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Product Brief

Cortina Systems® IXF18101 10 Gbps Framer for STS-192c/STM-64c POS/GFP and 10 Gigabit Ethernet LAN/WAN MAC

Product Description

The Cortina Systems® IXF18101 10 Gbps Framer (IXF18101 Framer) is a highly integrated solution for STS-192c/STM-64c and 10 Gigabit Ethernet Local Area Network/Wide Area Network (LAN/WAN) port applications, as specified in IEEE* 802.3ae. The IXF18101 Framer supports various modes of operation for transport of 10 Gigabit Ethernet, High Level Data Link Control (HDLC) frames, Packet over SONET (POS), or Generic Framing Procedure (GFP) packet formatting.

Internal mapping engines provide the required formatting and maintenance of packet data into the STS-192c/STM-64c SONET/SDH frame payload. A data-over-fiber packet mapping mode is supported for test equipment and test functionality verification within a system.

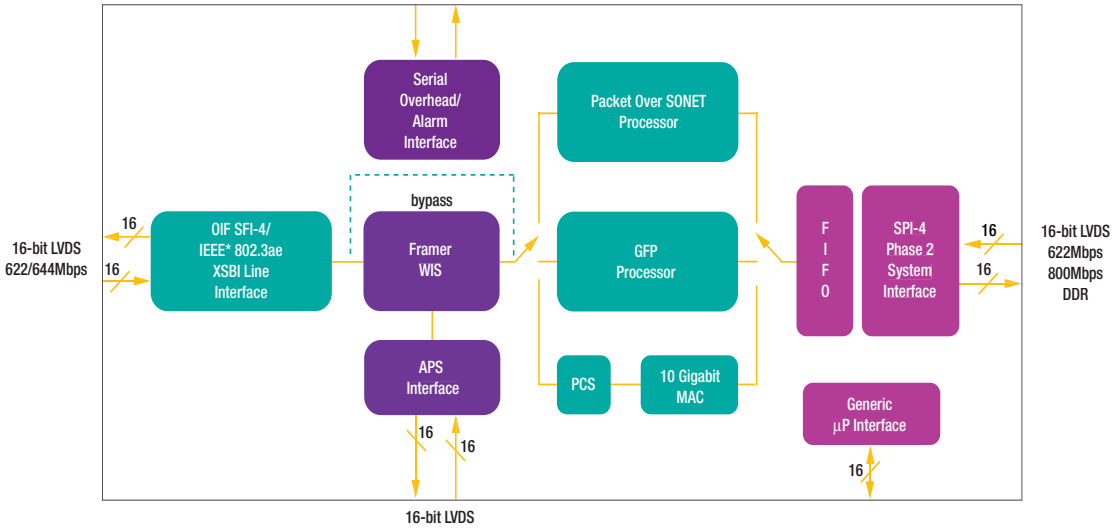
The 10 Gigabit Media Access Controller (MAC) handles frame encapsulation, verification, 10 GbE flow control, and Remote Monitoring/Simple Network Management Protocol (RMON/SNMP) statistics management, per IEEE* 802.3ae standards.

The IXF18101 Framer also handles the 802.3ae Physical Coding Sub-layer (PCS) and WAN Interface Sub-layer (WIS) functions of the 10 Gigabit Ethernet standard. The PCS hardware handles the 64B/66B encoding/decoding to provide the transition density and balance the 10.3125 Gbps stream. The WAN interface sub-layer provides the rate matching mechanism for 9.953 Gbps rate transport, as well as the STS-192c/STM-64c framing structure used in WAN PHY applications. The GFP mapping engine can be connected directly to Forward Error Correction (FEC) or Optical Transport Networks (OTN) digital wrapper devices for GFP client mapping directly per G.709.

The system interface supports the industry standard System Parallel Interface-level 4 Phase 2 (SPI-4.2). This interface is 16 bits wide with 622 Mbps - 800 Mbps double data rate clocking. The SPI-4.2 interface is Low Voltage Differential Signaling (LVDS).

On the line side, the IXF18101 Framer supports both the OIF* SerDes Framer Interface Level 4 (SFI-4) and IEEE* 802.3ae XSBI interfaces. These interfaces can operate at the SONET/SDH 622 Mbps rate or the 10 Gigabit Ethernet 622 Mbps and 644 Mbps rates. The IXF18101 Framer also supports an integrated Pseudo Random Bit Sequence (PRBS) packet generator/analyzer for the PCS and WIS blocks (per IEEE* 802.3ae clause 49 and 50).

The IXF18101 Framer supports loopbacks like line remote, line local, system remote, and system local. The IXF18101 Framer also supports Synchronous Payload Envelope (SPE) payload test loopback for general development functionality testing and debuging.



