Bt8510

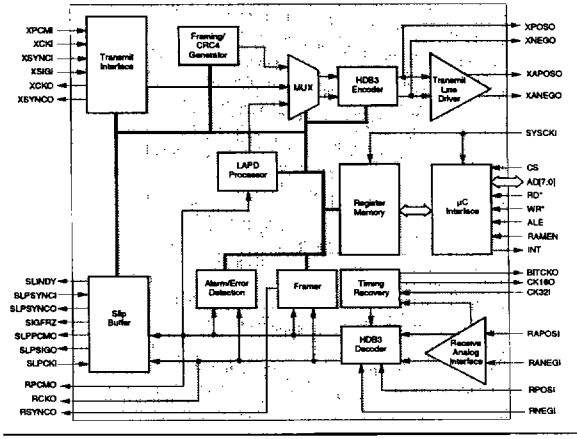
E1 Controller With Physical Line Interface

The Bt8510 is a highly integrated E1/CEPT transceiver that performs framing, control, and monitoring of E1 and Integrated Services Digital Network (ISDN) Primary Rate signals operating at 2.048 Mb/s. The Bt8510 is compatible with popular E1/CEPT framing standards such as ITU-T Recommendations G.704 (PCM-30), G.732 (CAS), and G.706 (CRC-4). The two-frame Pulse Code Modulation (PCM) slip buffer adapts the receive clock and data directly to the system serial bus timing. The signaling buffer provides signaling state freeze as well as resychronization to the system multiframe timing. The integral physical line interface features an adaptive analog receiver for clock and data recovery and a transmit line driver with pulse shaping (per G.703) for connecting to 75 or 120 Ω cables via external transformers.

Comprehensive ISDN D-channel support is provided for Time Slot 16 (TS16) via an integral LAPD controller with separate 16-byte transmit and receive buffers. The LAPD controller features zero stuffing and removal, flag and abort sequence detection and generation, and 16-bit Frame Check Sequence (FCS) generation and detection. Common Channel Signaling (CCS) or unformatted data may be processed through this buffer as well.

A parallel 8-bit microprocessor interface permits access to a series of 8-bit registers for control, error and alarm monitoring, and data link supervision. Error counters accumulate line code violations and CRC-4 and Frame Alignment Signal (FAS) errors. Access to Sa-bits and Far-End Block Error (FEBE) bits is provided for both transmit and receive directions. Per-channel control includes idle code word insertion, signaling insertion, and DS0 loopbacks to the network and equipment sides.

Functional Block Diagram



Distinguishing Features

- Highly integrated E1/primary rate controller (2.048 Mb/s)
- Frames to E1/CEPT formats
  - ITU-T G.704 (PCM-30)
  - ITU-T G.732 (CAS)
  - ITU-T G.706 (CRC-4)
- On-board physical line interface
  - Receive clock and data recovery for up to 15 dB of cable attenuation
  - Transmit line driver with G.703 pulse shaping
  - Compatible with 75 and 120 Ω cables
- Two-frame slip buffer and rate converter
  - Slip frame deletion/repetition
  - Signaling freeze
- Compatible with the Bt8360 T1 controller (1.544 Mb/s)
- FEBE (E-bit) and Sa-bit access
- HDB3 zero-code suppression
- Parallel 8-bit microprocessor interface for control and status monitoring
- ISDN/Common Channel Signaling support
  - 16-byte transmit and receive buffers
  - Time Slot 16 LAPD processor
  - Transparent unformatted mode
- Extensive per-channel control
  - Programmable code word insertion
  - Signaling insertion and extraction
- Counters for LCV, CRC-4, FAS errors
- Programmable transmit and receive time slot indication signals
- Diagnostic loopbacks
  - Payload loopback to network
  - Per DS0 channel loopback to network
  - Local loopback to equipment side

Applications

- PCM Digital Switches
- E1 CSU/DSUs
- E1/E3 Multiplexers
- Digital Access Cross-connect Systems ISDN Primary Rate Access Ports
- SDH Add/Drop Multiplexers
- ATM Switches/Multiplexers

Ordering Information

Model Number	Package	Ambient Temperature
Bt8510EPJC	68-Pin Plastic Leaded Chip Carrier (J-Bend)	–40° to +85° C