

# V5022

## Quad Channel 10 Gigabit Ethernet FPGA PCI Express Card

### Features

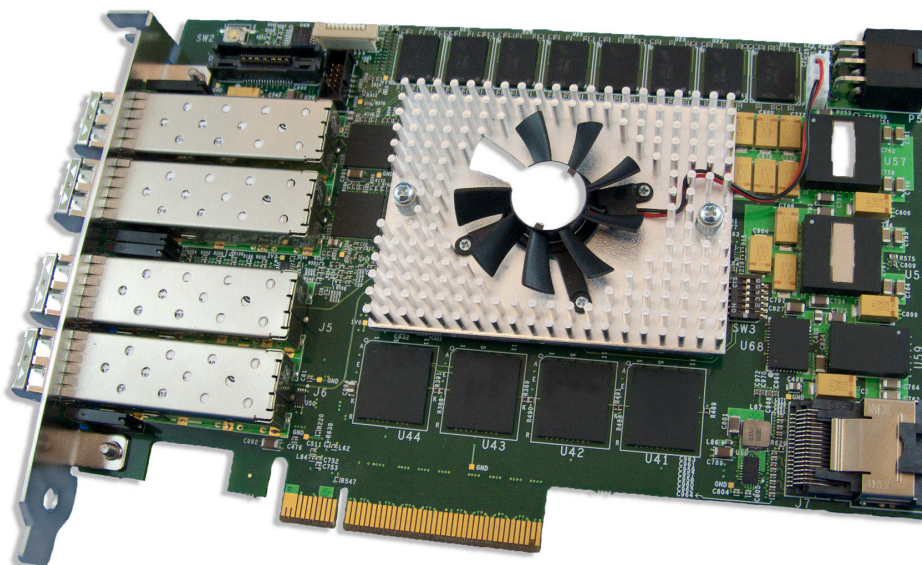
- Quad 10 Gigabit Ethernet SFP+ optical ports
- Xilinx Virtex-6 XC6VHX380T or XC6VHX565T FPGA
- Two independent banks of up to 4GB DDR3 SDRAM
- Four independent banks of up to 144Mbit QDRII+ SDRAM
- PCI Express x8 host interface (Gen 1 and Gen 2)
- System monitor feature enabled
- Dual boot image with fallback multi- boot feature
- Mini SAS tranceiver interface for intracard communication
- RS-232 interface for application debugging
- PPS interface for time synchronization with  $\mu$ Sec resolution

### Overview

High Frequency Trading firms and exchanges require high-performance and ultra-low latency programmable network cards in order to accelerate trades in under 2 microseconds. The V5022, a quad channel 10 Gigabit Ethernet Virtex-6 PCI Express card, doubles port density and reduces latency by more than 50 percent when compared to other technologies on the market. It provides the advanced features and performance needed to gain a competitive edge in the marketplace.

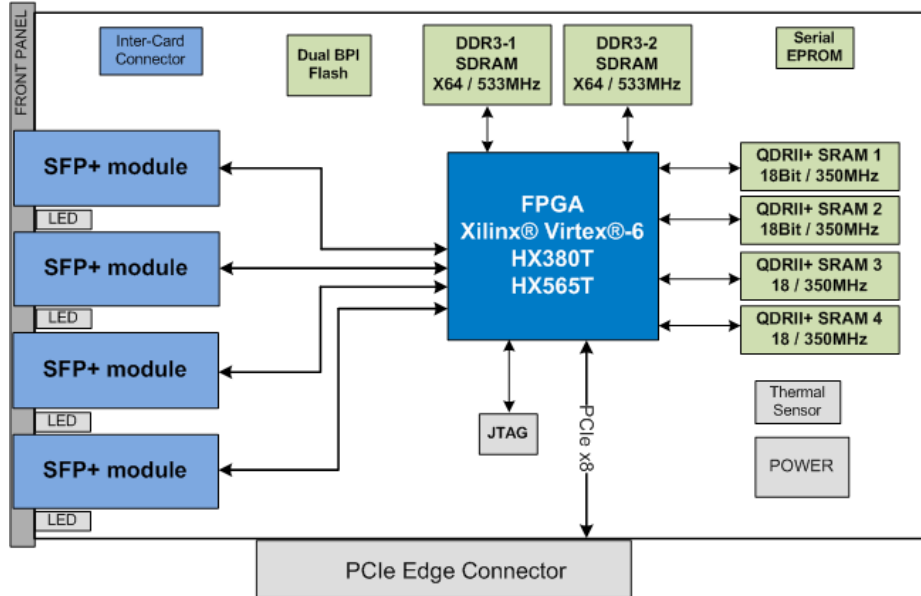
### Benefits

- Enables a new generation of High Speed Trading systems
- Provides ultra-low latency interface to 10 Gigabit Ethernet networks
- Provides reliable performance in real time



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> V5022 Quad Channel 10GbE PCI Express Card Architecture

### Functional Description

The V5022 is built with purpose for processing high-bandwidth network traffic in real time. As a build option, it supports the HX380T and HX565T from Xilinx offering customers some key benefits, including very high number of logic gates and reliable communications. The two independent DDR3 SDRAM memory interfaces provide adequate buffering to sustain traffic over 10 Gigabit Ethernet networks. In addition, the four independent QDRII+ SRAM memory interfaces make the architecture ideal for implementing advanced algorithms that require buffering or fast look-up tables. Another key feature is the ability to connect cards using a high-speed serial interface to allow direct communication between cards in the system without host intervention. The front panel has four 10 Gigabit Ethernet SFP+ optical ports that support both short range and long range fiber.

The V5022 product is shipping with expressXG, New Wave DV's flexible FPGA development framework, to allow fast application development so customers can roll out new trading services on the market quickly. New Wave DV ensures extreme reliability that gives customers confidence to deploy their product in critical applications. Like other products in the same family, the V5022 is compatible with several high-performance servers from leading OEMs, such as HP ProLiant DL380 Generation 6. This single slot solution allows customers to maximize the number of cards per server, resulting in a smaller server footprint.

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### Technical Specifications

#### NETWORK INTERFACE

Quad 10 Gigabit Ethernet SFP+ optical ports, supporting MMF 850nm (10GBASE-SR) or SMF 1310nm (10GBASE-LR)

#### FPGA DEVICE

Xilinx Virtex-6 XC6VHX380T or XC6VHX565T

#### MEMORY

2 banks of 1GB to 4GB 64-bit 533MHz DDR3 SDRAM  
4 banks of 36Mbit to 144Mbit 18-bit 350MHz QDRII+ SRAM

#### HOST INTERFACE

PCI Express x8 supporting 2.5 or 5.0 GT/s

#### EXTERNAL INTERFACE

Mini SAS transceiver interface for intercard communication  
PPS Interface for time synchronization with  $\mu$ Sec resolution  
RS-232 serial interface for debug

#### SYSTEM REQUIREMENTS

X86 64-bit processor 2GHz or better, 1GB RAM, 1GB disk space  
Free PCI Express x8 or x16 slot

#### COMPLIANCE

PCI Express Card Electromechanical Specification, Rev 2.0  
IEEE 802.3ae 2002 10GBASE LAN  
FCC 47 CFR Part 15, Subpart B, Class A (USA)  
IEC 60950-1 (International)  
RoHS Directive 2002/95EC

#### DIMENSIONS

111.15 mm x 167.65 mm (standard height, half-length)

#### TEMPERATURE

Operating: 0 to 50° C  
Storage: -40° C to 85° C

### 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 expressXG Development Framework, are intended to offer our customers an entirely unique out-of-the-box experience.

#### FOR MORE INFORMATION:

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