PCI Express Gigabit Ethernet Multi Mode SC Fiber Network Card

PEX1000MMSC2

*actual product may vary from photos

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

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Introduction

Packaging Contents
• 1x 1 Port PCI Express Gigabit Fiber Network Card
• 1x Low Profile Bracket
• 1x Driver CD
• 1x Instruction Manual

System Requirements
• PCI Express enabled computer with an available PCI Express slot
• Windows® 8 / 8.1 (32/64bit), 7 (32/64), Vista (32/64), XP (32/64), Windows Server® 2012, 2008 R2, 2003, Mac OS 10.5® and up (Tested up to 10.9), Linux 2.4.x, 2.6.x and 3.5.0, Microsoft Hyper-V®
Product Overview

Card

Fiber Optic SC Female

Link LED
Activity LED

Jumper

JP2 Jumper
Note: See the “Card to Card Direct Configuration” section on the following pages for further details on jumper configuration.

Installation

Hardware Installation

**WARNING!** PCI Express cards, like all computer equipment, can be severely damaged by static electricity. Be sure that you are properly grounded before opening your computer case or touching your PCI Express card. StarTech.com recommends that you wear an anti-static strap when installing any computer component. If an anti-static strap is unavailable, discharge yourself of any static electricity build-up by touching a large grounded metal surface (such as the computer case) for several seconds. Also be careful to handle the PCI Express card by its edges and not the gold connectors.

1. Turn your computer off and any peripherals connected to the computer (i.e. Printers, external hard drives, etc.). Unplug the power cable from the rear of the power supply on the back of the computer and disconnect all peripheral devices.

2. Remove the cover from the computer case. See documentation for your computer system for details.

3. Locate an open PCI Express slot and remove the metal cover plate on the rear of the computer case (Refer to documentation for your computer system for details).

**NOTE:** This card will work in PCI Express slots of additional lanes (i.e.x4, x8, or x16 slots).
4. Gently insert the card into the open PCI Express slot and fasten the bracket to the rear of the case.

**NOTE:** If installing the card into a small form factor/low profile system, replacing the pre-installed full profile bracket with the included low profile installation bracket may be necessary.

5. Place the cover back onto the computer case.

6. Insert the power cable into the socket on the power supply and reconnect all other connectors removed in Step 1.

## Driver Installation

**Windows**

**NOTE:** The card may auto-install using native drivers, however it is recommended to use the procedure below to update to the latest driver version.

1. Upon starting Windows, if the Found New Hardware dialog appears on the screen, cancel/close the window and insert the included Driver CD into the computer’s CD/DVD drive.

2. If AutoPlay is enabled, select the “Open folder to view files” option when the dialog appears.

3. Open the “PEX1000MMSC2_SFP2_Driver” folder, and run the “Setup.exe” application within the appropriate Operating System folder for the system you are using.
4. If AutoPlay is disabled, browse to your CD/DVD drive, open the “PEX1000MMSC2_SFP2_Driver” folder, and run the “Setup.exe” application within the appropriate Operating System folder for the system you are using.

5. Follow any on-screen instructions to complete the software installation.

**NOTE:** You may be prompted to restart your system.
Mac OS

1. Insert the provided CD into your DVD/CD-ROM drive.

2. For OS 10.7 and up, browse to the “\PEX1000MMSC2_SFP2_Driver\MacOS\MacOS 10.7\Packages” folder on the disc and then run the “dstroot.pkg” application to start the install.

   **NOTE:** For OS 10.4-10.6, please run the appropriate “.pkg” application from the applicable OS version folder for the system you are using.

3. Follow the on-screen instructions to complete the installation.

Verifying Installation

**Windows**

1. From the main desktop or start menu, right-click on “**Computer**” (“My Computer” in XP), then select “**Manage.**”

2. In the Computer Management window, select “**Device Manager**” from the left window panel. Windows 8.1 users can right click on the “**Start**” button and click “**Device Manager.**”
3. Under the Network Adapters category should be a “Realtek PCIe GBE Family Controller” device. **Right-click** on the device and select **Properties** to make sure it is installed and working correctly.

**Mac OS**

1. Open the “System Profiler” by clicking the Apple symbol in the top left corner, select “About this Mac”, then select “More Info.”

2. On the next screen, select “System Report” and under the “Ethernet Cards” heading within the “Hardware” category should be an “ethernet” device.
<table>
<thead>
<tr>
<th>Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel 82574L</td>
</tr>
<tr>
<td>Intel 82574L</td>
</tr>
</tbody>
</table>

**Ethernet:***

<table>
<thead>
<tr>
<th>Type:</th>
<th>Ethernet Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus:</td>
<td>PCI</td>
</tr>
<tr>
<td>Slot:</td>
<td>Slot-3</td>
</tr>
<tr>
<td>Vendor ID:</td>
<td>0x10ec</td>
</tr>
<tr>
<td>Device ID:</td>
<td>0x8168</td>
</tr>
<tr>
<td>Subsystem Vendor ID:</td>
<td>0x10ec</td>
</tr>
<tr>
<td>Subsystem ID:</td>
<td>0x0123</td>
</tr>
<tr>
<td>Revision ID:</td>
<td>0x0006</td>
</tr>
<tr>
<td>Link Width:</td>
<td>x1</td>
</tr>
<tr>
<td>BSD name:</td>
<td>en21</td>
</tr>
<tr>
<td>Kext name:</td>
<td>AppleRTL8169Ethernet.kext</td>
</tr>
<tr>
<td>Location:</td>
<td>/System/Library/Extensions/IONetwork</td>
</tr>
<tr>
<td>Version:</td>
<td>1.1.4a5</td>
</tr>
</tbody>
</table>
Software Utility

The PCI Express Fiber Gigabit Ethernet Adapter also includes an optional monitoring and maintenance software utility. Run the “setup.exe” file located within the “PEX1000MMSC2_SFP2_Utility” folder on the included CD to provide access to configuration settings as well as testing and reporting statistics.

