Allied Telesis™

AT-2814FX

Fast Ethernet Fiber (SC) ExpressCard

Installation and User's Guide

613-001676 Rev. C

Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission
Declaration of Conformity
Manufacturer Name: Allied Telesis, Inc.
Declares that the product: **Fast Ethernet Fiber (SC) ExpressCard**
Model Numbers: AT-2814FX
This product complies with FCC Part 15B, Class B Limits:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Radiated Energy
Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of 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 instructions, may 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 the 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.
Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Industry Canada
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment
This Allied Telesis RoHS-compliant product conforms to the European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment. Allied Telesis ensures RoHS conformance by requiring supplier Declarations of Conformity, monitoring incoming materials, and maintaining manufacturing process controls.

RFI Emissions	FCC Class B, EN55022 Class B, VCCI Class B, C-TICK, CE
Immunity	EN55024 Class B
Electrical Safety	EN60950 (TUV), UL 60950-1 ($_{C}UL_{US}$)
Laser Safety	EN60825

Translated Safety Statements

Important: The ☞ indicates that a translation of the safety statement is available in a PDF document titled “Translated Safety Statements” posted on the Allied Telesis website at: **www.alliedtelesis.com/support/**.

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Preface

This manual is the installation and user's guide for the AT-2814FX Fast Ethernet Fiber (SC) ExpressCard. The instructions in this guide explain how to install the ExpressCard on a laptop computer, install and uninstall the driver software, and configure the driver software. This preface contains the following sections:

Safety Symbols Used in this Document

This document uses the following conventions:

Note
Notes provide additional information.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Warning
Warnings inform you that an eye and skin hazard exists due to the presence of a Class 1 laser device.

Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Support & Services section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- 24/7 Online Support - Enter our interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorization (RMA), and contact Allied Telesis technical experts.
- USA and EMEA phone support - Select the phone number that best fits your location and customer type.
- Hardware warranty information - Learn about Allied Telesis warranties and register your product online.
- Replacement Services - Submit an RMA request via our interactive support center.
- Documentation - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- Software Updates - Download the latest software releases for your product.

For sales or corporate contact information, go to **www.alliedtelesis.com/purchase** and select your region.

Chapter 1

Overview

This chapter provides an overview of the the AT-2814FX Fast Ethernet Fiber (SC) ExpressCard in the following sections:

Physical Description

The AT-2814FX ExpressCard is an integrated Fiber Fast Ethernet PCI ExpressCard with a pair of SC fiber connectors based on Marvell 88E8059 chipset. A PCI ExpressCard is a new notebook interface that replaces the PCMCIA Card Bus interface.

Using fiber optic cabling and a connector that meets 62.5/125 µm or 50/125 µm multimode specifications, the AT-2814FX ExpressCard connects a laptop computer to a Fast Ethernet network. The ExpressCard operates at a speed of 100 Mbps in either full-duplex or half-duplex mode.

The AT-2814FX ExpressCard is shown in Figure 1.

Figure 1. AT-2814FX ExpressCard

PCI ExpressCard

The AT-2814FX ExpressCard has a 34mm-wide PCI ExpressCard interface. You can install the AT-2814FX ExpressCard in a 34mm or 54mm PCI ExpressCard slot on your laptop computer.

SC Fiber Connector

The faceplate on the AT-2814FX ExpressCard has a pair of SC fiber connectors for attaching the ExpressCard to a compatible link partner. One fiber optic connector is for transmitting and the other is for receiving.

Rubber Plug

The rubber plug prevents the fiber optic connectors from being exposed to dust particles when the connectors are not used. Remove the rubber plug before connecting them to the fiber optic cable.

LED

The AT-2814FX ExpressCard has one LED as shown in Figure 2.

Figure 2. AT-2814FX LED

Table 1 describes the link states that the LED indicates.

Table 1. Fiber Optic Port LED Status

State	Description
Green	The port is operating at 100 Mbps and has a valid link.
Flashing	The port is receiving or transmitting network packets at 100 Mbps.

