Chapter 1
Introduction

This chapter introduces the features, package contents, and appearance of the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311.

About the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311

Congratulations on your purchase of the NETGEAR® GA311 Gigabit Ethernet Adapter. Designed especially for high-performance systems, such as servers and high-end workstations, it offers 2 gigabits per second (Gbps) of aggregate bandwidth and optimized performance while minimizing network overhead on the host system. This guide describes the installation and use of the GA311 for operation with a Microsoft® Windows® Vista, Windows® XP, Windows® 2000, Windows® Me, Windows® 98SE 2nd edition, or Windows NT 4.0 (with Service Pack 5 or above) system.

It connects your PCI-compliant workstation to a Gigabit Ethernet network, incorporating a new technology that transfers data at a rate of 1 Gbps or 1000 megabits per second (Mbps) over standard Category 5 cables. Performance is optimized and network overhead on the host system is minimized with the use of the GA311 Gigabit Ethernet Adapter.

The GA311 has demonstrated interoperability with all major Gigabit Ethernet equipment on the market that is compliant with IEEE 802.3ab standards and should work with most non-compliant Gigabit Ethernet products. In addition, because the GA311 uses standard Ethernet frame and Media Access Control (MAC) formats, it provides full compatibility with Fast Ethernet network equipment through network switches from a variety of vendors, including NETGEAR®.

The GA311 is 802.1Q/1p-compliant for frame priority tagging. The IEEE 802.1Q standard defines the operation of Virtual LAN (VLAN) Bridges that permit the definition, operation and administration of Virtual LAN topologies within a Bridged LAN infrastructure. Using the GA311 with 802.1p-compliant switches or routers offers a range of traffic prioritization of Layer 2 frames, providing a higher Quality of Service on high-speed local area networks.

Key Features and Related NETGEAR Products

The key features of the GA311 Gigabit Ethernet Adapter are:

*   Flexible 10/100/1000 Mbps capability

*   Includes proven Gigabit controller technology

*   Full-duplex operation (2,000 Mbps: 1,000 Mbps each way) with DMA (Direct Memory Access) Gigabit Ethernet interface (IEEE 802.3ab)

*   RJ-45 connector for Category 5 unshielded twisted pair (UTP) cable

*   Interoperability with existing Fast Ethernet equipment compliance with the following standards and protocols:

    *   IEEE 802.3ab Gigabit Ethernet

    *   IEEE 802.3u Fast Ethernet

    *   IEEE 802.3 Ethernet

    *   IEEE 802.3u Auto Negotiation for auto-selectable 10/100/1000 Mbps line speed

    *   IEEE 802.1Q VLAN

*   Standard Ethernet frame size (up to 1500 bytes), optional Jumbo frame size (7500 bytes)

*   33/66 MHz, 32/64-bit PCI bus master (Local Bus Revision 2.2 compliant) with adaptive DMA channels

*   Software driver support for Windows Vista, Windows XP, Windows 2000, Windows Me, Windows 98SE, and Windows NT 4.0

*   Universal dual-voltage signaling (3.3 V and 5 V)

The optional advanced configuration choices include:

*   Configurable 802.1Q VLAN ID and 802.1Q/1p VLAN frame tagging for traffic prioritization

*   Optional Jumbo Ethernet frame size (7500 bytes)

*   Configurable link speed and duplex mode

*   Checksum off loading to the network card

*   Off load of TCP large packets to the network card

*   Wakeup on ARP/PING

The following NETGEAR products can be configured to communicate with the GA311 Gigabit Ethernet Adapter:

- FS750AT Modular Fast Ethernet Switch with 48-Port 10/100 Mbps + 2 Gigabit Ports
- FS726AT Modular Fast Ethernet Switch with 24-Port 10/100 Mbps + 2 Gigabit Ports
- FS526T 24-Port Smart Switch with Gigabit Ports
- GS104 4-Port Gigabit Ethernet Switch
- GS108 8-Port Copper Gigabit Switch
- GS105 5-Port 10/100/1000 Mbps Gigabit Ethernet Switch
- GS524T 24-Port 10/100/1000 Mbps Copper Gigabit Switch
- GS516T 16-Port 100/1000 Mbps Copper Gigabit Switch
- GSM712 12-Port Managed Gigabit Switch
- GSM712F 12-Port Managed Fiber Gigabit Switch
- FSM750S 48-Port 10/100 Mbps Managed Stackable Switch with Gigabit Ports
- FSM726S 24-Port 10/100 Mbps Managed Stackable Switch with Gigabit ports
- FSM726 24-Port Mbps Managed Switch with Gigabit Ports
- FS526T 24-Port Smart Switch with Gigabit Ports
- GSM7324 24-Port Layer 3 Managed Gigabit Switch
- GSM7312 12-Port Layer 3 Managed Gigabit Switch

What's in the Box?

The product package should contain the following items:

- GA311 Gigabit Ethernet Adapter
- Installation Guide for the NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 (201-10011-01)
- *NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 Resource CD*, including:
  – Driver and System Utility Software
  – NETGEAR 10/100/1000 Mbps Gigabit Ethernet Adapter GA311 User Manual
  – Animated Network Properties Configuration Tutorial
  – PC Networking Tutorial
- Warranty/Support information card

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

To qualify for product updates and product warranty registrations, fill out the registration information within 30 days of purchase. For priority service, register online on the NETGEAR Web page at:

http://www.NETGEAR.com

You can also fill out and return the Warranty & Registration Card that is included in your product package.

Hardware Description

As illustrated in the figure below, the GA311 Gigabit Ethernet Adapter has an RJ-45 connector port and four LEDs.

Figure 1-1

The front panel of the GA311 has four LEDs: one for each port speed option (10 Mbps,100 Mbps, and 1000 Mbps) to indicate which link is active, and one LED for the data transfer status.