

Preface

This manual describes how to install and use the PCI Express Gigabit Ethernet Adapter. This PCI Express Gigabit Ethernet Adapter allows options of different fiber connections (such as connector types and segment distance).

To get the most out of this manual, you should have an understanding of Ethernet networking concepts.

In this manual, you will find:

- Introduction on PCI Express Gigabit Ethernet Adapter
- Product features
- LEDs functions
- Hardware installation
- Software installation
- Specifications

Table of Contents

PREFACE	1
TABLE OF CONTENTS	2
PRODUCT OVERVIEW	3
PACKAGE CONTENTS	3
PRODUCT FEATURES	4
Driver Support	5
LEDs	6
HARDWARE INSTALLATION	7
INSTALLING ETHERNET ADAPTER INTO PCI EXPRESS SLOT	7
CONNECTING TO YOUR NETWORK	8
PCI Express Fiber Gigabit Ethernet Adapter	8
Cabling Requirements	9
DRIVER INSTALLATION FOR MAC	10
DRIVER INSTALLATION	13
DRIVER INSTALLATION FOR WINDOWS 8	16
WAKE-ON-LAN (WOL) SETTING	19
SPECIFICATIONS	21

Product Overview

Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to our authorized reseller.

- ✓ *PCI Express Gigabit Ethernet Adapter*
- ✓ *User's Manual*
- ✓ *Software Driver*

Product Features

- Provides
 - One 1000Base-SX/LX/BX port or
 - One SFP slot
- Fiber connections:
 - SC or SFP connector for multi-mode and single-mode
 - Compliant with IEEE 802.3z 1000Base-SX/LX
- PCI Express 1.1 compliant
- Supports Microsoft NDIS5 Checksum Offload (IP, TCP, UDP) and Large Send Offload
- Supports Preboot Execution Environment (PXE) 2.1
- Supports Wake-on-LAN and remote wake-up
- Supports IEEE802.1Q VLAN Tagging
- Supports IEEE802.1p Layer 2 Priority Encoding
- RFC 1157 SNMP v1 compliant
- Supports PCI Message Signaled Interrupt (MSI)
- Supports Alert Standard Format (ASF) 2.0
- Supports Plug-and-Play
- Supports Jumbo Frame up to 9K
- IEEE 802.3x full duplex flow control
- Two LEDs: LNK (link) (Green), ACT (activity) (Yellow)
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Low-profile version is also available

<Note>

PCI Express Gigabit Ethernet Adapter should be set to auto negotiation mode and other PCI Express Gigabit Ethernet Adapter should be set to 1000Mbps full duplex mode when two PCI Express Gigabit Ethernet Adapters are connected to each other via fiber connectors. Please change jumper settings of JP2 on PCI Express Gigabit Ethernet Adapter to set auto negotiation mode or 1000Mbps full duplex mode for PCI Express Gigabit Ethernet Adapter.

Auto negotiation (default setting): Change jumper cab to position 2 and 3 of JP2.

1000Mbps full duplex: Change jumper cab to position 1 and 2 of JP2.

Driver Support

The Adapter supports a wide range of drivers for commonly used network operating systems:

- Microsoft Windows 2000, XP (32/64-bit), 2003, Vista (32/64-bit), 7, 8
- FreeBSD 7.x, 8.0
- Linux driver for kernel 2.4.x, 2.6.x (Support x86, x64)
- MacOS 10.4, 10.5, 10.6 and 10.7 on Intel-based Mac computer

LEDs

- **LNK** Link
- **ACT** Activity

LEDs	Status	Indication
LNK (Green)	Steady	A valid network connection established. LNK stands for LINK.
	Off	No network connection.
ACT (Yellow)	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
	Off	No activity.

Hardware Installation

Installing Ethernet Adapter into PCI Express Slot

Step 1: Pull out the PC's power cord from AC power outlet.

<Note> The PC's power cord must be pulled out from AC power outlet, rather than just power off the PC before installing or removing Ethernet Adapter.

Step 2: Remove any metal decorations from your hands and wrists.