Stabilizer

The stabilizer is a plastic bracket to help the ExpressCard snugly fit into the 54mm PCI ExpressCard slot. Allied Telesis recommends utilizing the stabilizer when installing the ExpressCard in the 54mm interface slot.

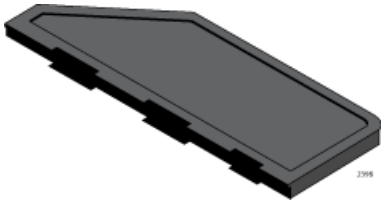

Figure 3. Stabilizer

Supported Operating Systems

The following operating systems are supported:

- Windows XP
- Windows Vista
- Windows 7
- Linux 2.6

When new driver software is released, they will be posted on the Allied Telesis website: **www.alliedtelesis.com/support/software/**.

Note
The procedures for Installing the driver software for the Linux operating system is not included in this manual.

Hardware Features

The AT-2814FX ExpressCard supports the following features:

- One 100BASE-FX port with a pair of SC multi-mode fiber connectors
- Full and half duplex Media Access Control (MAC)
- Link/Activity LED
- PCI ExpressCard Interface
- Flow control (IEEE 802.3x)
- CPU interrupt control
- Jumbo packet
- IPv4 large send offload and checksum offload
- Log message selection
- Receive buffer
- Transmit buffer

Contents of Your Shipment

The following items are included with your AT-2814FX ExpressCard:

- Antistatic bag

  The ExpressCard is shipped in an antistatic bag. It protects the card when stored or shipped. Keep the card in its packaging until ready for installation.

- Rubber plug

  The rubber plug prevents the fiber optic connectors from being exposed to dust particles. Cover the connectors when the fiber optic connectors are not used.

- Stabilizer

  When installing the AT-2814FX ExpressCard into the 54mm PCI card slot of your laptop computer, attach the stabilizer to your AT-2814FX ExpressCard.

> **Note**
> The AT-2814FX ExpressCard is not shipped with a software driver CD. You must download the driver software from the Allied Telesis website. See Chapter 2, “Downloading the Driver Software” on page 23.

Inform your network supplier of any missing or damaged items. If you need to return the ExpressCard, you must pack it in the original (or equivalent) packing material or the warranty will be voided. See “Contacting Allied Telesis” on page 13.

The product documentation is available in Portable Document Format (PDF) on our web site at **www.alliedtelesis.com/support/software/**. You can view the documents online or download them onto a local workstation or server.

Chapter 2

Installing the Driver Software

This chapter describes how to install driver software for the AT-2814FX ExpressCard onto your operating system. It contains the following topics:

Note
To set Advanced Properties, see Chapter 4, “Modifying Advanced Properties” on page 41.

Overview

To install the driver software, you must download the driver software for the AT-2814FX ExpressCard from the Allied Telesis website onto your operating system.

Allied Telesis recommends installing the driver software for the AT-2814FX ExpressCard before physically installing the card.

Guidelines

Here are the guidelines to installing the driver software on your operating system:

- To install the driver software, you must have administrative privileges.
- When you install the AT-2814FX ExpressCard before installing the driver software, the Windows system detects a new adapter and may install a default driver. To update the driver software for the AT-2814FX ExpressCard, follow the instructions as described in “Downloading the Driver Software” on page 23 and “Installing the Driver Software” on page 24.
- When you install the AT-2814FX ExpressCard before installing the driver software, the Windows system may install the native Marvell driver if your laptop has an onboard Marvell network interface. To update the driver for the AT-2814FX ExpressCard, follow the instructions as described in “Downloading the Driver Software” on page 23 and “Installing the Driver Software” on page 24.

Downloading the Driver Software

The AT-2814FX ExpressCard is not shipped with a software driver CD. You must download driver software from the Allied Telesis website.

To download driver software, do the following:

1. Open a web browser, such as Internet Explorer or FireFox, on your system and enter the following:

   http://www.alliedtelesis.com/support/software

2. The Allied Telesis Software Download page is displayed.

3. Enter "2814fx" in the search box and press the enter key.

   The search result is displayed as shown in Figure 4.

