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SONET/SDH Wideband Cross-Connect

FEATURES

GENERAL

- Multi-purpose SONET/SDH VT/TU and SONET/SDH STS/STM cross-connect.
- With a memory-switch architecture, implements a strictly non-blocking switch that supports a VT/TU level fabric of up to 25 Gbit/s.
- Supports 10 high-speed Enhanced SONET Serial Interface (ESSI) CML links each independently configurable for STS-48/STM-16 at 2.488 Gbit/s or STS-12/STM-4 at 622.08 Mbit/s operation.
- Supports system frame synchronization using an external frame pulse or ESSI smart frame synchronization using the frame boundary of the receive links.
- Compensates for differences in frame boundary arrival times between ingress ports using FIFOs and device level software configurable delay registers.
- Each SONET STS-1 or SDH VC3/VC4-TUG3 may be independently configured as a single unit and/or as a

container of VT/TUs. The contents may be switched intact or switched as VT/TUs.

- Allows each SONET VT Group to be independently configured to carry VT1.5, VT2, VT3, or VT6 tributaries.
- Allows each SDH TUG2 to be independently configured to carry TU11, TU12, or TU2 tributaries.
- Provides a device latency of 5.62 (+/-0.17) μ s for 2.488 Gbit/s and 6.21 (+/-0.67) μ s for 622 Mbit/s links.

SONET/SDH OVERHEAD ACCESSIBILITY

- Supports extraction of the transport overhead (TOH) from the ingress ports (both high and low-speed) as well as the insertion of transport overhead into the egress ports via low bandwidth two-bit 77.76 MHz interfaces.

APS FEATURES

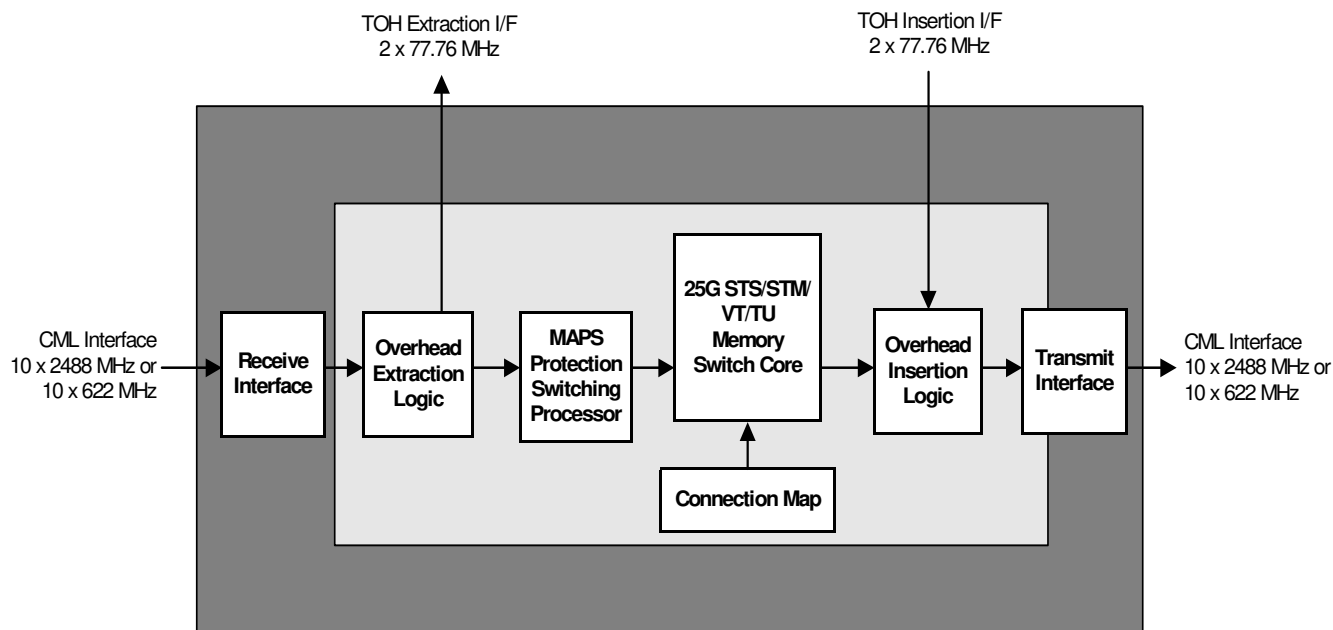
- Supports a hardware-based Automatic Protection Switching mechanism (MAPS) for centralized link protection control when operating with other PMC-Sierra devices such as the PM5369 TUPP 9953.

