



**6 port, GigE,  
PCI-Express NIC  
Advanced offload functions  
Copper network interface**

The Talon3612™ is a 6-port Gigabit Ethernet (GigE), PCI-Express copper network interface card (NIC) designed for a wide range of server, storage, and security system applications. It's designed to work in the short distance LAN applications as well as the long distance WAN/MAN applications. The board is low cost and suitable for small, medium, or large size businesses. It can be used for deployment on campus, within the data center, or inter-data center applications.

LeWiz's Talon3612™ card is designed to maximize the performance of each port to full wire rate in both directions even with both ports being used simultaneously. Each of the GigE port has a dedicated MAC with its own transmit/receive engines, DMA, and buffers. Each of the port has advance offload functions such as TCP/UDP transmit segmentation, checksum processing, iSCSI/NFS assist benefiting applications such as video, iSCSI, NAS storage, VoIP, and others. The ports have advanced interrupt handling scheme maximizing the efficiency of multi-processor or multi-threaded systems.

Each port is capable of 1 Gbps and is backward compatible with existing Ethernet networks. The board takes advantage of the high performance PCI-express bus available in many servers, storage, and security systems. The PCI-Express bus interface on the Talon3612™ board has 4 lanes, and can be used with x4, x8, or x16 PCI-Express slots.

Internally, the Talon3612™ card has wide internal on-chip data paths eliminate performance bottlenecks. It has a combination of parallel and pipelined logic architecture optimized for Gigabit Ethernet with independent transmit and receive queues. The Talon3612™ board efficiently handles packets with minimum latency. It uses efficient ring buffer descriptor data structures, with up to 64 packet descriptors cached on chip. A large 48 KByte per port on-chip packet buffer maintains superior performance. In addition, using hardware acceleration, the controller offloads tasks from the host, such as TCP/UDP/IP checksum calculations and TCP segmentation/large send offload.

The Talon3612™ has a full range of loadable device driver support for many different operating systems from Windows, to Linux, to Solaris. It simply works every where and easy to deploy.

The Talon3612™ is a member of LeWiz's family of advanced NIC products from 1Gbps to 10Gbps for the PCI-Express bus. Customers using the Talon3612™ can upgrade to higher port count or higher speed easily. Contact LeWiz or see LeWiz's Talon NIC PCI-Express products at [www.LeWiz.com](http://www.LeWiz.com).

**Software Support**  
(LeWiz continues to add drivers for others OS's. If you do not find your OS listed, contact LeWiz for assistance.)

Windows 2000	Includes Server and Advanced Server version
Windows Server2003	Includes Standard and Enterprise x64 versions
Windows XP	Includes Professional 64 and 64-bit version
Linux	Redhat, SuSE, Fedora Core (32 and 64 bit)
Solaris	Sparc and x64 platforms
Netware	5.1, 6.0, 6.5
OpenBSD	Version 3.8 and later

Physical Size	(Length x Height)
Talon3612	6.6 x 4.2 inches



System Interface	
Compliant PCI-Express Base Specification 1.0a	Compliant with existing deployed PCI software
4 lanes PCI-express (PCI-E)	x4 lanes PCI-E physical connector but also works in x1, x4, x8 and x16 connector
Each lane capable of 2Gbps, full duplex	Its system bus interface capable of 8Gbps per transfer direction
Supports message signal interrupt (MSI)	
Supports both PCI-E's baseline & optional advanced error reporting	More robust error reporting & system reliability
Each MAC has its own PCI-E register set	Host system can control and examine each MAC independently. Each MAC appears as an independent instance to the host software

External Network Interfaces	
6 Gigabit Ethernet port per board	Great for multi-zone networking, storage back-up, or data mirroring using only 1 board and 1 system PCI-E slot
100 meter Cat-5 UTP copper	
Standard RJ45 copper connection (1 for each port, 1000Base-T, 100Base-TX, 10Base-T, compliant)	Low cost NIC, cable and external switching equipments
Category-5, unshielded twisted pair cable	Low cost, standard copper cabling
Capable of 100 meter distance for standard quality Cat-5 UTP copper cable	Great for system to system interconnect such as server to storage systems

Offload and high performance features	
General performance features	
Each Ethernet port has a dedicated MAC with its own register set, memory buffers, DMA engines	Optimizes for high performance with independent transmit and receive simultaneously on a per port basis
Multiple transmit and receive queues	Maximizes performance of multi-threaded systems
TCP/UDP segmentation, or large send offload	Device drivers automatically uses this feature for high performance
Statistics collection for management and RMON on a per Ethernet port basis	Useful for diagnostics and performance optimization of the network
Independent DMA engines for transmit and receive	Mitigating instantaneous receive bandwidth and eliminating transmit underruns. Optimizes the 10Gbps bandwidth efficiency in the network
Dedicated DMA engines for fetching transmit and receive descriptors	Maximizes the host bus bandwidth
Supports reception and transmission of packets with length up to 16KBytes	Maximizes the efficiency of the network
48Kbyte configurable transmit and receive FIFO buffer per Ethernet port (total of 2, 48KByte FIFOs)	Large burst transmit/receive to/from the network. Maximizes the network efficiency. FIFO size can be adjustable to application
Transmit interrupt delaying and reducing	Optimizes system CPU usage
High speed 4 lane PCI-express bus	System bus interface capable of 16Gbps
Standard SC-UPC optical connector type	Up to 9KByte frame size
IPv6	Supports IPv6 checksum and segmentation offload

Networking Features	
Flow control 802.3x	Compliant to standard networking
802.1q VLANs	Supports virtual networking concepts Adding VLAN tags on transmit Removal of VLAN tags on receiving Packet filtering based on VLAN tags for up to 4096 VLAN tags
802.1p QoS	
802.3ad	Port aggregation
Port fail-over capability	Networking redundancy to enhance network system reliability - continue network operating even during network down time.
Port bonding (or port teaming)	Achieve 2 times the throughput rate. Treating 2 ports as 1 great big pipe for faster data transfer. Up to 8 ports per team

Operating spec	
Uses standard voltages from PCI-express connectors	
Operating temperature	0-55 C
Operating humidity	85% at +55 C

Recommended system requirements	
(The following is the minimum recommended system requirements. 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, or others
512MByte of system memory or better	
x4 PCI-express slot or better	

Product part number	
Talon3612	RJ45 copper version, Compliant with 1000 BASE-T, 100BASE-TX, and 10BASE-T networks (802.3, 802.3u, and 802.3ab) 100m with CAT-5 UTP cable



**LeWiz Communications, Inc.**  
 1376 N. 4th St. Suite 300  
 San Jose, CA 95112  
 408.452.9800 x110  
 408.452.9805 FAX  
 info@lewiz.com  
 www.lewiz.com