



10.709 Gbps 144 × 144 Asynchronous Crosspoint Switch

The VSC3144-12 is a 10.709 Gbps 144 × 144 channel crosspoint switch delivering a breakthrough 1.542 Terabit per second (Tbps) switching capacity. The VSC3144-12 supports a wide frequency range encompassing virtually all data protocols, including Gigabit Ethernet (GbE), XAUI, Reduced XAUI (RXAUI), InfiniBand, and emerging services such as 8G Fibre Channel.

The fully nonblocking switch core of the VSC3144-12 device is programmed using a multimode port interface that allows random access programming of each I/O port. Each VSC3144-12 data output can be programmed to connect to any of its inputs. The signal path through the device uses no registers and is fully asynchronous. This means there are no restrictions on the phase, frequency, or signal pattern of any input.

A high degree of signal integrity is maintained throughout the VSC3144-12 device, because each high-speed output is a fully differential, switched-current driver with on-die terminations. Data inputs are terminated on-die using 100 Ω resistors between true and complement inputs, with a common connection to an internal bias source, which facilitates AC-coupling to the switch inputs.

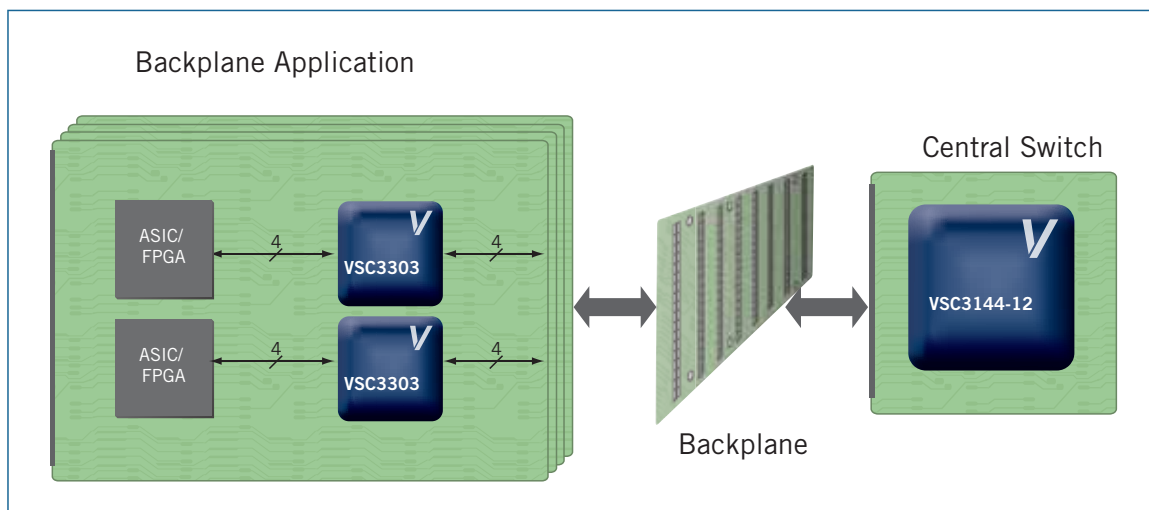
Core programming for the VSC3144-12 device can be sequential on a port-by-port basis, or multiple program assignments can be queued and issued simultaneously. The entire device can be initialized for straight-through, multicast, or other configurations. Unused channels can be powered down to allow efficient use of the switch in applications that require only a subset of the available I/O channels.

APPLICATIONS

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

SPECIFICATIONS

- 10.709 Gbps NRZ per-channel data rate
- 2.5V power supply, 3.3V power supply option for control port
- 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



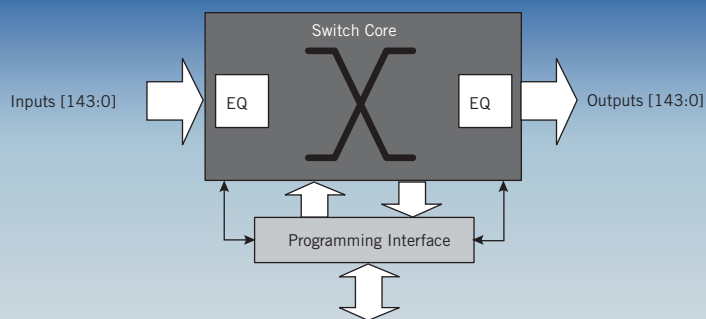
Features

- 10.709 Gbps 144 × 144 strictly non-blocking switch matrix with multicast and output striping programming modes
- 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
- 21 W typical power dissipation
- 45 mm × 45 mm, 1072-pin BGA package with 1.27 mm pin pitch
- Parallel and serial programming modes for configuration and monitoring
- Software control to optimize power dissipation

Benefits

- 1.542 Tbps aggregate bandwidth in a single chip for high-density network switching and video 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 per-channel power
- Layout-friendly package and pinout for easier PCB design
- Programming and control convenience
- Control and lower overall power when ports are not in use

VSC3144 Block Diagram:



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- VSC3308: 11.5 Gbps 8 × 8 Crosspoint Switch
- VSC3316: 11.5 Gbps 16 × 16 Asynchronous Crosspoint Switch and Signal Conditioner
- VSC7111: 11.5 Gbps Quad Signal Conditioner Mux/Demux
- VSC7344-01: 24-Port Ethernet MAC
- VSC8238-03: 8.5 Gbps Transceiver with Equalization and Clock and Data Recovery