- Provides fully automatic protection switching for Class 1 protection services including 1+1 protection, UPSR, SNCP, and static mesh protection services.
- Provides hardware assists for Class 2 protection services including 1:N protection, BLSR-2/4, MSSPRING-2/4, and dynamic mesh protection schemes.

I/O AND GENERAL

- All high-speed ingress and egress links are 1.2 V CML and are ELVDS-compatible with programmable pre-emphasis on transmit, equalization on receive, and support for both AC and DC coupled interfaces.
- Each high-speed link supports SONET/SDH framed or unframed PRBS-23 or PRBS-7 generation and monitoring for off-line link verification.
- Configured, controlled, and monitored using a generic 32-bit microprocessor interface.
- Provides a standard 5-signal IEEE 1149.1 JTAG test port for boundary scan test purposes.

BLOCK DIAGRAM



SONET/SDH Wideband Cross-Connect

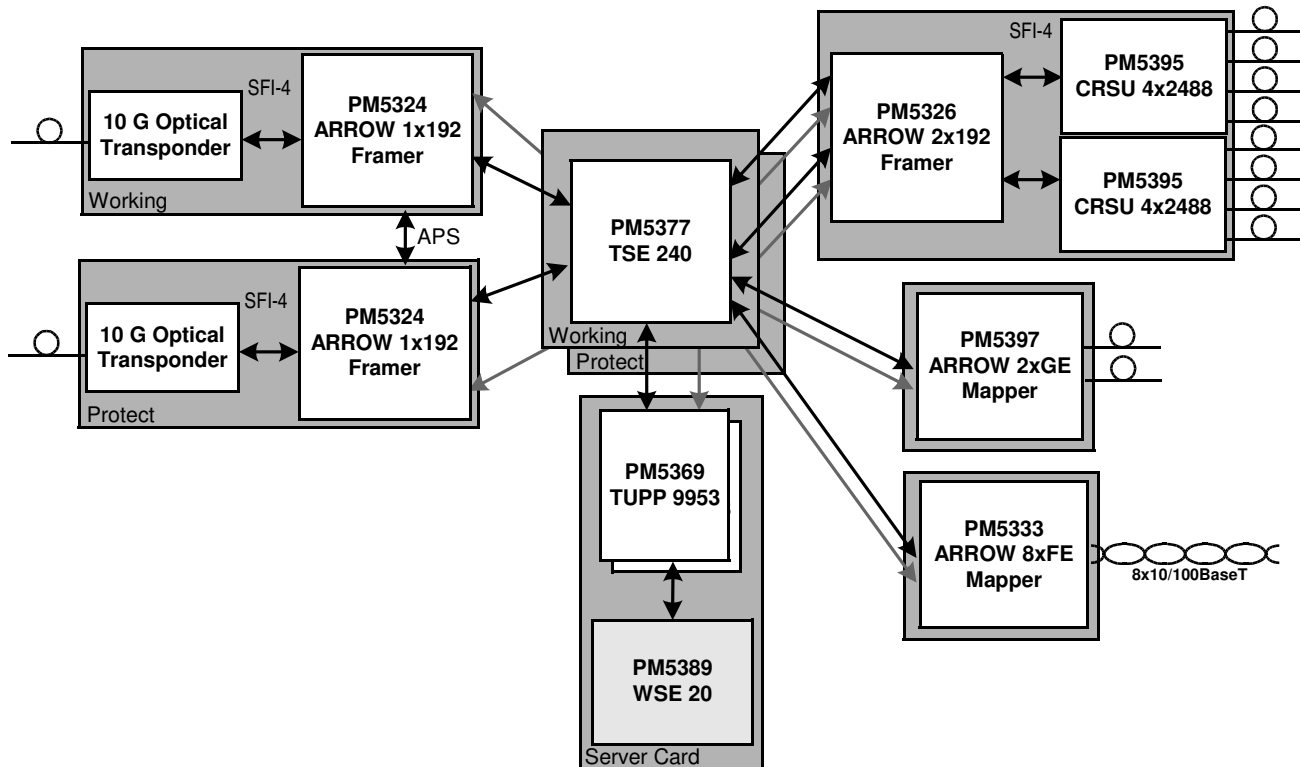
- Implemented in 1.2 V core and 2.5 V I/O 0.13 μ m CMOS technology. Inputs are 3.3 V tolerant.
- Packaged in a 672-ball FCBGA top-hat, 27 mm x 27mm.

APPLICATIONS

- SONET/SDH Add-Drop Multiplexer (ADM).
- SONET/SDH Digital Cross-connect (DCC).
- Multi-service Provisioning Platform (MSPP).

TYPICAL APPLICATION

OC-192/STM-64 OPTICAL CROSS-CONNECT WITH 20G VT/TU CROSS-CONNECT SERVER CARD



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