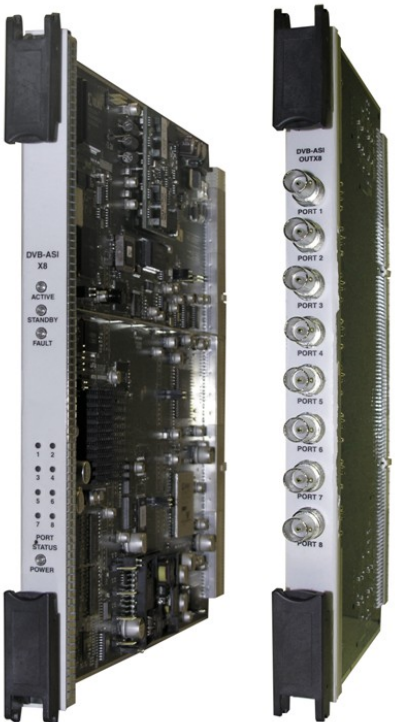
Digital Transport

Prisma IP™ Wavelength Services Eight Channel DVB-ASI Encoder and Decoder Cardsets

Description

With the addition of the new eight channel DVB-ASI encoders and decoders, the Prisma IP™ platform now provides for the optimized transport and interconnection of MPEG-2 streams for your Explorer® video networks and for other MPEG-2 digital video content applications.



The Asynchronous Serial Interface (ASI) is a standard developed by the European Digital Video Broadcasting (DVB) standards association designed to provide simple transport and interconnection of MPEG-2 transport streams from different manufacturers' equipment. Equipment supporting this widely accepted standard today includes MPEG-2 encoders, digital satellite receivers, multiplexers, NVOD/VOD servers, and QPSK/QAM modulators.

Implementation of the DVB-ASI interface as a line interface plug-in allows Prisma IP to transport the MPEG-2 streams transparently over a high speed Resilient Packet Ring (RPR) packet transport network without the cost of any additional multiplexing or demultiplexing equipment or processes.

The DVB-ASI Line Interface Cardsets for the Prisma IP Optical Transport System are two new optical transport line interface cardsets - one is for ASI input and one is for ASI output. These line interface cardsets will allow MPEG-2 transport streams that are formatted in the DVB-ASI standard to be interfaced directly to the Prisma IP System chassis for transport over a Resilient Packet Ring / Fiber Ring System network. Each of these line interface cardsets can occupy one of the 12 low-speed line interface slots of the Prisma IP System M-Series chassis. They can be used in combination with additional ASI line interface cardsets and other low-speed data and video line interface cardsets to create a flexible common transport system for a variety of digital and analog signal formats.

Two distinct line interface cardsets are available - one is used as an input or 'encoder' and the other is used as an output or 'decoder'. The DVB-ASI line interface cardsets have the ability to carry up to eight DVB-ASI MPEG-2 Multi-program Transport Streams (MPTS) to enable transport of MPEG-2 over the Prisma IP Fiber Ring System network. Each DVB-ASI input card accepts up to eight MPEG-2 digital transport streams in the DVB-ASI format to be mapped to an Resilient Packet Ring (RPR) Layer 2 packet format. The input card is installed in one of the 12 line interface slots of the Prisma IP System M-Series chassis. The Prisma IP System then multiplexes that input card's data stream with other similar data streams to create a high-speed packet optical transport stream. At the receiving end, the process is reversed - the packet transport stream is switched, and that stream is then interfaced to a DVB-ASI output interface card that reconstructs the original DVB-ASI formatted MPEG-2 transport streams and provides multiple DVB-ASI outputs.

Prisma IP 8 Channel DVB-ASI Encoder & Decoder Cardsets

Description, continued

The cards are provisionable to allow both point-to-point and point-to-multipoint transmission of the ASI streams. The eight ports are individually addressable such that any transport stream on any ASI encoder port can be directed to any decoder's ASI output port (or ports) at any node. The Prisma IP Element Management System (EMS) is utilized for point-and-click provisioning of these links across the Prisma IP network. Quality of Service levels can be assigned such that the DVB-ASI data can be switched with the desired priority, and such that the network can make appropriate decisions for traffic recovery in the event of partial network outages.

