Product Overview

The PM5334 SPECTRA 2x2488 device is a feature rich, high-capacity single-chip SONET/SDH transport framer solution that enables high-density optical tributary cards for chassis-based MSPPs, packet MSPPs and ROADMs. The SPECTRA 2x2488 enables 5 Gbit/s of multi-rate multi-port support with unprecedented power efficiency and carrier-grade reliability.

The SPECTRA 2x2488 consists of SONET/SDH line interfaces and framers with integrated SERDES, including full section, line and high-order (HO) path processors, non-blocking memory-based HO STS/AU cross-connect, and TFI-5 compatible ESSI serial backplane interfaces. The HO cross-connect enables support for selecting between working, protection and APS traffic.

Benefits

• Enables high-port count, multi-rate optical line cards, while offering power and space savings
• Integrates multi-rate SERDES for direct connect to SFP modules, reducing system cost
• Integrates best-in-class serial backplane technology, supporting long trace lengths and bit-sliced architectures
• Integrates field-proven CHESS™ intellectual property, dramatically reducing development cycles through reuse of CHESS software base

Product Highlights

SONET/SDH Network Interface and Framer (ARROW)

• Two groups of four SONET/SDH interfaces, each group supporting two modes of operation:
  - Quad OC-12/3/STM-4/1 mode (four interfaces operating at 622.08 Mbit/s or 155.52 Mbit/s, selectable per port)
  - Single OC-48/STM-16 mode (one interface operating at 2488.32 Mbit/s)
• CML compatible serial interfaces to connect to optical transceivers
• Framing, high-order pointer processing, alarm processing and overhead processing on all received network streams
• Dedicated pins to extract/insert IEC code and N1 path overhead byte for Tandem Connection Monitoring
• Per-framer connection ID message, allowing verification of high order path connectivity across single or multistage fabrics
• BLSR and MS-SPRing protection switching with alarm processing, K-byte express, automatic payload configuration, and other features
• Insertion/extraction of transport overhead (TOH) bytes from the line side interface

STS/AU Intelligent Cross-Connect (TSE)

• Memory-based, HO cross-connect capable of switching between any port to any port at STS-1/AU-3 granularity
• 12.5 Gbit/s of floating delay management
• TSE subsystem provides the TOH byte insertion and extraction on 24 ports (99 TOH bytes per port)
• Support for a set of active and standby configuration memory pages, permitting new switch settings to be updated in one page while the TSE operates from the control settings of the other page
• 2.5 Gbit/s to/from 622 Mbit/s interleaving/de-interleaving
• Multiplexing scheme enables different port asset allocations for different applications

Package

• 35 x 35 mm 1152-ball FCBGA
Interfaces

- 20 ESSI (TFI-5) links, all capable of operation at 2.488 Gbit/s or 622 Mbit/s, in support of the following modes:
  - 4 ESSI links are APS ports to a mate card
  - 16 ESSI links to both a working and protect STS/AU fabric or client side mappers
  - 2/4/8 x 2.488 Gbit/s ESSI links to both a working and protect sliced STS/AU fabric operating in either nibble, di-bit, or bit modes
  - One 32-bit or four 8-bit 77.76 MHz TelecomBus interfaces connecting to parallel TelecomBus framers and mappers
  - SONET/SDH path overhead interface for Tandem Connection Monitoring
  - SONET/SDH HO (STS/AU) transport overhead interface
  - SONET/SDH ring control/alarm port
  - Standard P1149.1 JTAG test port for boundary scan
  - 16-bit microprocessor interface for status monitoring and configuration

Applications

- High fan-in, multi-rate SONET/SDH front-end for line cards for MSPPs and packet MSPPs
- Medium and high density optical line cards for Router and Switch platforms

Multi-rate Multi-port Line Card for UPSR/SNCP and BLSR/MS-SPRing Rings

High Fan-in Packet Optical Line Card with Ring Closure

Further Resources

Wireline Equipment Solutions
www.pmc-sierra.com/wireline

Technical Documentation