VSC7281

VITESSE

Dual XAUI – Single XGMII Quad 0.95 Gbps to 3.25 Gbps Transceiver

BACKPLANE

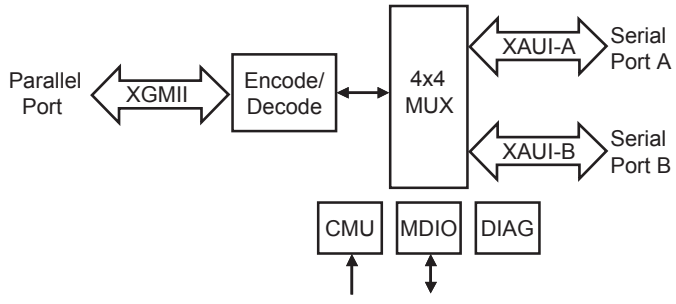
APPLICATIONS:

- 10 Gigabit Ethernet and Fibre Channel Links
  - XENPAK, X2, XPAK Module Connections
- High Speed Serial Backplanes
  - XAUI Channel
  - Independent Channel Control
- Box-to-Box Serial Communications
  - Copper, Coax, and Fiber

SPECIFICATIONS:

- Packaged in a 324-pin, 19mm x 19mm TEPBGA
- Input Termination, Internal 100Ω Differential
- Input Signal Detection and Signal Equalization
- Multiple Internal Clocking Modes

BLOCK DIAGRAM:



Enterprise | Access | Metro | Core

FEATURES:

- IEEE802.3ae 10 Gigabit Ethernet Compliant
- ANSI 10Gb Fibre Channel Compliant
- Dual XAUI Serial Bus
- Single XGMII Parallel Bus
- 0.95 Gbps to 3.25 Gbps Quad SerDes/Transceiver
- XAUI Compliant Retimer and Repeater Modes
- Simultaneous Operation at Multiple Frequencies
- Programmable Pre-Emphasis and Signal Equalization
- 8B/10B Encoder/Decoder with Optional Bypass
- Programmable Rate Matching Characters
- Elastic Buffer for Intra/Inter-Chip Deskewing and Channel-to-Channel Alignment
- Received Data Aligned to Local REFCLK or to Recovered Clock
- TX and RX Rate Matching for FC, 1GbE, and InfiniBand™
- Output Reduced Swing Level for Optics
- Serial and Parallel Loopback
- Fast Locking CRU
- Flexible CMU Operation
- IEEE802.3 MDIO Register Interface
- Multiple Built-In-Self Test Diagnostics and Counters
  - PRBS, CRPAT, CJPAT Pattern Generation
- JTAG Boundary Scan
- HSTL1.5 and HSTL1.8 Parallel I/O

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GENERAL DESCRIPTION:

The VSC7281 is a Dual XAUI – Single XGMII Transceiver tailored for 10 Gigabit Ethernet (10GbE) and 10 Gigabit Fibre Channel (10GFC) applications. The feature set and flexibility of these devices make them perfectly suited for Backplane and other Serial Interconnect applications such as Serial Rapid I/O, PCI Express and XAUI.

With four channels of serial transmitter/receiver pairs, these transceivers can deliver a duplex data rate of greater than 20 Gbps. These serial channels can be configured for independent operation, or as fully 10GbE/10GFC compliant XAUI (10 Gigabit Attachment Unit Interface) serial buses. The parallel bus is fully XGMII (10 Gigabit Media Independent Interface) compliant. When independent channel operation is required, the parallel bus can be configured for either 8- or 10-bit operation with the ability to enable or bypass the internal 8B/10B encoders/decoders.

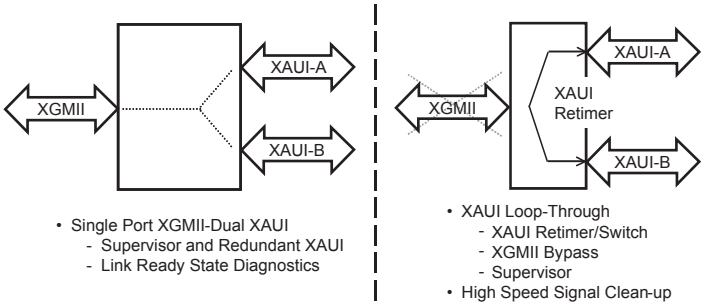
No additional external logic is required for the basic operation of this device. However, for flexibility and systems adaptability, an MDIO (Management Data Input/Output) interface is provided for internal register access. These registers are MDIO compliant and allow for monitoring and configuration of special modes for diagnostics, BIST (Built-In-Self Test), and various control of special channel features, such as pre-emphasis, cable equalization, reduced output swing, loopback, signal detection and XAUI port selection.

The flexibility of this device is not only seen in the MDIO register programmable feature set, but also in a wide range of supported frequencies. With a serial data rate that can range from 0.95 Gbps to 3.25 Gbps, this device supports multiple communication applications such as Fibre Channel, InfiniBand, and Ethernet. The VSC7281 has the functionality to support these common rates simultaneous with a single external reference clock.

Whether the application is a high-speed backplane, chassis-to-chassis communication or an optical link, these devices can provide the flexibility and reliability required in today's high-end Data Communication systems.

MODES OF OPERATION:

The VSC7281 allow for flexibility in multiple systems environments.



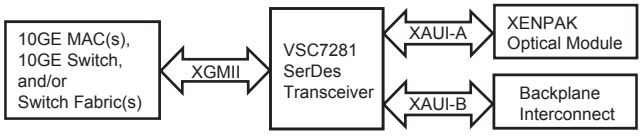
- Single Port XGMII-Dual XAUI
  - Supervisor and Redundant XAUI
  - Link Ready State Diagnostics

- XAUI Loop-Through
  - XAUI Retimer/Switch
  - XGMII Bypass
  - Supervisor
- High Speed Signal Clean-up

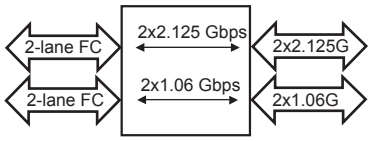
APPLICATIONS:

10 Gigabit Ethernet Port Application

- Driving out-of-box optics or backplane



2GFC and 1GFC Simultaneous Operation



For more information on Vitesse Products visit the Vitesse web site at www.vitesse.com or contact Vitesse Sales at (800) VITESSE or sales@vitesse.com

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