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Neousys Technology Inc.

PCIe-PoE2+/PCIe-PoE4+

2-Port/4-Port x4 PCI-E Gigabit Power over Ethernet Frame Grabber Card

User's Manual

Rev. A1

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

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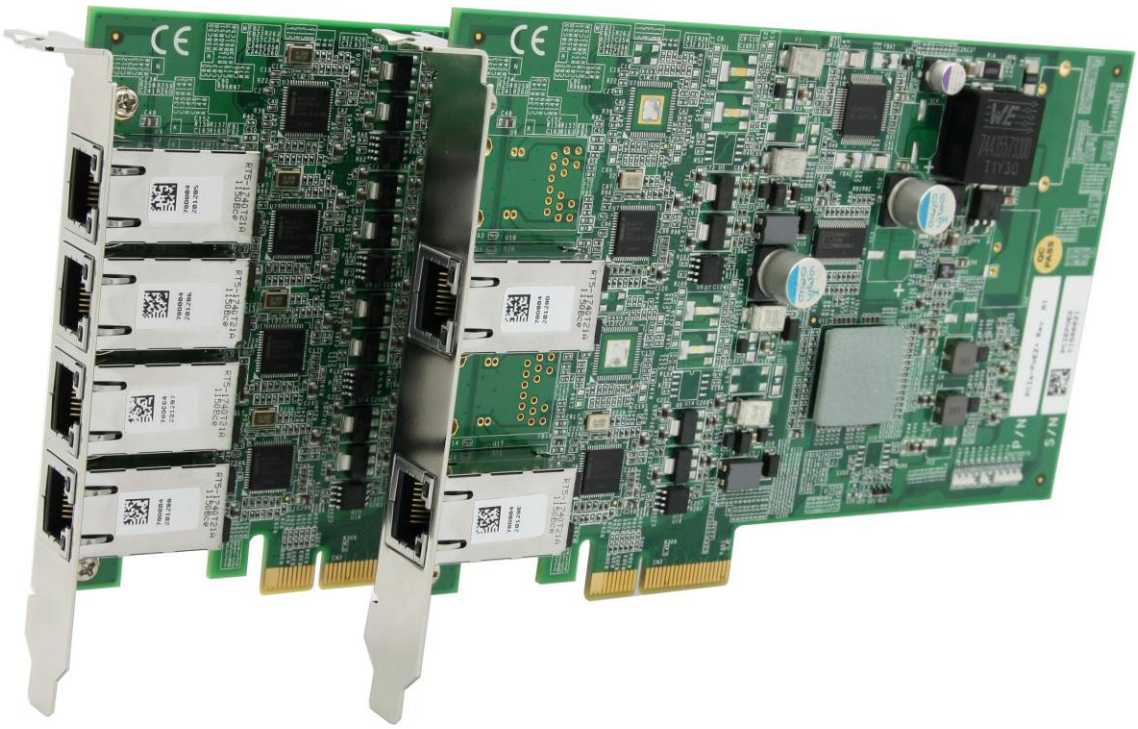
Chapter 1 Introduction

1.1 Overview

Neousys PCIe-PoE2+ and PCIe-PoE4+ are x4 PCI Express GigE frame grabber cards with PoE capability. PoE, or Power over Ethernet, is a technology to supply electrical power along with data on a standard Ethernet cable. PCIe-PoE2+ offers two PoE ports and PCIe-PoE4+ offers four PoE ports via independent Intel® 82574L Gigabit Ethernet controllers.

PCIe-PoE2+ and PCIe-PoE4+ are dedicatedly designed for PoE cameras. Each port can delivers 15.4 W of power and 1000 Mb/s bandwidth over a CAT-5/CAT-6 cable of up to 100 meters. It features 9 kB jumbo frame and link aggregation, which conduct exceptional performance for continuously receiving large amount of image data. And for your convenience, we design PCIe-PoE2+ with the capability of directly drawing power from PCI-E bus so no external 12 VDC is needed.

The PoE technology significantly reduces the installation and maintenance cost by eliminating the power wire. Combining PoE and the Gigabit bandwidth, PCIe-PoE2+ and PCIe-PoE4+ are the perfect fit for your vision application!



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1.2 Product Specification

Specification of PCIe-PoE2+

Bus Interface	x4 PCI Express
Gigabit Ethernet Port	2x Gigabit Ethernet ports by Intel® 82574L controllers, supporting 9 kB jumbo frame & link aggregation (teaming)
PoE Capability	IEEE 802.3af compliant Each port delivers up to 15.4W
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximal
Power Requirement	Maximal 1.6A @ 3.3V from PCI Express bus Maximal 2.8A @ 12V directly from PCI Express bus*
Operating Temperature	0 ~ 60 °C with air flow
Dimension	167.7 mm (W) x 111.2 mm (H)

** PCIe-PoE2+ is designed to directly draw 12V power for PoE devices from PCI Express bus. No external 12 VDC input is needed.*

Specification of PCIe-PoE4+

Bus Interface	x4 PCI Express
Gigabit Ethernet Port	4x Gigabit Ethernet ports by Intel® 82574L controllers, supporting 9Kb jumbo frame & link aggregation (teaming)
PoE Capability	IEEE 802.3af compliant Each port delivers up to 15.4W
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximal
Power Requirement	Maximal 2.4A @ 3.3V from PCI Express bus Maximal 5.6A @ 12V from external power plug via 4-pin power connector **
Operating Temperature	0 ~ 60 °C with air flow
Dimension	167.7 mm (W) x 111.2 mm (H)

