



CORTINA

Product Brief

Cortina Systems® IXF18103 10 Gigabit Ethernet MAC with LAN and WAN PHY

Product Description

The Cortina Systems® IXF18103 MAC (IXF18103 MAC) is a highly integrated solution for 10 GbE Local Area Network (LAN) and Wide Area Network (WAN) port applications compliant as per IEEE* 802.3ae specifications. The IXF18103 MAC supports 10 GbE LAN (10.3125 Gbps) and WAN (9.953 Gbps) applications.

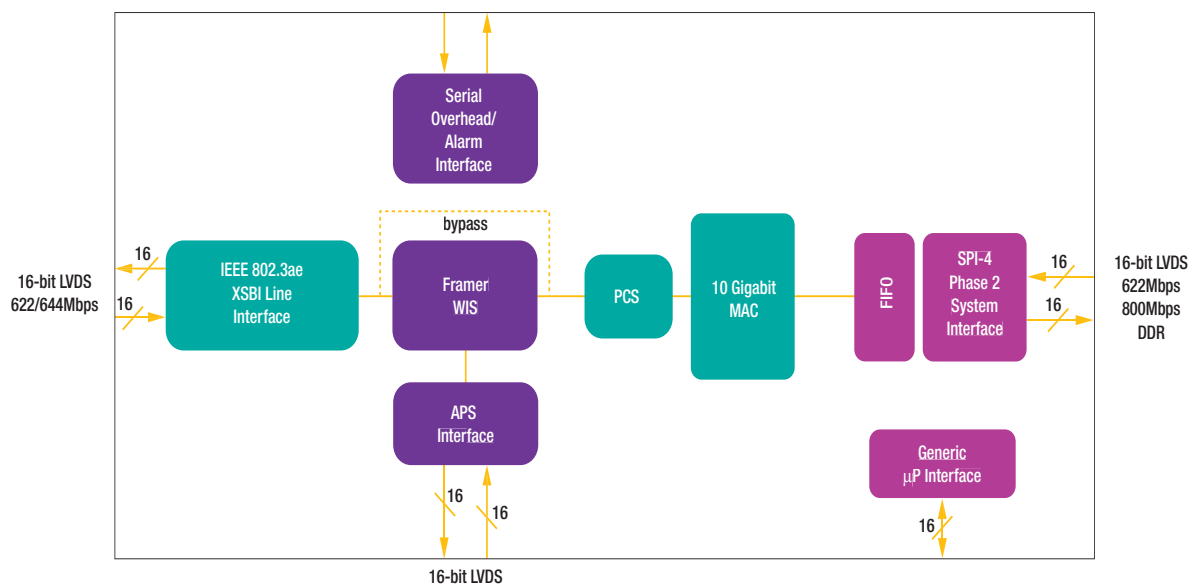
The 10 GbE MAC (per IEEE* 802.3ae) handles frame encapsulation, verification, 10 GbE flow control, and Remote Monitoring/Simple Network Management Protocol (RMON/SNMP) statistics management. The IXF18103 MAC also handles the IEEE* 802.3ae Physical Coding Sub-layer (PCS) and WAN Interface Sub-layer (WIS) functions of the 10 Gigabit Ethernet standard. The PCS hardware handles the 64B/66B encoding/decoding to provide the transition density and balance of the 10.3125 Gbps stream. The WAN Interface Sublayer 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 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 (DDR) clocking. The SPI-4.2 interface is Low Voltage Differential Signaling (LVDS).

On the line side, the IXF18103 MAC supports the IEEE* 802.3ae XSBI interfaces. The 16 bit LVDS interface can operate at 622 Mbps to support the 10 GbE WAN rate of 9.953 Gbps, and at 644 Mbps to support the 10 GbE LAN rate of 10.3125 Gbps.

The IXF18103 MAC 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. Line remote, line local, system remote, and system local loopbacks are also supported, as well as Synchronous Payload Envelope (SPE) payload test loopback for general development functionality testing and debugging.



