Hex PBC with Dual Repeater/Retimer

VSC7147

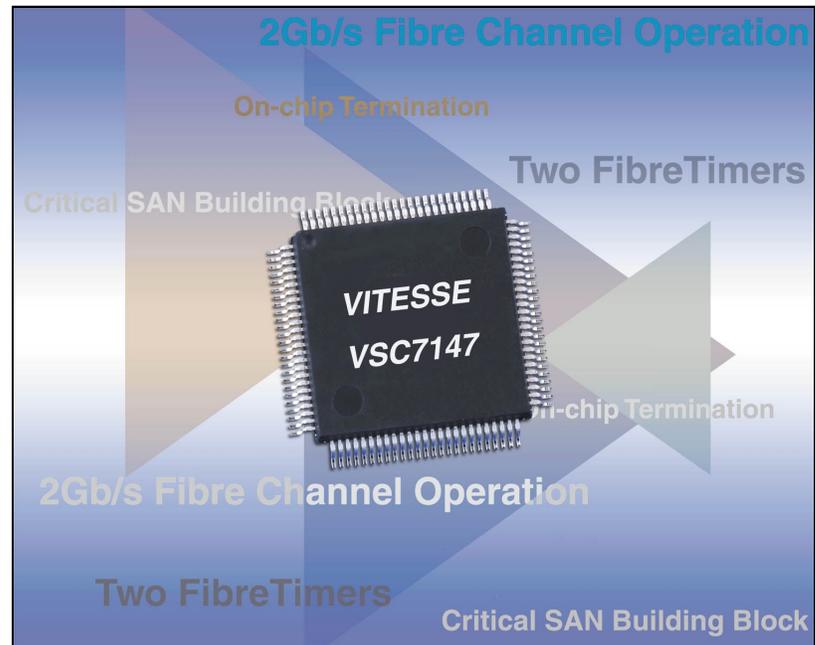## Product Brief

Features and Benefits

- Industry's first IC with six Port Bypass Circuits (PBC) supporting both 1.0625Gb/s and 2.125Gb/s Fibre Channel data rates – *Dual mode provides flexibility by having one device for new and legacy designs*

- Two FibreTimer™ Cells configurable as:
  - Repeaters for low latency
  - Retimers for true Fibre Channel Compliance
  - *Reduces external retimer components, provides design flexibility by allowing mixing and matching of the functions for design optimization*

- Digital design of the FibreTimers produce a device that is well controlled over voltage, process and temperature variations – *Provides a more robust and reliable design*

- User-selectable, on-chip receive and transmit termination at either 100Ω or 150Ω - *Reduces external parts and provides greater signal control*

- Speed independent TX and RX paths aid in Fibre Channel Auto-Speed Negotiation – *Allows the device to migrate as the specification evolves*

2Gb/s Fibre Channel Operation
On-chip Termination
Two FibreTimers
Critical SAN Building Block
VITESSE VSC7147
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General Description

The VSC7147 expands Vitesse Semiconductor's wide offering of Fibre Channel products with an IC for the growing 2.125Gb/s Fibre Channel storage market. The device features six Port Bypass Circuits (PBC) that support both 1.0625Gb/s and 2.125Gb/s Fibre Channel data rates. The VSC7147 enables Fibre Channel Disk Arrays, JBODs (Just a Bunch of Disks) and storage subsystem equipment designers to integrate more ports and disk drives and maintain consistently high signal quality using fewer components.

In addition to the PBCs that steer serial Fibre Channel signals to disk drives and bypass faulty ports, the VSC7147

features dual FibreTimer Repeater/Retimer cells. Each FibreTimer cell contains an all-digital clock recovery unit (CRU) that can be configured as either a Repeater or a Retimer. In the repeater mode, recovered data is retransmitted to a recovered clock, allowing for improved jitter attenuation and low latency. In the retimer mode, recovered data is re-transmitted synchronously to a local reference clock with no jitter transfer ensuring compliance to Fibre Channel signal quality specifications.

Storage

Communication

Products

Features & Benefits continued

- Device can be strapped for 1 or 2Gb/s operation – *Supports dual speed storage applications*

- World-class signal integrity for jitter compliance – *Reduces debug and redesign efforts*

- Two digital Signal Detect Units to detect the presence of valid Fibre Channel encoded serial data - *Improves signal detect reliability*

- No external resistors on high-speed I/O - *Reduces external parts and provides greater signal control*

- 53.125MHz or 106.25MHz reference clock – *For design flexibility*

- 5V-tolerant LVTTL inputs – *Provides design flexibility and backward compatibility*

- Cable equalization on all high-speed inputs – *Manages and corrects signal latency and distortion*

- Single 2.5V supply - *Reduces wiring complexity*

- 100-pin, 14mm exposed pad TQFP package - *Ideal for compact JBOD designs*

VSC7147 Applications

Several VSC7147's can be cascaded together to create a JBOD. The flexibility of the FibreTimers allow repeater and retimer functions to reside where they make the most sense for the backplane board design.

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