*** PCIe-PoE4+ is designed to obtain additional 12V power for PoE devices from its on-board 4-pin power connector.*

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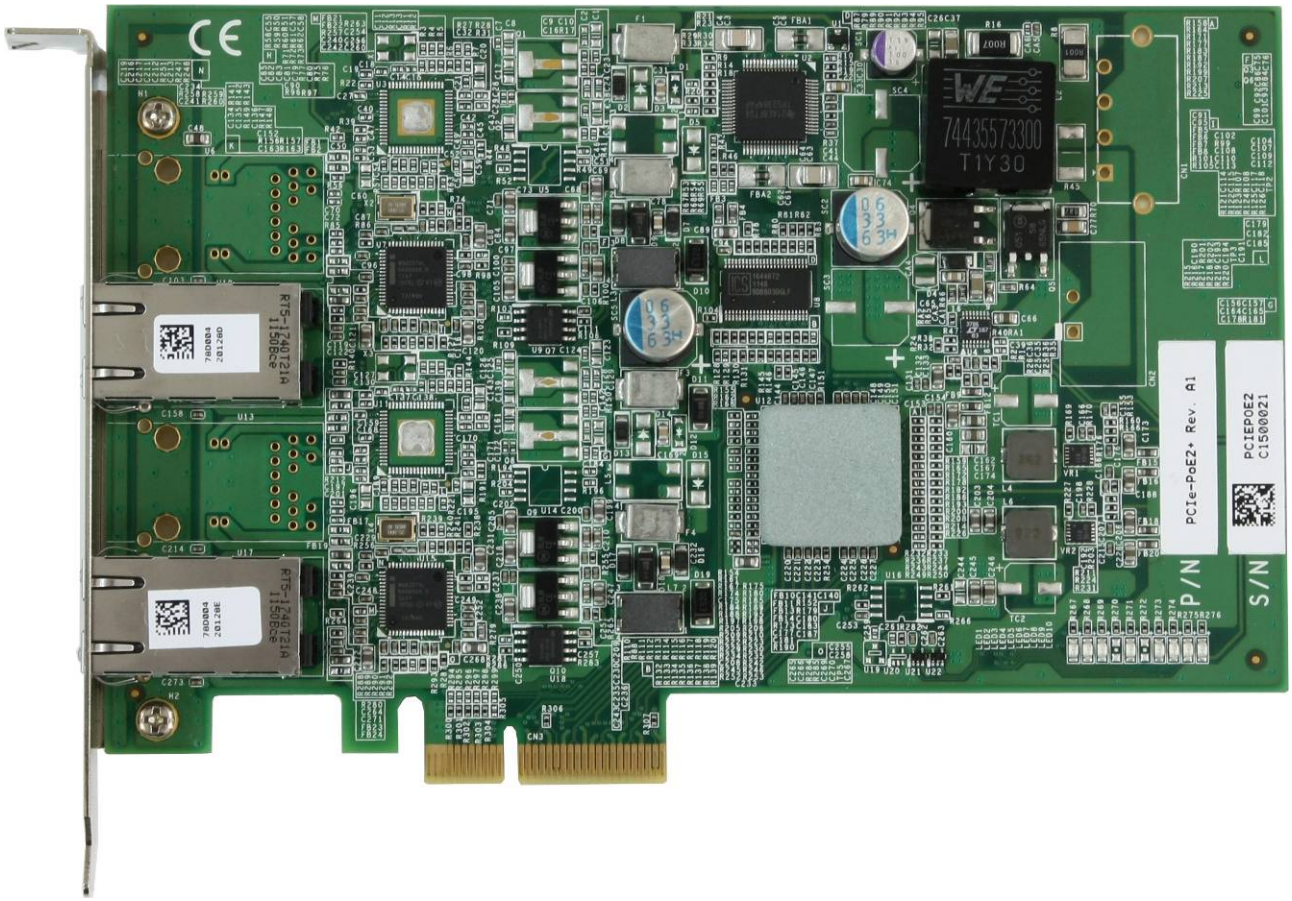
Chapter 2 Know your PCIe-PoE2+/4+

2.1 Unpacking your PCIe-PoE2+/4+

When you receive the package of PCIe-PoE series, please check immediately if the package contains all the items listed in the following table. If any item is missing or damaged, please contact your local dealer or Neousys Technology Inc. for further assistance.

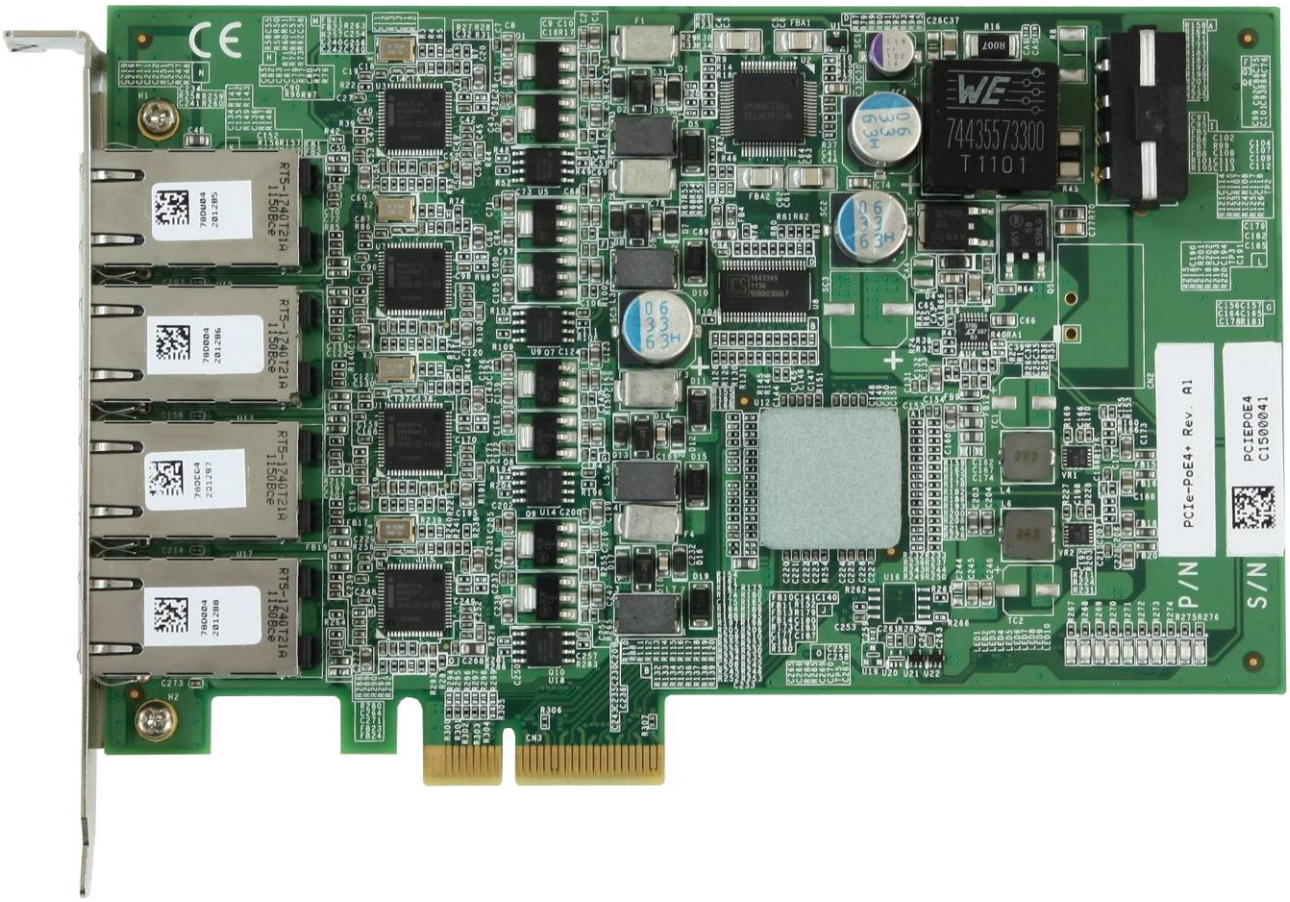
Item	Description	Qty
1	PCIe-PoE2+ or PCIe-PoE4+ frame grabber card	1
2	Neousys Drivers & Utilities DVD	1

