VSC3303

8.5 Gbps 4 × 4 Crosspoint Switch

The VSC3303 is a 4-port 8.5 Gbps asynchronous switch with advanced signal equalization designed for high-speed serial backplanes and cable interconnect applications. VSC3303 switches have multicast and loopback capability for great flexibility in allocating and routing signals in a broad range of applications. The VSC3303 includes dual time-constant equalization, significantly reducing jitter associated with driving multigigabit signals across backplanes and cables.

Using a fully asynchronous architecture supports any data rate or protocol on any channel without the need for an external reference clock. This gives the VSC3303 wire-like interoperability in virtually any application that uses binary signaling.

The VSC3303 can also be used as a buffer that simplifies and enhances the design of high-speed signal paths by providing signal equalization at both inputs and outputs to reduce or reverse signal degradation due to transmission line effects. Featuring programmable input signal equalization and output pre-emphasis, each with multiple time constants, the VSC3303 is also ideal for countering signal degradation over a wide variety of transmission media types and lengths.

Typical power consumption for the device is 200 mW per active channel, and unused channels can be de-activated to save the power associated with those ports. The output drivers for the VSC3303 also feature a wide supply voltage range from 1.8 V to 3.3 V for flexibility in matching the output swing to the application requirements.

The VSC3303 has a loss of signal (LOS) detector with programmable thresholds on every input port. LOS forwarding can be enabled for each of the outputs, which will cause the outputs to be squelched in response to a LOS detect at the corresponding input, thereby propagating signal envelopes through the switch.

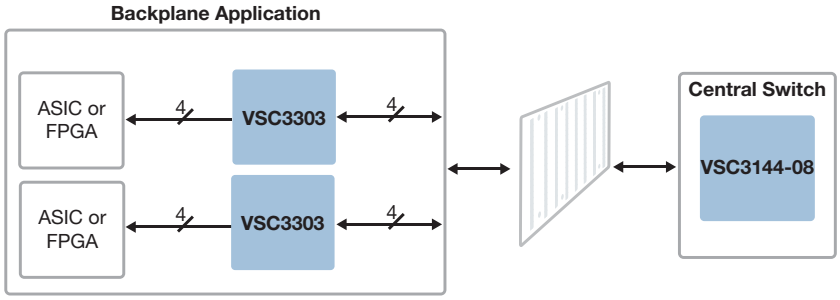
VSC3303 programming is through a standard two-wire serial interface. The interface address can be hardwired through static pins or through a proprietary two-pin interface that allows for address assignment after power-up.

Applications

- Wideband signal switching and clean-up
- Line driver or receiver
- Backplane signal fanout, driver, or receiver
- Copper cable
- PCB signal enhancement
- High-speed signal conditioner

Specifications

- 8.5 Gbps NRZ per-channel data rate
- 2.5 V core; 1.8 V, 2.5 V, and 3.3 V high-speed I/O



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Features

- 8.5 Gbps non-return-to-zero (NRZ) data bandwidth
- Fully non-blocking and multicasting switch core with per-pin signal inversion capability
- Multiple time-constant programmable input and output equalization
- Wide equalization adjustment range
- Fully asynchronous operation with <1 ns latency
- LOS detection and forwarding
- Small 7 mm × 7 mm BGA package with 1.0 mm pin pitch

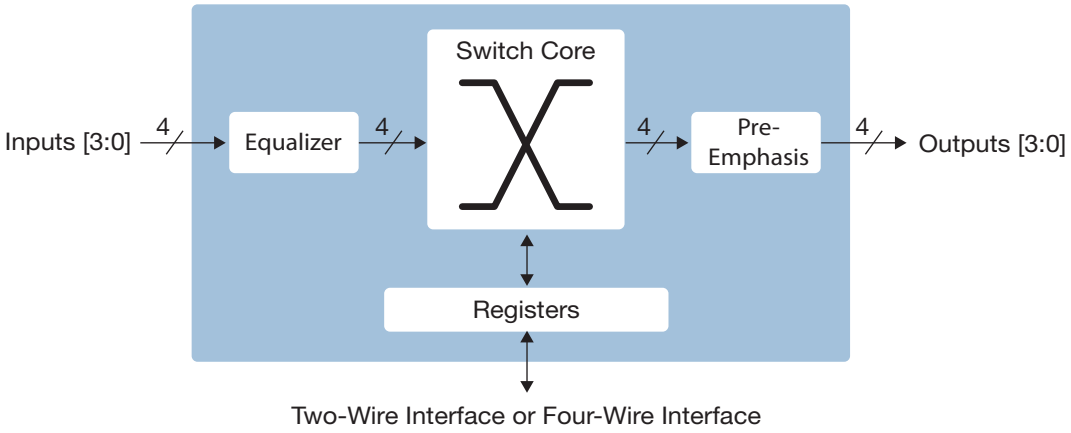
Benefits

- Transparent support for virtually all data rates and protocols
- Allows complete flexibility in routing and distributing signals
- Compensates for multiple impairments in a signal path
- Supports all types of interconnect media such as PCB, back-planes, and cable
- No adjustments based on data rate or reference clock required
- OOB forwardng for protocols such as SAS and SATA
- Convenient size and pin spacing for signal routing flexibility

Related Products

Visit www.microsemi.com for information about these related products:

- VSC3303: 8.5 Gbps 4 × 4 Crosspoint Switch
- VSC8238-03: 8.5 Gbps Transceiver with Equalization and Clock and Data Recovery
- VSC7344-01: 24-Port Ethernet MAC



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