# SONET/SDH Interface for 622 & 155 Mbit/s

## FEATURES

### SONET/SDH INTERFACE

- Interface rate software selectable between OC-3/STM-1 (155.52 Mbit/s) and OC-12/STM-4 (622.08 Mbit/s) rates
- Integrated clock recovery & synthesis allows direct interface to low-cost optical transceivers
- Integrated clock synthesis generates line clock from 77.76 MHz reference
- Complies with Bellcore, ANSI, and ITU specifications for Jitter Tolerance and Jitter Generation
- High order path processing and alignment to STS-1/AU-3/TU-3 level
- Full access to all SONET/SDH Transport overhead bytes via a dedicated serial port
- Full access to all SONET/SDH STS-1/AU-3/TU-3 path overhead bytes via a dedicated serial port
- Full access to all DCC bytes via a dedicated serial interface
- Ring Control port provides real time detection of error conditions and insertion of alarms such as AIS & RDI

- Section and Path Trace filter and monitor checks for Trace Identifier Mismatch (TIM) and Trace Identifier Unstable (TIU) conditions

### DS3/E3/EC-1 INTERFACE

- Flexible three-port DS3/E3/EC-1 Interface
- Supports clear channel mapping/demapping of DS3 or E3 into/from STS-1, AU-3, or TU-3
- Fully digital desynchronizers require no external PLLs for standards-compliant operation
- Integrated desynchronization CSU allows low rate reference clock at 44.736 MHz, 34.368 MHz, or 51.84 MHz
- Bi-directional digital jitter attenuation for DS3 and E3 streams allows interfacing to low cost LIUs
- Full bi-directional performance monitoring for DS3, E3, and EC-1 streams
- Full access to DS3/E3/EC-1 Overhead bytes

### GENERAL FEATURES

- Provides an industry standard 8-bit, 77.76 MHz telecombus interface
- Multi-drop capability allows multiple devices to share the add/drop bus for redundancy or multiplexing purposes
- Full Time Slot Interchange (TSI) allows flexible mixing of traffic from the SONET/SDH and DS3/E3/EC-1 Interfaces
- Supports diagnostic $2^{23}-1$ pseudo-random bit-sequence (PRBS) generation and monitoring
- Provides a standard JTAG test-port for boundary scan board-test purposes
- Provides a generic 16-bit microprocessor interface for control and monitoring
- 15x15mm 196 ball CABGA package allows for flexible placement and routing

### APPLICATIONS

- SONET/SDH Add/Drop Multiplexers
- Terminal Multiplexers
- Customer Premise Equipment
- Media Gateways
- Multiservice Provisioning Platforms
- Channelized Router Interfaces
- Digital Cross-Connects