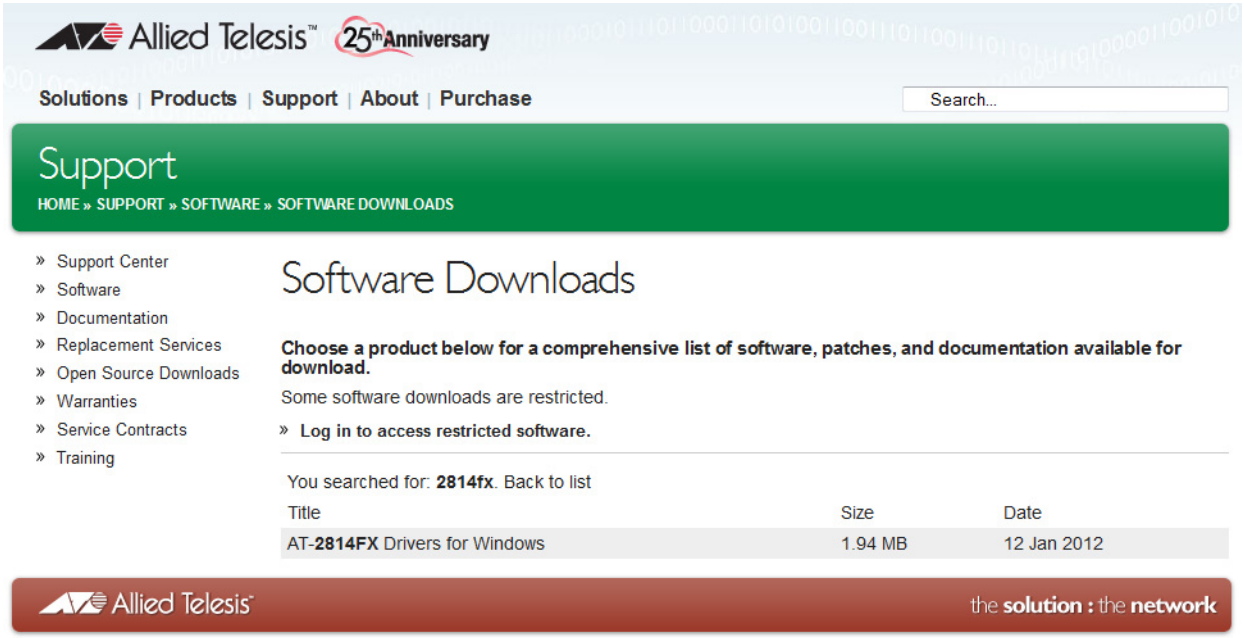

Figure 4. Software Downloads Search Result

4. Click "AT-2814FX Drivers for Windows."

5. Save the AT2814FX-drivers-setup zip folder onto your system and record the location of the folder.

Installing the Driver Software

To install the driver software for the AT-2814FX ExpressCard, do the following:

1. Locate the AT2814FX-drivers-setup zip folder that you downloaded from the Allied Telesis website onto your system. See “Downloading the Driver Software” on page 23.

