32-Port Fibre Channel FPGA Switch
FPGA-based 1/2/4G FC Network Switch

Benefits

High port-density FPGA-based network appliance for custom switching applications and line-rate packet processing

1/2/4G Fibre Channel out-of-the-box

Ultra-low latency and high-bandwidth performance

Cost-effective COTS hardware with equivalent aircraft capabilities

Programmable port configuration increases density and flexibility, enabling consolidation of multiple aircraft switches into one device

Applications

Avionics mission-system networks testing

Emulate aircraft switch in system integration and development labs

Port-dense prototyping and emulation

Features

Thirty-Two (32) SFP ports

Xilinx® Kintex® UltraScale® FPGA (KU095)

Xilinx® Virtex® UltraScale®+ FPGA (VU9P)

Network time synchronization and distribution

Configurable port IDs and traffic routing

- E_PORTs interconnect multiple switches for easy scalability
- 1:N and N:1 Port routing/replication/aggregation

System Software/Firmware Update and Restore

RESTful API for integration into automated test frameworks

Redundant power supplies mitigate power failure/surge risks

Overview

The 32-Port Fibre Channel FPGA Switch is a high port-density, completely FPGA-based network switch built for special purpose avionics switching applications. This switch is based on the next generation of New Wave DV's programmable networking hardware.

The 32-Port Fibre Channel FPGA Switch is powered by the latest Xilinx® Virtex® UltraScale®+ FPGA technology. Purpose-built for processing network data in real time, the switch has been optimized to provide the lowest possible latency and the highest possible performance. This provides a port-dense, cost-effective method to implement avionics missions-system networks in development and integration environments.

FPGA Switch Capabilities

Port Replication - Replicate Fibre Channel traffic from any port to any (or all) other ports on the switch. Traffic rules can be added for selective replication.

Fibre Channel Layer 2 Implicit Switch - Fibre Channel Layer 2 switch for Implicit networks. Switch does not require any fabric login for operation. Meets the Fibre Channel Switch requirements of the F35 network.

Fibre Channel Layer 2 Explicit Switch - Fibre Channel Layer 2 switch for Explicit networks. Switch handles explicit fabric login operation. Meets the Fibre Channel Switch requirements of the F15/F18 networks.

Programmable Port Configuration - Web Interface and RESTful API enable switch configuration of line-rate, IDs, log-in capabilities, and packet routing. Monitor status of link state and configuration, error/frame/word statistics.
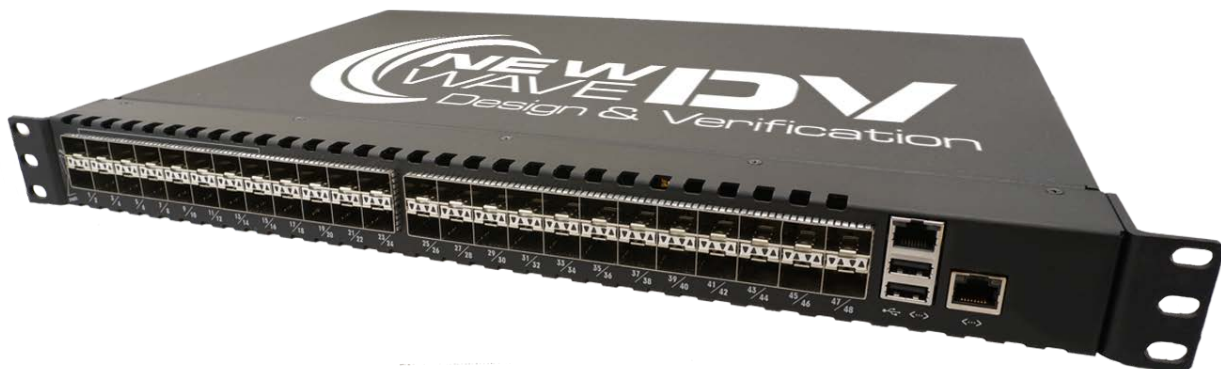
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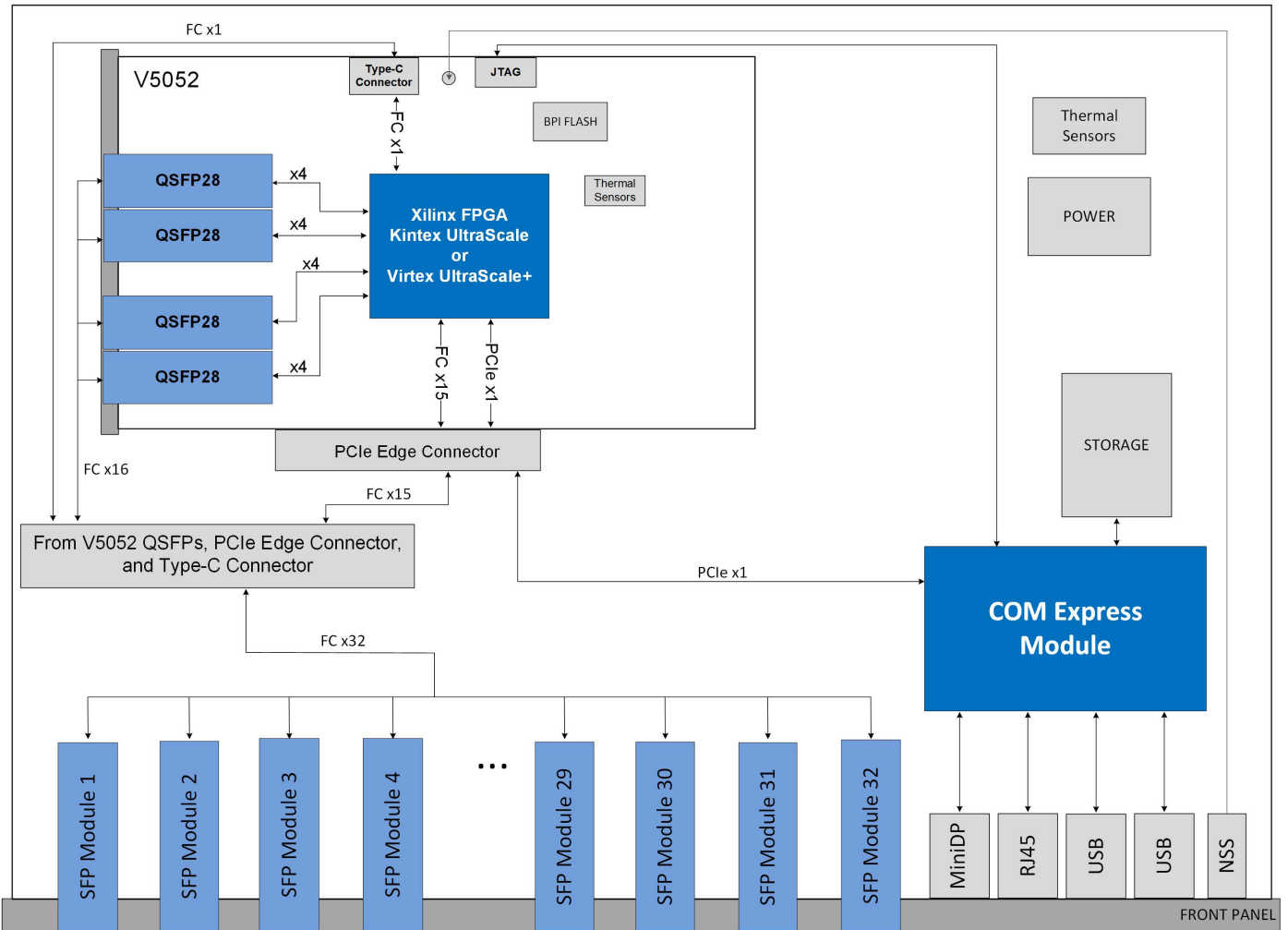
32-Port Fibre Channel FPGA Switch