2.2 PCIe-PoE2+ Top View



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2.3 PCIe-PoE4+ Top View



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Chapter 3 Getting Start

3.1 Install the PCIe-PoE2+ Frame Grabber Card

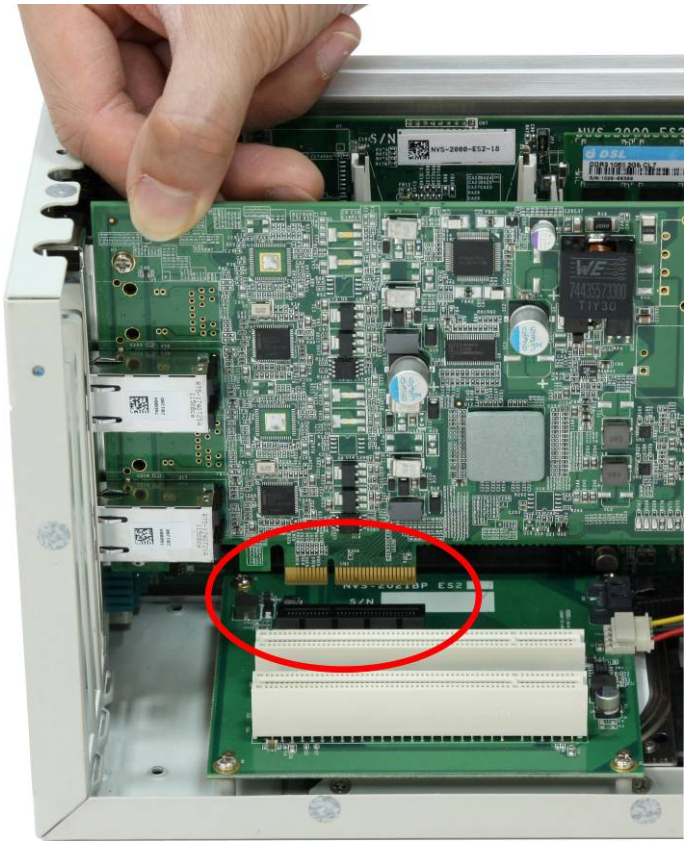
PCIe-PoE2+ utilizes the x4 PCI Express bus to communicate with the host computer. Before you install the PCIe-PoE2+, please make sure that there is a x4 PCI Express slot available on your host computer.

Note

Most modern computers have x16 PCI Express slot(s) for installing a graphics card. It can be possibly configured as a PCI Express Root Port for installing a general PCI Express card. Please contact the vendor of your computer to check if PCIe-PoE2+ can be fitted into your x16 PCI Express slot.

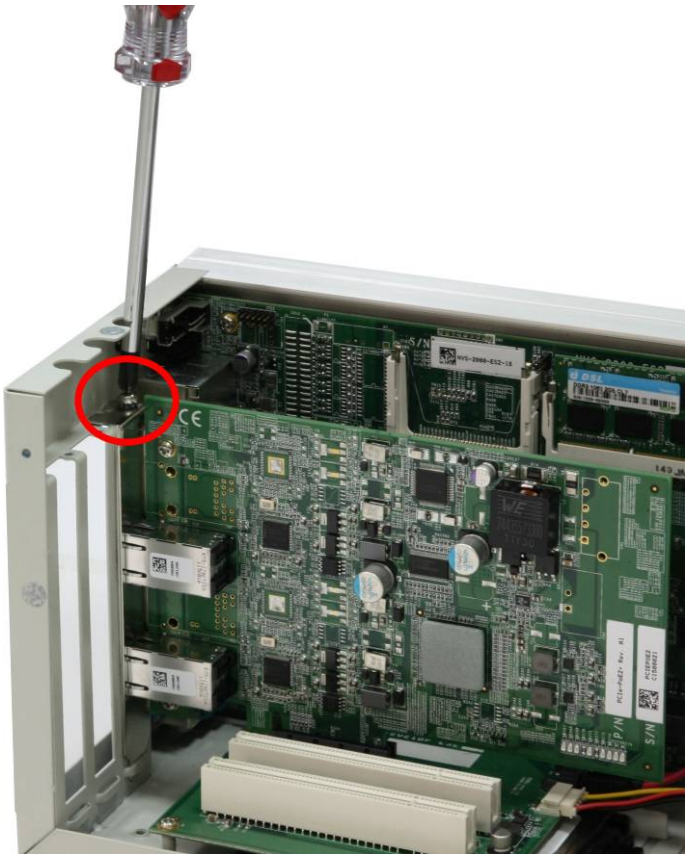
You can install the PCIe-PoE2+ frame grabber card by following the steps listed below.

1. Open the chassis of the host computer and expose the x4 PCI Express slot (or a compatible x16 PCI Express slot).
2. Align and insert the goldfinger of PCIe-PoE2+ into the PCI Express slot until it's firmly contacted.



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3. Fix the PCIe-PoE2+ to the host computer using with a screw.