2. Open the folder. Figure 5 shows an example in the Windows XP operating system.

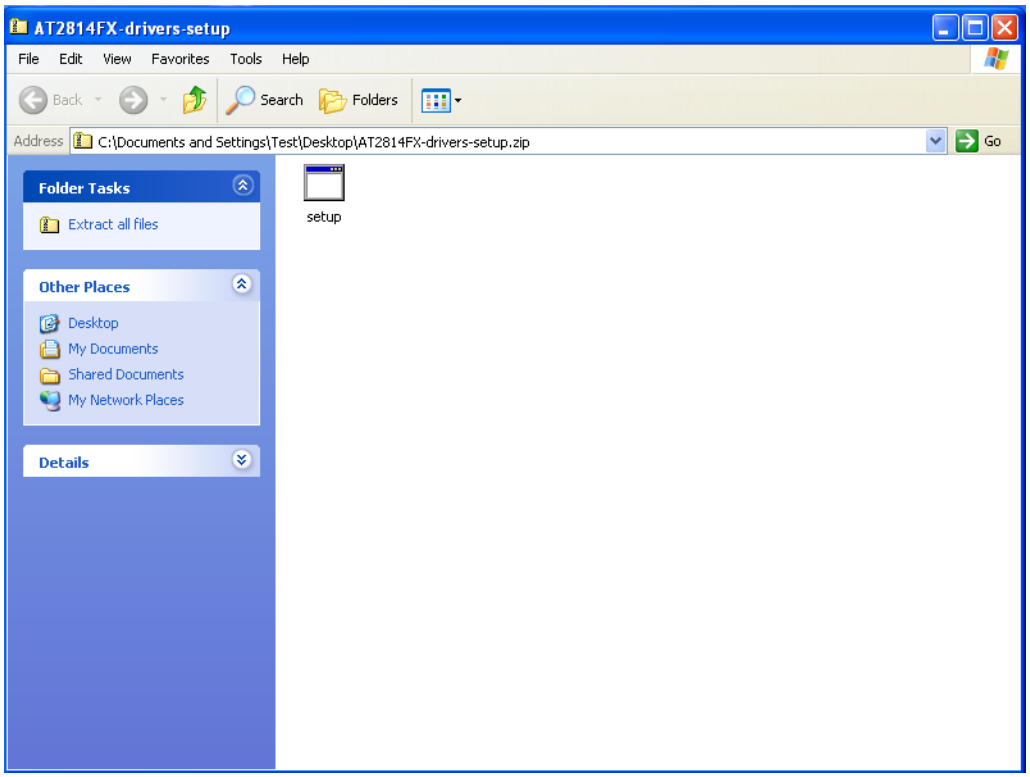

Figure 5. Setup File

3. Double-click the setup.exe file.

   The User Account Control window appears, prompting you to allow the Marvell Miniport Driver program to make a change on your system.

   Note
   If you are using Windows XP operating system, the User Account Control window does not come up. Go to step 5.

4. Click **Yes** to allow Marvell Miniport Driver to be installed.

The Marvell Miniport Driver Setup Wizard window comes up. See Figure 6.

Figure 6. Marvell Miniport Driver Setup Wizard

5. Click **Next**.

The Licence Agreement window comes up as shown in Figure 7.

