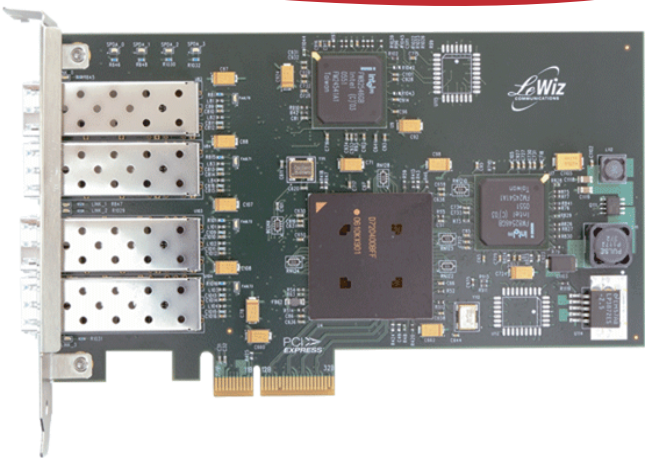
DATASHEET **TALON3008-SX/LX/EX™**

LeWiz COMMUNICATIONS

PCI-Express NIC, 4-Port, 8 Gbps, Fiber optic interface



LeWiz's TALON3008-SX/LX/EX™ (Talon3008) is a quad-port Gigabit Ethernet (GigE), PCI-Express optical network interface card (NIC) designed for a wide range of servers, storage and security systems markets. This quad port board is suitable for high performance high connectivity networked systems such as servers, storage and networked appliances. The TALON3008™plugs directly into the systems x4, x8, or x16 PCIe slot. With all 4 ports active in bi-directional mode, LeWiz's TALON3008™ PCIe board can transmit and receive up to 8Gbps full duplex or 4Gbps in each direction. The board has TCP/IP assist functions to reduce the work load for the system CPUs.

The 4 independent ports allow users to implement fail-over fault-tolerant capability using quad redundancy or dual redundancy that can be switched over 2 different networks ensuring the system can always be up and running even during an outage of the primary network. For higher performance, the 4 GigE ports can also be bonded together to form a single pipe achieving the performance of most 10Gbps NIC cards in the market but at a fraction of the cost – yet still allowing the users to use the proven, low cost GigE network equipments.

The board is a plug-n-play for many systems. It readily supports Windows2000/2003 Server, Solaris10, Linux2.4/2.6, Redhat, SuSE Enterprise, or OpenBSD operating systems. It has been tested on both AMD Opteron and Intel Xeon platforms both in 32 and 64 bit configurations.

Storage application such as iSCSI stack, and Web server Apache applications are readily available. Existing applications would run on this board without modification or recompilation.

Designed for maximum wirerate throughput across the ports. The TALON3008™ is ideal for network intensive environments such as file serving, network attached storage (NAS), high performance technical computing, high-end backup and restore, IP storage, and video serving.

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	

Microsoft Windows

Linux 2.6/2.4 Redhat/ SuSE

solaris™

Features

- Performs 8Gbps full duplex
- Low Power consumption
- Supports fail-over protection (alternate pathing)
- Supports port aggregation, bonding
- Qualified across multiple host platforms from Dell™, HP™, SUN™, TYAN™, and others
- Supports all CPU types: Opteron™, Pentium™, Xeon™, PowerPC™, SPARC™, MIPS™, and others
- Board size: Short Form PCIe NIC (4.2" x 6.6")

Applications

- Servers (application servers, Web/DNS/e-mail/file servers, etc.)
- Storage (iSCSI, SAN/NAS, etc.)
- iSCSI NIC, initiator or target
- Security appliances (firewalls, load balancers, etc.)
- Network appliances
- Compression systems
- Streaming Multimedia

TALON3008-SX/LX/EX™

DATASHEET

System interface	
Compliant PCI-Expess 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 Talon3008-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 Talon3008-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 Talon3008-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	
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^{O}C
Operating humidity	85% at +55 ^{O}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	
Talon3008-SX	850nm fiber optic version, multi-mode, 500m distance, standard height bracket
Talon3008-LX	1310nm fiber optic version, single mode, 10Km distance, standard height bracket
Talon13008-EX	1550nm fiber optic version, single mode, 70Km distance, standard height bracket

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