CORTINA™

Product Brief

Cortina Systems® IXF30007 Enhanced Digital Wrapper for Ultra Long-Haul Transmission Systems

Product Description

The Cortina Systems® IXF30007 Enhanced Digital Wrapper (IXF30007 Wrapper) is a fully compliant G.709 digital wrapper device that covers most Optical Transport Network (OTN) applications on a single chip. Built on the technology developed for the Cortina Systems® IXF30001 (FEC100), the first 10 Gbit/s FEC device in the market, the IXF30007 Wrapper supports enhanced Forward Error Correction (FEC) using concatenated RS-codes that can be set to up to 9 dB using various parameters.

The IXF30007 Wrapper is designed for optical transmission applications where the coding gain reached with standard forward error correcting (FEC) algorithms (ITU-T G.975, ITU-T G.709) is not sufficient. The core FEC technology concatenates two Reed-Solomon codes that are configurable in both error correction capability and block length, delivering a coding gain configuration between zero and 30 percent overhead.

The IXF30007 Wrapper consists of two completely separated signal paths referred to as north and south paths. While the north path is primarily designed to operate as a line receiver, the south path may be used as a line transmitter. The IXF30007 Wrapper forms the basis of a single chip transponder application and, using integrated bridges between both paths, may be configured as a regenerator and provide APS support.

The IXF30007 Wrapper provides all basic functions required for an OTN system, and appropriate configuration of the outer code ensures compliance with the digital signal wrapping technique defined by ITU-T. With integrated overhead processing circuitry and different types of payload mapping, the IXF30007 Wrapper is a key component in wrapper-based transparent operations, administration, maintenance and provisioning of optical networks.

Flexible Design

The IXF30007 Wrapper supports both asynchronous and synchronous mapping schemes and has additional features for SONET/SDH data streams such as a Performance Monitor (PM) and post processor. The device I/Os are also compliant with OIF-standards.

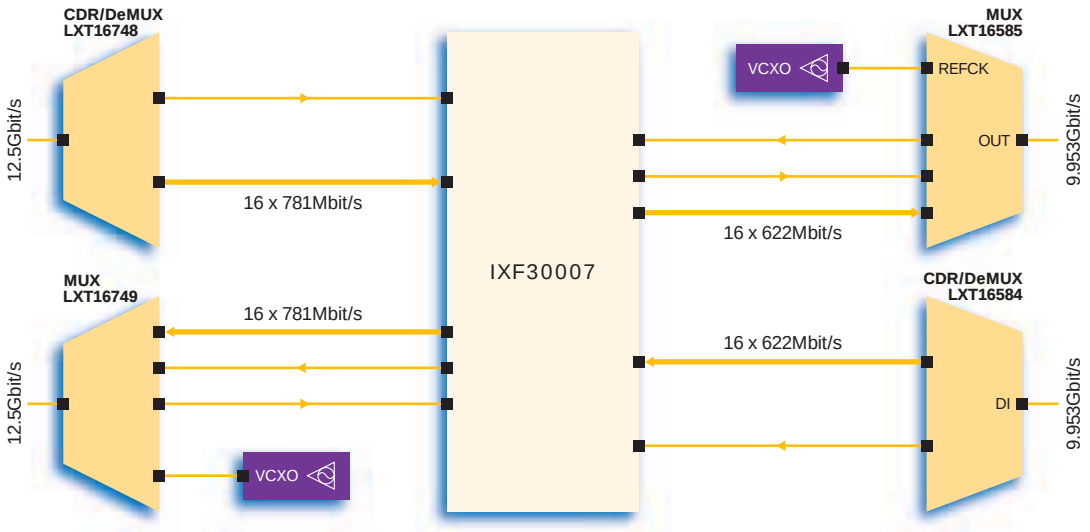
Synchronous and asynchronous mapping of STM-64 streams is supported for SDH payload data, as proposed by ITU-T G.709. In addition to ITU-T G.709 compliant framing, the IXF30007 Wrapper may also be combined with any other outer code configuration.

Outer and inner RS-Codes are concatenated in the IXF30007 Wrapper through the use of an interleaver, enabling correction of high input-errorrates as well as burst errors typically found in multiple-wavelength DWDM systems.

The integrated, nonintrusive PM in the south path can be used to check incoming payload signal quality by monitoring the B1 and B2 values contained in the regenerator section and line overhead. Monitoring also comprises J0 string extraction and mapping of up to four configurable OH bytes to the processor interface. On the north path, an integrated SOH post processor allows SONET/SDH specific processing. Should severe transmission error occur, such as loss of signal or wrapper frame synchronization, received SONET/SDH data may be replaced by AIS frames.

