VSC2708 FOCUS Connect Multi-IQ2000 Switch

Product Brief

Network Processor Family

Overview / Features:

- 8 FOCUS16 Interfaces each supporting 1.6 Gb/s full duplex bandwidth
- Four priority levels per data packet
- Multi-channel bus operating up to 100 MHz
- 1024 separate Multicast distribution trees
- Supports flexible clock modes for ease of integration with FPGAs

Benefits:

- Facilitates connection of multiple NPUs in the IQ2000™ Architecture
- Scalable to larger port densities using multi-level stacking or grouping
- Optimized Multicast support for efficient bandwidth utilization
- Flexible Interface for Third-Party Interconnections

Enabling Scalability in Next Generation NPU Architectures

The VSC2708 FOCUS Connect facilitates the connection of multiple IQ2000™ Network Processors. FOCUS Connect implements an easy to use self-routing switch among eight FOCUS16 ports, with full support for multicast and other advanced features.

The multi-port capability of FOCUS Connect makes the device an ideal solution for high-port density applications using multiple IQ2000 NPUs. The flexibility of FOCUS Connect allows designers to easily stack multiple devices, enabling the design of larger capacity IQ2000 switching networks.

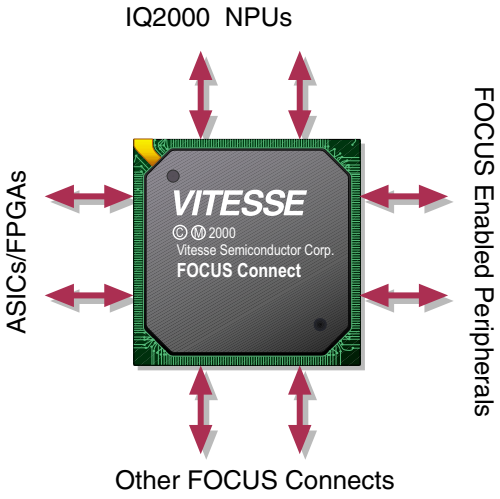
A single FOCUS Connect can connect eight NPUs with over 1 Gb/s of full duplex bandwidth for each, or four NPUs with over 2 Gb/s of full duplex bandwidth. Two FOCUS Connect parts may be used to connect eight IQ2000 chips with over 2 Gb/s of bandwidth each.

Applications

- High Port Density Line Cards
- FOCUS Extensions
- Small Fabrics

FOCUS16

The FOCUS Interface is a high performance point-to-point interface designed to efficiently transfer packet data between Vitesse's IQ2000 family of network processors and peripheral I/O interface devices or interconnect fabrics. In addition to data transfer, the FOCUS Interface supports in band access to statistics as well as command and status information.



Functionality

The FOCUS Connect is self-routing. Each Fcell that is sent into the chip contains all of the information necessary to control its routing. Each packet sent to a FOCUS Connect is supplied with a Priority Route Vector to determine the packet's priority, route type, and path.

Data flows between FOCUS Connect and peripheral devices take place on a set of eight channels, thus allowing multiple packets to be in transit at any point in time.

To enable efficient data transfer, FOCUS Connect can be configured to support up to 1024 Multi-cast table entries, thus minimizing redundant data transmissions internally.

The architecture and flexibility of FOCUS Connect allows a variety of line card configurations to be built. Using various numbers of FOCUS Connects and NPUs as building blocks, designers can build multi-port 10/100/1000 Ethernet and STS-1/STS-3/STS-12 linecards.

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IQ2000™ Platform Products:

IQ2000 Family:

- VSC2100 - 4 FOCUS16s
- VSC2102 - 2 FOCUS16s & 2 Gigabit MACs
- VSC2132 - 2 FOCUS32s

Each NPU Features:

- Four integrated 200MHz, fully programmable, multicontext packet processing engines
- Flexible, High Bandwidth Interface Capability (DS-0 to OC-48)

Connectivity Family:

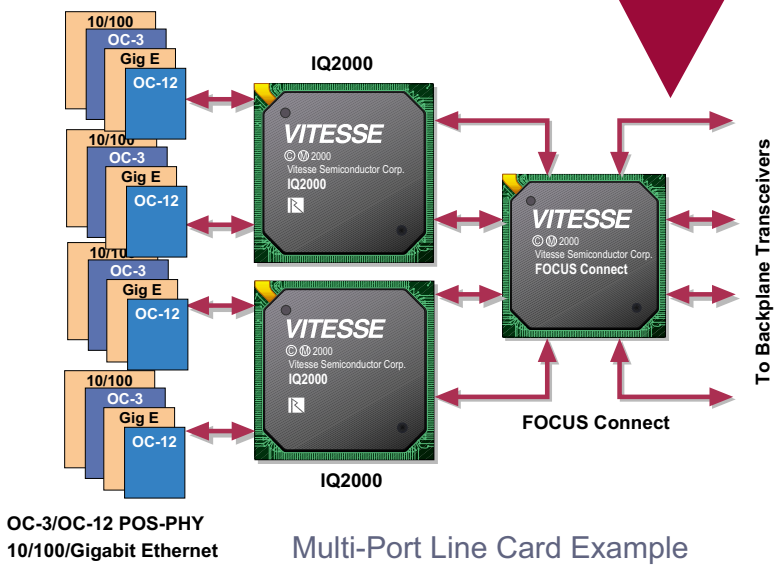
- VSC2800 - Fast Ethernet Controller
- VSC2708 - FOCUS Connect Switch

Developers Workbench:

- Software Development Suite
- Hardware Development System
- Application Code Building Blocks
- Interface Models
- SoftNet Networking Software Library

Alliance Partners & Solutions:

- Traffic Management
- Security Processors
- Policy Engines
- Switching Fabrics
- Optical Connectivity
- Network Software
- Consulting Services



Multi-Port Line Card Example

Specifications:

FOCUS16 Interface

- 16 bit 100Mhz bus
- 1.6 Gbps full duplex per port
- 8 Data channels and one control channel per interface
- 36 pin interface

Self Routing

- Output channel and port
- Priority
- Unicast/Multicast

High Priority In-Band Control Channel

- Configuration, status, statistics
- NPU to NPU control messaging
- Multicast table updates

Configurable Output Arbitration

- Low Latency
- Fair Queuing
- Bandwidth Allocation

Multi-cast Packet Flow

- 1024 Multicast IDs
- IDs shared among input resources
- Echo Avoidance

Environmental

- 2.5V core, 3.3V I/O
- 3.6 W
- 456 pin BGA (35mm)
- 0°- 70° Celsius operating temp.

Applications:

- High port density applications
  - OC-3 to OC-12 ATM/PoS PHY
  - 10/100/1000 Ethernet
  - Channelized OC-3 to OC-12
- Standalone or Modular Systems
  - Intelligent Edge Devices
  - Core Switches and Routers
  - Packet/Voice Gateways
  - Optical Transport Systems

Ordering Information:

Part Number	Description
VSC2708	8 port FOCUS16 Multi-IQ2000 Switch

For more information on Vitesse Products visit the Vitesse web site at www.vitesse.com or contact Vitesse Sales at (800) VITESSE or sales@vitesse.com

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