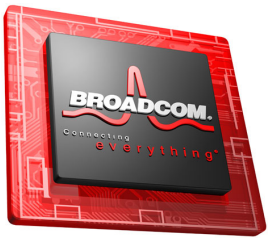
BROADCOM®
Connecting everything®

BCM8512
PRODUCT Brief



DWDM TRANSPORT PROCESSOR WITH INTEGRATED 10G TRANSCEIVER, G.709 FEC, SONET/SDH, AND 10GE PERFORMANCE MONITOR

FEATURES

- G.709 digital wrapper
- Provides FEC statistics: total corrected bits, corrected bytes and uncorrectable blocks
- G.975 Reed-Solomon RS(255,239) FEC
- Extracts and inserts OTU and SONET/SDH section and line overhead bytes.
- Extracts and inserts DCC and GCC bytes.
- Bidirectional SONET/SDH Performance Monitor
- Performs frame and byte alignment on received OTU and SONET/SDH frames.
- Bidirectional 10 Gigabit Ethernet performance monitor
- 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 10 Gigabit Transceiver (9.953, 10.037, 10.312, 10.664, 10.709 and 11.09 Gbps) with limiting amp.
- 16-bit microprocessor interface

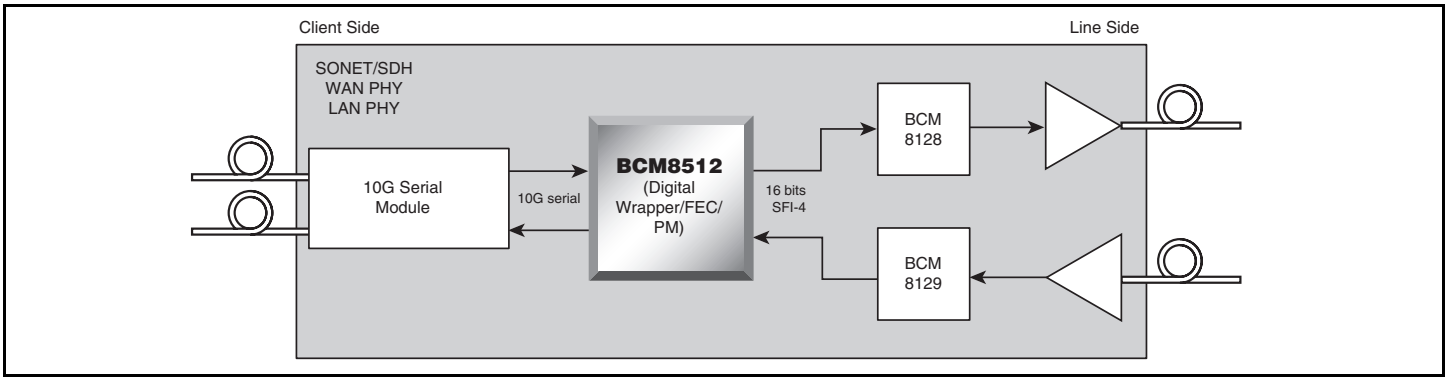
SUMMARY OF BENEFITS

- The first and only 10G digital wrapper/FEC/PM chip with integrated 10G transceiver in the industry.
- Integrated transceiver exceeds all SONET/SDH jitter specifications.
- Single chip supporting both SONET/SDH and 10 Gigabit Ethernet data.
- Bidirectional 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 multiplexer/demultiplexer devices using SFI-4 interface.
- Compact, low-profile package: 31 mm ∞ 31 mm, HSBGA
- Ultra-low power consumption: 2W
- Standard 0.13 micron CMOS process
- SFI-4 parallel interface (622, 627, 644, 666, 669 and 692 Mbps).
- IEEE 1149.1 JTAG