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3.2 Install the PCIe-PoE4+ Frame Grabber Card

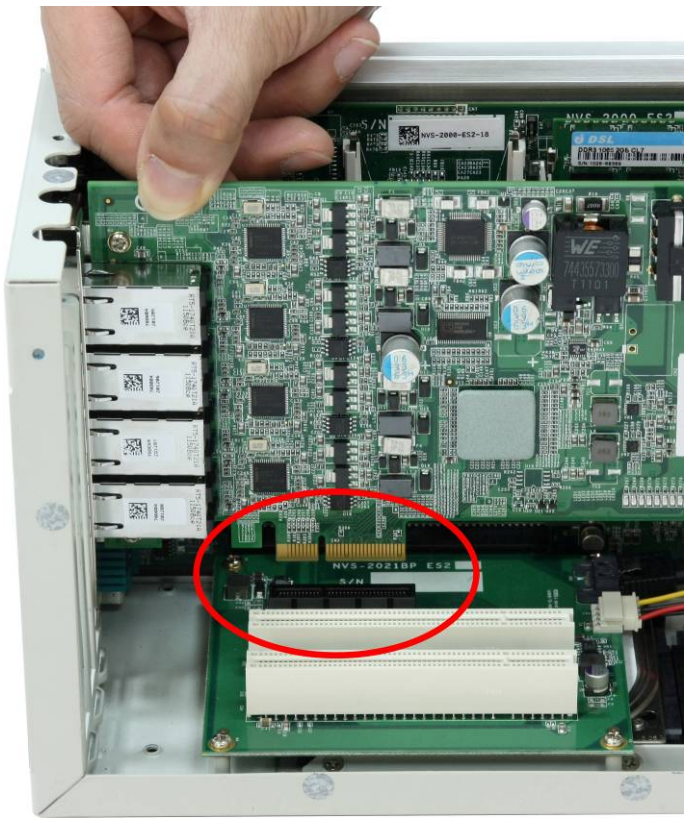
PCIe-PoE4+ utilizes the x4 PCI Express bus to communicate with the host computer. Before you install the PCIe-PoE4+, please make sure that there is a x4 PCI Express slot available on your host computer.

Note

Most modern computers have x16 PCI Express slot(s) for installing a graphics card. It can be possibly configured as a PCI Express Root Port for installing a general PCI Express card. Please contact the vendor of your computer to check if PCIe-PoE4+ can be fitted into your x16 PCI Express slot.

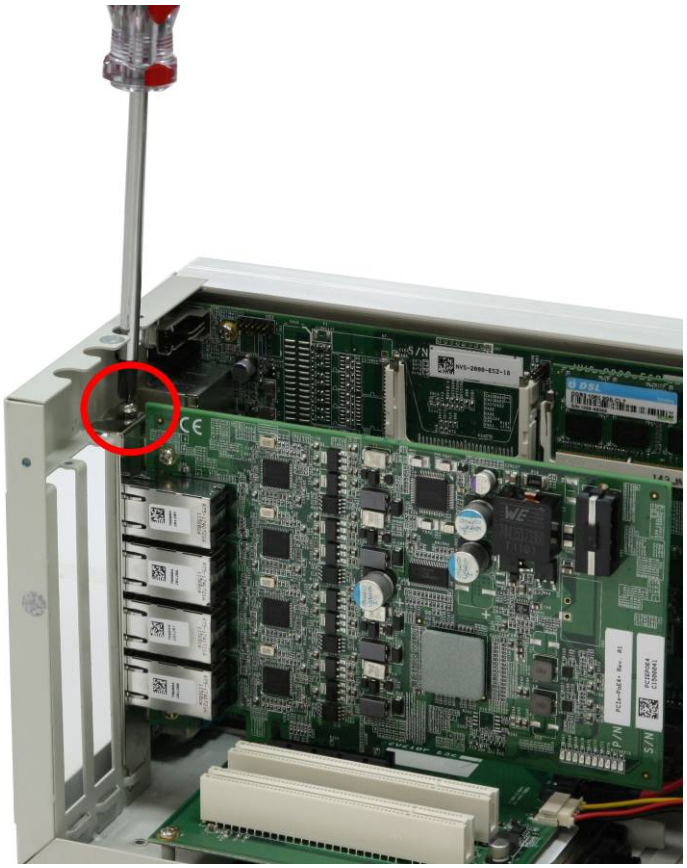
You can install the PCIe-PoE4+ frame grabber card by following the steps listed below.

1. Open the chassis of the host computer and expose the x4 PCI Express slot (or a compatible x16 PCI Express slot).
2. Align and insert the goldfinger of PCIe-PoE4+ into the PCI Express slot until it's firmly contacted.

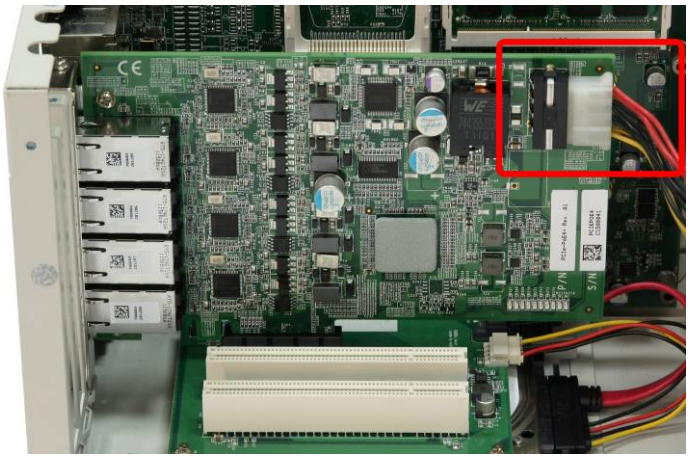


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3. Fix the PCIe-PoE4+ to the host computer using with a screw.



