Description
The GW440GX PCI Card is designed for applications in which Gigabit Ethernet data streams have to be high-volume, parallel-processed at full-line speed. This is achieved by combining an FPGA working directly in the data path which is responsible for payload pre-filtering, encryption, compression etc., and a high performance PowerPC for protocol handling.
Well-known security features like that of smart cards are allowing operation in sensitive areas and protecting copyrights of application-specific software.

Specification
PowerPC IBM440 GX up to 800 MHz PCI 2.2 with 32/64-Bit data bus and 33/66 MHz clock, or PCIX 1.0 with 64-Bit data bus and 66/100/133 MHz
- 2 x 1 GBit/s Ethernet ports with enhanced Layer 1 capabilities, electrical or optional optical ports
- up to four 10/100 MBit/s Ethernet ports
- 64-Bit DDR SDRAM up to 512 MByte
- Flash up to 320 MByte, in System programmable
- FPGA XILINX Spartan-III up to 1.500.000 ASIC-Gates, SRAM technology and DSP Functions
- FPGA Actel ProASIC up to 1.000.000 ASIC-Gates, Flash technology
- Battery buffered SRAM
- Tamper and Secure area with user specific assembly options
- 2 x PhotoMOS Relais outputs
- 2 x USB V1.1
- 3 x RS232
- 2xIC

Features
Gigabit data manipulation at full line speed independent of packet size
- HW-Acceleration of mathematical or multiprocessing SW-algorithms by FPGA co-processing
- Manipulation, Virus and Design Protection by encrypted, signed and monitored Code
- Extensive System monitoring preventing access to sensitive Data, also functions in stand-by modus
- Stand alone operation without PCI-Bus possible
- FPGA application interface for user specific Modules (IP-Cores)
- Operating systems VxWorks (Wind River) and Linux
- Certification based on German BSI guidelines in progress
Applications

Accelerator board for Firewalls, VPN Gateways and Gigabit Encryption Systems
Gigabit measurement systems (Protocol analysis Layer 1 - 7)
Hard disk (RAID) encryption for Servers.
Intrusions-Detection-Systems with analysis in HW
Picture processing (compression, filtering etc.)
Video conference encryption
Evaluation board for PowerPC IBM440GX, Xilinx and Actel FPGAs
In combination with additional PCI-Boards expandable to powerful Gateway/Router for ISDN, ADSL, GPRS, UMTS and other standards

GateWare 440 PCI Card
IBM PowerPC 440 GX
32 Bit RISC Microcontroller

Microcontroller
GX IBM PowerPC 440 GX

CPU Core Frequency
533 MHz
667 MHz
800 MHz

DDR SDRAM Size
1 128 Mbyte
2 256 Mbyte
3 512 Mbyte

Application Flash Size
1 16 Mbyte
2 32 Mbyte
3 64 Mbyte

Data Flash Size
1 64 Mbyte
2 128 Mbyte
3 256 Mbyte

Temperature Range
I Industrial
C Commercial

Spartan-III FPGA Size
400 400 K Gates
1000 1000 K Gates
1500 1500 K Gates

ProASIC FPGA Size
400 400 K Gates
600 600 K Gates
1500 1500 K Gates

Security Enhancement
S With Security Module
N No Security Module

Application GW 440GX PCI Card as a Gigabit Crypt System

The GW440GX PCI Card can be used as an accelerator board in firewall and intrusion detection systems (IDS) with at least one free PCI slot. It can be used with any mainboard operating system, due to the HW being encapsulated by a hardware abstraction layer (HAL).

The GW440GX PCI Card can also be obtained in an enclosed 19" rack case with a passive PCI backplane and a power module for various user-specific applications.

GW440GX PCI Motherboard Ordering Information