

# 800G Ethernet PCS IP

## Highlights

- Compliant with the IEEE 802.3 standard
- Configurable IP available in single or octal port
- Designed to be used with Synopsys 800G MAC IP for 800G Ethernet Systems
- Includes RS-FEC functions
- Supports IEEE 1588 standard
- Silicon proven
- Integration tested with the DesignWare 800G Ethernet MAC and 112G Ethernet PHY IP

## Target Applications

- High-Performance Networking
- High-Performance Computing

The IP includes multiple Reed-Solomon Forward Error Correction (RS-FEC) functions for use by different channels at various speeds. The IP implements a 1024-bit wide CDM for connections to the Synopsys MAC on the application side and 8-lane interface to the Synopsys PHY on the Ethernet line side.

Synopsys delivers a complete Ethernet solution with 800G Ethernet PCS IP, 800G Ethernet MAC IP and 112G Ethernet PHY IP.

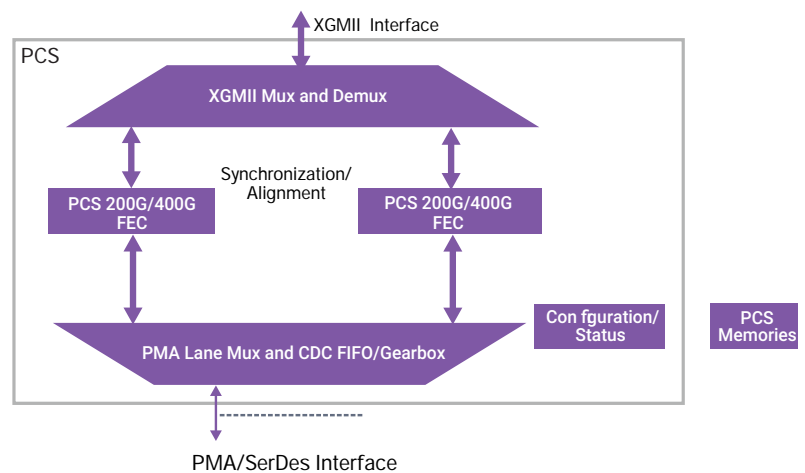


Figure 1: Synopsys 800G Ethernet PCS IP single port diagram

## Key Features

- Common and single port features
  - 800G PCS implementing two bonded 400G PCS, which are IEEE P802.3bs compliant, create an aggregate 800G MAC interface
  - 8-lane 106Gbps SerDes interface with clock decoupling buffers and 1024-bit CDMII MAC interface when operating at 800G
  - Operation of 2x200Gbps
  - Programmable loopback on the SerDes interface available for application test
  - Transmit and receive data-path operating at 800MHz or higher common system clock
  - Direct 16/32-bit host interface to access configuration and status registers of the PCS, RS-FEC and RS-FEC extended statistics
  - MAC features supports IEEE 1588 1-step for 200G/400G and for 10G/100G
  - RS-FEC features supports RS-FEC implementing RS(528,514) and RS(544,514) and supports RS (272, 256) at least up to 100G
    - Supports 25G (Clause 108) and 50G (Clause 134) and 25/50G Ethernet consortium specifications
    - Supports IEEE802.3ck RS FEC codeword-interleaved (RS FEC Int, Clause 161) sublayer
    - Supports error indication to PCS when uncorrectable errors are detected
- Octal core features
  - Over 8x100Gbps SerDes (Proprietary), 400G over 8x50Gbps SerDes or 4x100Gbps SerDes, 200G over 4x50Gbps SerDes or 2x100Gbps SerDes
  - No support for 25G SerDes (16x25G, 8x25G)

