



**Dual port, GigE, low profile
PCI-Express NIC
Advanced offload functions
Fiber optic interface**

The Talon1244-SX/LX/EX™ (Talon1244) is a dual-port Gigabit Ethernet (GigE), low profile PCI-Express optical network interface card (NIC) designed for a wide range of server, storage, and security system applications. The board is available with LC SFP fiber optic. It's designed to work in the short distance LAN applications as well as the long distance WAN/MAN applications up to 70 Kilometers. 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 Talon1244™ 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. Three fiber options are offered for 500 meter, 10 Kilometer, and 70 Kilometer distances. Fiber optic also does not radiate and well suited for security sensitive applications.

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 Talon1244™ board has 4 lanes, and can be used with x4, x8, or x16 PCI-Express slots.

Internally, the Talon1244™ 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 Talon1244™ 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 physical size of the board is tiny – about the physical size of a typical credit card but packing 2 GigE ports. Its small size is ideal for ANY small form factor computing systems.

The Talon1244™ 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 Talon1244™ is a member of LeWiz's family of advanced NIC products from 1Gbps to 10Gbps for the PCI-Express bus. Customers using the Talon1244™ 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.

Software support (LeWiz continues to add drivers for other OS's. If you do not find your OS listed, contact LeWiz for assistance.)	
Windows 2000	Includes Server and Advanced Server versions
Windows Server2003	Includes Standard and Enterprise x64 versions
Windows XP	Includes Professional, x64, and 64-bit versions
Linux	Redhat, SuSE, Fedora Core (32 and 64 bit)
Solaris10	SPARC and x64 platforms
Netware	5.1, 6.0, 6.5
OpenBSD	Version 3.8 and later

Physical size	(Length x Height)
Talon1244-SX, LX, EX	4.5 x 2.535 inches



Variety of flavors of Windows & Linux



System interface	
Compliant PCI-Express Base Specification 1.0a	Compatible 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 slots with at least a x4 connector
Each lane capable of 2Gbps in each direction	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	
500 meter 850nm fiber optic (applicable to Talon1244-SX product only)	
IEEE 802.3ae 1000Base-SX compliant	Great for LAN or medium distance deployment such as on-campus deployment
850nm fiber optic, multi-mode	Standard LC-UPC optical connector type
10 Kilometer 1310nm fiber optic (applicable to Talon1244-LX product only)	
IEEE 802.3ae 1000Base-LX compliant	Great for long distance deployment such as metro area network (MAN) or inter campus deployment
1310nm fiber optic, single mode	Standard LC-UPC optical connector type
70 Kilo meter 1550nm fiber optic (applicable to Talon1244-EX product only)	
IEEE 802.3ae 1000Base-EX compliant	Great for extended distance deployment such as metro area network (MAN) or wide area network (WAN) deployment
1550nm fiber optic, single mode	Standard LC-UPC optical connector type

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
TCP/UDP/IP checksum offload	Free the CPU from performing checksum functions on a packet to packet basis
Statistic collection for management and RMON on a per Ethernet port basis	Useful for diagnostic 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
Jumbo frame support	Up to 9KByte frame size
IPv6	Supports IPv6 checksum and segmentation offload

Networking features	
Flow control 802.3x	Compliant to standard networking
802.1 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	Network 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 connector	
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: Pentium, Xeon, Opteron, Athlon or others
512MByte of system memory or better	
x4 PCI-express slot or better	

Product part numbers	* for low profile bracket add – LP on the end on each part number
Talon1244-SX	850nm fiber optic version, multi-mode, 500m distance, standard height bracket
Talon1244-LX	1310nm fiber optic version, single mode, 10Km distance, standard height bracket
Talon1244-EX	1550nm fiber optic version, single mode, 70Km distance, standard height bracket

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