Step 3: Remove the cover from your PC.

Step 4: Locate an empty bus mastering PCI Express slot and remove the corresponding backplate. Save the screw for use in Step 6.

Step 5: Carefully insert the PCI Express Gigabit Ethernet Adapter into the chosen slot and press firmly with proper push to ensure it is fully seated in the slot.

Step 6: Secure the PCI Express Gigabit Ethernet Adapter with the screw you saved in step 4.

Step 7: Replace the PC cover.

Step 8: Proceed to "Connecting to Your Network" section.

Connecting to Your Network

PCI Express Fiber Gigabit Ethernet Adapter

This section describes how to connect the PCI Express Fiber Gigabit Ethernet Adapter to a 1000 Mbps fiber-based Ethernet network, which contributes to its optimal performance.

<Note> You must connect the PCI Express Fiber Gigabit Ethernet Adapter to the network before installing the network driver.

Step 1: Remove the protective covers from the PCI Express Fiber Gigabit Ethernet Adapter's connector.

Step 2: Prepare a network cable with corresponding connectors for the two end devices, one end to the PCI Express Fiber Gigabit Ethernet Adapter and the other to a 1000Mbps fiber port on the network switch.

Step 3: Connect the network cable to the connector on the PCI Express Fiber Gigabit Ethernet Adapter. This network cable consists of two individual cables: one for 'transmission (TX)', and the other for 'reception (RX)'.

Step 4: Connect the other end of the network cable to a 1000BASE-SX/LX switch.

<Note>

- i. **Insert the cable that is connected to the transmit (TX) connector on the PCI Express Fiber Gigabit Ethernet Adapter into the receive (RX) connector on the network switch.**
- ii. **Insert the cable that is connected to the receive (RX) connector on the PCI Express Fiber Gigabit Ethernet Adapter into the transmit (TX) connector on the network switch.**

Step 5: When the cable is properly connected to two end devices, turn on the power to the PC.

Step 6: Check the LNK (Link) LED. The LED will come on when the PCI Express Fiber Gigabit Ethernet Adapter is receiving a good link signal from the connected device, a switch.

Step 7: Proceed to next section for installing the network driver.

Cabling Requirements

For connector type, cabling requirements, and maximum segment distance when connecting the PCI Express Gigabit Ethernet Adapter to your network, please refer to the following table.

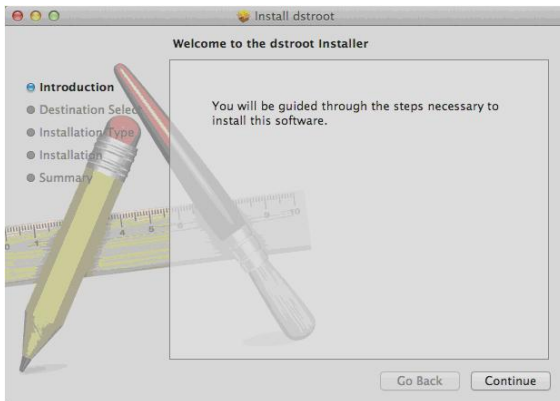
Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
1000Base-SX	SC, LC	2000 Mbps	MMF (62.5 μ m)	220 m 2 km
1000Base-SX	SC, LC	2000 Mbps	MMF (50 μ m)	550 m
1000Base-LX	SC, LC	2000 Mbps	SMF (9, 10 μ m)	10, 20, 50 km
1000Base-BX	SC, LC	2000 Mbps	SMF (9, 10 μ m)	20, 40 km

<Note>

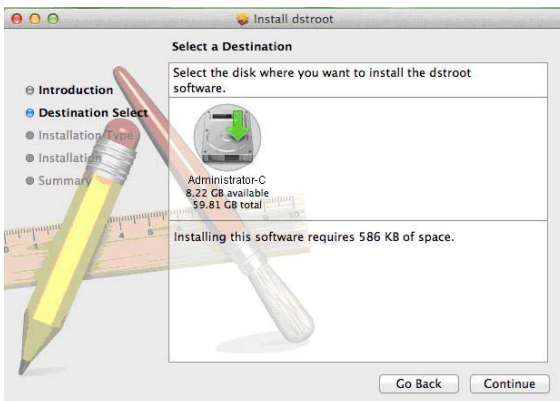
The maximum node-to-node network distance is in full-duplex operation.