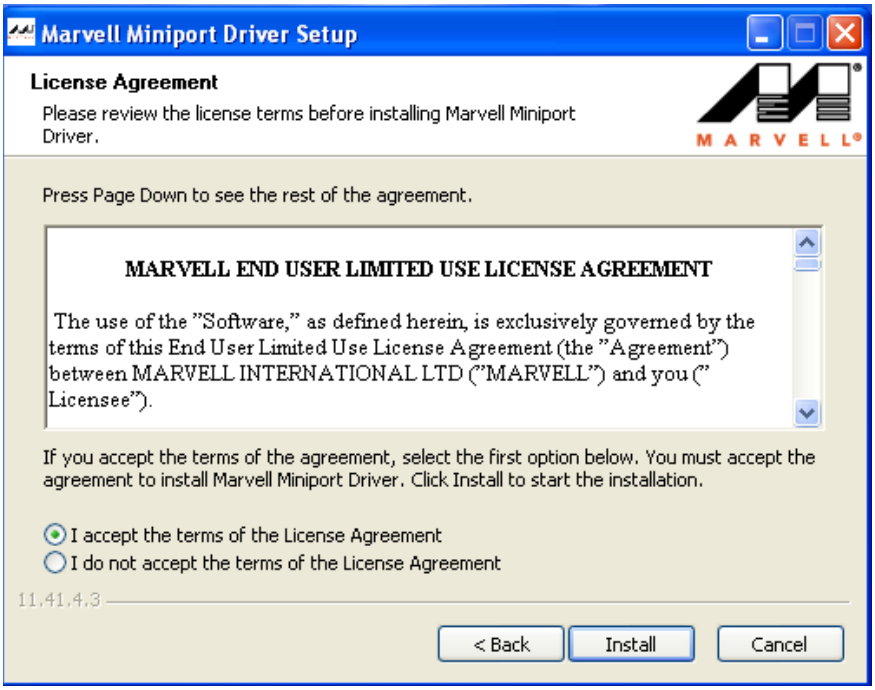

Figure 7. Setup Wizard License Agreement

6. Read the License Agreement.

7. If you accept the terms of the agreement, select the first option and click **Install**.

   When the installation is completed, the Installation Complete window is displayed. See Figure 8.

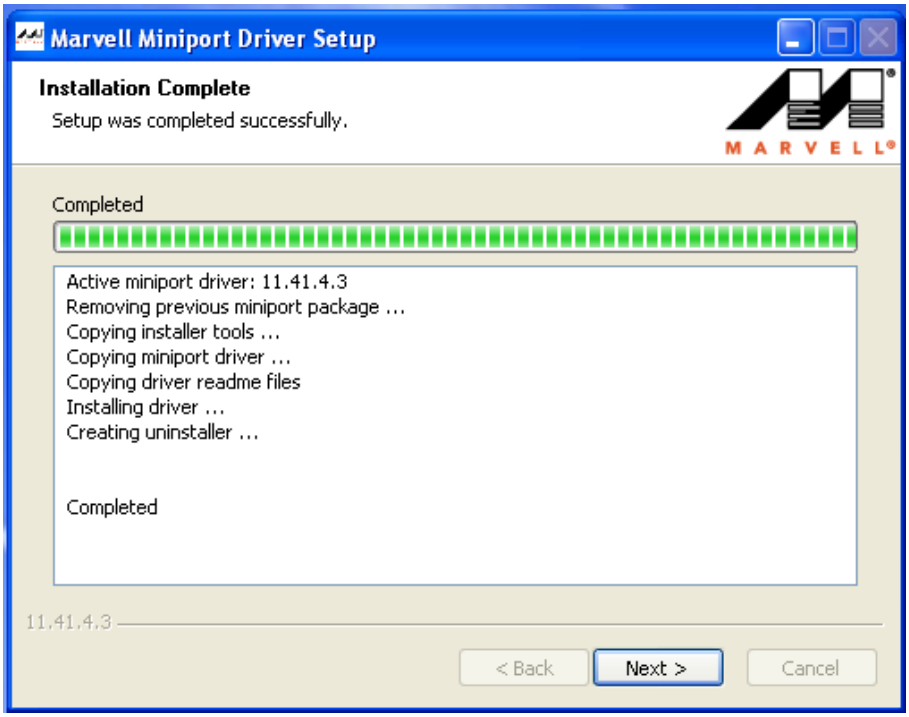

Figure 8. Installation Complete

8. Click **Next**.

   The final Wizard windows comes up as shown in Figure 9 on page 27.

