

# Bt8370

## T1/E1 Transceiver with Physical Line Interface

The Bt8370 is a single-chip transceiver for T1/E1 and ISDN Primary Rate interfaces operating at 1.544 Mb/s or 2.048 Mb/s. Implemented in a double-poly, triple-metal CMOS process, the Bt8370 combines a sophisticated framer and transmit/receive slip buffers with an on-chip short/long haul physical line interface. Operations are controlled through a series of memory-mapped registers accessible via a parallel microprocessor port. Extensive register support is provided for alarm and error monitoring, signaling supervision (including ISDN D-channel/SS7 processing), per-channel trunk conditioning and Facility Data Link (FDL) maintenance. The Bt8370 features a flexible serial Time-Division Multiplexed (TDM) system interface which supports bus rates from 1.536 to 8.192 MHz. The programmable clock rate adaptor circuit eases system bus interfacing by synthesizing standard clock rates from either 1.544/2.048 MHz or vice-versa.

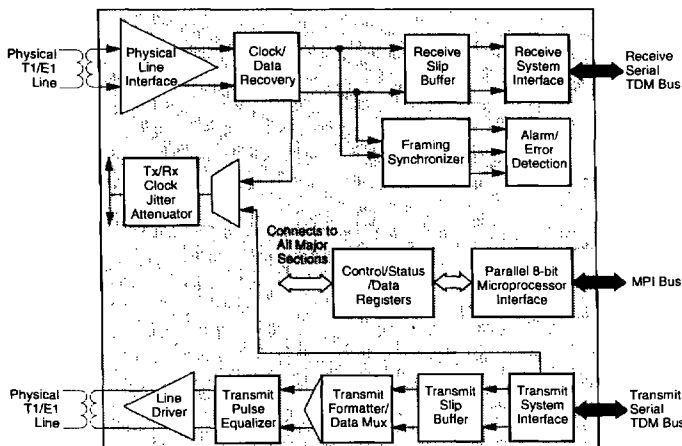
The physical line interface circuitry receives signal levels from 0 to -36 (T1) or 0 to -43 dB (E1) in attenuation, appropriate for both short and long-haul T1/E1 applications. The Bt8370 then recovers clock and data and routes both to the receive framing, error and alarm monitoring sections. Jitter attenuation per PUB62411 can be inserted on either the receive or transmit clock paths. The transmit analog section includes precision pulse shaping for DSX-1/E1 short-haul applications as well as optional Line Buildout (LBO) filtering for long-haul applications (as per T1.403-199 x and ETSI recommendations). A balanced driver output is provided to couple to 75/100/120  $\Omega$  lines via an external transformer.

Extensive test and diagnostic functions include per-channel and payload loopbacks, test pattern generation and detection, and error insertion.

### Distinguishing Features

- Single-Chip T1/E1 Transceiver with Short/Long-Haul Physical Line Interface
- Frames to Popular T1/E1 Standards:
  - T1: SF, ESF, SLC-96, T1DM
  - E1: PCM-30, G.704, G.706, G.732
  - ISDN Primary Rate
- On-Chip Physical Line Interface Compatible with:
  - DSX-1/E1 Short-haul Signals
  - DS-1 (T1.403) and ETSI Long-Haul Signals
- 2-Frame Transmit and Receive PCM Slip Buffers
- Clock Rate Adaptor Synthesizes 1.544 MHz from 2.048 x N MHz Clocks or Vice-Versa
- Parallel Microprocessor Control Port Supports Intel and Motorola  $\mu$ Ps
- Comprehensive Facility Data Link (FDL) Management
- Full-Duplex 64 kb/s LAPD Processor for ISDN/SS7 Signaling Supervision
- B8ZS/HDB3/Bit 7 Zero Suppression
- JTAG Serial Test Port
- 80-Pin PQFP Surface-Mount Package
- Low-Power CMOS Technology: 400 mW Typical Power Dissipation
- Operates from a Single +5 Vdc  $\pm$  5% Power Supply

### Functional Block Diagram



### Applications

- T1/E1 CSU/DSUs
- Digital Access Cross-Connect Systems (DACS)
- T1/E1 Multiplexers
- PBXs and PCM Channel Banks
- T1/E1 HDSL Terminal Units

## Ordering Information

Model Number	Package	Ambient Temperature
Bt8370EPF	80-Pin Plastic Quad Flat Pack (PQFP)	-40°C to +85°C