

3/6-Port DS3/E3/STS-1 Integrated Line Termination Device for Transport

M29323/6 – “Line-Card-on-a-Chip”

The M29323/6 provides a complete physical-layer solution for flexible DS3/E3/STS-1 clear channel services. The M29323/6 aggressively drives down cost for existing solutions and as well as reduces PCB real-estate and power.

Each port of the M29323/6 operates independently allowing for a mix of DS3, E3 or STS-1 on the same device. This enables ADMs/OEDs and MSPPs to deploy a single line card that supports the simultaneous mapping for SDH or SONET transport of both DS3 and E3.

The M29323/6 includes 3/6 independent DS3/E3/STS-1 line interface units (LIUs) with built-in digital jitter attenuators (DJAT), 6/12 DS3/E3 framers and 3/6 STS-1 framers. Each port is capable of supporting DS3/E3/STS-1 mapped/demapped signals to/from SONET/SDH.

The M29323/6 line side interfaces support electrical DS3/E3/STS-1, requiring only the addition of transformers and passive termination. The M29323/6 system interface supports STS-12/STM-4 for the SONET/SDH traffic via a standard 8-bit, 77 MHz TDM telecom bus. Thus, a channelized OC-12/STM-4 or OC-3/STM-1 can be broken down to DS3/E3/STS-1 streams by the M29323/6 on a channel-by-channel basis.

The M29323/6 requires only one 19.44 MHz reference clock (passive crystal) or 77.76/155.52 MHz SONET reference clock for generating all the necessary internal line rate clocks. The generated clocks are also available through an output pin.

KEY FEATURES

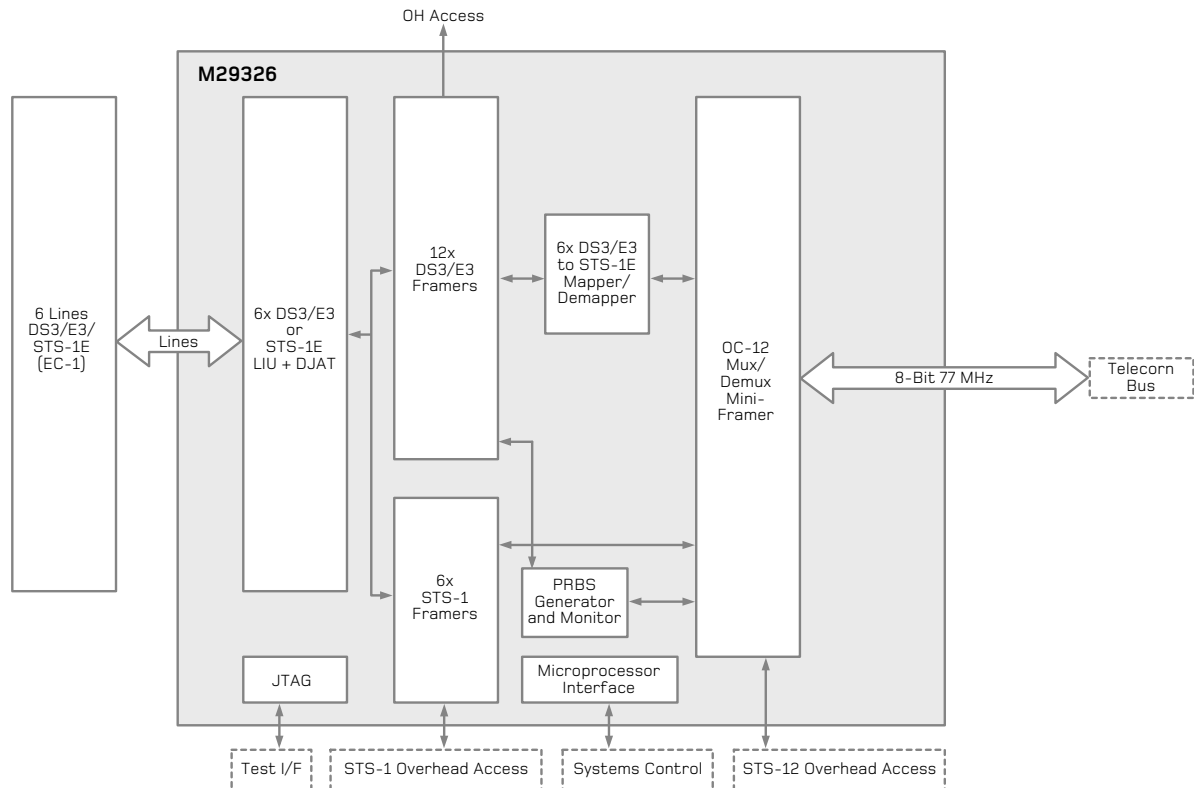
- High integration – LIUs with DJAT, DS3/E3 framers/mappers, STS-1 framers/mappers, STS-12/STM-4 framer
- Flexibility – mix DS3, E3 and STS-1 on one device
- Easy implementation – TAP software + high integration = faster time-to-market
- Parallel 8-bit, 77.76 MHz TDM telecom bus
- Embedded CLADs for supported line rates
- Pattern generator/detector for BERT
- Comprehensive loopbacks