Each DVB-ASI encoder or decoder line interface cardset has an appropriate Rear Panel Input/Output (RPIO) card that is designed for use with that line interface card. The RPIO card consists of eight type BNC female connectors, with each connector corresponding with the eight possible DVB-ASI channels.

Applications

- Regional transport of broadcast digital video to multiple remote CATV headends
- Efficient transport of VOD streams from centralized server facilities to secondary hub locations
- Transport of MPEG-2 streams for network feed backhaul and satellite uplink interconnect

Features

- Each cardset can transport up to eight individual DVB-ASI transport streams without the use of external MPEG-2 multiplexers or demultiplexers
- DVB-ASI provides transparent regional transport of serial MPEG-2 streams without alteration
- Easy to read front panel indicators for ASI input/output port status and overall card status
- Remote provisioning, control, and status monitoring information provided via SNMP to the Prisma IP (EMS)
- Standard DVB MPEG-2 interface specifications that are interoperable with MPEG encoders, digital satellite receivers, multiplexers, VOD/NVOD servers, and QPSK/QAM modulators

Prisma IP 8 Channel DVB-ASI Encoder & Decoder Cardsets

Specifications

ASI Input Specifications	
Connector Type	BNC female
Minimum Sensitivity	200 mV (p-p)
Maximum Input Voltage	880 mV (p-p)
Input Impedance	75 ohms
Input Return Loss	>17 dB (27 MHz – 270 MHz)
ASI Input Transmission Format	Burst Packet Mode or Spaced Byte Mode, auto-sensing
ASI Output Specifications	
Connector Type	BNC female
Output Voltage	800 mV (p-p) ±10%
Deterministic Jitter	0.1 UI (p-p) max
Random Jitter	0.08 UI (p-p) max
Rise/Fall Time (20-80%)	1.2 nS max
ASI Output Transmission Format	Burst Packet Mode or Spaced Byte Mode (1 to 8 bytes)
ASI/MPEG-2 Specifications	
ASI Interface Cable Length	150 meters
ASI Link Rate	270 Mbps
ASI MPEG-2 Input Data Rate (max)	213 Mbps per port (max rate at encoder as long as total aggregate rate of cardset does not exceed maximum throughput limit)
ASI MPEG-2 Output Data Rate (max)	213 Mbps per port, null insertion rate adjustable
Maximum Cardset Throughput Rate	650 Mbps* *Total MPEG-2 data rate of all eight transport streams, exclusive of any MPEG-2 null or stuff packets)
MPEG-2 Output Null Packet Stuffing Rate	Provisionable – 1 to 213726 kbps
MPEG-2 PCR Jitter	≤ 100 ns p-p PCR jitter contribution for CBR transport streams of 1 to 155 Mbps with < 1 sec. Setting time. (DVB CBR Low Jitter Mode)
Special Transport Stream Modes	DVB CBR Low Jitter Mode BS-Digital Transparent Mode
Faceplate LEDs	
POWER	Green
ACTIVE	Green
STANDBY	Green
FAULT	Red
ASI INPUT PORT (Encoder only)	Multicolor Red/Orange/Green, flashing
ASI OUTPUT PORT (Decoder only)	Multicolor Red/Orange/Green, flashing
Physical Specifications	
Dimensions	Single Prisma IP Card Slot, front and rear
Operating Temperature	0° to 50°C / 32° to 122° F *(extended operation above 40° C / 104° F not recommended)*
Storage Temperature	-40°C to 70°C / -40°F to 158°F
Operating Humidity	0 to 95% non-condensing
Operating Altitude	Up to 3,000 m
Power Consumption	< 7 watts (estimated)

Prisma IP 8 Channel DVB-ASI Encoder & Decoder Cardsets

Ordering Information

Description	Part Number
Eight Channel DVB-ASI Encoder Cardset* Applications:	
DVB-ASI Video Data Processor Card (front card)	748015
DVB-ASI Eight Channel Input Card (rear card)	748002
Eight Channel DVB-ASI Decoder Cardset* Applications:	
DVB-ASI Video Data Processor Card (front card)	748015
DVB-ASI Eight Channel Output Card (rear card)	748004

* A complete cardset includes one video data processor front card and either one input or output rear card

Scientific-Atlanta, Inc.
1-800-722-2009 or 770-236-6900
www.scientificatlanta.com

Part Number 7000030 Rev D
March 2005