## BLOCK DIAGRAM
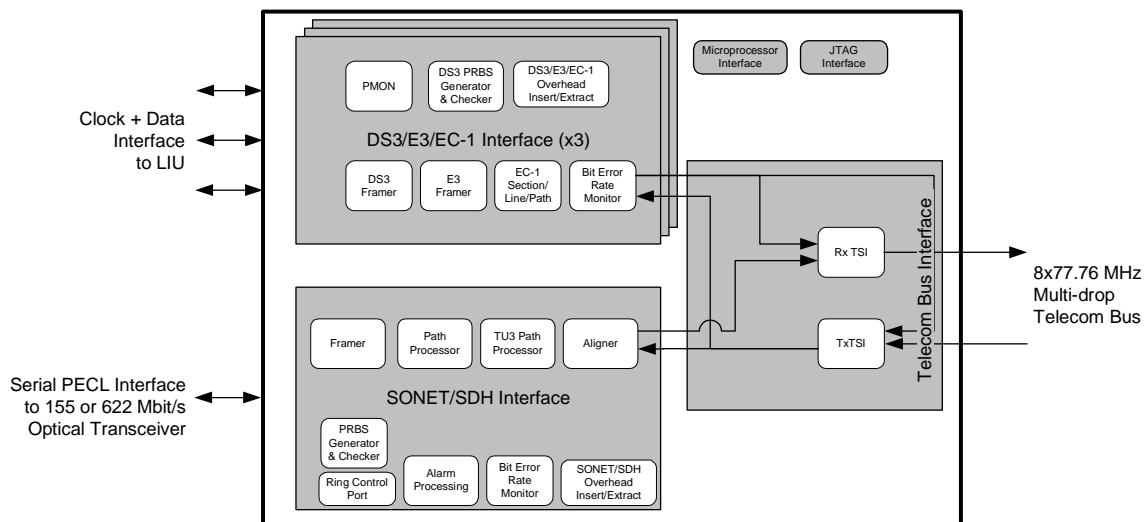
## SONET/SDH Interface for 622 & 155 Mbit/s
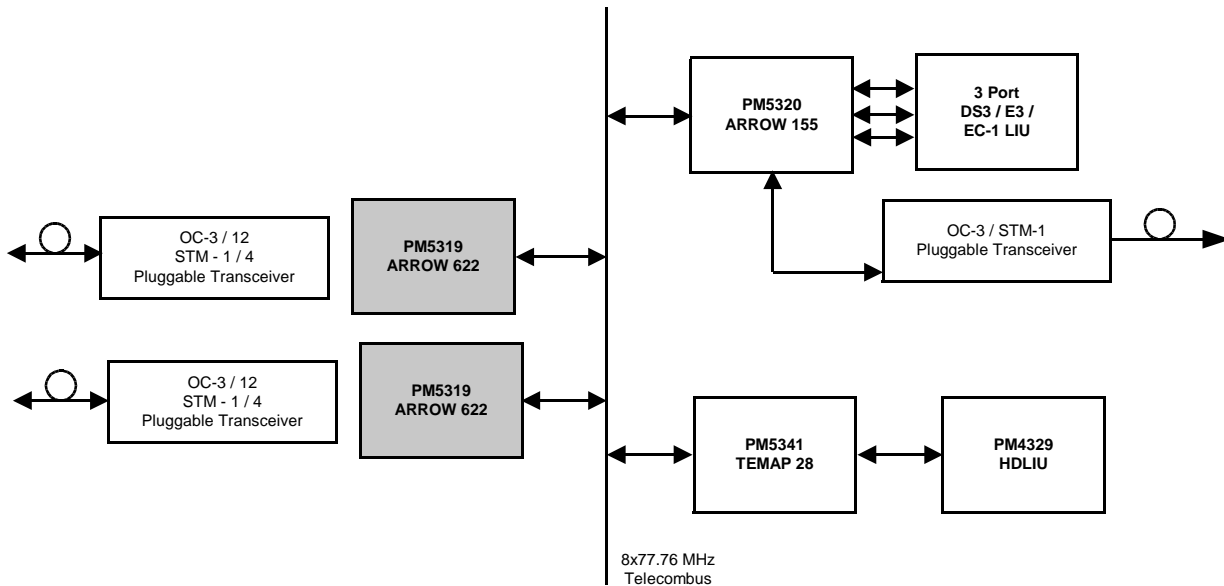
## TYPICAL APPLICATIONS

### 3-12 PORT SDS3/E3/EC-1 TRANSPORT APPLICATION

This figure shows clear channel transport of 3 ports of DS3/E3/EC-1 into an OC-12/STM-4 or OC-3/STM-1.
The shaded portation of the figure shows the optional addition of ARROW 155 devices to incrementally add DS3/E3/EC-1 or OC-3/STM-1 client interfaces.
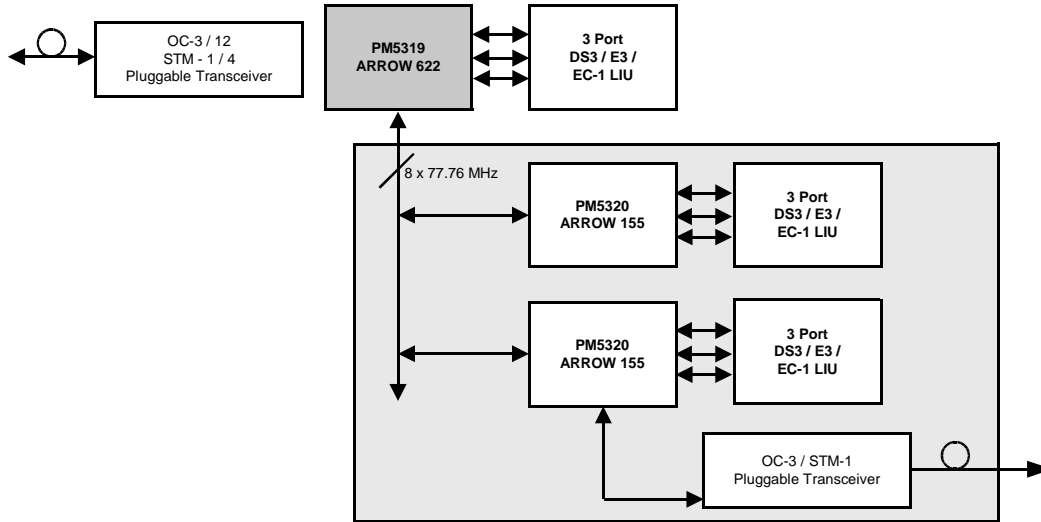


### TERMINAL MULTIPLEXER APPLICATION

This application shows how the ARROW 622 may be used in a 1+1 protected terminal multiplexer supporting OC-3/STM-1, T1/E1 and DS3/E3/EC-1 client interfaces.