IXF18103 MAC Block Diagram

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

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

Part No	Feature Set
IXF18101	<ul style="list-style-type: none"> • STS-192c/STM-64c POS • GFP • 10 GbE LAN and WAN with MAC, PCS, and WIS
IXF18102	<ul style="list-style-type: none"> • STS-192c/STM-64c POS • GFP
IXF18103	<ul style="list-style-type: none"> • 10 Gigabit Ethernet LAN and WAN PHY with MAC, PCS, and WIS
IXF18104	<ul style="list-style-type: none"> • 10 Gigabit Ethernet LAN PHY with MAC, and PCS

The IXF18103 MAC is designed to provide a single chip solution for all 10 GbE LAN or WAN Physical Layer requirements for metro and core networks, and offers the following features and benefits:

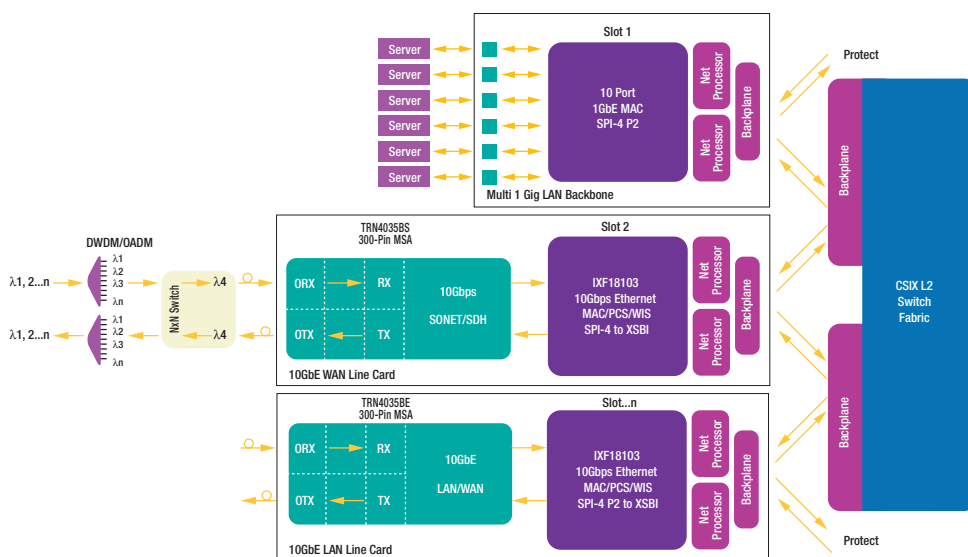
Features	Benefits
<ul style="list-style-type: none"> • Two modes of operation: <ul style="list-style-type: none"> - 10 GbE LAN - 10 GbE WAN 	<ul style="list-style-type: none"> • Device is optimized to support low cost and low power requirements of 10 GbE LAN and WAN
<ul style="list-style-type: none"> • XSBI 	<ul style="list-style-type: none"> • The XSBI interface comprised of 16-bit LVDS I/O runs at 622 Mbps for 10 GbE WAN and at 644 Mbps for 10 GbE LAN • This accommodates both WAN and LAN rates in a single module
<ul style="list-style-type: none"> • SPI-4.2 	<ul style="list-style-type: none"> • Helps minimize pin count and allows interface architecture to be scaled beyond 10 Gbps • LVDS I/O, which improves signal integrity versus HSTL implementation • It is independent of the type of data protocol being transferred
<ul style="list-style-type: none"> • Integrated 10 GbE MAC, PCS, WIS 	<ul style="list-style-type: none"> • Highly integrated 10 GbE solution • Enables flexible Line Card configurations for 10 GbE LAN or WAN PHY
<ul style="list-style-type: none"> • Multiple types of flow control: <ul style="list-style-type: none"> - Based on internal FIFO watermarks - External host control logic 	<ul style="list-style-type: none"> • Provides flexible lossless flow control which is very important in asynchronous network applications

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

IXF18103 MAC Advantage

- Supports advanced SPI-4.2 instead of only the basic HSTL interface
- Footprint-compatible with the IXF1810x device family to provide cost reduction for customers who may only need a subset of the IXF18103 MAC functionality
- Optimized for 10 GbE LAN and WAN Line Card applications



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.

