



Intel® 82547GI Gigabit Ethernet Controller

2X Gigabit Network Performance for Desktops and Workstations

The Intelligent Way to Connect

- Full-duplex Gigabit throughput and higher platform performance with Communication Streaming Architecture (CSA)
- System health monitoring and authenticated remote power control with ASF 2.0
- Design flexibility with Intel® SingleDriver™ technology and footprint-compatibility with Intel® PRO/100 Connections

The Intel® 82547GI Gigabit Ethernet Controller enables full-duplex Gigabit Ethernet performance in your LAN on Motherboard (LOM) applications using groundbreaking Communication Streaming Architecture (CSA). A generation ahead of other Gigabit controllers, the Intel 82547GI Gigabit Ethernet Controller bypasses the PCI bus, freeing its bandwidth for other I/O operations, and connects to the dedicated CSA bus on the Memory Control Hubs (MCH) of Intel® 865 and 875 chipsets for the Intel® Pentium® 4 processor. The CSA port architecture is invisible to both system software and the operating system, allowing conventional “PCI-like” configuration. CSA offers lower memory latency and higher performance than PCI-based controllers, giving the end-user a true Gigabit networking experience.

The Intel 82547GI Gigabit Ethernet Controller enhances secure manageability and system health monitoring over the LAN with support for IPMI 1.5, ASF 2.0 and Advanced Pass Through. For IPMI designs, the on-board SMBus port can pass management traffic through the controller to a management device, such as a

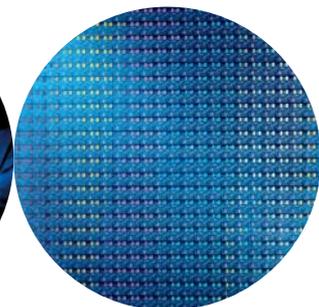


Baseboard Management Controller (BMC) responsible for management functions. Alternatively, ASF 2.0 provides manageability without the cost burden of external hardware via standardized interfaces. ASF 2.0 circuitry provides advanced system health and security alerting plus authenticated remote power control capabilities.

The Intel 82547GI combines Intel's fifth-generation Gigabit MAC design with fully integrated physical-layer circuitry (PHY) to provide a standard IEEE 802.3 Ethernet interface for 100BASE-T, 100BASE-TX and 10BASE-T applications. Packaged in a 15x15mm PBGA, the Intel 82547GI Gigabit Ethernet Controller is footprint-compatible with the Intel® 82562EX and 82562EZ devices. Footprint-compatibility and Intel SingleDriver technology allow for a flexible Gigabit Ethernet or Fast Ethernet implementation on the same motherboard layout.

The Intel 82547GI Gigabit Ethernet Controller, coupled with Intel 865 and 875 chipsets, enable full-duplex Gigabit networking performance for LOM designs using CSA with enhanced management capabilities and design flexibility.

Intel in
Communications



Features

Benefits

Communication Streaming Architecture (CSA) Features	
Theoretical bandwidth of 266 Mbytes/sec	<ul style="list-style-type: none"> Approximately twice the peak bandwidth of a 32-bit 33MHz bus
Direct connect to the MCH of Intel® 865 and 875 chipsets	<ul style="list-style-type: none"> Low-latency path to memory and higher platform performance Relieves congestion for I/O devices connected to the I/O Control Hub (ICH)
Uses only 13 signals	<ul style="list-style-type: none"> Provides easier board routing than comparable PCI-based systems
CSA is usable to both system software and the OS	<ul style="list-style-type: none"> Conventional PCI-like configuration
Gigabit MAC/PHY Advanced Features	
40KB configurable RX and TX packet FIFO	<ul style="list-style-type: none"> No external FIFO memory requirements FIFO size tunable to the application
IEEE 802.3x-compliant flow-control support with software-controllable thresholds	<ul style="list-style-type: none"> Reduced frame loss due to receive FIFO overrun
Programmable host memory receive buffers (256B to 16KB)	<ul style="list-style-type: none"> Efficient usage of system resources
IEEE 802.3ab Auto-Negotiation	<ul style="list-style-type: none"> Automatic link configuration including speed, duplex, and flow control
State-of-the-art DSP/analog architecture	<ul style="list-style-type: none"> 1000Mb/s performance in noisy environments and cable installation problems Implements digital adaptive equalization, echo, cross-talk and baseline wander cancellation
PHY detects polarity, MDI-X, 2 pair vs. 4 pair cables	<ul style="list-style-type: none"> Easier network installation and maintenance
Host Offloading Features	
Transmit TCP segmentation IP, TCP, and UDP checksum off-loading capabilities on RX and TX	<ul style="list-style-type: none"> Increased throughput and lower CPU utilization. Compatible with large send offload feature found in Windows® 2000 and Windows® XP
IEEE 802.1Q VLAN support with VLAN tag insertion and stripping and packet filtering for up to 4096 VLAN tags	<ul style="list-style-type: none"> Enables IT staff to easily create multiple virtual LAN segments
Jumbo frame support up to 16KB	<ul style="list-style-type: none"> High throughput for large data transfers on networks supporting jumbo frames
Interrupt moderation controls	<ul style="list-style-type: none"> Reduces the number of interrupts generated by receive and transmit operations
Manageability Features	
On-chip SMBus 2.0 port	<ul style="list-style-type: none"> Enables IPMI and ASF implementations
ASF 1.0 and 2.0	<ul style="list-style-type: none"> Provides advanced alerting and remote control capabilities with industry-standard interfaces
Compliance with PCI Power Management v1.1/ACPI v2.0	<ul style="list-style-type: none"> PCI power management capability requirements for PC and embedded applications
Wake on LAN* (WoL) support	<ul style="list-style-type: none"> Packet recognition wakeup for LOM applications without software configuration
Automatic link speed switching from 1000Mb/s down to 10 or 100Mb/s in standby	<ul style="list-style-type: none"> Low power in standby states Supports power-down states without software assistance
Additional Device Features	
Four programmable LED outputs	<ul style="list-style-type: none"> Customizable indications for link speed, activity, duplex, collisions, and port ID on each port
On-chip power regulator control circuitry	<ul style="list-style-type: none"> Simplified low-cost power supply design
BIOS LAN Disable Pin	<ul style="list-style-type: none"> Enables low-power LAN disable for LOM applications

Characteristics

Electrical	
Power dissipation	<ul style="list-style-type: none"> 1.0W (typical)
Environmental	
Operating temperature	<ul style="list-style-type: none"> 0°C to 70°C (maximum); does not require a heat sink or forced airflow
Storage temperature	<ul style="list-style-type: none"> -65°C to 140°C
Physical	
Package	<ul style="list-style-type: none"> 196-pin PBGA, 1mm ball pitch, 15 x 15mm (simplifies LOM board designs)
Footprint-compatible with Intel® 82562EZ and 82562EX Fast Ethernet Controllers	<ul style="list-style-type: none"> Enables a Gigabit Ethernet or 10/100 LOM implementation on the same board

Order Code

■ GD82547GI

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