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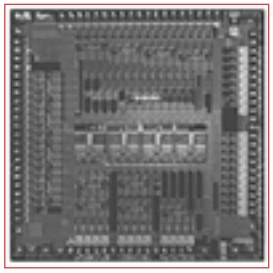
BCM8512
PRODUCT Brief



10G DWDM TRANSPORT PROCESSOR WITH 10GigE SUPPORT

BCM8512 FEATURES

- Provides FEC statistics: total corrected bits, corrected bytes and uncorrectable blocks.
- Extracts and inserts OTU and SONET/SDH section and line overhead bytes.
- Extracts and inserts DCC and GCC bytes.
- Performs frame and byte alignment on received OTU and SONET/SDH frames.
- Scrambles and unscrambles OTU and SONET/SDH frames.
- Monitors and reports OOF/LOS/LOF/SD/SF/LOM/OOM or OTU and SONET/SDH frames.
- Monitors K1/K2 to report APS/AIS/RDI conditions.
- Inserts AIS on SONET/SDH frames.
- Monitors M1 to report REI on SONET/SDH frames.
- Monitors S1 for mismatch and inconsistent values.
- Monitors and reports J0 byte messages.
- Monitors B1/B2 to report parity errors on SONET/SDH frames.
- Generates and inserts B1/B2 bytes on SONET/SDH frames.
- Includes integrated 10G Transceiver (9.953, 10.037, 10.312, 10.664, 10.709 and 11.09 Gbps) with limiting amp.

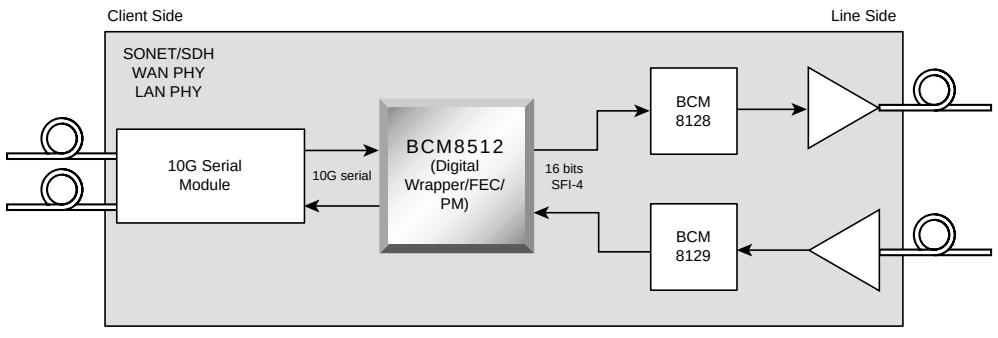
KEY APPLICATIONS

- DWDM long haul transport
- DWDM metro transport
- Next-generation SONET/SDH multiplexers
- Digital cross-connects
- Fiber optic terminators and test equipment

SUMMARY OF BENEFITS

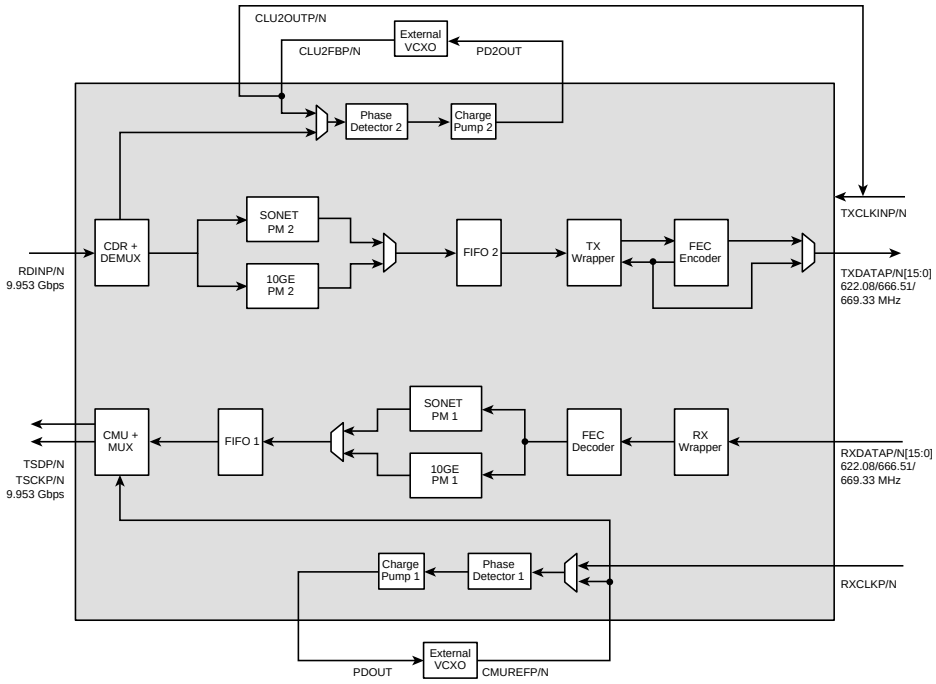
- G.709 digital wrapper
- G.975 Reed-Solomon RS(255,239) FEC
- Bi-directional SONET/SDH Performance Monitor
- Bi-directional 10GigE Performance Monitor
- Ultra low power consumption: less than 2W
- Industry's first and only 10G Digital Wrapper/FEC/PM chip with integrated 10G transceiver
- Single chip supporting both SONET/SDH and 10GE data
- Bi-directional device with separate receive and transmit paths
- Transparent error correction and detection
- Integrated cleanup PLL with external VCXO
- Sample phase adjustment provides better noise immunity
- Seamless connection to Broadcom MUX/DEMUX devices using SFI-4 interface
- Compact, low-profile package: 31mm x 31mm, HSBGA
- Standard 0.13µ CMOS process
- SFI-4 parallel interface (622, 627, 644, 666, 669 and 692 Mbps)
- 16-bit microprocessor interface
- IEEE 1149.1 JTAG

10G DWDM Transport Line Card



BCM8512 OVERVIEW

Top Level Block Diagram



The **BCM8512** is an OC-192 DWDM transport processor that supports all the major functions on a DWDM line card:

- G.709 digital wrapper (final draft)
- G.975 Reed-Solomon RS(255,239) FEC
- SONET/SDH Performance Monitor
- 10 Gigabit Ethernet performance monitor
- Integrated OC-192 transceiver

The **BCM8512** can operate in bi-directional mode and perform SONET/SDH or Ethernet performance monitoring in both the receive and transmit paths. All necessary performance monitor functions for SONET/SDH and 10 Gigabit Ethernet are provided for OAM&P so that no external performance monitor is required.

The G.709 digital wrapper allows a multitude of signals to be carried over the optical transport network. These signals include legacy SONET/SDH and PDH signals, along with packet-based data such as IP, ATM, GbE and SDL.

The **BCM8512** is industry's first digital wrapper, FEC and performance monitor chip with an integrated OC-192 transceiver. The transceiver is programmable to support OC-192 SONET/SDH, LAN PHY and WAN PHY rates with and without FEC. The transceiver performs the CDR and DEMUX functions on the serial input data and the CMU and MUX functions to produce the serial output data.

Related Documents and Collateral

- **BCM8512** data sheet
- **BCM8512** EVM user manual
- **BCM8512** EVM quick start guide
- BCM8511B to **BCM8512** migration application note
- Interfacing **BCM8512** to discrete MUX/DEMUX application note

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