

32-Port Programmable Switch

FPGA-based Network Switch

Benefits

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

1/10G Ethernet and 1/2/4/8/16G Fibre Channel out-of-the-box

Ultra-low latency and high-bandwidth performance

Programmable FPGA with a powerful development framework

Wide range of FPGA sizes and memory configuration options

Applications

Avionics network testing

In-line packet monitoring

Network protocol bridging

On-switch application execution

Security algorithm implementation

Features

Thirty-Two SFP28 ports

Xilinx Virtex UltraScale+ FPGA (VU5P to VU11P)

PPS time synchronization with nSec resolution

Thermal sensors for monitoring card temperature

Robust FPGA development framework

Overview

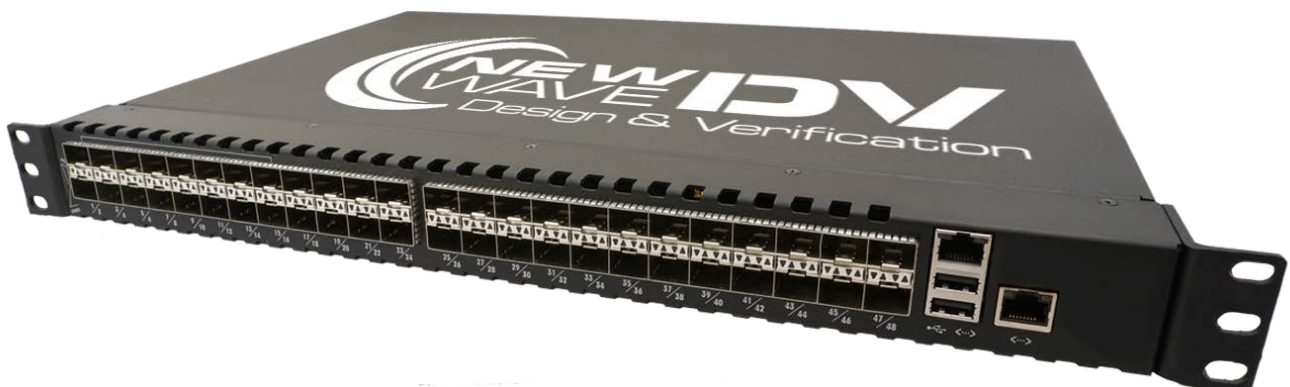
The Programmable Switch is a high port-density completely FPGA-based network switch built for special purpose switching, bridging, and monitoring applications. The Programmable Switch is based on the next generation of New Wave DV's programmable networking hardware.

The Programmable Switch is powered by the latest Xilinx Virtex UltraScale+ FPGA technology. Purpose-built for processing network data in real time, the Programmable Switch has been optimized to provide the lowest possible latency and the highest possible performance. This makes it ideal for executing sophisticated algorithms, processing streaming data, and running a wide range of functions as close as possible to the network.