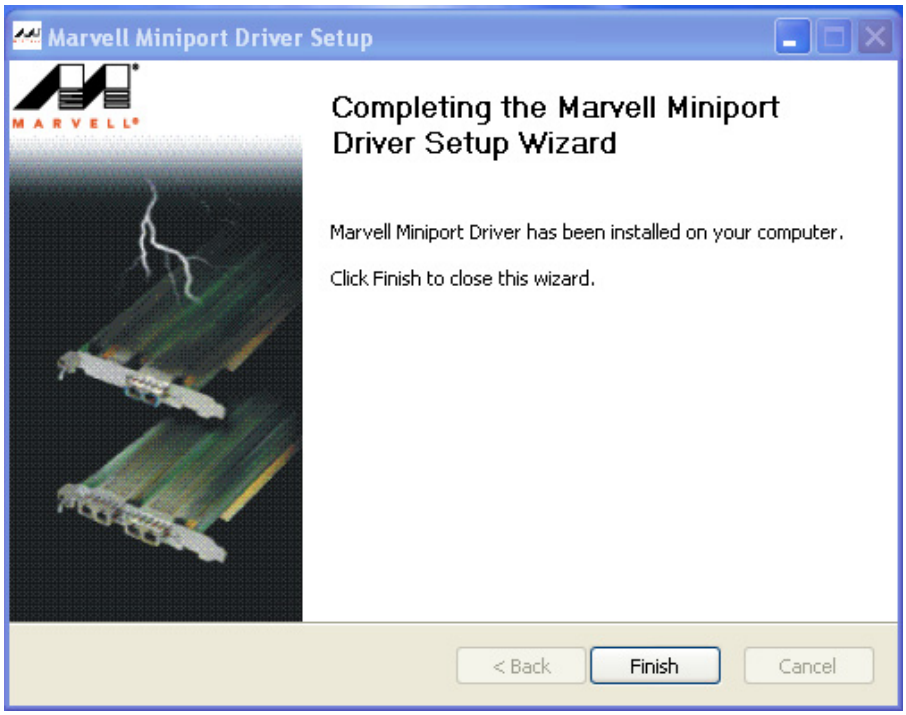

Figure 9. Finishing Setup Wizard

9. Click **Finish**.

Chapter 3

Installing the Hardware

This chapter contains the following sections:

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the AT-2814FX ExpressCard.

Note
The ✍ indicates that a translation of the safety statement is available for viewing in portable document format (PDF) titled **Translated Safety Statements** from our web site at **www.alliedtelesis.com/support**.

Warning
This is a “Class 1 LED product”. ✍ L1

Warning
Do not stare into the laser beam. ✍ L2

Warning
Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. ✍ E29

Warning
Do not work on this equipment or cables during periods of lightning activity. ✍ E2

Warning
Operating Temperature: This product is designed for a maximum ambient temperature of 40 degrees C. ✍ E7

Note
All Countries: Install this product in accordance with local and National Electric Codes. ✍ E8

Warning
The AT-2814FX ExpressCard is being installed in a system that operates with voltages that can be lethal. Before you remove the cover of your system, you must observe the following precautions to protect yourself and to prevent damage to the system components.

- Remove any metallic objects or jewelry from your hands and wrists.
- Make sure to use only insulated or nonconducting tools.
- Verify that the system is powered OFF and unplugged before accessing internal components.
- Installation or removal of the ExpressCard must be performed in a static-free environment. The use of a properly grounded wrist strap or other personal antistatic devices and an antistatic mat is strongly recommended. E39

Pre-Installation Checklist

Before installing the AT-2814FX ExpressCard, check the following list:

1. Verify that your laptop is using the latest BIOS.
2. When you download the driver software from the Allied Telesis support website, record the path to where the driver file resides on your system.
3. If your laptop is active, shut it down.
4. When the system shutdown is complete, power off and unplug your system.
5. Holding the ExpressCard by the edges, remove it from its shipping package and place it on an antistatic surface.
6. Check the ExpressCard for visible signs of damage, particularly on the edge connector.
7. Ensure that you have installed the driver software for the AT-2814FX ExpressCard before installing the card.

Caution

Do not attempt to install a damaged product. If the product is damaged, report it to Allied Telesis. See “Contacting Allied Telesis” on page 13.

Installing the AT-2814FX ExpressCard

The following instructions describe how to install the AT-2814FX ExpressCard in a laptop computer equipped with a 34 mm or 54 mm PCI ExpressCard interface slot. The installation illustrations in this manual use the 54 mm interface because it is the more common interface for laptop computers.

For additional information about installing an PCI ExpressCard on your particular laptop, refer to the manual that was supplied with your laptop.

Note
To perform the following procedure, you need to supply a pen.

To install an AT-2814FX ExpressCard, do the following:

1. Review the "Pre-Installation Checklist" on page 32 and "Reviewing Safety Precautions" on page 30.

   Note
   Allied Telesis recommends that you turn off your laptop computer and unplug from the power outlet before installing the AT-2814FX ExpressCard.

