



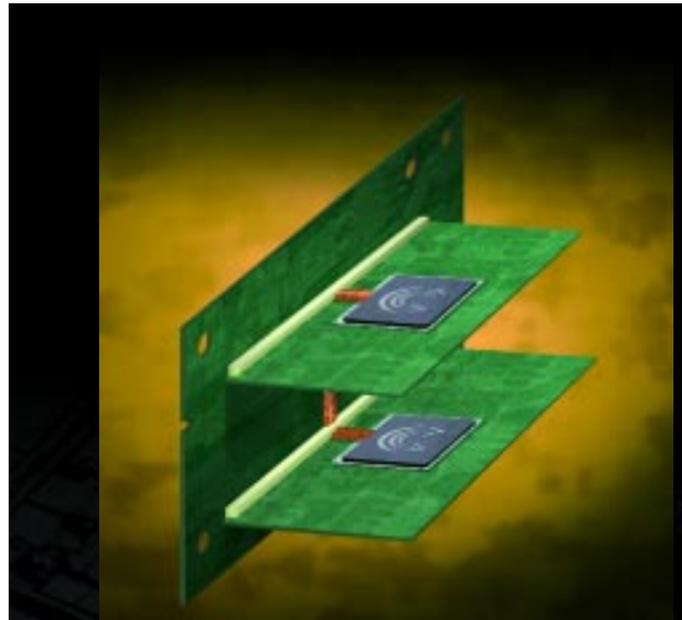
3.125 Gbps Full-Duplex SERDES Transceiver

SkyRail™-E CX27201

Highly Flexible CMOS Transceiver for Ethernet, Fibre Channel, InfiniBand and Serial ATA Applications

The SkyRail-E CX27201 is a serializer/deserializer (SERDES) transceiver chip capable of data rates ranging from 1 Gbps to 3.125 Gbps. It is designed to meet the needs of high-end transmission systems for fast data transfers from board to board or box to box and across backplanes and shielded twisted-pair, coaxial and optical cables. The CX27201 has an optional 8B/10B encoder/decoder. The parallel interface is extremely flexible and accommodates a variety of applications to achieve optimum pin-count, high bandwidth and compatibility with standard interfaces such as Ethernet and Fibre Channel.

The CX27201 can accommodate eight bits of double data rate low-voltage TTL (LVTTTL) unencoded data, 10 bits of double data rate 8B/10B encoded data, 16 bits of LVTTTL unencoded data or 20 bits of LVTTTL 8B/10B encoded data. The parallel channel is multiplexed and the data is transmitted serially over a differential pair at 20 times the clock rate. The CX27201 has a differential receiver with incoming clock and data recovery circuitry. The differential receiver recovers the clock and data from the incoming stream, deserializes the data and transmits the parallel output in the selected coding and channel width. The parallel output can be eight bits of double data rate LVTTTL 10B/8B decoded data, 10 bits of double data rate 8B/10B encoded data, 16 bits of LVTTTL 10B/8B decoded data or 20 bits of LVTTTL 8B/10B encoded data. The device is capable of embedding and detecting Fibre Channel COMMA characters for word alignment, and requires no external components for operation.



Distinguishing Features

- Flexible parallel interface supports both single and double data rates
- Compliant with 802.3z Gigabit Ethernet and ANSI X3T11 Fibre Channel standards
- Electrically interoperable with InfiniBand and Serial ATA
- Built-in optional 8B/10B encoder and decoder
- Programmable output swing between 300 mV and 600 mV in DC-coupled mode
- Low power dissipation of <500 mW

Product Features

- Full-duplex serial transceiver capable of bit rates from 1 Gbps to 3.125 Gbps
- Flexible parallel interface accepts data in four different formats: eight bits of double data rate LVTTTL unencoded data, 10 bits of double data rate 8B/10B encoded data, 16 bits of LVTTTL unencoded data or 20 bits of LVTTTL 8B/10B encoded data
- Supports 802.3z Gigabit Ethernet and ANSI X3T11 Fibre Channel standards
- Interoperable with InfiniBand- and Serial ATA-compliant devices
- Monolithic clock synthesis and clock recovery - no external components required
- 125 MHz LVTTTL reference clock required for 1.25 Gbps or 2.5 Gbps; 106.25 MHz LVTTTL reference clock required for 1.0625 Gbps and 2.125 Gbps; and 156.25 MHz LVTTTL reference clock required for 3.125 Gbps
- Automatic lock-to-reference function
- Two-way programmable low-voltage controlled-swing differential signaling. Output swing programmable between 300mV and 600mV in DC-coupled mode and 600mV and 1200mV in AC-coupled mode
- Suitable for shielded twisted-pair, coaxial and optical link connections
- Supports both 50Ω and 75Ω transmission lines with on-chip selectable termination
- Supports both AC and DC coupling
- Low power dissipation (<500 mW)
- Word alignment and COMMA detection functions
- Built-in self-test (BIST) and loopback

mode for at-speed test and diagnostics

- 80-pin TQFP; 2.5V core supply with 3.3V LVTTTL interface

Applications

- High-end and midrange routers
- Enterprise and carrier-class switches
- Add/drop multiplexers
- Digital and optical crossconnects
- Network aggregators
- WAN access concentrators
- High-speed automatic test equipment and high-bandwidth testers
- Storage Area Network (SAN) equipment
- Miscellaneous Fibre Channel, serial ATA, gigabit and multi-gigabit Ethernet, and InfiniBand applications

Further Information

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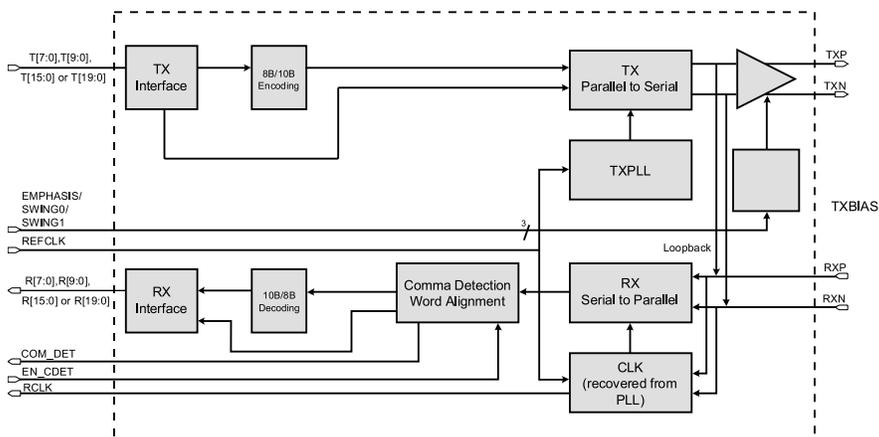
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Skyrail CX27201 Block Diagram

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