

## SONET/SDH Path Terminating Transceiver

### FEATURES

- Monolithic SONET/SDH Path overhead Terminating Transceiver for use in STS-1, STS-3, or STM-1 applications, operating at rates up to 155.52 Mbit/s.
- Maps one or three STS-1 (AU3) payloads or a single STS-3c (AU4) payload to the system timing reference, accommodating timing offsets through pointer processing.
- Operates at 19.44 MHz or 6.48 MHz, processing a duplex 19.44 Mbyte/s or 6.48 Mbyte/s data stream.
- Provides parallel bus interface which indicates/accepts the location of the STS identification byte (C1), the Path trace byte(s) (J1), the first tributary overhead byte(s) (V1), and all bytes in the byte serial stream.
- Supports line loopback from receive stream to transmit stream and diagnostic loopback from ADD bus interface to DROP interface.
- Inserts and extracts the 64 (or 16) byte path trace (J1) and the path signal label (C2). Detects path trace/signal label unstable and indicates mismatch condition with the expected downloaded value.
- Provides a generic 8-bit interface bus for microprocessor configuration, control, and status monitoring.
- SATURN™-compatible, which ensures interoperability with the full SATURN family of ATM, SDH, SONET, and PDH broadband networking devices.
- Low power, +5 V, CMOS technology, TTL-compatible inputs and outputs.
- Available in a 160-pin Plastic Quad Flat Pack (PQFP) package (28 by 28 mm).

### RECEIVE SECTION

- Interprets the line side STS (AU) pointer bytes (H1, H2, and H3), and extracts and inserts the synchronous payload envelope(s) into a byte-serial DROP bus referenced to system timing. Accommodates phase and frequency differences between the received stream and the DROP bus via pointer adjustments.
- Extracts and serializes the entire Path overhead from the three STS-1 (AU3) or single STS-3c (AU4) stream to enable external overhead processing.
- Detects Loss Of Pointer (LOP), Loss Of tributary Multiframe (LOM), Path Alarm Indication Signal (AIS), and Path Far-End Receive Failure (FERF) alarm.

- Detects and counts received Path BIP-8 errors and counts received Path Far-End Block Errors (FEBEs).
- Supports tandem connection origination by sourcing a new Z5 byte, reporting received BIP-8 errors and the datalink message and correcting subsequent Path BIP-8 bytes (B3) to reflect the change in Z5.
- Supports tandem connection termination by accumulating the incoming error count (IEC) and extracting the Z5-byte tandem connection datalink.
- Provides a serial alarm port for communication of FEBE and Path FERG alarms to the reverse direction for ring applications.

### TRANSMIT SECTION

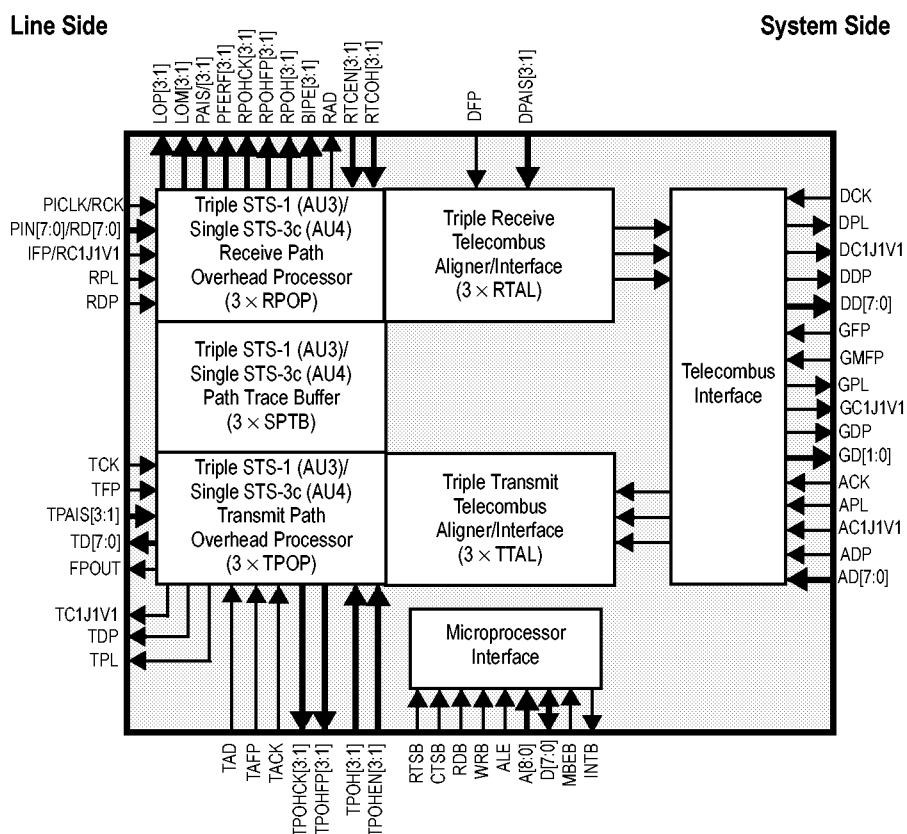
- Inserts the transmit stream Path overhead bytes. Path overhead insertion may be sourced from internal registers or from a bit serial input stream. Phase and frequency differences between the ADD bus and the line are accommodated via pointer adjustments.

