# Preface

This manual describes how to install and use the PCI Express Ethernet Adapter. This PCI Express Ethernet Adapter allows options of the 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 Ethernet Adapter
- Product features
- LEDs functions
- Hardware installation
- Software installation
- Specifications

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# **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 Ethernet Adapter CD includes User's Manual & Software Driver

# **Product Features**

- Provides (depends on models):
  - One 100Base-FX port or
  - One SFP slot
- fiber connections:
  - SC, ST or LC connectors for multi-mode, and SC connector for single-mode
  - Compliant with IEEE 802.3u 100Base-FX
- Supports PCI Express 1.1
- Supports Plug-and-Play
- Supports Wake-on-LAN and remote wake-up
- Supports IEEE802.1Q VLAN Tagging
- Supports IEEE802.1p Layer 2 Priority Encoding
- Supports 1-Lan 2.5Gbps PCI Express Bus
- IEEE 802.3x Full Duplex flow control
- Two LEDs: LNK/ACT (link/activity), SPD (speed)
- 0°C to 50°C (32°F to 122°F) operating temperature range

# **Driver Support**

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

- Microsoft Windows 98, Windows ME, Windows 2000, Windows XP, Windows 2003, Windows Vista, Windows 7 and Windows 2008
- SCO Unix 5.0.6 and 5.0.7
- SCO OpenServer 6 and Unixware 7.1.x
- FreeBSD 7.x and 8.0
- Linux kernel 2.4.x and 2.6.x (Support x86, x64)
- Novell client for DOS (ODI driver)
- Novell Netware Server driver (Support OS 5.x, 6.x)
- MacOS 10.4, 10.5 and 10.6 on Intel-based Mac computer

# LEDs

#### **DLNK/ACT** Link/Activity

# ②**SPD** 100Mbps

| LEDs    | Status   | Indication  |  |
|---------|----------|---|--|
|         | Steady   | A valid network connection established.<br>LNK stands for LINK. |  |
| LNK/ACT | Flashing | Transmitting or receiving data.<br>ACT stands for ACTIVITY.     |  |
|         | Off      | Neither connection nor activity.                                |  |
| SPD     | Steady   | 100Mbps.  |  |
|         | Off      | 10Mbps.   |  |

# **Hardware Installation**

# Installing Ethernet Adapter into PCI Express slot

- Step 1: Turn off the power to the PC.
- 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 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 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 Ethernet Adapter

This section describes how to connect the PCI Express Fiber Ethernet Adapter to a 100 Mbps fiber-based Ethernet network, which contributes to its optimal performance.

<Note>

You must connect the PCI Express Fiber Ethernet Adapter to the network before installing the network driver.

- Step 1: Remove the protective covers from the PCI Express Fiber 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 Ethernet Adapter and the other to a 100Mbps fiber port on the network switch.
- Step 3: Connect the network cable to the connector on the PCI Express Fiber 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 100BASE-SX/LX switch.

#### <Note>

- i. Insert the cable that is connected to the transmit (TX) connector on the PCI Express Fiber 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 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 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 Ethernet Adapter to your network, please refer to the following table.

| Connector Type   | Wavelength of 1300nm Fiber         | Maximum Distance |
|------------------|------------------------------------|------------------|
| on Fiber Adapter | Optic required                     | (* full-duplex)  |
| ST               | Multi-mode, 50 or 62.5/125 $\mu m$ | 2 km             |
| SC               | Multi-mode, 50 or 62.5/125 $\mu m$ | 2 km             |
| VF-45            | Multi-mode, 50 or 62.5/125 µm      | 2 km             |
| MT-RJ            | Multi-mode, 50 or 62.5/125 µm      | 2 km             |
| LC               | Multi-mode, 50 or 62.5/125 $\mu m$ | 2 km             |
| SC               | Single-mode, 9 or 10/125 µm        | 20 km            |
| SC               | Single-mode, 9 or 10/125 µm        | 40 km            |
| SC               | Single-mode, 9 or 10/125 µm        | 60 km            |

<Note>

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

# **Driver Installation**

1. Turn on the computer after plugging PCI Express Ethernet Adapter to PCI Express slot. The "Found New Hardware Wizard" window pops up.