IXF18101 Framer Block Diagram

IXF1810x Family of 10 Gbps Physical Layer Devices - High Level Overview

Cortina's IXF1810x family of 10 Gigabit devices pro vide the broadest support for 10 Gbps solutions. The protocols supported are STS-192c POS, 10 Gigabit Ethernet WAN, 10 Gigabit Ethernet LAN, and GFP fr aming. All these devices are pin-, footprint-, and register set-compatible. This allows customers to design one line card for multiple applications, providing cost sa vings over a single line card with other unsupported features. The following lists the IXF1810x family feature set:

Part No	Feature Set	
IXF18101	• STS-192c/STM-64c POS • GFP • 10 GbE LAN and W AN with MAC, PCS, and WIS	• SFI-4/XSBI line side interface • SPI-4.2 system-side interface
IXF18102	• STS-192c/STM-64c POS • GFP	• SFI-4 line side interface • SPI-4.2 system-side interface
IXF18103	• 10 Gigabit Ethernet LAN and W AN PHY with MAC, PCS, and WIS	• XSBI line side interface • SPI-4.2 system-side Interface
IXF18104	• 10 Gigabit Ethernet LAN PHY with MAC, and PCS	• XSBI line side interface • SPI-4.2 system-side Interface

The IXF18101 Framer is designed to provide a single chip solution for all 10 Gigabit ph ysical layer requirements for metro and the core networks, and it offers the following features and benefits:

Features	Benefits
• Four modes of oper ation: - STS-192c/STM-64c POS - 10 Gigabit LAN PHY - 10 Gigabit WAN PHY - GFP	• Single line cards that can support multiple applications, such as port types and protocols • Helps reduce inventory and investment protection for carriers • Easy re-configuration with Software switch
• SFI-4/XSBI	• SFI-4 is widely deplo yed as the interface for OC-192c optics modules • XSBI is comprised of 16-bit LVDS I/O runs at 622 Mbps for 10 GbE WAN and at 644 Mbps for 10 GbE LAN • Accommodates both WAN and LAN rates in a single module
• SPI-4.2	• Helps minimize pin count and allows interface architecture to be scaled bey ond 10 Gbps • LVDS I/O, which improves signal integrity, versus HSTL implementations • Independent of the type of data protocol being transferred
• Integrated 10 GbE MAC, PCS, WIS	• Highly integrated 10 Gigabit Ethernet solution • Enables configuration either as 10 GbE LAN PHY or 10 GbE WAN PHY
• Automatic protection switching	• Provides facilities protection and redundancy using working and protection IXF18101 Fr amer devices

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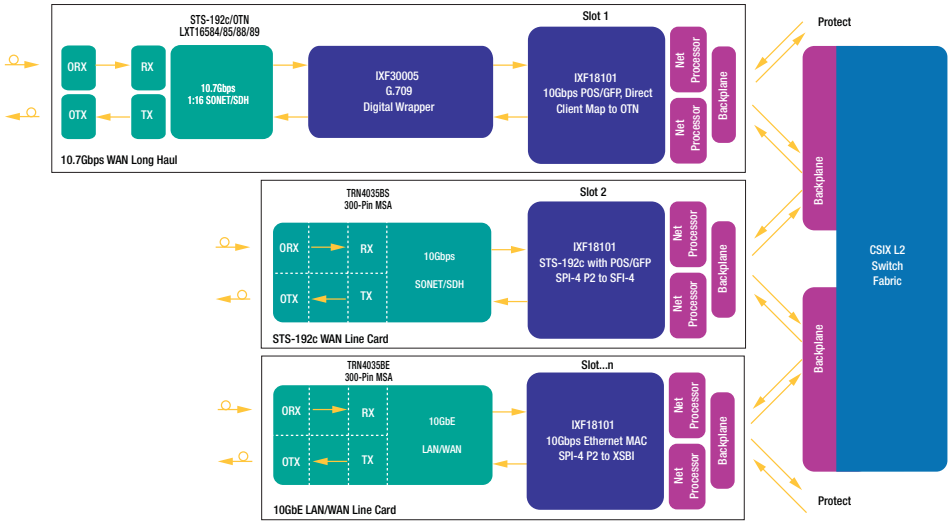
Key Applications

- Terabit Switch/Router Platforms
- Edge and Core Router Platforms
- SONET/SDH Add/Drop Multiplexers
- Multi-Service Provisioning Platforms
- 10 GbE PMON in Long-Haul Transport
- Metro POP Ethernet Switches
- Storage Area Networks
- Network Attached Storage
- Resilient Packet Ring (RPR)
- Dynamic Packet Transport applications

IXF18101 Framer Advantage

- Supports advanced SPI-4.2 interface
- Supports GFP, which allows the transport of data center protocols such as FICON, ESCON, and Fiber Channel-Over-Transport networks
- Supports 10 GbE LAN and WAN line card applications
- Footprint-compatible with the IXF1810x device family, to provide cost reduction for customers who may only need a subset of the IXF18101 Framer functionality
- Optimized for OC-192c/SDH-64c line card applications

STS-192c, 10 GbE LAN or WAN, POS/GFP over OTN Router



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.

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CORTINA™

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