APPLICATIONS

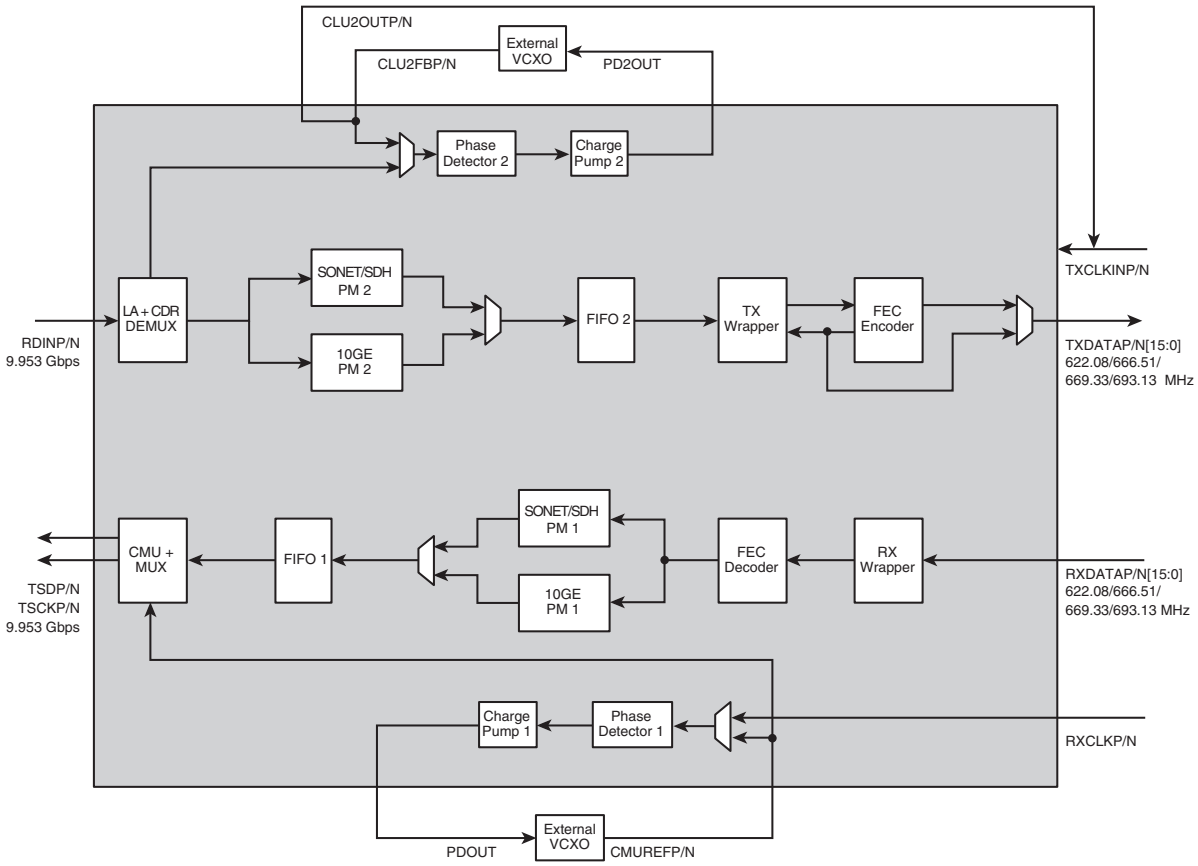
- DWDM long haul transport
- DWDM metro transport
- Next-generation SONET/SDH multiplexers
- Digital cross connects
- Fiber-optic terminators and test equipment

10G DWDM Transport Line Card



BROADCOM®

BCM8512 OVERVIEW



The BCM8512 is an 10 Gigabit 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 bidirectional 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 operations, administration, maintenance, and provisioning (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 the first digital wrapper, FEC and performance monitor chip with an integrated 10 Gigabit transceiver in the industry. The transceiver is programmable to support OC-192 SONET/SDH, LAN PHY and WAN PHY rates with and without FEC. The transceiver performs the clock and data recovery (CDR) and demultiplexing functions on the serial input data and the clock multiplication (CMU) and multiplexing (MUX) functions to produce the serial output data.

Related Documents

- 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

Broadcom®, the pulse logo, and **Connecting everything**® are trademarks of Broadcom Corporation and/or its subsidiaries in the United States and certain other countries. All other trademarks mentioned are the property of their respective owners.

Connecting everything®

BROADCOM CORPORATION
16215 Alton Parkway, P.O. Box 57013
Irvine, California 92619-7013

© 2004 by BROADCOM CORPORATION. All rights reserved.

8512-PB05-R 8/13/04

Phone: 949-450-8700
Fax: 949-450-8710
E-mail: info@broadcom.com
Web: www.broadcom.com