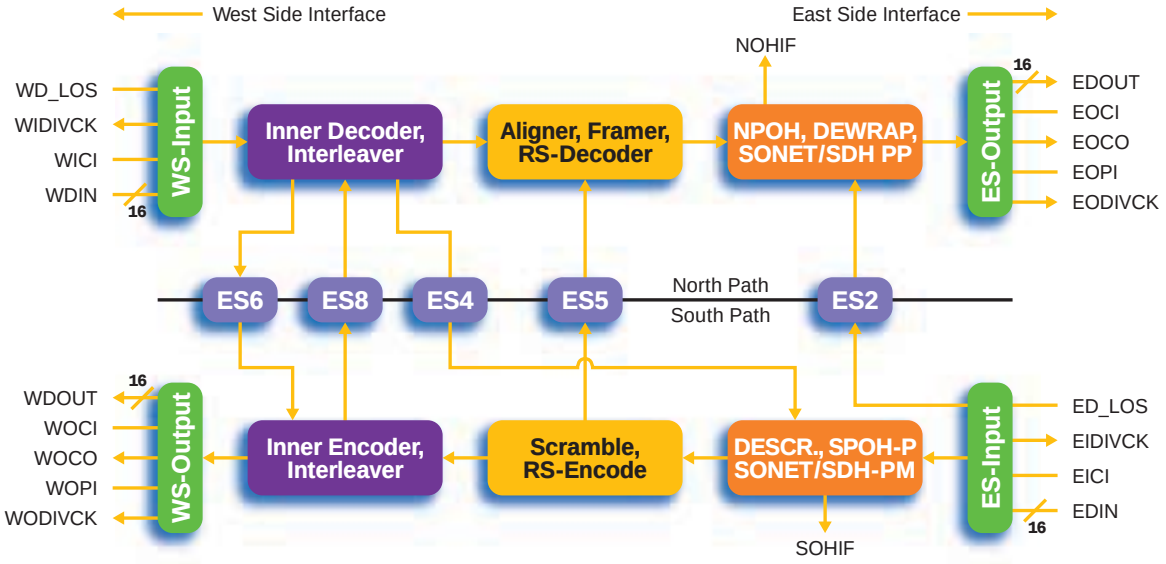
The IXF30007 Wrapper is controlled by a processor interface allowing event-driven communication to reduce processor load. An included IEEE 1149.1* (JTAG) interface may be used to access the internal register bank.

Features	Benefits
• Flexible digital wrapper for OTN with ITU-T G.709 compliance, including enhanced Forward Error Correction (FEC)	• Usable in many locations and applications within an OTN. Future-proof due to compliancy with OTN standards, as well as downward compatibility.
• Wide coverage of OTN overhead functions implemented in hardware	• Reduces costs, space, power and software development time
• 9 dB of coding gain	• Optimum performance for ultra long-haul applications, allowing use of cost-optimized optical solutions in metro networks
• OC-192/STM-64 client type processing related to OTN functions and applications	• Compliance with existing standards, resulting in reduced development time
• Flexible overhead rate between 0 percent and 30 percent using configurable error correction capability and block length for codes ■ Inner code: l=200…255, t=0…24 ■ Outer code: l=200…255, t=0…12	• High flexibility, allowing proprietary standards as well as configurations that are compatible with ITU-T G.709, generic ITU-T G.975 and IXF30001/IXF30003. Ability to correct large burst errors in multiple-wavelength DWDM systems.
• OC-192/STM-64 SONET/SDH performance monitor (B1, B2, J0, general purpose) and post processor (AIS insertion)	• No additional performance monitor device required; basic SONET/SDH functionality downstream
• Downward compatible to Cortina Systems® IXF30003 (FEC100) and Cortina Systems® IXF30005 (WRAP100)	• Eases migration pass, allows bridging between different standards
• Bidirectional device for single chip transponder operation (synchronous or asynchronous)	• Compact system design, reduced cost, lower power consumption, multiple clocking options available
• OIF-compliant LVDS Inputs/Outputs	• Allows use of SerDes components provided by 3rd party vendors
• Low power consumption (4 W maximum)	• Eases mechanical systems design and power



CORTINA™

IXF30007 Wrapper Block Diagram



Key Applications

- Ultra long-haul optical communication systems
- Submarine cable network elements
- Low-cost metro networks
- ITU G.709 compliant transport networks
- Increased bandwidth in existing systems
- Bridging functions between OTN-compliant networks and legacy network elements

Cortina in Communications

Cortina is a leading supplier of intelligent communication solutions through continuous innovations in advanced port processing and intelligent port connectivity to the Core, Metro , Access and Enterprise Market Segments. With our state-of-the-art high speed analog digital integration, we deliver a wide suite of products that address our customers' performance, density and flexibility needs enabling faster time-to-market, longer time-in-market, and increased revenue opportunities. Working closely with our customers to understand their system requirements and anticipate their needs, we are creating the foundation ingredients for new generations of services.

*Other names and brands may be claimed as the property of others.

CORTINA™

Cortina Systems, Inc.
840 W California Ave.
Sunnyvale, CA 94086
408-481-2300
sales@cortina-systems.com
www.cortina-systems.com