

**ACCELERATED/PROGRAMMABLE**

6-port, 1 Gigabit Ethernet
PCI-Express NIC
TCP/UDP/IP Acceleration
IPv4 and IPv6
copper/fiber optic

LeWiz's Talon42xx family of network interface cards (NIC) designed specifically for the acceleration of network server and storage applications. The cards are targeted for a wide range of computing systems/appliances for LAN/WAN and data center environments from 1 to 10Gbps networks.

The Talon4206™ card is designed for performance in systems which require GigE connectivity. It packs into a single board 6 ports of GigE with dedicated TCP/IP offload engines, dedicated data paths, FIFO's and buffers for transmit and receive on a per port basis. Each port is fully capable of transmit and receive independently. Both ports can work simultaneously and are capable of active/active configuration. The Talon4206™ card maximizes the system's capability to its peak – optimizes your IT dollars. Should you need higher than 1Gbps rate, the ports can be aggregated together and acts as a single much higher-speed port. LeWiz also offers utility software using this product for moving large amount of data quickly.

The Talon4206™ card's single-chip, high level of integration allows it to maintain low cost, low power consumption - easily fitting into the budget and requirements of a short form PCI-express card. Yet, it still maintains the ease of use, loadable device drivers of a normal NIC that many engineers are familiar with. The card contains many built-in programmable functions allowing it to be tuned even out in the field to be compatible with any peculiar network equipment the user may be encountered out in the field

A unique feature of the Talon4206™ is its ability to move data directly into application buffers. This means faster data rate, lower latency, and low CPU consumption for the system. It can perform this complicated task over many concurrent TCP/IP sessions with controllability on a per session basis - much more flexible for software to tune the system to the application requirements. At the same time, it enables software to maintain the easy-to-use TCP/IP socket interface. Storage systems would benefit a great deal with this feature.

The Talon4206™ optimizes multi-CPU systems efficiently. It's capable of directing the received data to individual CPU core for processing. In today's servers, dual and quad-core CPUs are widely available. The processors built into the Talon4206™ card co-operates with the multi-core of the systems to enable the best use of available computing resources. To the users, this means the server is able to serve more clients per system purchased. In virtual systems which require multiple OS's running concurrently, its multi-queue feature allows data to be directed to the memory queue which is most suitable for the specific application or OS.

The Talon4206™ card also offers a host of offload functions for high speed transfers (see the detailed description). It allows full 64-bit addressing range; comes with loadable device drivers for Linux and Windows OS's. Developed for plug-n-play, no need for the users to recompile the driver or patching the kernel as typically required by other offload cards. Customers using the Talon4206™ NIC can maintain compatibility with LeWiz's family of 1G to 10G products. See LeWiz's Talon and iStream NIC products at: www.LeWiz.com.

Security Processing/Performance features	
6, 1Gbps ports	Can be Active/Active or Active/Passive ports
Dedicated acceleration engine per port	Performance without CPU utilization
Dedicated GigE MAC per port with its own FIFO	High speed, 1Gbps line rate
Auto-segmentation of variable size packets	TCP/UDP acceleration
Auto-reassembly of incoming packets	TCP/UDP acceleration
Auto-checksum UDP/TCP or IP	TCP/UDP acceleration
Jumbo frame support	Up to 9000Byte per frame
Direct data placement for application buffers	Perfect for systems which transfer and manage large data size Controllable on a per TCP connection basis Utilize friendly TCP socket API
Supports IPv4 or IPv6	Expandability, future proof
Dedicated DMA engines per port	Maximize bus bandwidth. Parallel execution
Multi-ring architecture	Highly parallelized processing. Make efficient use of multi-CPU environment. Great for virtualization systems
Supports multi-CPU cores, multi-threaded, highly parallelized systems	Make efficient use of system resources
Receive side scaling (RSS)	Scale up with number of CPUs Supports both TCP & UDP Windows TOEPLITZ harsh or application specific
Support LeWiz fast path software	Lower latency, higher overall system performance
Full 64-bit addressing	

Flexibility/Reliability features	
Fully programmable	Allow tuning out in the field, Shielded users from unknown field equipment or field conditions.
Remote upgradeable	Lower support cost. Allow future value-added features to be added for your customers

Detailed Specifications:

Product part number	
Talon4206-TX	6x1Gbps copper Ethernet
Talon4206-SX	6x1Gbps SX fiber optic
Talon4206-LX	6x1Gbps LX fiber optic
System interface	
Compliant PCI-Express Base Specification 1.1	
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
Data loading from serial EEPROM	Useful for OEMs requiring customized configurable product information
Each MAC has its own register set	Host system can control and examine status each MAC independently
Software support	
Loadable driver for Windows and Linux	No need to recompile the driver or the OS
None interference with existing applications	Existing software applications would run as is without modification or recompiling.
Windows Server 2003	32 and 64 bit
Windows XP	32 and 64 bit
Redhat Linux AS 4.0, 4.3	Full offload acceleration, both 64 and 32 bit version
Redhat Linux ES 4	
Novell SuSE LES 10, 9.0	Full offload acceleration, both 64 and 32 bit version
Fedora Core 5, 4	Full offload acceleration, both 64 and 32 bit version
CentOS	
A variety of kernel/OS are supported	
IPv4 and IPv6	Fully compatible with IPv4 and IPv6

External network interfaces	
6, 1Gbps Ethernet ports per board	Great for streaming servers, data mirroring, or multi-zone networking using only 1 board and 1 system PCI-E slot
Cat5 copper or SX/LX Fiber	
Standard Cat5 copper cable	100m Cat5 copper
Standard SX fiber optic	500m, 850nm multi-mode
Standard LX fiber optic	10Km, 1310nm single mode
Networking features	
Port fail-over capability	Boost performance & Network redundancy. Enhance network system reliability – continue operating even during network down time.
Port bonding or aggregation	
Others	
Expansion FLASH, 512KByte per Ethernet port (optional)	Can act as a remote boot ROM or special purpose function code/data storage.
Physical size	
Length x Width	6.6 x 4.2 inches (short form)
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, XScale, PowerPC, MIPS, or others
1GByte of system memory	x8 PCI-express slot or better

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