VITESSE®

Making next-generation networks a reality.

VSC3172

6.5 Gbps 72 × 72 Asynchronous Crosspoint Switch

The VSC3172 is a 72 × 72 asynchronous crosspoint switch, designed to carry broadband data streams. The fully non-blocking switch core is programmed through a multimode port interface that allows random access programming of each input and output port.

A high degree of signal integrity is maintained throughout the device by fully differential signal paths. Programmable input EQ and output pre-emphasis settings enable maximum customization for the application.

Each data output can be programmed to connect to one of the inputs. The signal path is unregistered and fully asynchronous, so there are no restrictions on the phase, frequency, or signal pattern on any input.

Each high-speed output is a fully differential switched current driver with on-die terminations for maximum signal integrity. Its multimode programming interface allows commands to be sent as serial data or as multiplexed parallel data. Core programming can be sequential on a port-by-port basis, or multiple program assignments can be queued and issued simultaneously.

Unused channels may be powered down to allow efficient use of the switch in applications that require only a subset of the channels. Power-down is enabled in software by programming individual unused outputs with a power-down code.

APPLICATIONS

- Core and Metro transport
- Enterprise
- Blade servers
- High-speed automated test equipment
- Broadcast video systems
- Storage, Ethernet, and networking equipment

SPECIFICATIONS

- 6.5-Gbps NRZ per-channel data rate
- 2.5V power supply (2.5V or 3.3V program port power supply)
- 2.5V or 3.3V CMOS TTL-compatible I/O
- Differential CML I/O with integrated termination impedance
- 0 °C to 85 °C operating temperature range

Backplane Application:

Line Cards

OE

FPGA/ASIC

Backplane

Central Switch

V

VSC3172
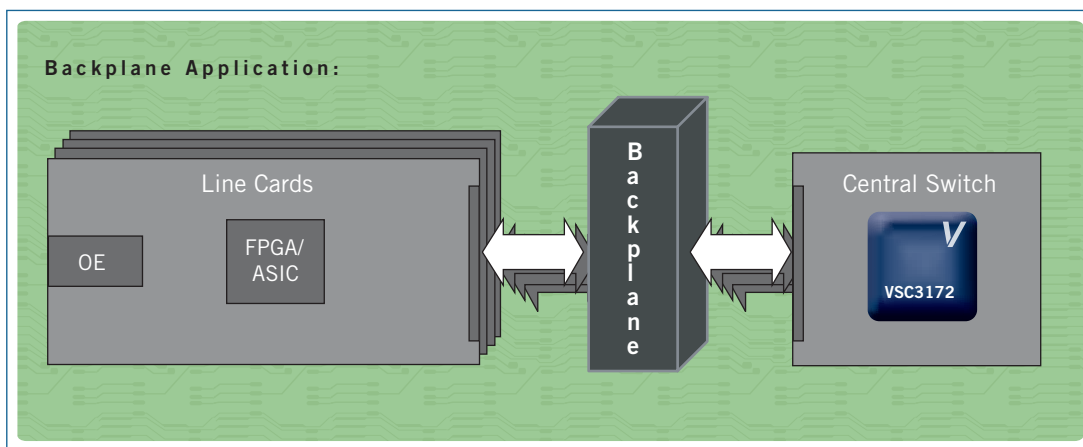
Features

- 6.5 Gbps 72 × 72 strictly non-blocking switch matrix with multicast and output striping programming modes
- Fourth-generation input signal equalization (ISE) with programmable control globally or on a per-channel basis
- Adjustable output pre-emphasis EQ
- Differential current mode logic (CML) data output driver
- Protocol-independent switching and data transmission
- 10-W typical power dissipation
- 33 mm × 33 mm, 1.27 mm pin pitch, 613-pin FCBGA package
- Parallel and serial programming modes for configuration and monitoring
- Software control to optimize power dissipation

VSC3172 Block Diagram:

Benefits

- 468 Gbps aggregate bandwidth in a single chip for high-density network storage, FC, blade server, and Ethernet systems
- Addresses system-level and board-level signal integrity (SI) and intersymbol interface (ISI) jitter issues
- EQ and drive flexibility for driving boards, cables, and circuit traces
- Convenient I/O flexibility for interfacing with multiple standards
- Can be used with latest storage, Ethernet, and networking standards
- Low 140 mW per-channel power dissipation
- Layout-friendly package and pinout for easier PCB design
- Programming and control convenience
- Controlled power reduction for unused ports
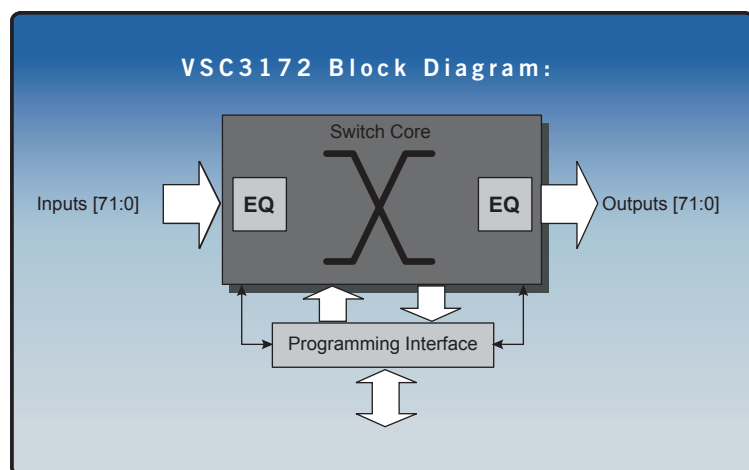
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Vitesse Semiconductor Corporation

741 Calle Plano • Camarillo, CA 93012 USA • Tel: +1.800.VITESSE • +1.805.388.3700 • Fax: +1.805.987.5896 • www.vitesse.com