> 32-Port Fibre Channel FPGA Switch Block Diagram

RESTful API for Configuration/Status

The 32-Port Fibre Channel FPGA Switch features the RESTful API, offering users several benefits. It simplifies switch management by providing a standardized and intuitive way to configure settings, monitor performance, and retrieve network information. The programmability and customization of the RESTful API also facilitates the development of tailored applications to automate workflows, saving you time and reducing errors.

Overall, utilization of the RESTful API in tandem with the 32-Port Fibre Channel FPGA Switch delivers customers efficient scalability and flexibility to customize network operations.

Operation Customization

The 32-Port Fibre Channel FPGA Switch is an FPGA-based network appliance that can be customized to fit your requirements. New Wave DV can tailor the existing core for use with your specific platform. Further, the existing core can be targeted to alternate hardware form factors, for example, a New Wave DV XMC with fewer ports.

Similarly, New Wave DV can develop switch applications on this hardware for other non-Fibre Channel protocols. No matter your specific networking requirements, New Wave DV can help you accomplish your goals.

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## Complete Product Support Program

Our customers can attest to our exceptional support. New Wave DV provides an industry-standard warranty on its products, but it is the human factor that makes our support so valuable to our customers. Our team takes the time and effort to ensure a positive customer experience.

Our Commitment

New Wave DV is committed to providing the latest innovations in technology, architectures, and techniques to keep our customers one step ahead of the rest. Our products, complete with the Development Framework, are intended to offer our customers an entirely unique out-of-the-box experience.

Alternate Form Factors

The New Wave DV Fibre Channel Switch IP Core is FPGA-based and can be re-targeted to alternate form factors for use in a variety of mission-critical applications. Whether you need its capabilities in XMC or other form factors such as VPX, PCIe, PXIe, or others, we're happy to help accommodate your needs and provide you with the solution best suited for your success.
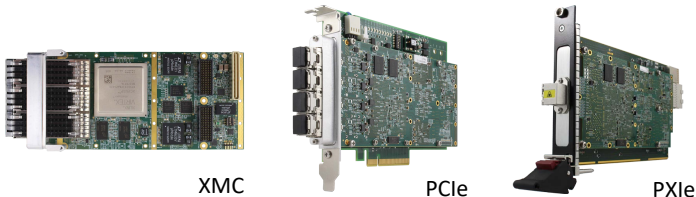
XMC   PCIe   PXIe

Ordering Information

500-05052-71-17: 32 Port 1U Fibre Channel Switch with V5052 PCIe card, Xilinx UltraScale™ KU115

500-05052-72-77: 32 Port 1U Fibre Channel Switch with V5052 PCIe card, Xilinx UltraScale™ VU9P

Other product configurations are available. Please contact us.

Technical Specifications

NETWORK INTERFACE
Thirty-Two SFP optical ports

FIBRE CHANNEL PROTOCOLS
FC-AE-RDMA/HSDN, FC-AV/HSVN, FC-AE-ASM

FPGA DEVICE
Xilinx® Kintex® UltraScale™ FPGA (KU115)
Xilinx® Virtex® UltraScale™+ FPGA (VU9P)

EXTERNAL INTERFACE
Console access via RJ45, USB, & MiniDP
NSS - Interface for time synchronization with μsecond resolution

COMPLIANCE
FC-FS-3 INCITS 470-2011

PHYSICAL CHARACTERISTICS
1U Rackmount Form Factor

DIMENSIONS
16.9" × 1.71" × 12"

POWER REQUIREMENTS
Maximum 150W

TEMPERATURE
Operating: 0 to 45°C
Storage: -40°C to 85°C