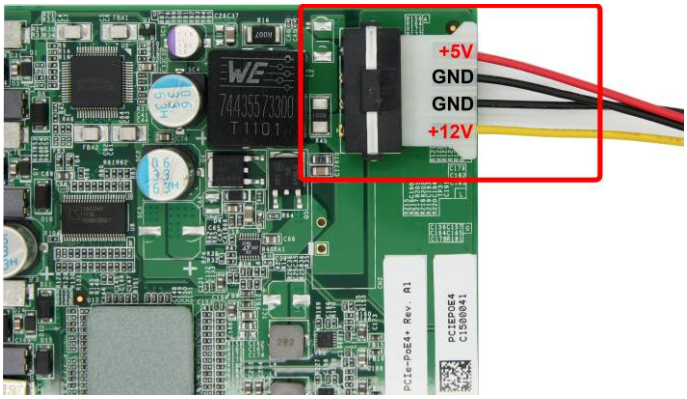
4. Provide a +12V power by connecting the 4-pin power plug from your ATX power supply to the on-board 4-pin power connector of PCIe-PoE4+.



Note

When using the PCIe-PoE4+, an external +12V power supply is needed. For most cases, you can use the 4-pin power plug (+5V/Red, GND/Black, GND/Black, +12V/Yellow) from the ATX power supply inside the host computer. Please always confirm the polarity before you plug the external power into the on-board 4-pin power connector.

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3.3 Connect a PoE or Non-PoE Device

PoE, or Power over Ethernet, is a technology to supply electrical power along with data on a standard Ethernet cable. By detecting and classifying the connected device before supplying power to device, PCIe-PoE2+ and PCI-PoE4+ can work with **both PoE Powered Devices (PD) and regular Ethernet devices.**

A CAT5 or CAT6 cable is usually used for PoE applications. Since PCIe-PoE2+ and PCIe-PoE4+ are designed for Gigabit Ethernet connectivity, a CAT-6 cable is highly recommended. Each port of PCIe-PoE2+/4+ can delivers 15.4 W of power to a PoE device over a cable of up to 100 meters.

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Chapter 4 Driver Installation and Settings

4.1 Driver Installation

Neousys Technology Inc. provides a very convenient utility in "Drivers & Utilities DVD" to allow the "One-Click" driver installation. This utility automatically detects your Windows operating system and installs corresponding driver for your PCIe-PoE2+/4+ with just one mouse click.

To install the driver using "One-Click" driver installation

1. Insert the "Drivers & Utilities DVD" into a DVD-drive attached to your host computer. A setup utility launches and the following dialog appears.



2. Click on the **"Automatic Driver Installation"**. The setup utility will automatically detect your operating system and install corresponding driver for PCIe-PoE2+/4+. The installation process takes about 2 ~ 3 minutes. Once driver installation is done, the setup utility reboots your Windows and your system works normally afterward.

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To install drivers manually

You can also manually install the driver for PCIe-PoE2+/4+. Please refer to the following information about installing the driver for different operating system.

Import Notice for Driver DVD Rev. 2012A1 or later

Driver DVD Rev. 2012A1 or later revision has a new folder structure which arranges all drivers in the **x:\Driver_Pool** folder. The new folder structure may introduce confusion for users who want to install individual driver manually. To help users to find out correct path for individual driver, a utility program named **LocateDriver.exe** is provided in each driver folder. When executing this utility program, a Windows Explorer window is opened with corresponding driver folder. Then you can execute the setup program of individual driver package as listed below.

Windows XP

You can install the Windows XP driver for PCIe-PoE2+/4+ manually by following the steps listed below:

1. Execute x:\Drivers\PCIe-PoE\XP\LAN\LocateDriver.exe, a folder where driver is located appears. (x: denotes for your DVD drive)
2. Execute DxSetup.exe and follow the appearing dialog to finish the installation process.

Windows 7 or Windows Vista 32-bit

You can install the Windows 7 32-bit driver for PCIe-PoE2+/4+ manually by following the steps listed below:

1. Execute x:\Drivers\PCIe-PoE\Win7_32\LAN\LocateDriver.exe, a folder where driver is located appears. (x: denotes for your DVD drive)
2. Execute DxSetup.exe and follow the appearing dialog to finish the installation process.

Windows 7 or Windows Vista 64-bit

You can install the Windows 7 64-bit driver for PCIe-PoE2+/4+ manually by following the steps listed below:

1. Execute x:\Drivers\PCIe-PoE\Win7_64\LAN\LocateDriver.exe, a folder where driver is located appears. (x: denotes for your DVD drive)
2. Execute DxSetup.exe and follow the appearing dialog to finish the installation process.

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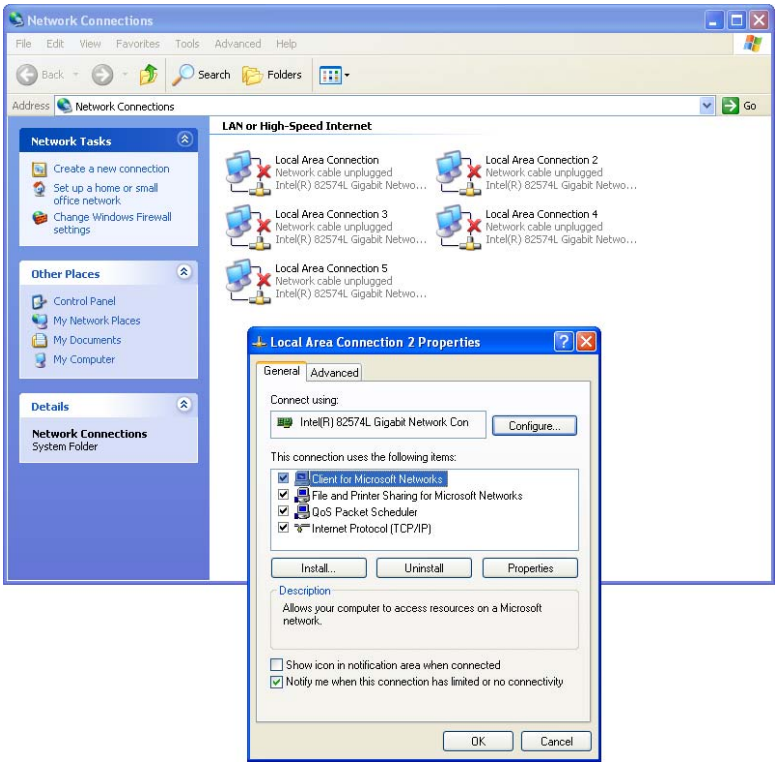
4.2 Driver Settings

PCIe-PoE2+ and PCIe-PoE4+ offer the Gigabit Ethernet connectivity via Intel® 82574L GbE controller. When connecting to a high-speed PoE device, such as a GigE camera, you can adjust some driver settings to have better transmission throughput and connection stability.
In this section, we'll discuss these settings. You can refer to the information to fine tune your system.