Driver Installation for MAC

1. Turn on the computer after plugging PCI Express Gigabit Ethernet Adapter to PCI Express slot
2. Insert driver CD into CD-ROM drive. Specify the driver location and click the driver to continue.



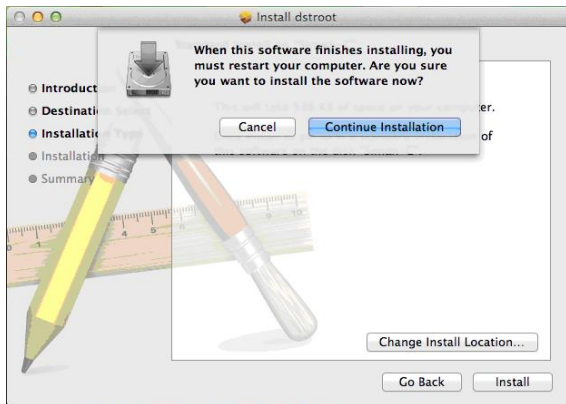
3. Select a Destination: Select the disk where you want to install the software. And then click "Continue" to continue.



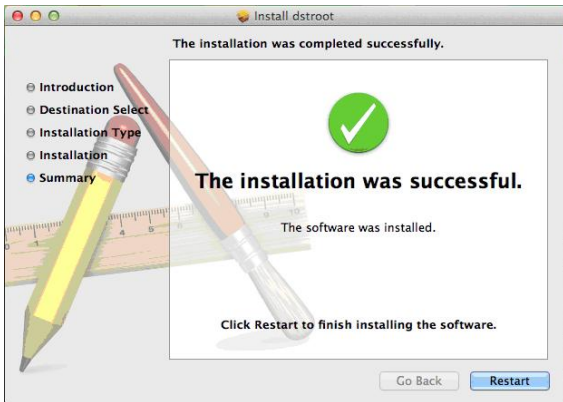
4. Installer is trying to install new software. Type your password to allow this. Click “Install Software” to begin the installation.



5. Click “Continue Installation” to continue the installation. And you must restart your computer when this software finishes installing.



6. The installation was completed successfully. Click “Restart” to restart your computer and finish installing the software.



Driver Installation

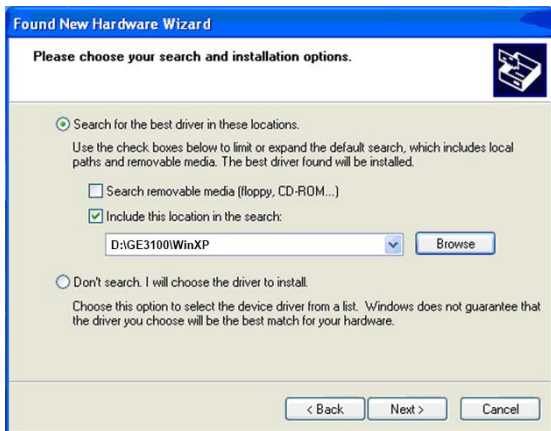
1. Turn on the computer after plugging PCI Express Gigabit Ethernet Adapter to PCI Express slot. The “Found New Hardware Wizard” window pop up.



2. Select “Install from a list or specific location (Advanced)” and click “Next” to continue.



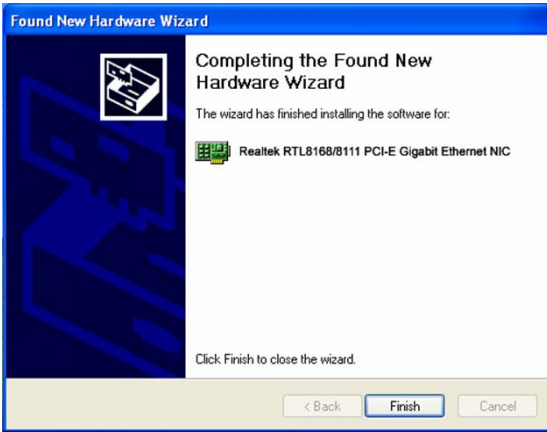
3. Select “Search for the best driver in these locations.” and then select “Include this location in the search:”. Click “Browse” to specify the driver location and click “Next” to continue.