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



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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. Installing.



5. Click "Finish" to complete the driver installation.



# **Diagnostics Utility**

The Diagnostics Utility is a Windows platform application. It provides General information, VLAN ID settings, Driver property settings, Diagnostics function, Statistics, Cable analysis, and Wake On LAN function.

# **Diagnostics Utility Installation**

1. Look for the file named "setup.exe" on the installation CD-ROM. Double-click on it to start the installation for the Diagnostics Utility.



2. Click *Install* to install Diagnostics Utility.



#### 3. Installing



4. After Diagnostics Utility has been successfully installed, click on *Finish*.

5. Simply click Diagnostics Utility under Programs → Realtek
 → Diagnostics to launch the Diagnostics Utility.



# **Diagnostics Utility Configuration**

#### General

This page displays general information about the selected network adapter.

| 🛱 Realtek - Ethernet Diagnostic Utility   |   |   |
|---|---|---|
| Realtek PCIe FE Family C<br>Realtek PCIe FE Family C<br>Curver<br>Composition<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable<br>Cable | General     MAC Address     IP Address     Connection Name     Link Status     Duplex Mode     Vendor ID     SubVendor ID     SubVendor ID     Revision ID     ID Address     Memory Address     Interrupt Number | 00-e0-b3-10-e8-98<br>192.168.1.123<br>Local Area Connection 2<br>100<br>Full Duplex<br>10EC<br>8136<br>10EC<br>0123<br>05<br>CE00<br>FD9FF000<br>0x10 |

#### VLAN

This page shows information about VLANs on current selected network adapter. User can add or remove VLAN here. Besides, user can change the VLAN ID of existing VLAN.

| 📟 Realtek - Ethernet Dia | gnostic Utility |   | × |
|--------------------------|-----------------|---|---|
| Realtek PCIe FE Family C | General         | VLAN VLAN ID Connection Name Adapter Name Adapter Name Adapter VLAN Add Delete Modify VID |   |

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#### Driver

This page displays driver information of the selected network adapter.

| 🎟 Realtek - Ethernet Dia | gnostic Utility   |  |   |
|--------------------------|---|--|---|
| Realtek PCIe FE Family C | General     VLAN     VLAN     General     VLAN     General     Statistics     Cable     General     General | Description<br>Provider<br>Version<br>Date<br>INF Path<br>Binary Path<br>Comment | Reallek PCIe FE Family Controller<br>Realtek Semiconductor Corp.<br>5.766.504.2011<br>5-4-2011<br>oem7.inf<br>Rtenicap.sys<br>This product is covered by one or more of the |
|                          |   |  |   |

# Advanced Setting

This page displays working parameters for this network adapter. User can modify these parameters here. For Windows 98SE and ME, it needs to reboot to change the parameters.



# Diagnostics

This page performs hardware tests on selected network adapter.



# Send and Receive

Two PCs with adapters in the same LAN can perform send & receive experiment with broadcast packet here.

| 📟 Realtek - Ethernet Dia | gnostic Utility  |   |  | × |
|--------------------------|--|---|--|---|
| Realtek PCIe FE Family ( | General<br>VLAN<br>Clapnostics<br>Statistics<br>Cable<br>Wake On LAN<br>EEE Status<br>Cable<br>About | <ul> <li>Send and Receiv<br/>This is a ping-pong test b<br/>computers running this p<br/>"Initiator" and another as</li> <li>Initiator</li> <li>Initiator</li> <li>Start</li> </ul> | /e<br>py broadcast. There should be two<br>rogram on the same LAN , one stands as<br>"Responder".<br>Responder<br>Stop |   |
| < >>                     | <  |   |  |   |

# Statistics

This page show statistics of current selected network adapter, including throughput, number of good packet sent / received, and number of error packet sent / received.