Jumbo Frame

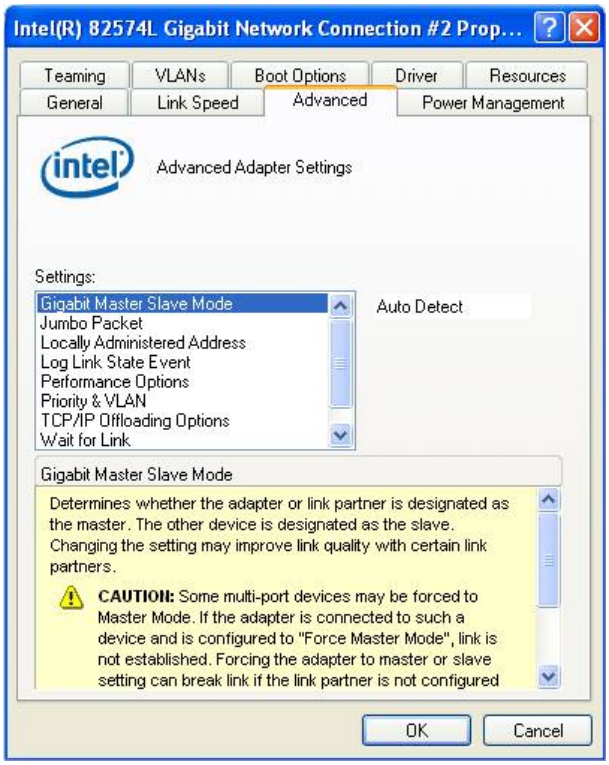
Jumbo frames are Ethernet frames with more than 1500 bytes of payload. By increasing the payload size, a certain large amount of data can be transferred with less interrupts generated, which reduces the CPU utilization and increases overall data throughput. Intel® 82574L GbE controller supports jumbo frame size of up to 9 Kbytes. When you connecting an Ethernet device with high date rate (e.x. a Gigabit Ethernet camera), enabling jumbo frame feature is highly recommended.
After installing the driver for Intel® 82574L GbE controller, you can change the jumbo frame settings by following the steps listed below.

1. Open the **Network Connections** and double-click on a corresponding **Local Area Connection**.

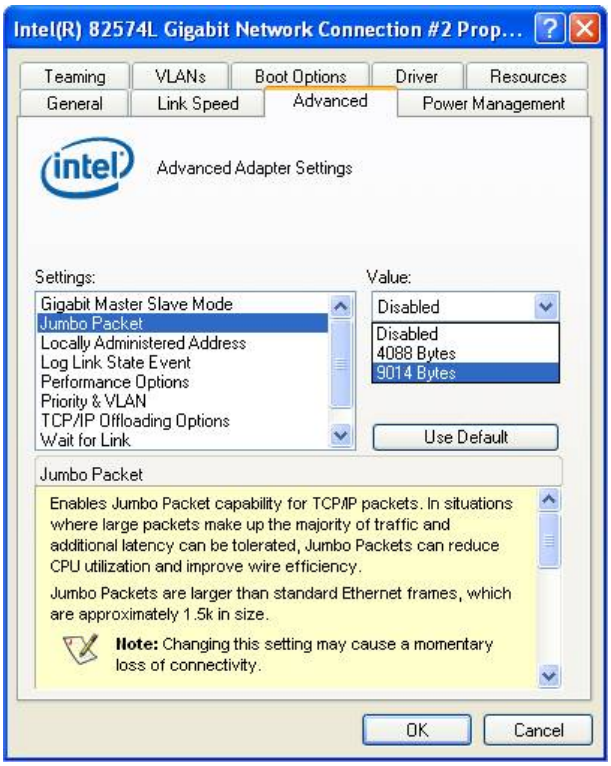


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2. Click **Configure** button and a property dialog appears. Click on the **Advanced** tab.



3. Select the **Jumbo Packet** settings, and select the expected jumbo frame size. (for connecting a Ethernet device with high data rate, 9014 Bytes is suggested)

