



Intel® 82551QM Fast Ethernet Multifunction PCI/CardBus Controller

**Advanced, integrated functions for high-performance
PCI/CardBus Ethernet applications**

The Intelligent Way to Connect

- Advanced offloading features speed data transfers
- Enhanced manageability and system monitoring
- Footprint compatibility for flexible designs



Product Description

The Intel® 82551QM Fast Ethernet Multifunction PCI/CardBus Controller expands the family of Intel® 8255x controllers. The 82551QM provides excellent performance with offloading of TCP, UDP and IP checksums, plus support for TCP segmentation offload for operations such as Large Send.

The 82551QM, with optimized 32-bit interface and efficient scatter-gather bus mastering capabilities, enables the controller to perform high-speed data transfers over the PCI bus or CardBus. These capabilities accelerate the processing of high-level commands and operations, lowering CPU utilization. The device's architecture enables efficient data flow from the bus interface unit to the 3KB transmit and receive FIFOs, providing the perfect balance between the wire and system bus. In addition, multiple priority queues augment Quality of Service (QoS) performance.

The 82551QM integrates advanced manageability features into one component. It includes support for Alert on LAN* 2 and Alerting Standards Format (ASF) bi-directional alerting. A System Management Bus (SMB) interface can be used with bus management controllers. Both legacy and ASF sensor polling are

supported, as well as remote-control capabilities. The 82551QM embeds the Universal NIC Driver Interface (UNDI) code, allowing it to support Pre-boot Execution Environment (PXE) without the use of an additional external ROM.

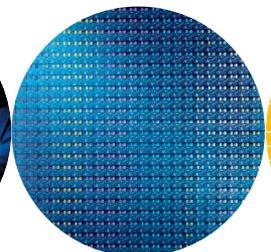
The 82551QM is pin-compatible with the Intel® 82550 and Intel® 82559 Fast Ethernet controllers, and it is layout-compatible with Intel® 82540 and Intel® 82541 Gigabit Ethernet controllers.

Applications

The Intel 82551QM Fast Ethernet Multifunction PCI/CardBus Controller is designed for use in the following applications:

- LAN on Motherboard (LOM) implementations
- PCI Mezzanine cards
- Industrial PCs and single-board computers
- Embedded applications

Intel in
Communications



Features

Benefits

| Monitoring/Safety Features | |
|--|---|
| <ul style="list-style-type: none"> ASF 1.0 support Integrated Alert on LAN* 2 support | <ul style="list-style-type: none"> Supports standards-based alerting Increases Alert on LAN functionality Eliminates need for a separate Alert on LAN 2 device |
| Performance-enhancement Features | |
| <ul style="list-style-type: none"> Offloads TCP, UDP, and IP checksums from PC processor Supports TCP segmentation offloading Multiple priority transmit queues Combination 10/100Mbps Fast Ethernet controller and physical layer interface with glueless 32-bit PCI bus master interface Improved dynamic transmit chaining | <ul style="list-style-type: none"> Speeds data transfers Improves Large Send operations Enables packet prioritization for faster delivery of business-critical data Provides low-cost network connectivity for LOM or PCI adapters Reduces board space requirements and external support circuitry Enhances performance |
| Power-reduction Features | |
| <ul style="list-style-type: none"> Reduced D3 power consumption Enhanced power management | <ul style="list-style-type: none"> Improves battery life in mobile applications Minimizes power requirements |
| Management/Compatibility Features | |
| <ul style="list-style-type: none"> Backwards-compatible software drivers Wired for Management (WfM) and Net PC Specifications compliant Advanced Configuration and Power Interface (ACPI) Specifications compliant Magic Packet filtering for Wake on LAN ARP and flexible frame filtering Modem interface for combination solutions | <ul style="list-style-type: none"> Allows systems developed with the 82550 or 82559 to use the same device drivers Supports robust, well-tested, high-performance drivers Enables PCs to be remotely managed for lower total cost of ownership Complies with standards for LOM or NIC designs for next-generation Fast Ethernet-connected systems Provides various power-down states and the ability to “wake up” on a unique packet addressed to the system Permits development of virtually connected systems that will exit from a lower power state upon receipt of directed packets Allows virtually connected Ipv6, Ipv4, Windows NT*, or next-generation systems Allows single-NIC adapter with modem and LAN connectivity |
| Physical Features | |
| <ul style="list-style-type: none"> Footprint-compatible with the Intel® 82540 Gigabit Ethernet controller Integrated UNDI ROM support Thin BGA 15x15mm package | <ul style="list-style-type: none"> Enables single-board design, accommodating either 10/100/1000Mbps or 10/100Mbps Ethernet Provides an easy and safe migration path to Gigabit Ethernet Minimizes requirement for external ROM Minimizes board space requirements |

Characteristics

| Electrical | |
|--|---|
| <ul style="list-style-type: none"> Power Supply Power Dissipation | <ul style="list-style-type: none"> 3.3V +/- 5% 0.5W (typical) |
| Environmental | |
| <ul style="list-style-type: none"> Operating temperature Storage temperature | <ul style="list-style-type: none"> 0°C to 85°C (maximum) -65°C to 140°C |
| Physical | |
| <ul style="list-style-type: none"> Package | <ul style="list-style-type: none"> 196-pin BGA (1mm ball pitch) |

Order Code

■ GD82551QM

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