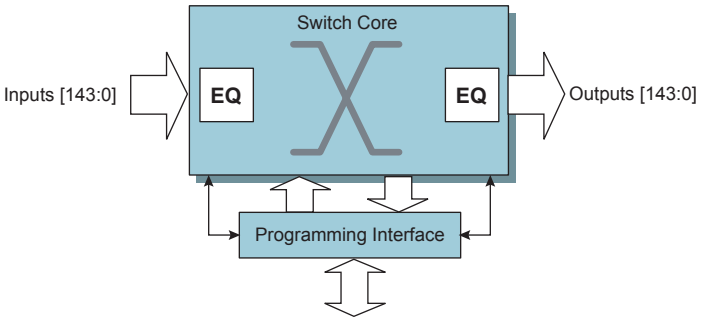
DATA INTERCONNECT

VSC3040

VITESSE®

11 Gbps 144 × 144 Asynchronous Crosspoint Switch

BLOCK DIAGRAM:



FEATURES:	BENEFITS:
11 Gbps 144 × 144 strictly nonblocking switch matrix with multicast and output striping programming modes	1.584 Tbps aggregate bandwidth in a single chip for high-density network switching and video systems
Input signal equalization (ISE) with programmable control globally or on a per-channel basis	Addresses system-level and board-level signal integrity (SI) and intersymbol interface (ISI) jitter issues
Adjustable output pre-emphasis EQ	EQ and drive flexibility for driving boards, backplanes, and circuit traces
Differential current mode logic (CML) data output driver	Convenient I/O flexibility for interfacing with multiple standards
Protocol-independent switching and data transmission	Can be used with latest storage, Ethernet, and networking standards
45 mm × 45 mm, 1.27 mm pin pitch, 1072-pin BGA package	Layout-friendly package and pinout for easier PCB design
Parallel and serial programming modes for configuration and monitoring	Programming and control convenience
Software control to optimize power dissipation	Control and lower overall power when ports are not in use

APPLICATIONS:

- High-definition digital broadcast video systems
- Multi-service provisioning platforms (MSPPs)
- Mixed TDM/packet switching systems
- High-speed storage, Ethernet, and networking equipment
- DWDM switching systems
- High-speed automated test equipment

VPPD-01627
Revision 1.0

VSC3040

11 Gbps 144 × 144 Asynchronous Crosspoint Switch

GENERAL DESCRIPTION:

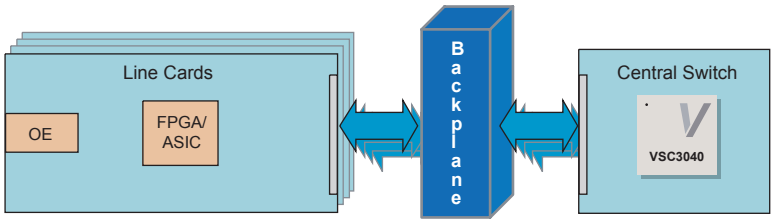
The VSC3040 device is an asynchronous crosspoint switch designed to carry broadband data streams in a variety of storage, video, and networking equiqment applications. Combining the 11 Gbps per port bandwidth and 144 × 144 switch matrix enables a breakthrough 1.5 Tbps capacity in a single device.

The VSC3040 fully non-blocking switch core is programmed using a multimode port interface that allows random access programming of each I/O port. Each VSC3040 data output can be programmed to connect to any of its inputs. The signal path through the device is fully asynchronous, eliminating restrictions on the phase, frequency, or signal pattern of any input.

The VSC3040 also integrates the Vitesse best-in-class signal integrity and EQ technology. A high degree of signal integrity is maintained throughout the 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 VSC3040 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. Power-down is enabled in the software by programming individual unused outputs with a power-down code.

BACKPLANE APPLICATION:



SPECIFICATIONS:

- 11 Gbps NRZ per-channel data rate
- 2.5 V power supply (2.5 V or 3.3 V program port power supply)
- 2.5 V or 3.3 V CMOS TTL-compatible I/O
- Differential CML I/O with integrated termination impedance

Trademarks ™
Vitesse, ASIC-Friendly, FibreTimer, TimeStream, Snoop Loop, Super FEC, FOCUSConnect, Meigs-II, Meigs-IIe, Lansing, Campbell-I, Barrington, PaceMaker, HOVCAT48, HOVCAT48e, HOVCAT192, HOVCAT192e, Micro PHY, FOCUS32, FOCUS16, IQ2200, NexSAS, VersaCAT, GigaStream, HawX, SparX, StaX, VstaX, SimpliPHY,VeriPHY, ActiPHY, XFP PRO, SFP PRO, Smart-LINK, OctalMAC, EQ Technology are trademarks in the United States and/or other jurisdictions of Vitesse Semiconductor Corporation. All other trademarks or registered trademarks mentioned herein are the property of their respective holders.

Copyright © 2006
Vitesse Semiconductor Corporation (“Vitesse”) retains the right to make changes to its products or specifications to improve performance, reliability or manufacturability. All information in this document, including descriptions of features, functions, performance, technical specifications and availability, is subject to change without notice at any time. While the information furnished herein is held to be accurate and reliable, no responsibility will be assumed by Vitesse for its use. Furthermore, the information contained herein does not convey to the purchaser of microelectronic devices any license under the patent right of any manufacturer.

741 Calle Plano
Camarillo, CA 93012, USA
Tel: +1 805.388.3700
Fax: +1 805.987.5896
www.vitesse.com
sales@vitesse.com