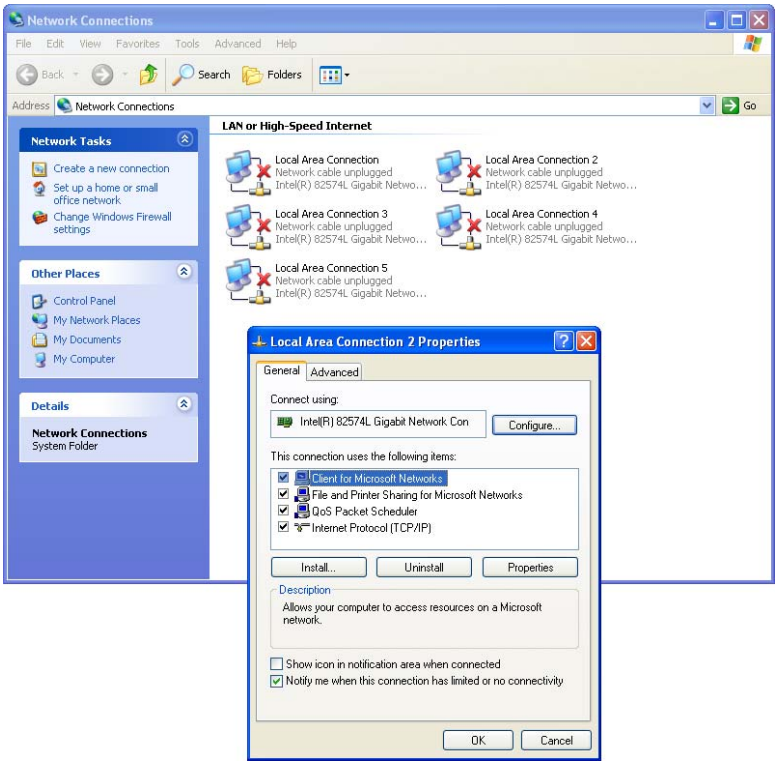


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Receive Buffer

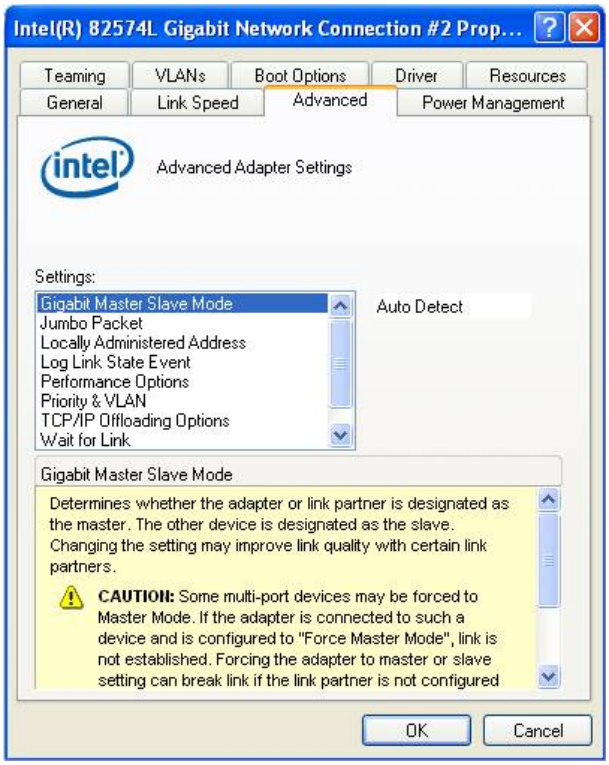
Receive buffer is another option which can affect data throughput. It determines the size of memory buffer allocated for receiving data. Increasing size of receive buffer can improve the performance of receiving data. The default settings of receive buffer is 256 bytes. When connecting to an Ethernet device that generates large amount of data, you can set this option to a larger value (maximal 2048 bytes) for better performance.
You can change the settings of receive buffer by following the steps listed below.

1. Open the **Network Connections** and double-click on a corresponding **Local Area Connection**.

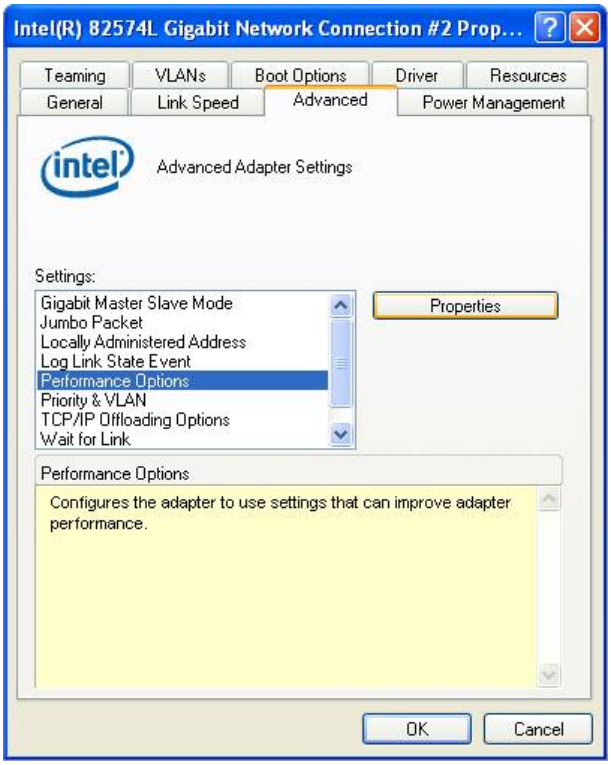


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2. Click **Configure** button and a property dialog appears. Click on the **Advanced** tab.

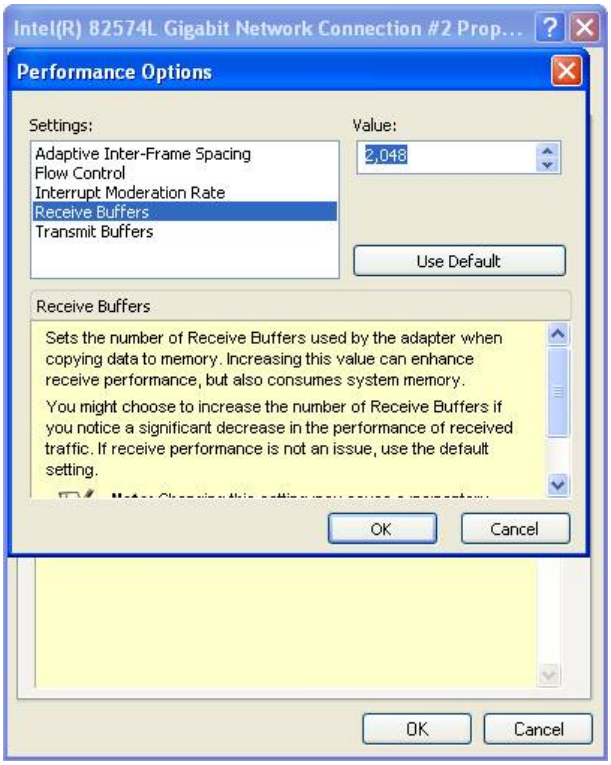


3. Select the **Performance Options** settings and click the **Properties** button.



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4. Adjust the value of **Receive Buffers**. (for connecting a Ethernet device with high data rate, 2048 Bytes is suggested)

