Intel® 82550 Fast Ethernet Multifunction PCI/CardBus Controller
Product Brief

Overview

The Intel® 82550 Fast Ethernet Multifunction PCI/CardBus Controller is a third-generation, fully integrated, Fast Ethernet Media Access Controller (MAC)/Physical Layer (PHY) device. The MAC offers a low-cost, high-performance 10/100Mbps LAN solution. In addition, the 82550 requires low real estate, which is important when competing for precious board space. The 82550's baseline functionality is equivalent to that of the 82559 with the addition of an integrated IP Security (IPSec) encryption engine and Alert on LAN* 2 functionality.

Product Description

The 82550, with an integrated IP Security (IPSec) encryption engine and Alert on LAN functionality, is Intel's premium 10/100 network connectivity solution. It is designed for use in Network Interface Cards (NICs), PC LAN on Motherboard (LOM) designs, embedded systems, and networking systems products. The 82550 combines advanced security and manageability features to provide a secure and easily managed Fast Ethernet connectivity solution for today's networked environment.

The 82550 continues Intel's platform LAN technology leadership by integrating the following features: Triple Data Encryption Standard (3DES) IPSec encryption engine, Alert on LAN 2 functionality and Advanced Configuration and Power Interface (ACPI) 1.2A-based power management. It also supports wake on Magic Packet*, wake on interesting packet, and advanced System Management Bus (SMB) manageability. The 82550 complies with Wired for Management (WfM) Specification 2.0, PC 01 and Server 00 specifications. The 82550 is pin compatible with the 82559, allowing these designs to be upgraded.

Applications

The 82550 is designed for use in the following applications:
- LAN on Motherboard (LOM) implementations
- Network Interface Card (NIC) adapters
- Embedded applications
- Networking systems

Product Features

- **Enhanced IP Support**
  - TCP, UDP, IPv4 checksum offload
  - Received checksum verification
  - IP Security support
- **Quality of Service (QoS)**
  - Multiple priority transmit queues
- **Optimum Integration for Lowest Cost Solution**
  - Integrated IP Security encryption engine
  - Integrated IEEE 802.3 10BASE-T and 100BASE-TX compatible PHY
  - 32-bit PCI/CardBus master interface
  - Modem interface for combination solutions
  - Integrated power management functions
  - Thin BGA 15 mm² package

- **Wired for Management (WfM) and Reduced Total Cost of Ownership**
  - Wired for Management support
  - Integrated Alert on LAN 2 support
  - Advanced Configuration and Power Interface and PCI power management specifications compliance
  - Wake on "interesting" packets and link status change support
  - Magic Packet support
  - Remote power-up support
  - High-performance networking functions
  - Early release
  - Chained memory structure similar to the 82559, 82558, 82557, and 82596
  - Improved dynamic transmit chaining with multiple priorities transmit queues

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Features	Benefits	82550GY	82550EY	82559
Improved IPSec encryption offload performance	■ Quicker encryption/decryption response times	■		
Integrated UNDI ROM support	■ Minimizes the need for an external ROM	■		
Improved Deep Power down power consumption levels	■ Greater battery life on mobile platforms	■		
MDIx and HWI Alerting	■ Assists in troubleshooting network connectivity problems	■		
Integrated IPSec encryption engine	■ Provides increased encryption performance versus software encryption only and eliminates need for a separate crypto component	■	■	
Integrated Alert on LAN* 2 functionality	■ Increased Alert on LAN functionality ■ Eliminates need for a separate Alert on LAN 2 device	■	■	
Combination 10/100Mbps Fast Ethernet controller and physical layer interface with glueless 32-bit PCI bus master interface	■ Provides low-cost network connectivity for LOM or PCI adapters ■ Reduces board space requirements and external support circuitry	■	■	■
■ Wired for Management (WfM) and Net PC Specifications compliant ■ Advanced Configuration and Power Interface (ACPI) Specifications compliant ■ Magic Packet filtering for Wake on LAN* ■ Address Resolution Protocol (ARP) and flexible frame filtering	■ Enables PCs to be remotely managed for lower Total Cost of Ownership (TCO) ■ Provides various power down states and the ability to "wake-up" on a unique packet addressed to the system ■ Allows virtually connected IPv6, IPv4, Windows NT*, or next-generation systems	■	■	■
Backwards compatible software drivers	■ Allows systems developed with the EtherExpress™ PRO/100B or 82557 to use the same device drivers ■ Robust, well-tested, high-performance drivers	■	■	■
Improved dynamic transmit chaining	■ Enhanced performance	■	■	■
Hardware IP checksum assist	■ Maximizes system throughput by reducing CPU overhead under IP	■	■	■
Integrated management port	■ Enables direct interface to future Total Cost of Ownership-enabled system chipsets	■	■	■
Enhanced power management	■ Minimizes power requirements	■	■	■
■ CardBus and modem support ■ Common driver support	■ Enables combination CardBus LAN/modem designs ■ Allows common driver support across both PC card and NIC	■	■	■
■ Programmable transmit threshold ■ Early receive interrupt ■ Large internal receive and transmit buffers ■ FLASH memory support	■ Utilizes bus more efficiently ■ Processes receive data concurrently ■ Prevents data overruns or underruns ■ Enables back-to-back frame transmission within interframe spacing ■ Supports network management and remote boot	■	■	■

Characteristics

Electrical
Power Supply
■ 3.3V ± 5%

Environmental
Operating temperature
■ 0ºC to +85ºC (maximum)
Storage temperature
■ -65ºC to 140ºC

Physical
Package
■ 196-pin BGA

0401/OC/ML/PT/20K

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