

# V5051

## Quad-Port PCI Express FPGA Card

### Benefits

High-density FPGA PCIe Card for next generation data distribution, processing, and networking systems

Supports 1/10/25/40/100G Ethernet, 1/2/4/8/16/32G Fibre Channel, 1/2/2.5/10G sFPDP, ARINC 818-2

Out-of-the-box ultra-low latency and high-bandwidth performance

Programmable FPGA with a powerful development framework

Next-generation host interface connection bandwidths

Wide range of FPGA sizes and memory configuration options

### Features

Four SFP28 ports accommodate:

- 4x 25G Ethernet
- 1x 40/100G Ethernet
- 4x 10G Ethernet
- 4x 1G Ethernet
- 4x 1/2/4/8/16/32G Fibre Channel
- 4x 1/2/2.5/10G sFPDP
- 4x ARINC 818-2

Xilinx Virtex UltraScale+ FPGA (VU9P)

Supports PCIe Gen3 x 16 and Gen4 x 8

PPS time synchronization with nSec resolution

Thermal sensors for monitoring card temperature

Robust FPGA development framework

Advanced APIs that support multi-core and multi-processor architectures

Optimized Linux drivers and libraries

### Overview

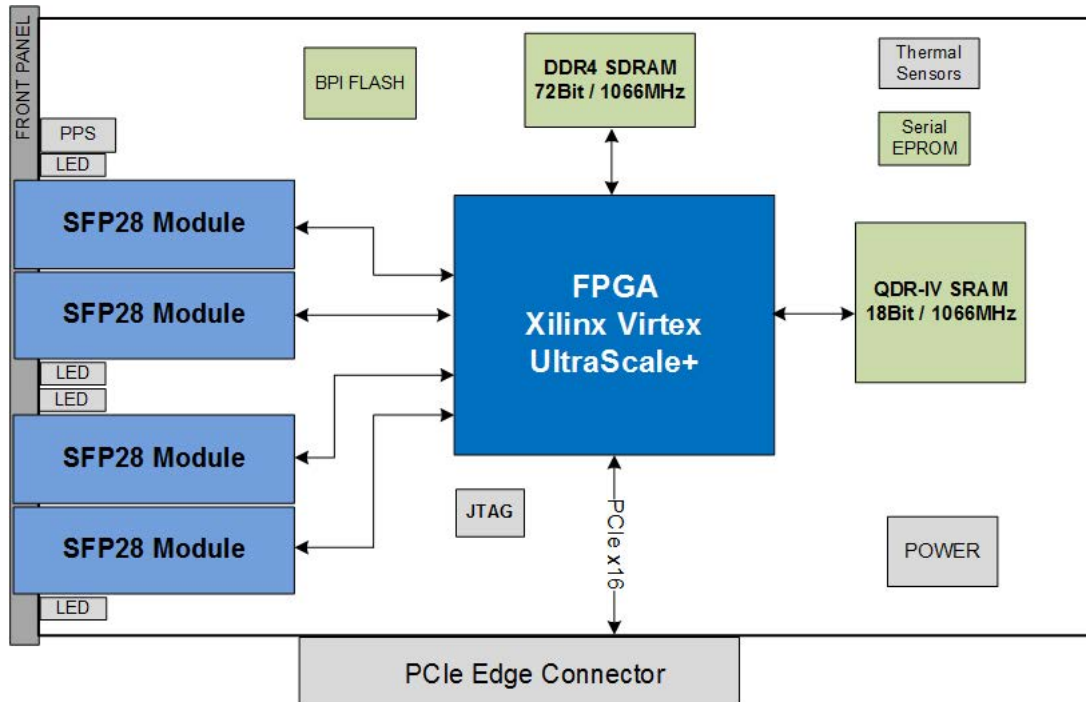
The V5051 is the next generation of New Wave DV's flagship programmable network products and the industry's highest performance FPGA network card in production today. It is powered by the latest Xilinx Virtex UltraScale+ FPGA technology. Purpose-built for processing network data in real-time, the V5051 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.

To meet priority deadlines for rolling out new products, the Development Framework provides the standard toolset and debug capabilities required to create applications on the V5051 PCI Express FPGA card quickly.



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> V5051 Block Diagram

### Simplified Programmability Framework

The V5051 can optionally ship with a Development Framework, a fully-integrated and flexible toolset that provides the infrastructure necessary to ensure rapid deployment of custom applications. The framework abstracts the details of the protocol and interfaces, memory controllers and host fabric interfaces, thereby reducing the development effort and schedule for designers to implement custom solutions.

### Multi-processor Multi-core Support

The V5051 is uniquely suited to system architectures involving multiple processing cards on a common switched data plane. Specifically, the V5051 supports shared access from multiple host processors, enabling it to function as a cost-effective, high-performance gateway. This feature enables a single high-speed pipe to carry multiple virtual channels in systems that need to spread or load balance sensor data across processor farms.

### Optional Protocol Engines

The V5051 is an extremely flexible FPGA-based interface card. The card features all of the necessary hardware, FPGA IP cores, plus software drivers to support Ethernet, Fibre Channel, sFPDP, and ARINC 818. New Wave also offers options for custom high-speed serial protocols or user-developed IP cores.

### Operation Customization

The V5051 is an FPGA-based network card 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.