4. Select “Yes, connect and search for the software on the internet” and click “Next” to continue.

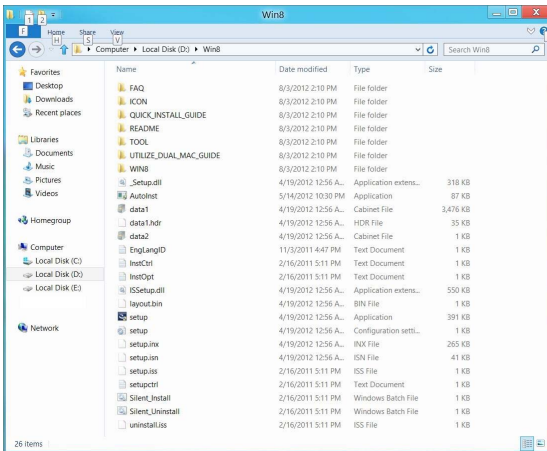


5. Click “Finish” to complete the driver installation.

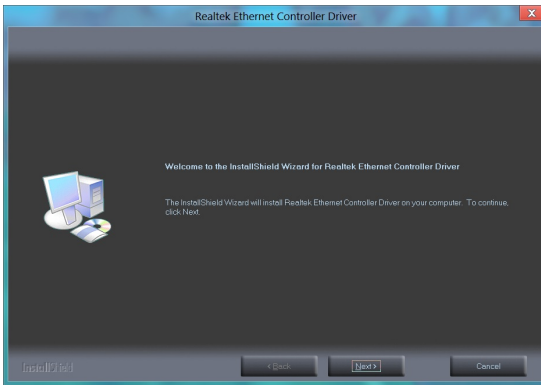


Driver Installation for Windows 8

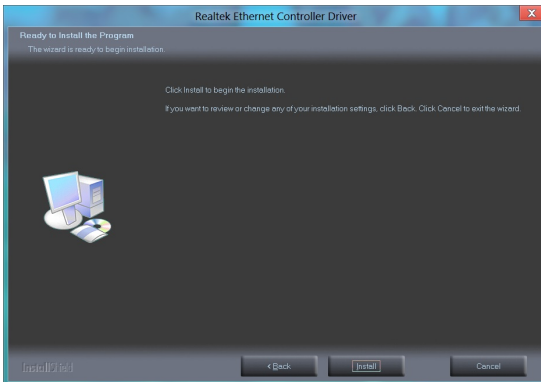
1. Turn on the computer after plugging PCI Express Gigabit Ethernet Adapter to PCI Express slot
2. Insert driver CD into CD-ROM drive. Specify the driver location and double click “setup.exe” to continue.



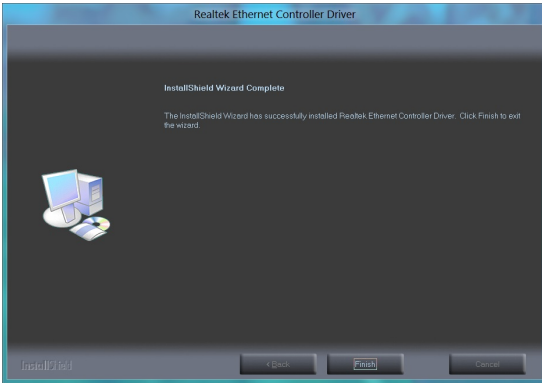
3. Welcome to the InstallShield Wizard for Realtek Ethernet Controller Driver. The InstallShield Wizard will install Realtek Ethernet Controller Driver on your computer. And then click “Next” to continue.



