IPITEK
INTEGRATED PHOTONICS TECHNOLOGY
ISO 9001 Registered

VCX MUX/DEMUX MODULE
HBR-VCX

FEATURES

- **Supports OC-48/STM-16 Sync Timing per GR-253-CORE/ITU-T G.783**
- **Powered with Generic Framing Procedure (GFP) Chip**
- **Add/Drop/Pass and Cross-Connect Capability for Bandwidth Optimization**
- **Interoperable With Other Vendors SONET/SDH Products**
- **Native 50ms Protection Switching, Revertive or Non-Revertive**
- **Primary and Secondary BITS Timing Inputs**
- **Network Security, Deployable Redundant Configuration**

The IPITEK HBR-VCX module performs the multiplexing, demultiplexing and cross-connect functions of the next generation HBR-2502 system. The acronym VCX stands for "Virtually Cross-connected Circuits. As part of IPITEK's ongoing commitment to continually introduce the latest innovations into its products, the new multiplexing engine utilizes Generic Framing Procedure (GFP) to provide even more flexibility and transport options for multi service video centric networks. The GFP (Generic Framing Protocol) technology allows services in the HBR-2502 to be encapsulated into SONET/SDH payloads while maintaining IPITEK'S revolutionary use of bandwidth that allows the HBR-2502 system to squeeze an extra video circuit on the ring compared to similar platforms. This new VCX engine also prepares the HBR-2502 with the ability to introduce Virtual Concatenation (VC), enabling enhanced compatibility and bandwidth flexibility with the latest SONET/SDH next generation technology.

The VCX module controls the flow of data between the service cards in the system and the optical transceiver. Its Virtual Cross Connection functionality allows video and other circuits to be divided up into TDM containers that use bandwidth around the SONET/SDH ring in a more efficient manner. For instance you can carry 8 Digital Video studio quality uncompressed 270 Mb/s or 16 Baseband or Intermediate Frequency circuits in an OC-48/STM-16 (equivalent to 2 OC-24/STM-8 worth of bandwidth). This allows an existing OC-48/STM-16 or OC-192/STM-64 ring to easily transport video services that are not available natively on those platforms by using the HB2500 as a terminal device off of the ring.

Special High Speed Rocket I/O ports on the front of the VCX module provide a point where emerging new services can be connected into the HBR-2502 ring. Interfacing to a Rocket I/O port allows the transport of GigE, Fiber Channel, OC-12/STM-4 or other high speed services to be transported over an HBR-2502 ring.

The VCX module still maintains all of the of service and topology capabilities that you would expect a Multi-service transport platform to provide. With the broadest range of service interfaces available in this type of platform, the VCX module supports all of the services currently being offered by the HBR-2502 as

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well as introducing support for higher speed interfaces. Those existing services are NTSC/PAL/SECAM baseband video, 256 QAM/TV video, SMPTE259M/SDI, T1/E1, T3/E3, OC-3/STM-1, RS232/422/485, Quad DVB-ASI and 10/100 Ethernet. Topologies supported are Linear drop and continue, non-protected Rings, and 50ms, APS protected Counter Rotating Rings (CRR) are all available with the HBR-2502. In addition, HBR-2502 provides the ability to be used as a terminal device off of other rings.

As the heart of the HBR-2502 transport system, the VCX module also provides the redundancy and switch over functions that are inherent in SONET/SDH ring architectures. This module provides less than 50ms switching that is becoming more commonplace in the MSO service requirements. When equipped in a CRR or as a terminal device with redundant interfaces, switch over times are 50ms or less.

The VCX module also generates the system clock. The clock reference is operator-selectable as either internal or external. The external clock reference can be a T1 (1.544 Mb/s) or E1 (2.048 Mb/s) signal, or other external reference that has been converted to a T1 or E1 rate, such as a GPS clock. The VCX module provides for a primary and a secondary external timing input. Should all external timing sources fail the VCX module will automatically generate timing from its internal oscillator.

A front panel switch/indicator is used in conjunction with the micro-controller to indicate (and to request) the module status that is being shown on the integrated system display that provides convenient full alarm monitoring and management. There is also a status LED indicator on the VCX front panel, displaying the presence (red) or absence (green) of any or all of the following module alarms: incoming framing error (demux); absence of system clock (mux).

SPECIFICATIONS

General

Line Rate:	2.488 Gb/s ±20 ppm
Line Coding:	SONET OC-48c (GR-253)
	SDH STM-16c (ITU G.783)
Size:	6U x 12 HP x 220mm
Compliance:	GR-253-CORE, ITU-T G.702/707/708/709/783, other environmental/safety and EMC compliance

Environmental

Operating Temperature:	0º to 50º C
Storage Temperature:	-55º to +75ºC, 24 hrs.
Operating Humidity:	to 90%, non-condensing

ORDERING INFORMATION

HBR	-	VCX	-	XX
HBR-Compatible Note: Order with new HBR-2502 Chassis and HBR-NC-2 Node Controller		**Virtually Cross-Connected Circuit**		**External Reference Clock** **T1 =** 1.544 Mb/s **E1** = 2.048 Mb/s

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