Optional FPGA Switch Cores

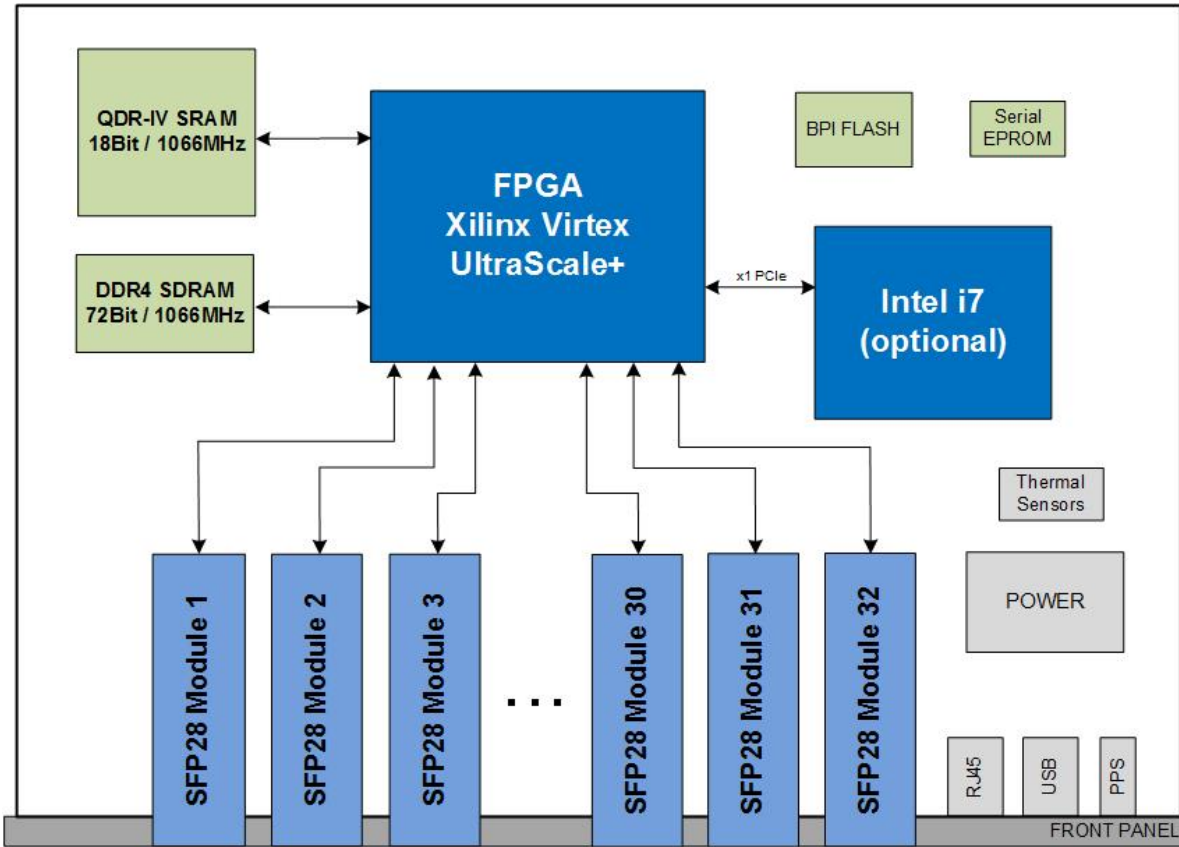
Port Replication - Replicate Ethernet/Fibre Channel traffic from any port to any (or all) other ports on the switch. Traffic rules can be added for selective replication.

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.



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> Programmable Switch Block Diagram

Simplified Programmability Framework

The Programmable Switch ships with the Development Framework, a fully integrated and flexible toolset that provides the infrastructure necessary to ensure rapid deployment of applications. The framework abstracts the details of Ethernet/Fibre Channel protocols and interfaces, memory controllers and host fabric interfaces, thereby reducing the development effort and schedule for designers to implement custom solutions.

Operation Customization

The Programmable Switch is an FPGA-based network appliance that can be customized to fit your requirements. New Wave provides access to the FPGA for customers to customize, however New Wave can also modify existing cores or develop new cores for your applications. If you have specific networking requirements, New Wave 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.

Ordering Information

550-05052-05-00: 32 Port 1U Programmable Switch, Xilinx UltraScale+ VU9P, 18GB 72-Bit DDR4 SDRAM, 144Mbit QDR-IV SRAM

Other product configurations are available. Please contact us.

Technical Specifications

NETWORK INTERFACE

Thirty-Two SFP28 optical ports

ETHERNET PROTOCOLS

TCP, UDP, ARP, ICMP, Multicast, Broadcast

FIBRE CHANNEL PROTOCOLS

RDMA, AV, ASM

FPGA DEVICE

Xilinx Virtex UltraScale+ (VU5P to VU11P)
Xilinx Virtex UltraScale (VU080 to VU190)
Xilinx Kintex UltraScale (KU095 to KU115)

MEMORY

One bank of 4GB to 16GB 72-bit up to 1066MHz DDR SDRAM
One bank of 36Mbit to 144Mbit 18-bit 1066MHz QDR-IV SRAM

FLASH

One 32MB memory for storing a default configuration image

HOST PROCESSOR INTERFACE

PCI Express Gen3 x1

EXTERNAL INTERFACE

PPS Interface for time synchronization with μ second resolution
RS-232 serial interface for debug

THERMAL SENSORS

2 digital temperature sensors

COMPLIANCE

IEEE 802.3ae 2002
IEEE 802.3ba 2010
FC-FS-3 INCITS 470-2011
FCC 47 CFR Part 15, Subpart B, Class A (USA) IEC
60950-1 (International) RoHS Directive 2002/95EC

POWER REQUIREMENTS

Maximum 75W (preliminary)

TEMPERATURE

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

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