4. Ready to Install the Program. The wizard is ready to begin installation. Click “Install” to begin the installation.



5. InstallShield Wizard Complete. The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click “Finish” to exit the wizard.



Wake-on-LAN (WOL) Setting

- PCI Express Gigabit Ethernet Adapter should be changed from PCI Express (default setting) to Wake-on-LAN (WOL).
PCI Express (default setting): Change jumper cab to position 2 and 3 of JP3.
Wake-on-LAN (WOL): Change jumper cab to position 1 and 2 of JP3.
- Connect an AC to DC power adaptor (5V, 2A) to the 5V DC Jack on the PCI Express Gigabit Ethernet Adapter, and then attach the plug into a standard AC outlet.

For Wake-on-LAN (WOL), PCI Express Gigabit Ethernet Adapter must be set to 1.0 Gbps Full Duplex.

- For Windows XP, please must use our Windows XP driver.

Link Speed & Duplex: Start / Control Panel / Network Connections / Click mouse right button on Local Area Connection (Realtek PCIe GBE Family Controller) / Choose “General” / Click “Configure” button / Advanced / Property: Choose “WOL & Shutdown Link Speed” / Value: Choose “Not Speed Down”

Link Speed & Duplex: Start / Control Panel / Network Connections / Click mouse right button on Local Area Connection (Realtek PCIe GBE Family Controller) / Choose “General” / Click “Configure” button / Power Management

Please enable “Allow the computer to turn off this device to save power” and “Allow this device to bring the computer out of standby”.

- For Windows 7, please follow below procedures:

Link Speed: Start / Control Panel / Network and Internet / Network and Sharing Center / Change adapter setting / Click mouse right button on Local Area Connection (Realtek PCIe GBE Family Controller) / Choose “Properties” / Click “Configure” button / Advanced / Property: Choose “Link Speed” / Value: Choose “1.0 Gbps Full Duplex”

Power Management: Start / Control Panel / Network and Internet / Network and Sharing Center / Change adapter setting / Click mouse right button on Local Area Connection (Realtek PCIe GBE Family Controller) / Choose “Properties” / Click “Configure” button / Power Management

Please enable “Allow the computer to turn off this device to save power” and “Allow this device to bring the computer out of standby”.

- For Windows 8, please follow below procedures:

Speed & Duplex: Start / Desktop / Libraries / Click mouse right button on Network / Choose “Properties” / Change adapter setting / Click mouse right button on Ethernet (Realtek PCIe GBE Family Controller) / Choose “Properties” / Click “Configure” button / Advanced / Property: Choose “Speed & Duplex” / Value: Choose “1.0 Gbps Full Duplex”

Power Management: Start / Desktop / Libraries / Click mouse right button on Network / Choose “Properties” / Change adapter setting / Click mouse right button on Ethernet (Realtek PCIe GBE Family Controller) / Choose “Properties” / Click “Configure” button / Power Management

Please enable “Allow the computer to turn off this device to save power” and “Allow this device to bring the computer out of standby”.

Specifications

Applicable Standards	1000Base-SX/LX/BX: IEEE802.3z 1000Base-SX/LX
Speed	1000Base-SX/LX/BX: 2000Mbps full-duplex
Performance	1,488,100pps for 1000Mbps
Cable	50 or 62/125 μ m multi-mode fiber-optic cable, up to 2 km, wavelength 850nm 9 or 10/125 μ m single-mode fiber-optic cable, up to 50 km, wavelength 1310nm 9 or 10/125 μ m single-mode fiber-optic cable, up to 40 km, wavelength 1310/1550nm
LED Indicators	LNK (Link) (Green) ACT (Activity) (Yellow)
Dimensions	117.6mm (D) x 117.5mm (W) (4.7" (D) x 4.7" (W)) Low Profile: 117.6mm (D) x 80mm (W) (4.7" (D) x 3.2" (W))
Net Weight	80g (0.18lb.) approx.
Power Consumption	3.3VDC, 970mA, 3.2W Max.
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	5%-95% non-condensing
Emissions	FCC Part 15, Class B CE, VCCI Class B