Product Brief

VSC7148

16-Port JBOD Loop Chip for 1.0625 Gb/s FC-AL Storage Applications

Features

- All the functionality needed to implement a complete daisy-chainable 16-drive 1Gb/s FC-AL JBOD Subsystem
- Two host ports with two pairs of FibreTimer™ Clock Recovery Units (CRUs) configurable as either Repeaters or Retimers
- Sixteen Port Bypass Circuits (PBC) for drive control
- Sixteen PBC internal Snoop Loop™ for loop diagnostics
- Configurable as either a single 16-drive loop or two 8-drive loops
- I^2C interface for configuration/status/control
- Seamless interface to Enclosure Management Chipsets such as the Vitesse SSC100/VSC055 for managed JBOD applications
- On-chip terminators selectable as 100/150 ohm
- 3.3V Power Supply, 4.3 W
- 256-pin, 27mm Thermally Enhanced BGA

Applications

The VSC7148 contains all the functions needed to implement an entire daisy-chainable 1.0625 Gb/s FC-AL JBOD Loop for storage systems containing up to sixteen disk drives. This device is typically used in distributing Fibre Channel signals to an array of disk drives in managed and un-managed arrays. The use of an I^2C Interface allows access to status information and control of configuration through an easily-implemented, industry-standard, protocol.

The VSC7148 easily interfaces with the SSC100 Enclosure Management Controller to offer unsurpassed diagnostic capability within the industry (refer to Figure 1). The SSC100 communicates with the VSC7148 through the I^2C interface to provide complete loop status, configuration, and diagnostic control to the host. In this configuration, up to fifteen drives on a single loop may be accessed with a single Fibre Channel connector. Serial data from the loop enters the FC-AL port of the SSC100 where the data is processed, returned to the loop, and handed to the VSC7148 for drive communications. In addition, the VSC7148 is the only device on the market that supports two loops within a single device. The External Loop may be configured for all Fibre Channel data traffic while the Snoop Loop may be used for monitoring or isolating specific ports for diagnostics. With this architecture, a design engineer has the flexibility to offer full Fibre Channel support on the External Loop

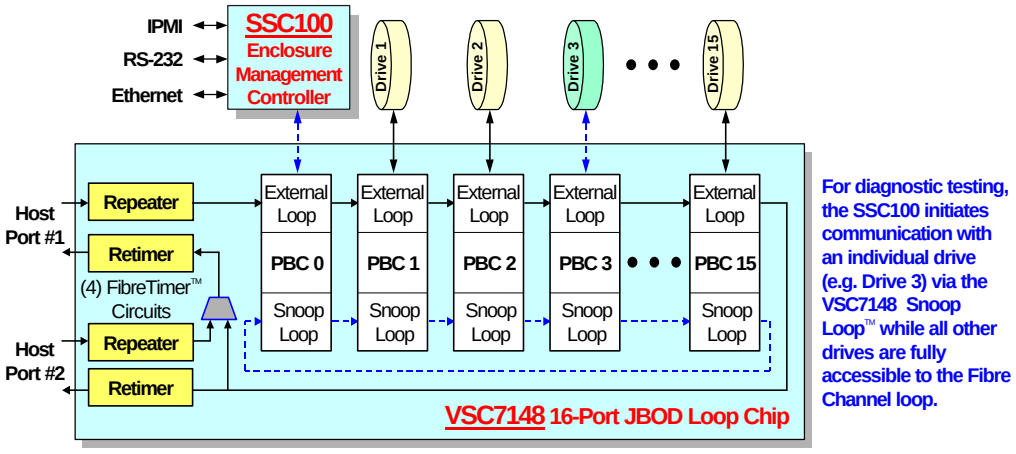

Figure 1. Managed JBOD Using the VSC7148 and SSC100

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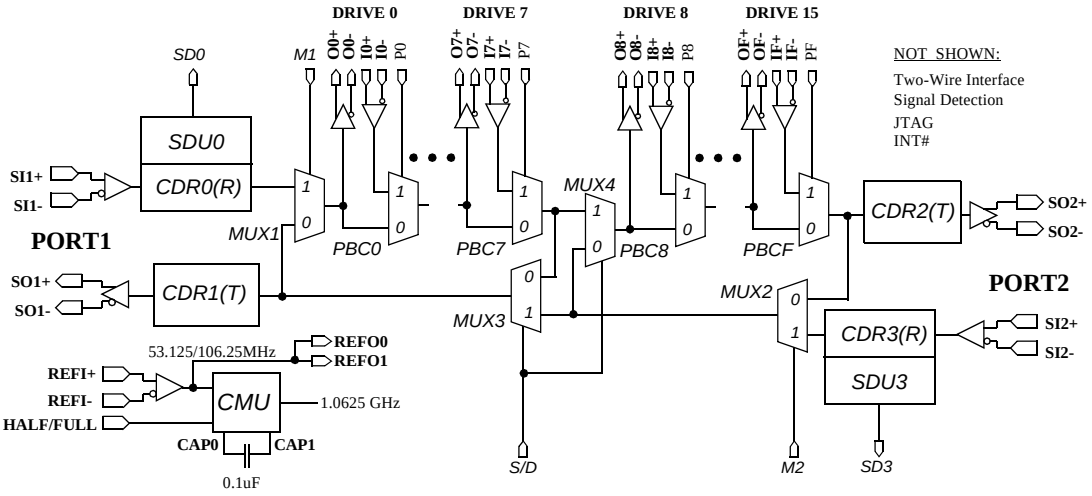
while isolating error conditions and performing loop diagnostics on the Snoop Loop. When coupled with the SSC100's initiator features, the VSC7148 can provide fault isolation conditions and JBOD quality characteristics back to the host in real-time. When used in a managed JBOD application, the VSC7148/SSC100 chipset allows fault isolation down to the lowest Field Replaceable Unit (FRU) to reduce downtime and support costs, and lead to higher availability.

General Description

Along with the sixteen PBCs, four FibreTimer digital Clock Recovery Units (CRUs) can be configured as Repeaters or Retimers. Repeaters, which attenuate jitter, are normally located at the input to the loop and retransmit recovered data synchronously to the recovered clock. Retimers, which eliminate jitter transfer, are normally located at the outputs of the loop and retransmit data synchronously to the reference clock in order to provide complete Fibre Channel jitter compliance at the output.

VSC7148 Block Diagram (When not using the I²C Interface)



Software

The VSC7148 is supported by an API within our enclosure management Software Development Kit (SDK). The SDK includes software to implement a FC transport and SES diagnostic environment. In addition, the SDK also includes a System Services module which provides APIs to the peripheral functionality (interrupts, timers etc.) in the Enclosure Management Controller. The System Services also includes driver libraries for popular I²C devices such as National's LM75, LM78, and many others.

For More Information:

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