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Datasheet

Media Cross Connect Blades

Overview

The Media Cross Connect (MCC) is a scalable, physical layer switch (ISO Layer 1) that allows users, through software control, to connect any port to any other port within the system providing the flexibility, reliability, and remote automated control needed to optimize any dynamic testing environment.

The interface blades for the MCC provide the building blocks of the multiple-slot chassis system. Each MCC chassis slot accommodates one blade, providing a modular platform to customize the MCC system to suit the specific needs of each testing or laboratory environment.

The type and quantity of ports available on an MCC chassis system is determined by the blades installed in the chassis. Each blade has 8 to 36 ports, depending upon the type, and supports a variety of protocols and data rates. The SFP and XFP blades are designed to operate with MSA-compliant transceivers, so the protocols supported are limited only by market availability. In addition, MRV has developed unique SFPs providing SAS/SATA, FireWire, SDI, HD-SDI, and coax interface support for the MCC. In certain applications, installing both copper and SFP blades provides media conversion within the MCC chassis which can reduce the need for external devices.

The matrix switch of the MCC is designed to be fully non-blocking regardless of the type of interface blades used. Each Interface blade is hot-swappable, has front panel LEDs, and supports link integrity notification (LIN) and digital diagnostics. Using software commands compatible ports can be mapped in a bidirectional or unidirectional mapping, one to any multi-point broadcast or data mirroring mapping, or fibre channel arbitrated loop (FCAL) mapping.

Applications

- Industry Environments
  - Network equipment manufacturers
  - Storage equipment manufacturers
  - Carriers
  - Enterprise
- Laboratory and Testing Environments
  - New Product Development
  - Device Verification
  - Interoperability
  - Software Regression
  - Customer Support

Features

- Flexible Design
  - Support any combination of interface blades
  - Customize system for exact requirement
- Wide Variety of Interface and Protocol Options
  - SFP (up to 4.25 Gbps with 2R and 3R)
  - XFP (10 Gbps Ethernet, Fibre Channel and SONET OC192)
  - T1/E1
  - DS3/E3/STS-1
  - Ethernet 10/100 Mbps and 1/10 Gbps fiber and copper
  - SAS/SATA (1.5 Gbps and 3.0 Gbps)
  - FireWire
  - SDI/HD-SDI digital video
- Media Conversion
  - Conversion within the MCC
  - Eliminates external equipment
- Robust Feature Set
  - Individual port configuration
  - Hot-swappable design
  - Digital diagnostics support
  - Link Integrity Notification
  - Clock data recovery (3R)
- Multiple Mapping Configurations
  - Bidirectional or one way
  - Multicast 1 to N at wire speed
  - Port failover/cable break simulation
  - Data mirroring

SFP/XFP Interface Blade Options

SFP Blade (EMPMC-36SFP) has 36 protocol-independent ports supporting protocols with data rates up to 2.5 Gbps including Ethernet, Fast Ethernet, Gigabit Ethernet, SONET (OC-3, OC-12, OC-48), and Fibre Channel (1 and 2 Gigabit). FireWire, SDI, HD-SDI, and SAS/SATA (1.5G and 3G) are also supported using MRV's unique SFPs.

Fibre Channel CDR SFP Blade (EMPMC-36SFP3R) has 36 protocol-independent ports supporting protocols with data rates up to 4.25Gbps. The FC SFP supports 4 Gbps Fibre Channel in addition to the data protocols supported by the basic SFP blade. It includes on-board Clock and Data Recovery (CDR) (3R) for the 4Gbps Fibre Channel protocol to eliminate accumulated jitter associated with higher data rate or multiple-hop applications. The CDR can be activated or deactivated independently on each port.

Multi-Rate CDR SFP Blade (EMPMC-36SFP3RMR) has 36 protocol-independent ports. The CDR Multi-Rate SFP blade includes all the functions of the FC SFP blade with the addition of the 3R function for SONET OC-3, OC-12, OC-48, and 10/100/1000Base Ethernet. The CDR function is activated independently on each port to eliminate accumulated jitter associated with higher data rate or multiple-hop applications.

10G XFP Blade (EMPMC-9XFP) has 9 XFP ports supporting either 10-Gig Ethernet LAN (IEEE P802.3ae) or 10-Gig Fibre Channel. All ports perform 3R signal retiming. The 10 Gig XFP blade can be equipped with a copper XFP providing support for 10G applications using a copper interface.

10G XFP Multi-Rate Blade (EMPMC-8XFPMR) has 8 XFP ports supporting any protocol up to 11.3 Gbps, including but not limited to 10Gbps Ethernet LAN or WAN PHY, SONET OC-192, 10Gbps Fibre Channel, or any variation of these protocols with forward error correction (FEC). XFP multi-rate ports can map only to other XFP ports within this blade.

EMPMC-36SFP, EMPMC-36SFP3R & EMPMC-36SFP3RMR

EMPMC-9XFP

EMPMC-8XFPMR

Copper Interface Blade Options

RJ-45 Blade (EMPMC-36RJ) provides 36 independent 10/100/1000Base-TX Ethernet ports with 3R signal retiming. Each port supports auto-negotiation, speed, duplex, link match, MDI/MDI-X auto-sensing, and jumbo Ethernet packets.

T1/E1 Blade (EMPMC-36T1E1) provides RJ-48c ports that can be independently configured for T1 or E1 mode and for 3R signal regeneration. The 36T1E1 ports map to other 36T1E1 ports or to SFPs ports supporting 100Mbps Ethernet for media conversion applications. 18T1E1 ports are not compatible. It also provides MDI-MDIX software switching.

DS3/E3/STS-1 Blade (EMPMC-18DT3E3) provides 18 DS3/E3/STS-1 ports with coaxial (1.0/2.3) connectors. Each port may be independently configured to operate in DS3, E3, or STS-1 mode. Cable adapters from (1.0/2.3) to BNC are available.

EMPMC-36RJ and EMPMC-36T1E1

EMPMC-18DT3E3

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MCC Interface Blade Applications

	SFP Blade	SFP FC CDR Blade	SFP MR CDR Blade	10G XFP Blade	10 GIG XFP MR Blade [1]	RJ45 Blade	T1/E1 Blades	T3/E3/STS-1 Blade
Any Protocol up to 2.25 Gbps - 2R	•	•	•					
10/100/1000 Base Fiber Ethernet - 2R	•	•	•					
10/100/1000 Base Fiber Ethernet w/ CDR			•					
10/100/1000 Base TX Ethernet						•		
1G/2G Fibre Channel - 2R	•	•	•					
1G/2G/4G Fibre Channel w/ CDR		•	•					
SAS/SATA 1.5/3.0 Host or Drive [2]	•							
SONET OC-3, OC-12, OC-48 -2R	•	•	•					
SONET OC-3, OC-12, OC-48 w/ CDR			•					
10G Ethernet LAN PHY				•	•			
10G Fibre Channel				•	•			
10G Ethernet WAN PHY or SONET OC-192					•			
10G Infiniband					•			
10G Ethernet with FEC [3]					•			
SONET OC-192 with FEC [3]					•			
FireWire [4]	•							
SDI and HD-SDI [5]	•							
T1/E1							•	
DS3/E3/STS-1								•

[1] Intra-Blade port mapping only
[2] 2-slot and 4-slot chassis using MRV's SAS/SATA Host or Drive SFPs
[3] Reference clock is not provided by blade. The XFP used cannot require this function.
[4] Using MRV's FireWire SFP
[5] Using MRV's digital video SFPs

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