



CORTINA

Product Brief

Cortina Systems® CS4217 Dual 10 Gbps CDR with Equalizer

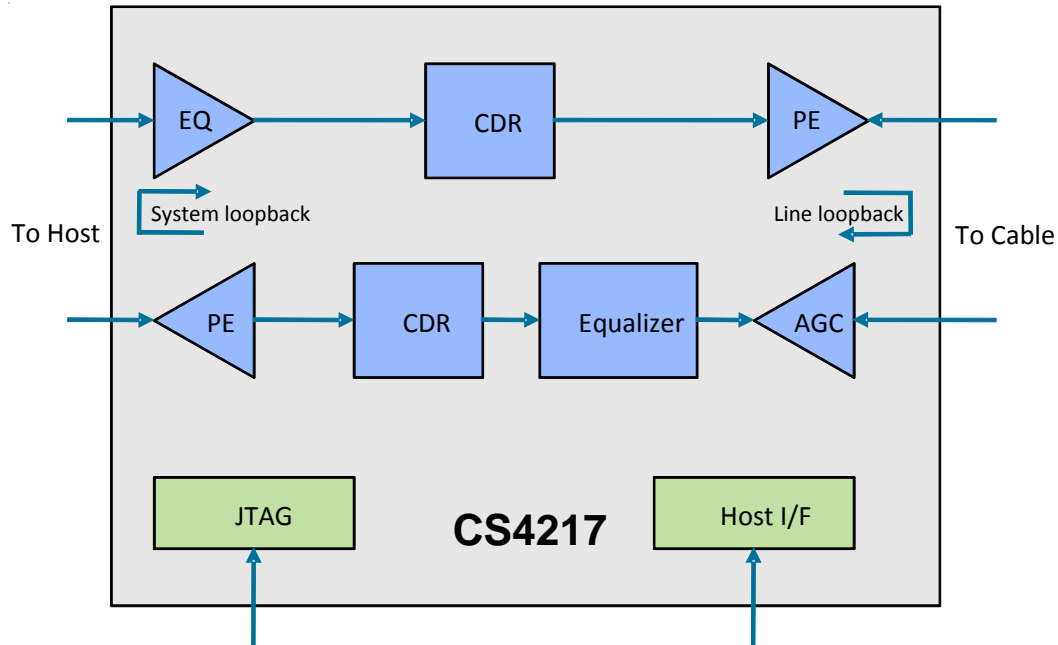
Overview

The Cortina Systems® CS4217 Equalizer (CS4217 Equalizer) is a highly integrated dual port 10 Gbps clock and data recovery (CDR) circuit with integrated receive equalizer and transmit pre-emphasis capabilities. The integrated equalizer and pre-emphasis features of the CS4217 Equalizer compensate for the intersymbol interference (ISI) in copper cables, allowing 10 Gbps transmission over up to 20 meters of twinaxial copper cable.

Additional features of the CS4217 Equalizer include various loopbacks, a complete set of programmable Receive and Transmit path functionality, such as output pre-emphasis, and full 1 GbE data rate support. Packaged in a small 6 mm by 6 mm flip-chip CSP package, the CS4217 Equalizer has an integrated microcontroller to enable auto adaptation of the receive AGC and equalizer.

Enabling 10G Active SFP+ Copper Direct Attach

The Copper Direct Attach option of SFF8431 provides a low-cost low-power alternative to the existing optical (SR) and copper (CX4) solutions for short reach interconnects that dominate data centers and high performance compute clusters. The CS4217 Equalizer with its integrated equalizer and transmit pre-emphasis capabilities along with its low power consumption and small form factor, enables active SFP+ copper cables with extended reach. The CS4217 Equalizer powered active twinaxial cable can run 20 m compared to 7 m for a passive cable with the same conductor gauge.



CS4217 Block Diagram

Features

- **Functionality**
 - Designed to exceed the requirements of IEEE* 802.3aq 10GBASE-LRM
 - Optimized for 10 GbE rate of 10.3125 Gbps
 - XFI interface complies to XFP MSA specifications
 - Extends the operating range of 10G SFP+ copper direct attach to 20 m and beyond
- **Transmit Path**
 - Programmable pre-emphasis to compensate for cable ISI
 - Driver with programmable output voltage amplitude
 - Option to invert the polarity of TX+ and TX- signals
 - Integrated limiting amplifier
 - External pins for loss of signal (LOS) and loss of lock (LOL)
 - Programmable input equalizer to compensate for host FR4 trace
- **Receive Path**
 - Integrated AGC controlled by DSP
 - External pins for loss of signal (LOS) and loss of lock (LOL)
 - Exceeds XFP jitter generation and jitter tolerance requirements
 - Option to invert the polarity of RX+ and RX- signals
- **EDC**
 - Equalizer exceeds the comprehensive stressed receiver test requirements described in 10GBASE-LRM specification
 - Adaptation algorithm does not require any external processor or memory
 - Default adaptation algorithm can be field upgradable
 - Advanced methods to analyze adaptation success including link SNR and valid PCS 64/66 block encoding
 - Continuously tracks and adapts to channel variations
- **Physical Characteristics**
 - 6 mm x 6 mm
 - 49-pin BGA
- **Test and Monitoring**
 - Multiple loopback modes
 - Extensive set of performance and status registers
 - Registers and status programmable through SPI or I2C management interface
 - Serial management interface can be used to reset and read error and statistical counters
 - JTAG 1149 Scan support

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.