- Optionally inserts STS Path AIS and STS Path FERG alarms.
- Optionally calculates and inserts Path BIP-8 error detection codes.
- Optionally inserts the Path FEBE count into the Path status byte (G1) based on receive path BIP-8 errors.
- Diagnostic errors may be inserted in the Path BIP-8 byte (B3).
- Optionally inserts all-ones payload data for unequipped operations.
- Optionally generates cyclical tributary multiframe pattern.
- Supports in-band error reporting of BIP-8 and Path alarms in the Path status byte (G1).

### APPLICATIONS

- SONET/SDH Add/Drop Multiplexers
- SONET/SDH Terminal Multiplexers
- SONET/SDH Cross-Connects
- SONET/SDH Tandem Path Termination Equipment
- SONET/SDH and ATM Test Equipment

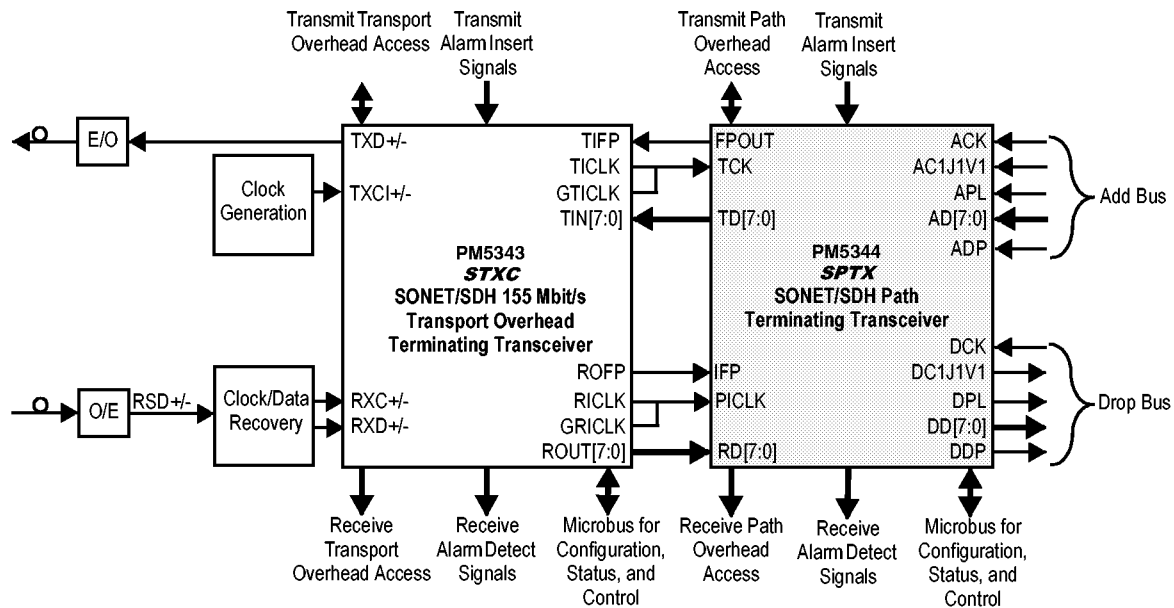
### BLOCK DIAGRAM



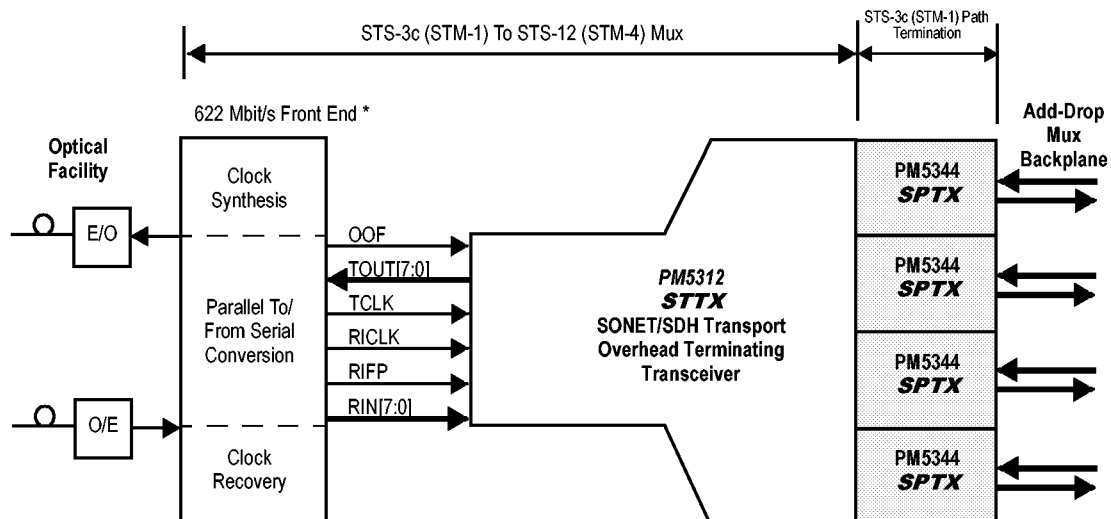
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## TYPICAL APPLICATIONS

### 155 Mbit/s STS-3/STM-1 ADD/DROP OR TERMINAL MULTIPLEXER INTERFACE



### 622 Mbit/s STS-12/STM-4 ADD/DROP MULTIPLEXER AGGREGATE INTERFACE



\* Contact PMC-Sierra Applications regarding 622 Mbit/s front-end options.