



**ACCELERATED
Ultra Low Latency
FIELD PROGRAMMABLE**

2-port, 10/40 Gigabit Ethernet
PCI-Express x8 FPGA card
(Options for 4-16 ports)

LeWiz's iTrade™ family of network interface cards (NIC) designed specifically for ultra low latency applications. The cards are targeted for use in financial trading systems on the trader side, exchange or trade service providers. The card can be programmed with FPGA firmware for trade execution, market data processing, risk compliance check, feed handler, and others. Low latency, high frequency traders, proprietary traders, bankers, brokerage or investment funds would benefit from LeWiz iTrade™ NIC products – taking advantage of the nano-second level latency.

Users can implement their own custom application logic or use the card as is with LeWiz provided applications. The card can be plugged into standard PC system PCI-express slot and perform financial trading applications. It contains flexible Ethernet interface for 1 to 16 10G connections with no external PHY device. The FPGA on board can be ordered with chips of up to more than 1 million logic elements using Altera Stratix V devices, and high speed memory of DDR3, QDR II+, low latency DRAM.

LeWiz provides a full range of IP cores for use in different financial applications, applicable for different exchanges from NASDAQ™, NYSE™, CME™, to international exchanges such as Eurex™, Bovespa™, ASX™, Shanghai. LeWiz supports complex trading protocols such as FIX™, FTD, TCP/IP, or users can trade at super speed using user defined trading protocol. In addition, LeWiz provides IP cores for:

- PCI-express Hardware and Software framework - ultra low latency, kernel by-pass, deterministic
- Ultra low latency 10G MAC
- Multi session, small foot print, zero software assist, Ultra low latency TCP/IP offload engine
- Multi session, small foot print, zero software assist, Ultra low latency UDP/IP offload engine
- NIC Network Protocol library (ARP, PING, IGMP, etc)
- Hash algorithm, Table look up
- Filters based on strings or binary
- Pattern Matching Engine – string or binary
- Timestamping, Statistic tracking
- Super Send Engine – protocol agnostic
- Packet generator – full wire rate, programmable inter-packet gap

The IP cores can be used with standard FPGA tools such as Altera's Quartus tool, Verilog/VHDL simulator.

User application interfaces with LeWiz hardware directly using LeWiz hardware API's and socket. The iTrade6500™ card comes with loadable device drivers for **Linux** (Fedora Core, CentOS, RedHat, SUSE) operating systems. Developed for plug-n-play, no need for the users to recompile the driver or patching the kernel. Full debug support is included, fully accessible at user level with easy to use utilities.

See LeWiz's iTrade, Talon, iDefend, iGuard and iStream NIC PCI-express products at: www.LeWiz.com

Detailed Specifications:

Product part number	
iTrade6501-SR	1x10Gbps SR fiber optic
iTrade6502-SR	2x10Gbps SR fiber optic
iTrade6502-LR	2x10Gbps LR fiber optic
	4-16 ports also available
	Options for 2, 4x40Gbps
FPGA Options:	Stratix V A5, A7, AB
System interface	
Compliant PCI-Express Base Specification 2.0	Option for PCIe 3.0
8 lanes PCI-express (PCI-E)	8 lane PCI-E physical but also works in with x8 or x16 connectors
Supports PCI-E advanced error logging	
Supports ECRC checking and generation	Enhance data integrity, system reliability
128Mbyte on board flash	Useful for OEMs requiring customized configurable product information
Options for: High speed, low latency memories	>8GByte of DDR3 DRAM, 108MByte QDR II memory 125MByte of RLDRAM
Software support	
Loadable driver for Linux	No need to recompile the driver or the OS
User level utilities	Easy to use for configuration or debug interface
Redhat Linux ES	64 and 32 bit version
Novell SuSE LES 10	64 and 32 bit version
Fedora Core CentOS	64 and 32 bit version
A variety of kernel/OS are supported	
Option for Windows OS	

External network interfaces	
2, 10Gbps Ethernet ports per board	Option for 4, 8, or 16 10G Ethernet or 2x40G ports
SR/LR Fiber optic	
10GBase-SR fiber optic	300m, 850nm multi-mode
10GBase-LR fiber optic	10Km, 1310nm single mode
Copper	3 meters+
Physical board size	
Length x Width (per ordering)	6.6 x 2.535 inches (low profile) 6.6 x 4.2 inches (short length)
Operating spec	
Uses standard voltages from PCI-express connector	12V, 3.3V
Operating temperature	0 – 55°C
Operating humidity	85% at +55°C
Recommended system requirements	
(The following is the minimum recommended system requirement. The board can work in many different environments including the configuration specified below. This is not a required environment for the board to function.)	
x86 or other CPUs with 1GHz speed, 32-bit or better	For example: Xeon, Opteron, others
1GByte of system memory	x8 PCI-express slot or better

Information in this document is provided solely to enable system implementers to use LeWiz products. There are no express or implied copyright or patent licenses granted hereunder based on the information in this document. These information are preliminary and subject to change without notice. LeWiz makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does LeWiz assume any liability arising out of the application or use of any of its products. LeWiz specifically disclaims any and all liability, including without limitation consequential or incidental damages. LeWiz's products are not designed, intended or authorized for use in life support equipment or any application where a failure can cause any bodily injury.

LeWiz, LeWiz Communications, the LeWiz logo, TalonXXXX, iDefendXXXX, iStreamXXXX, and iTradeXXXX are trademarks and/or registered trademarks of LeWiz Communications, Inc. Other marks belong to their respective owners.

LeWiz Communications, Inc.

1376 N. 4th Street, Suite 300

San Jose, CA 95112 USA

Phone: 408-452-9800 ext 109

Fax: 408-452-9805

info@LeWiz.com

www.LeWiz.com

© Copyright 2007-2014

LeWiz Communications, Inc.

All rights Reserved