

Product Brief

Cortina Systems[®] CS1999 40G SONET/SDH Framer and POS Mapper

Overview

The Cortina Systems[®] CS1999 OC-768 SONET Framer/ Mapper (CS1999 Framer) Application Specific Standard Product (ASSP) is a versatile, single chip, 40G Packet over SONET (POS) solution designed to interface between the packet processor and OC-768 SONET line. These packets are mapped into a single channel OC-768 SONET/SDH payload using industry standard interfaces and protocols.

The CS1999 Framer supports a OC-768 rate SerDes based SFI-5 Interface specified by the Optical Interconnect Forum (OIF) to connect directly with industry standard 40G optical modules. The industry is upgrading network cores from 10G (OC-192) to 40G (OC-768) to support higher -bandwidth "triple-play" (voice, data, video) applications. The CS1999 Fr amer's low power and small footprint mak e the CS1999 Framer an optimal solution to terminate SONET/SDH framing on next generation 40G SONET line cards. The CS1999 Framer generates and terminates SONET/SDH section, line, and path overhead, and POS packets are mapped over SONET/SDH with a single 40G Mapper. The Interlaken interface supports multiple SerDes rates and provides more than 40G of system bandwidth and flow control to the pack et processor or NPU.

As shown in the diagram below, the CS1999 Framer is designed as a single channel device, containing a Line Interface, a SONET/SDH Framer, POS Mapper/De-Mapper, and Packet Bit Error Rate Test (BERT). The

40G POS Mapper is connected to the receiv e and transmit ports of the System Interface.

The device consists of the following major functions:

- Line Interface: OC-768 rate, STS-768c: SFI-5 Interface compliant with Implementation Agreement OIF SFI-5-01.0.
- Framer: STS-768c framer that generates and terminates SONET/SDH section, line and path overhead.
- **POS Mapper**: Single 40G mapper that maps packets over SONET/SDH.
- Packet BERT: Highly versatile and independent module used to generate and monitor packets at line rate speeds for diagnostic purposes. The payload of the generated traffic can be filled with a fixed pattern or with PRBS patterns.
- **System Interface:** Interlaken interface (defined in Cortina's "Interlaken Protocol Definition") that provides up to 48 Gbps system interface bandwidth. The system interface provides a single channel 40G Interlaken interface with store- and-forward or cut-through modes, and flow control to the host.
- Microprocessor Interface: a 16-bit asynchronous parallel interface, compatible with Intel* and Motorola* processors.



• Other Interfaces: JTAG, GPIO, DCC, TOH, POH.

CS1999 Framer Functional Block Diagram

Downloaded from Elcodis.com electronic components distributor

Features

- Single port OC-768/STS-768c Framer/Mapper
- Interlaken System Interface
 - Up to 16 lanes operating at up to 6.25 Gbps
 - Configurable SerDes to support 8, 10, 12 and 16 lane modes of oper ation
 - SerDes supports data rates of 3.125 Gbps up to 6.25 Gbps per lane
 - 80K bytes of packet memory in both Tx and Rx FIFOs
 - In-band or out-of-band flow control
- SFI-5.1 Line Interface
 - OIF-SFI-5.01 Compliant Interface
 - 16 bits @ 2.488 Gbps
 - Integrated CDR and TX Frequency Multiplier Phase-Locked Loop (PLL)

- CS1999 Mapper provides a number of diagnostic capabilities for testing, debugging, and bring up
- Package: HFCBGA, 33x33 Sq. mm, with 1020 Balls

Target Applications

• Routers, L2 Switches and any packet based systems with SONET line cards.

Single Port OC-768 POS Line Card



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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