| 🕮 Realtek - Ethernet Diagnostic Utility  |  |  |
|--|--|--|
| Realtek PCIe FE Family C  General  Gu VAN  Colorer  Cable  Cabl | Statistics     Throughput(Send)     Throughput(Receive)     Throughput(Receive)     Throughput(Receive)     Packet Sent     Packet Received     Error(Receive) | 592.00 bps<br>592.00 bps<br>1.16 Kbps<br>150<br>102<br>0<br>0<br>0 |

# Cable

This page estimates the length of the plugged cable.

| 🖼 Realtek - Ethernet Diagnostic Utility   |   |   |  |               | × |
|---|---|---|--|---------------|---|
| Realtek PCIe FE Family C General G VLAN C Coble G VLAN C C Coble G VLAN C C C C C C C C C C C C C C C C C C C | Cable Statu:<br>* Cable Statu:<br>Norr<br>Oper<br>Shor<br>Link Speed: | is Description:<br>nal - The calbe is n<br>n - The calbe is bi<br>rt - The cable is sh<br>100 | ormal or connect<br>roken or disconn<br>ort. | ed.<br>ected. |   |
|   | Pair<br>1-2<br>3-6  | Length(m)<br>0<br>0   | Status<br>Normal<br>Normal                   | Refresh       | כ |
|   |   |   |  |               |   |

# Wake On LAN

This page provides two ways for user to wake up a PC in standby or hibernate mode via selected network adapter. A computer can be waked up only if related configurations in BIOS and the network adapter are enabled.

| 🕮 Realtek - Ethernet Diagnostic Utility  |  |
|--|--|
| Realtek PCIe FE Family C  General  G VLAN  Diagnostics  Send and Receiv  Send and Receiv  Set Status  Cable  Wale On LAN  EE Status  About | Wake On LAN      To wake up a computer in suspend or sleep mode on LAN, please     select one of the following method and fill up the information about the     computer.      Ethernet Address     IP Address       Wake Up |

# EEE Status

This page shows information about EEE status. User can change the current LP status to minimize system power consumption.



# Specifications

| Applicable Standards | 100Base-FX:  |
|----------------------|--|
|                      | IFFF802 3u 100Base-FX  |
|                      | 11111002.5u 1001000 17   |
| Grand                | 100Deers EV.   |
| Speed                | 100Base-FX:  |
|                      | 200Mbps full-duplex, 100Mbps half-duplex                               |
|                      |  |
| Performance          | 148,810pps for 100Mbps   |
|                      |  |
| Cable                | 50 or 62/125um multi-mode fiber-optic                                  |
| Cubic                | cable up to 2 km wavelength 850nm                                      |
|                      | 0 = 10/125 yrs single mode filter entire                               |
|                      | 9 of 10/125µm single-mode moet-optic                                   |
|                      | cable, up to 50 km, wavelength 1310nm                                  |
|                      | 9 or 10/125µm single-mode fiber-optic                                  |
|                      | cable, up to 40 km, wavelength   |
|                      | 1310/1550nm  |
|                      |  |
| I ED Indicators      | I NK / A CT (A ctivity/Link)   |
| LED mulcators        | CDD(C 1)   |
|                      | SPD(Speed)   |
|                      |  |
| Dimensions           | 56.2mm (L) x 105mm (D)   |
|                      | (2.25" (L) x 4.2" (D))   |
|                      |  |
| Not Woight           | $40 \alpha (0.00 h)$ approx  |
| Net weight           | 40g (0.090.) approx.   |
|                      |  |
| Power Consumption    | 1.7W Max.  |
|                      |  |
| Operating            | $0^{\circ}$ C to $50^{\circ}$ C ( $32^{\circ}$ F to $122^{\circ}$ F)   |
| Temperature          |  |
| Storage Temperature  | $-10^{\circ}$ C to $70^{\circ}$ C ( $14^{\circ}$ F to $158^{\circ}$ F) |
| Storage remperature  | -10 C to 70 C (14 T. to 150 T.)  |
|                      |  |
| Humidity             | 5%-95% non-condensing  |
|                      |  |
| Emissions            | FCC part 15 Class B, CE Mark Class B                                   |
|                      | 1  |