In addition, the M29323/6 supports pseudo-random bit sequence (PRBS) testing and a full set of loopback functions at different functional blocks.

Using the telecom application package (TAP) software to abstract the physical registers, developers can easily implement the M29323/6 solution, reducing design time.

The M29323/6 are offered in a 27mm FCBGA package.





M29326 Functional Block Diagram

Product Features

- 3/6 DS3/E3/STS-1 LIUs with jitter attenuation/desynchronization
 - Adaptive receive equalizer enables > 1800 ft of cable reach
 - Programmable transmit pulse mask configuration
 - Dynamic loop bandwidth to comply with all standard intrinsic and output jitter requirements
- 6/12 DS3/E3 framers support DS3-M13, DS3-M23, DS3 C-bit parity E3-G.751, E3-G.832
- 3/6 DS3/E3 mappers/demappers supporting DS3/VC-3/AU-3; DS3/TUG-3/AU-4; E3/VC-3/AU-3; E3/TUG-3/AU-4

- 3/6 STS-1 SONET/SDH framers support transport overhead access; includes monitor and generator
- STS-12/STM-4 SONET/SDH TDM supporting mapping/demapping of 12 STS-1E or AU-3 into/from STS 12/STM-4 frame
- Pointer processing
- Overhead insertion and extraction
- Parallel 77.76 MHz x 8-bit Telecom bus interface
- Synchronous 16-bit microprocessor interface bus at 30-77 MHz bus rate
 - Glueless connection to Motorola MPC860

- Local (source) and remote (line) capability at various internal points in the device
- PRBS detector and generator supporting framed and unframed modes
- JTAG (IEEE 1149.1) boundary scan
- Single rail 1.8 V core supply with 3.3 V LVTTTL I/O, 1.8V LVDS I/O
- Embedded CLADs internally generating the DS3, E3, STS-1 clocks
- -40C to +85C operation

Applications

- SONET/SDH ADM/OED
- MSPP
- Optical ADM
- DCS
- NGDLC
- Class V voice switch

Ordering Information

- M29323-12P
- M29326-12P

www.mindspeed.com/salesoffices

General Information:

Headquarters - Newport Beach
 4000 MacArthur Blvd., East Tower
 Newport Beach, CA 92660-3007
 29323/6-BRF-001-A M04-0928

© 2004 Mindspeed Technologies™. All rights reserved. Mindspeed and the Mindspeed logo are trademarks of Mindspeed Technologies. All other trademarks are the property of their respective owners. Although Mindspeed Technologies strives for accuracy in all its publications, this material may contain errors or omissions and is subject to change without notice. This material is provided as is and without any express or implied warranties, including merchantability, fitness for a particular purpose and non-infringement. Mindspeed Technologies shall not be liable for any special, indirect, incidental or consequential damages as a result of its use.

