

Gigabit Ethernet to SONET 10:1 Multiplexer

The GEOS-10i IP core multiplexes GbE traffic into a single SONET stream, using frame-mapped GFP (Generic Framing Procedures). The GEOS-10i core is designed to interface with the Intel® IXF1110 10-Port Gigabit Ethernet MAC and IXF1810x family of OC-192c POS/GFP and 10GbE LAN and WAN Framer/MAC products, using Altera® POS-PHY Level 4 cores. The core is optimized for the Altera® APEX™ II device architecture.

Features	Interface and Protocols
<ul style="list-style-type: none"> • Supports up to OC-192 bandwidth • Multiplexes up to 10 ports of Gigabit Ethernet (GbE) traffic into SONET • Supports Jumbo Packets • Configurable destination port address • Complies with Frame Mapped Generic Framing Procedures from ITU-T. • Provides GbE Traffic Statistics per port • Plug & Play with Altera® POS-PHY Level 4 cores and Altera® APEX-II • Optimized for integration with Intel® IXF1110 10-Port GbE MAC and IXF1810x family of OC-192c POS/GFP and 10GbE LAN and WAN Framer/MAC products • Verilog HDL register transfer level (RTL) code available 	<ul style="list-style-type: none"> • Atlantic Interface • AIRBus: 16-bit slave • Frame Mapped GFP

System Implementation

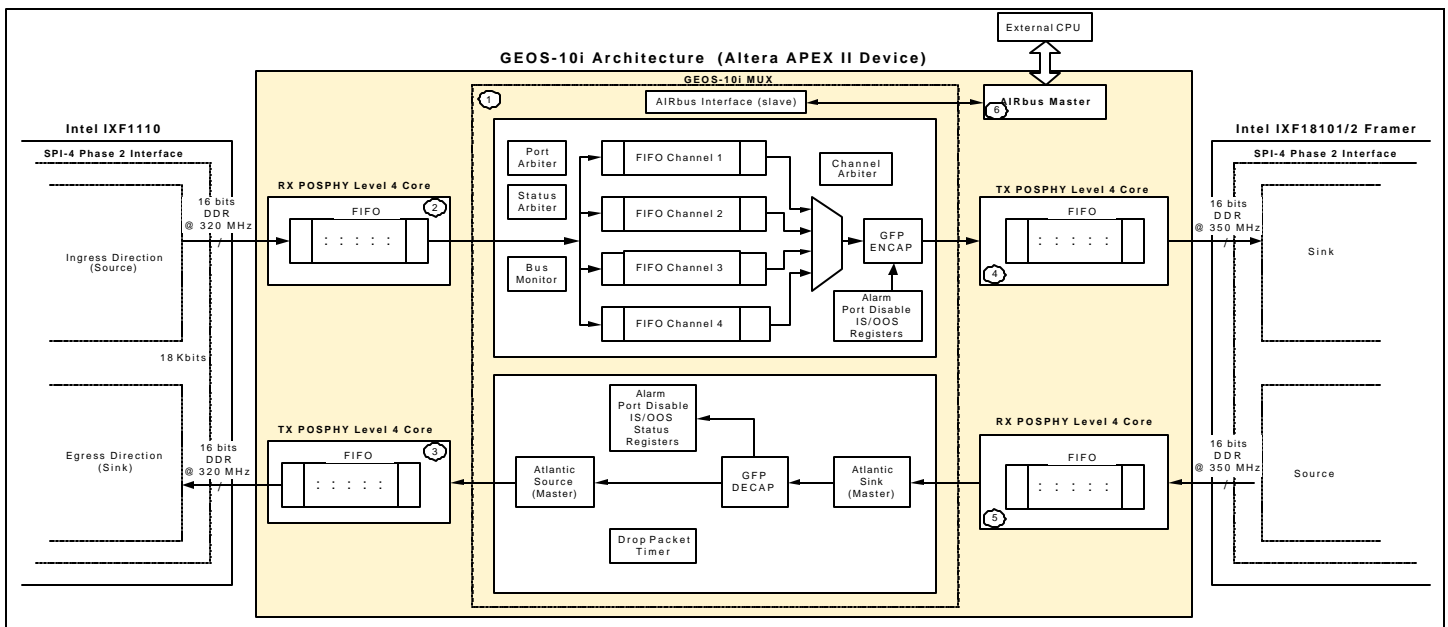


Figure 1: GEOS-10i Architecture

Data Flow	GEOS-10i Architecture Blocks
<p>INGRESS: Ethernet-to-SONET</p> <ul style="list-style-type: none"> • Controlled by ESMUX module • Automatic generation of GFP header w/ destination port ID <p>EGRESS: SONET-to-Ethernet</p> <ul style="list-style-type: none"> • Controlled by SEDEMUX module • De-multiplexes traffic from SONET side into 10 GbE ports • Routes packets to their corresponding ports 	<ol style="list-style-type: none"> 1) GEOS-10i core 2) POS-PHY Level 4 Core, in RX mode, interfacing to a 10x1GbE multi-port capable PHY. This core is interfaced to the GEOS-10i core. 3) POS-PHY Level 4 Core, in TX mode, interfacing to a 10x1 GbE multi-port capable PHY. This core is interfaced to the GEOS-10i core. 4) POS-PHY Level 4 Core, in TX mode, interfacing to an OC-192 single port PHY. This core is interfaced to the GEOS-10i core. 5) POS-PHY Level 4 Core, in RX mode, interfacing to an OC-192 single port PHY. This core is interfaced to the GEOS-10i core. 6) CPU Interface Core, interfacing to the GEOS-10i through an AIR-Bus Interface.