Connecting to a Network

Network Configuration

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:

<table>
<thead>
<tr>
<th>Speed</th>
<th>Connector</th>
<th>Port Speed Half/Full Duplex</th>
<th>Cable</th>
<th>Max. Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000Base-SX</td>
<td>SC</td>
<td>2000 Mbps</td>
<td>MMF (62.5μm)</td>
<td>220 m, 2 km</td>
</tr>
<tr>
<td>1000Base-SX</td>
<td>SC</td>
<td>2000 Mbps</td>
<td>MMF (50μm)</td>
<td>550 m</td>
</tr>
</tbody>
</table>
1. Remove the protective covers from the PCI Express Fiber Gigabit Ethernet Adapter’s connector.

2. Prepare a network cable with the corresponding “SC” 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.

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)

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

5. **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.

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

7. 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, or switch.

---

**Card to Card Direct Configuration**

The PCI Express Fiber Gigabit Ethernet Adapter allows for a card-to-card direct fiber connection. One adapter should be set to “auto negotiation mode” and while the other should be set to “1000 Mbps full duplex mode” when two card adapters are connected to each other via fiber connectors.

Follow the below jumper settings to create a direct configuration:

1. **Auto negotiation (default setting):** Set the JP2 jumper configuration for “Card A” to jumper position “2 and 3.”

2. **1000Mbps full duplex:** Set the JP2 jumper configuration for “Card B” to jumper position “1 and 2.”
## LEDs

<table>
<thead>
<tr>
<th>LEDs</th>
<th>Status</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNK</td>
<td>Steady</td>
<td>A valid network connection established.</td>
</tr>
<tr>
<td>(Link)</td>
<td>Off</td>
<td>No network connection.</td>
</tr>
<tr>
<td>(Green)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>Flashing</td>
<td>Transmitting or receiving data.</td>
</tr>
<tr>
<td>(Activity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Yellow)</td>
<td>Off</td>
<td>No activity.</td>
</tr>
</tbody>
</table>

- **Steady**: A valid network connection established.
- **Off**: No network connection.
- **Flashing**: Transmitting or receiving data.
- **Off**: No activity.
### Specifications

<table>
<thead>
<tr>
<th><strong>Bus Type</strong></th>
<th>PCI Express</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Card Profile</strong></td>
<td>Standard Profile (LP bracket incl.)</td>
</tr>
<tr>
<td><strong>Chipset ID</strong></td>
<td>Realtek - RTL8168E; Marvell - 88E1111B1</td>
</tr>
<tr>
<td><strong>Industry Standards</strong></td>
<td>IEEE802.3z 1000BASE-SX, IEEE 802.1Q VLAN tagging, IEEE 802.1P Layer 2 Priority Encoding, RFC 1157 SNMP v1, IEEE 802.3x full duplex flow control</td>
</tr>
<tr>
<td><strong>Interface</strong></td>
<td>Fiber Ethernet</td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Connector Type(s)</strong></td>
<td>1x PCI Express x1; 1x Fiber Optic Duplex SC Female</td>
</tr>
<tr>
<td><strong>Buffer Size</strong></td>
<td>48 KB</td>
</tr>
<tr>
<td><strong>Compatible Networks</strong></td>
<td>1000 Mbps (1 Gbps)</td>
</tr>
<tr>
<td><strong>Full Duplex Support</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Maximum Data Transfer Rate</strong></td>
<td>2000Mbps (Full-Duplex)</td>
</tr>
<tr>
<td><strong>OS Compatibility</strong></td>
<td>Windows® 8 / 8.1 (32/64bit), 7 (32/64), Vista (32/64), XP (32/64), Windows Server® 2012, 2008 R2, 2003, Mac OS 10.5® and up (Tested up to 10.9), Linux 2.4.x, 2.6.x and 3.5.0, Microsoft Hyper-V®</td>
</tr>
<tr>
<td><strong>Product Dimensions (LxWxH)</strong></td>
<td>118mm x 19mm x 118mm</td>
</tr>
<tr>
<td><strong>Product Weight</strong></td>
<td>70g</td>
</tr>
<tr>
<td><strong>LED Indicators</strong></td>
<td>1x Link (Green); 1x Activity (Yellow)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>3.2W Max</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>5-95% RH (Non-condensing)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>0°C to 45°C (32°F to 113°F)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>-20°C to 70°C (-4°F to 158°F)</td>
</tr>
</tbody>
</table>
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Warranty Information
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