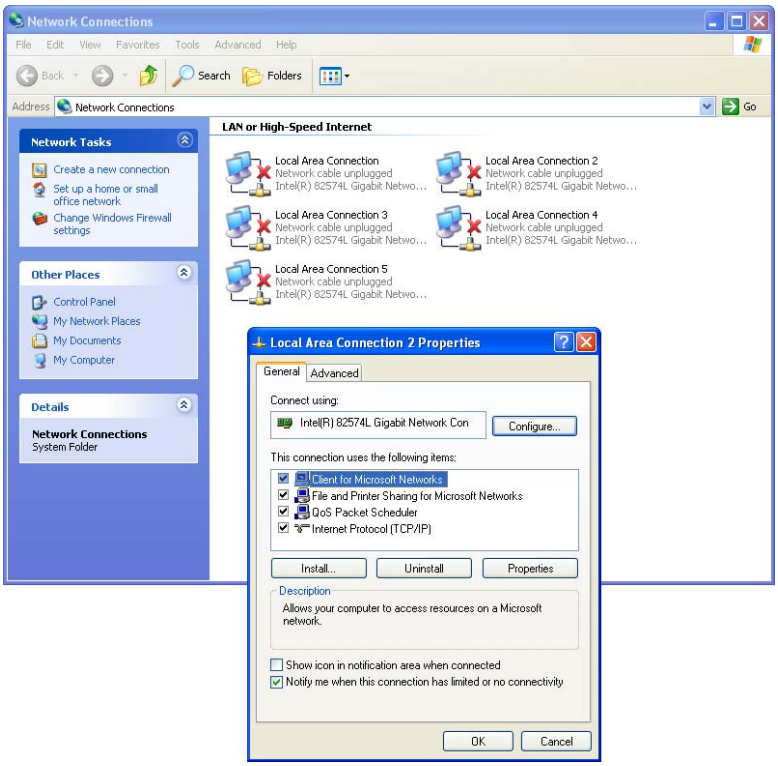


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Transmit Buffers

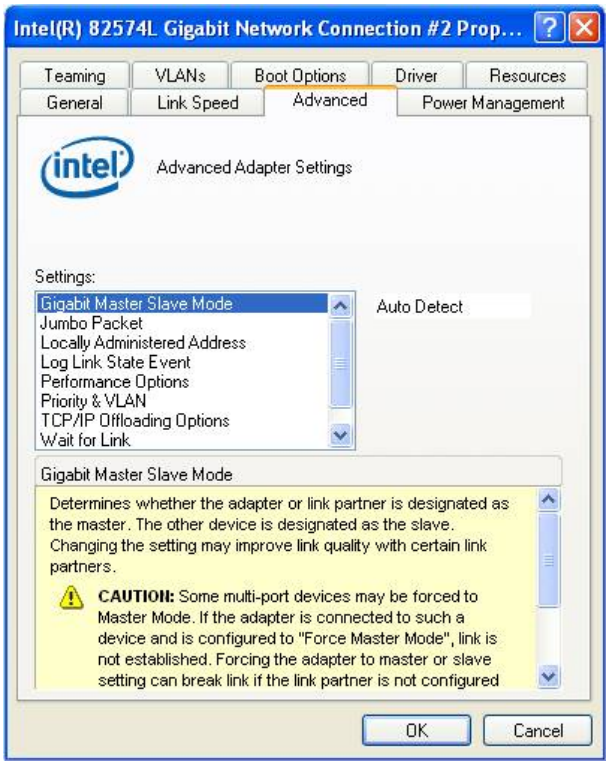
Like receive buffer, transmit buffer can affect the performance of transmitting data. The default settings of receive buffer is 256 bytes. If you encounter a performance issue while transmitting data, you can adjust the size of transmit buffer to a larger value (maximal 2048 bytes) for better performance.
You can change the settings of transmit buffer by following the steps listed below.

1. Open the **Network Connections** and double-click on a corresponding **Local Area Connection**.

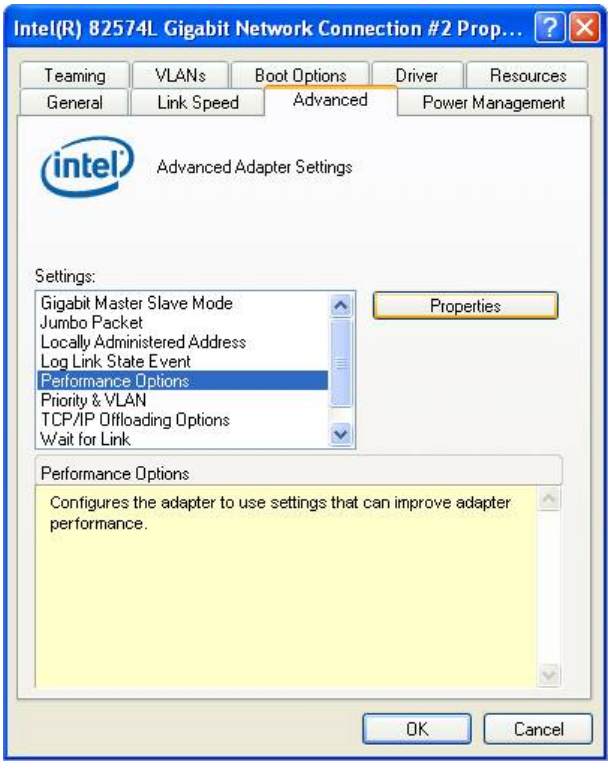


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2. Click **Configure** button and a property dialog appears. Click on the **Advanced** tab.

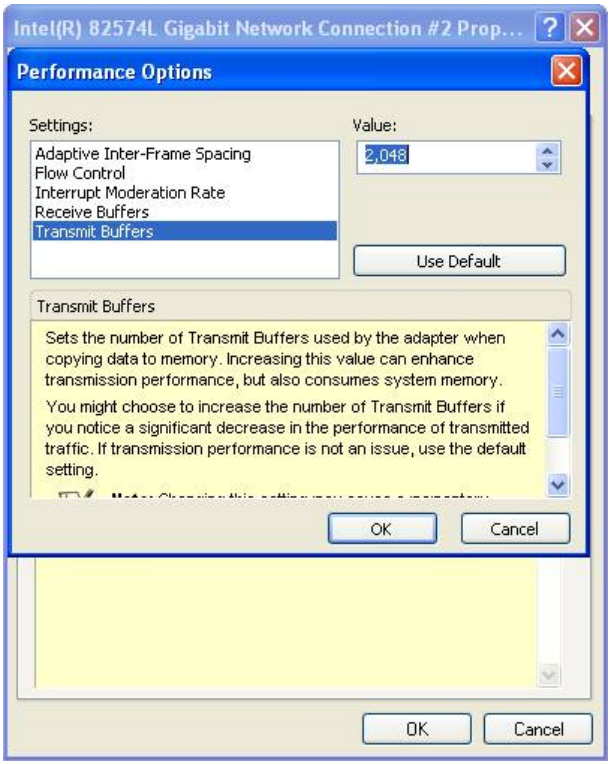


3. Select the **Performance Options** settings and click the **Properties** button.



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4. Adjust the value of **Transmit Buffers**.



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