbE SFP CWDM 1550 nm (LC, up to 70 km)	4002015
Prisma GbE SFP CWDM 1570 nm (LC, up to 70 km)	4002016
Prisma GbE SFP CWDM 1590 nm (LC, up to 70 km)	4002017
Prisma GbE SFP CWDM 1610 nm (LC, up to 70 km)	4002018

Related Components

Description	Part number
Prisma IP M-Series Chassis, with Fan & Filter Trays, 19” rack mount kit (North America)	1002071
Prisma IP M-Series Chassis, with Fan & Filter Trays, 23” rack mount kit (North America)	1002075
Prisma IP M-Series Chassis, with Fan & Filter Trays, 19” rack mount kit (EMEA and AP)	1002077
Prisma IP M-Series Chassis, with Fan & Filter Trays, 23” rack mount kit (EMEA and AP)	1002073
Prisma IP C-Series Chassis, with Fan, 19” rack mount kit (North America)	1002076
Prisma IP C-Series Chassis, with Fan, 23” rack mount kit (North America)	1002099
Prisma IP C-Series Chassis, with Fan, 19” rack mount kit (EMEA and AP)	1002140
Prisma IP C-Series Chassis, with Fan, 23” rack mount kit (EMEA and AP)	1002068
Prisma IP Micro-Node Chassis	754476
ROSA Management System – Tunable Optics Wavelength Management Package	7003231

Note : EMEA stands for Europe, Middle-East and Africa. AP stands for Asia and Pacific.

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