Media Cross Connect Blades



Overview

The Media Cross Connect (MCC) is a scalable, physical layer switch (OSI 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 up to 36 ports, depending upon the type, and supports a variety of protocols and data rates. Some blades are designed to operate with MSA-compliant (SFP, SFP+, and XFP) transceivers, so the protocols supported are limited only by market availability. In addition, MRV has developed unique pluggable transceivers providing SAS/SATA, SDI, HD-SDI, and coax interface support for the MCC. In certain applications, installing both copper and modular transceiver blades provides media conversion within the MCC chassis that can reduce the need for additional 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

Highlights

- 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)
  - SFP+ (up to 10.7 Gbps including Ethernet LAN, WAN PHY or SONET OC-192)
  - XFP (10 Gbps Ethernet, 10 Gbps Fibre Channel
  - T1/E1
  - DS3/E3/STS-1
  - Ethernet 10/100 Mbps and 1/10 Gbps fiber and copper
  - 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/SFP+/XFP Interface Blade Options

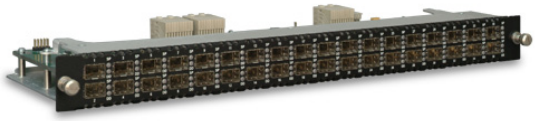
SFP Blade (EMPMC-36SFP) has 36 protocol-independent ports supporting protocols with data rates up to 3.0 Gbps including Ethernet, Fast Ethernet, Gigabit Ethernet, SONET (OC-3, OC-12, OC-48), and Fibre Channel (1 and 2 Gigabit), SDI, and HD-SDI.

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.

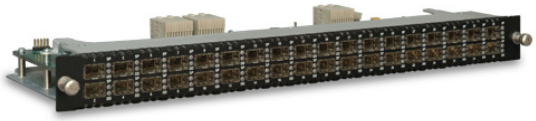
8G SFP+ Blade (EMPMC-36FC8G) for use in the 8X chassis (NC316-144PMC8X) has 36 SFP+ protocol-independent ports. The blade is equipped with CDR for Fibre Channel 8 Gbps and can also support 2R 10/100/1000 Ethernet and any 2R protocol up to 3.0 Gbps.

10G SFP+ Blade (EMPMC-3610GMR) for use in the high speed chassis only (NC316-144HS) has 36 SFP+ protocol-independent ports that are backward compatible with legacy SFPs. This blade supports Ethernet up to 10G, SONET (OC-3, OC-12, OC-48 and OC-192), and Fibre Channel (1, 2, and 4 Gbps) SDI, and HD-SDI.

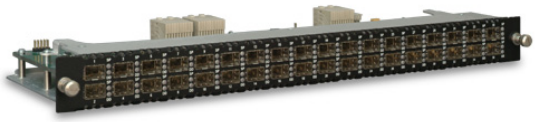
10G XFP Blade (EMPMC-9XFP) has 9 XFP ports supporting either 10-Gig Ethernet LAN (IEEE P802.3ae) or 10-Gig Fibre Channel. All ports perform 3R signal retiming. The 10 Gig XFP blade can be equipped with a copper XFP providing support for 10G applications using a copper interface.



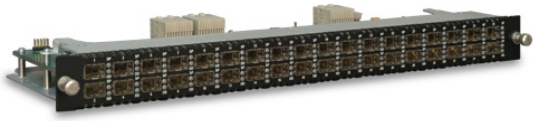
SFP Blade (36 ports)



Multi-Rate CDR SFP Blade (36 ports)



8G SFP+ Blade (36 ports)



10G SFP+ Blade (36 ports)



10G XFP Blade (9 ports)

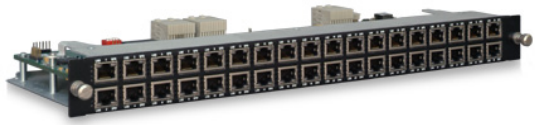
Copper Interface Blade Options

RJ-45-C Blade (EMPMC-36RJ-C) 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. It fully supports 100 Mbps and 1000 Mbps copper-to-fiber media conversion and uni-directional traffic.

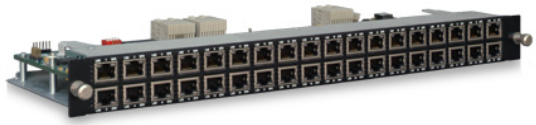
T1/E1 Blade (EMPMC-36T1E1) provide RJ-48c ports that can be independently configured for T1 or E1 mode and for 3R signal regeneration. For media conversion applications, the 36T1E1 ports can also be mapped to SFPs supporting 100 Mbps Ethernet. It also provides MDI-MDIX software switching.

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.

6G SAS/SATA Blade (EMPMC-36SAS) SAS/SATA blade for use in the NC316-144PMC8X chassis supports 3.0 and 6.0 Gbps data rates using nine standard mini-SAS 4x connectors with full transparency to any end devices. The blade provides input signal detection, and it can disable signal transmissions to simulate cable breaks or link flapping.



RJ-45-C Blade (36 ports)



T1/E1 Blade (36 ports)



DS3/E3/STS-1 Blade (18 ports)



6G SAS/SATA Blade (36 ports)

Optical Communications Systems®

Datasheet

Inter-Chassis Blade (EMPMC-36IC) interconnects any model MCC chassis as a book-end solution (paired with other inter-chassis blades) and contains 36 ports of connectivity via three CXP transceivers, supporting 12 mapping ports each. The CXP connections are data rate and protocol transparent allowing pass through of data matching the configured port mappings. Inter-chassis cabling requirements are minimized with the use of MTP cables that support 12 bi-directional channels requiring only three cables between IC blades. Distances up to 100 m are supported with the IC Blade configuration.

Detailed ordering information is available at *www.mrv.com/tap* .



Inter-Chassis Blade
(36 ports: 3 connections x 12 ports each)

MCC Interface Blade Applications

Application \ Blade Type/ # of Ports	SFP/ 36	SFP MR CDR/ 36	SAS/SATA/ 9	8G SFP+ FC/ 36	10G SFP+/ 36	10G XFP/ 9	RJ45-C/ 36	T1/E1/ 36	T3/E3/STS-1/ 18	Inter-Chassis/ 36 (3 connections x 12 ports each)
Any Protocol up to 3.0 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 – 2R		•		•						•
1G/2G/4G Fibre Channel w/ CDR		•								•
8G Fibre Channel w/ CDR				•						•
SAS/SATA 3.0/6.0 Gbps			•							•
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					•					•
SDI and HD-SDI (unique MRV SFPs)	•									•
T1/E1								•		•
DS3/E3/STS-1									•	•
Chassis Support	All	All	36HS 8X	HS 8X	HS	4X 36HS	All	All	36HS 4X	All

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