Intel® LXT384
Octal T1/E1/J1 Line Interface Unit

Intel®
Internet Exchange
Architecture

Intel Delivers

Intel introduces a family of T1/E1 3.3V transceivers that are pin-to-pin and software compatible. This LXT product series includes the Intel® LXT380, LXT381, LXT386, and LXT388 (detailed in separate product briefs), and the LXT384 (detailed in this product brief). With Intel's range of transceivers, you have the flexibility to change from E1-only designs to T1/E1 designs and migrate from two to eight ports (or vice versa) with little time and effort.

The Intel® LXT384 is an octal 3.3V short-haul PCM transceiver for use in either 1.544Mbps (T1) or 2.048Mbps (E1) applications. It incorporates eight receivers and eight transmitters in a single 144-pin LQFP or 160 PBGA package.

The LXT384 is the world's first fully integrated octal transceiver incorporating an advanced crystal-less, digital Jitter Attenuator (JA) that meets CTR12/13 and the latest SONET/SDH requirements. You can configure the LXT384 as a seven-channel transceiver with the additional channel configured as a G.772-compliant non-intrusive performance monitor.

Intel Advantage

With the introduction of its LXT38x series, Intel offers a transceiver that supports G.772 non-intrusive performance monitoring. This feature allows one channel to eavesdrop on other channels for remote monitoring and debugging purposes without interrupting service. This powerful tool can help you reduce system downtime and achieve faster time-to-market.

The Intel® LXT384 also offers Intel® Hitless Protection Switching (Intel® HPS), which

incorporates fast tri-stateable drivers and a constant delay JA. Intel® HPS helps you reduce system cost by eliminating costly mechanical relays and opto-isolators in 1+1 protection and redundancy applications. The switch from primary to backup board is less than 1μs—more than 1,000 times faster than mechanical relays—and helps eliminate loss of frame synchronization. A maximum of 1 bit error is generated when Intel® HPS is used instead of relays, which can generate more than 6,000 bit errors. Analog and digital JTAG can also help reduce test costs by reducing test times.

Alternate solutions require triple the PCB space or more for an eight-channel 1+1 protection application. The superior digital JA is designed for SONET/SDH applications, meets CTR12/13 specification, and provides the constant delay needed in Intel® HPS applications.

LXT384 Block Diagram
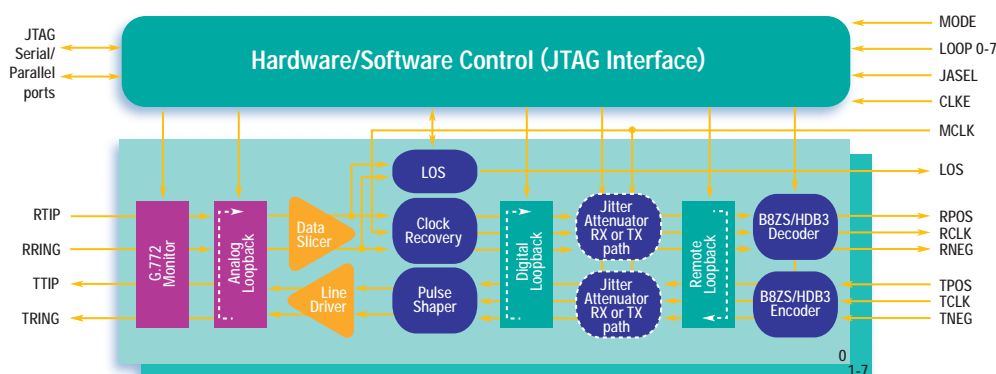
Features	Benefits
■ Intel® Hitless Protection Switching	■ Helps eliminate expensive relays needed for 1+1 redundant applications
■ Superior crystal-less JA	■ Meets ETSI CTR 12/13, ITU G.736, G.742, G.823, and AT&T Pub62411 specifications ■ Optimized for SONET/SDH applications, meets ITU G.783 mapping jitter specifications ■ Constant throughput delay jitter attenuator
■ Nonintrusive performance monitor	■ Allows eavesdropping on other channels without interrupting service
■ 3.3V supply with 5V-tolerant inputs	■ Easy integration and lower power consumption
■ Analog and digital JTAG	■ Helps reduce test costs and increase coverage
■ 15x15mm BGA package	■ Leads to higher integration, helps reduce PCB real estate, and helps increase ports per card

Support Collateral/Tools

Item	Description	Order Number
Support Products	■ LXT384 Octal T1/E1 Transceiver Data Sheet	248994
	■ LXT384 Design Assistant	248836
	■ LXD384—Evaluation Board for Octal T1/E1 Applications Developer Manual	249214
	■ LXT384/386/388 Frequently Asked Questions (FAQs)	249183
Application Notes	■ Transformer Specification for Intel® Transceiver Applications	249133
	■ LXT380/381/384/386/388 Redundancy Applications	249134
	■ LXT380/384 Octal T1/E1 LIUs—Interfacing with the Transwitch Octal Framer	249136
	■ LXT384/386/388 Twisted Pair Interface—without Component Changes	249138
	■ Intel® Hitless Protection Switching Backup Board not Powered	249143

Applications

- SONET/SDH tributary interfaces
- Digital cross connects
- Public/private switching trunk line interfaces
- Microwave transmission systems
- M13 and E1-E3 multiplexer

Intel® Internet Exchange Architecture

Intel® Internet Exchange Architecture (IXA) is an end-to-end family of high-performance, flexible and scalable hardware and software development building blocks designed to meet the growing performance requirements of today's networks. Based on programmable silicon and software building blocks, Intel® IXA solutions enable faster development, more cost-effective deployment, and future upgradability of network and communications systems. Additional information can be found at www.intel.com/IXA.

Intel Access

Developer Web Site	http://developer.intel.com
Intel® Internet Exchange Architecture Home Page	http://intel.com/IXA
Networking Components Home Page	http://developer.intel.com/design/network
Intel Literature Center	http://developer.intel.com/design/litcentr (800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) International locations please contact your local sales office.
General Information Hotline	(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

For more information, visit the Intel Web site at: developer.intel.com