2. Select the 34 mm or 54 mm ExpressCard slot.

   See Figure 10 on page 34 for an example of the 54 mm ExpressCard slot.

   Note
   If you do not know how to identify a PCI ExpressCard slot, refer to your laptop documentation.

Figure 10. Selecting the PCI ExpressCard Slot

3. Use a pen and press the button toward the laptop and to the left. See Figure 11.

   The button pops out along with the plate. See Figure 12 on page 35.

Figure 11. Pressing the Button

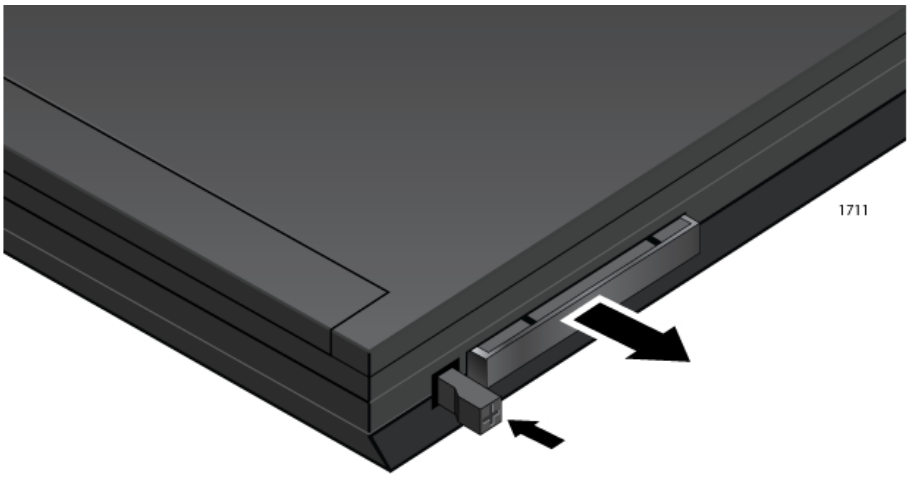

Figure 12. The Button and Plate after Pressing the Button

4. Remove the plate from the laptop. See Figure 13.

   Keep the plate in a safe place. You may need it for future use.

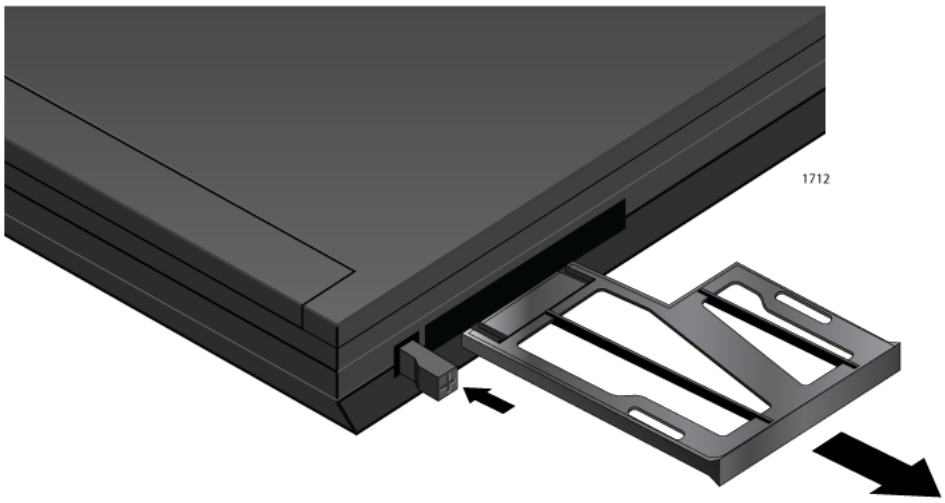

Figure 13. Removing the Plate

5. When installing the ExpressCard in the 54mm Express Card slot, attach the stabilizer to the card as shown in Figure 14 on page 36.

   When installing the ExpressCard in the 34mm ExpressCard slot, skip this step.

Figure 14. Attaching the Stabilizer to the AT-2814FX ExpressCard

6. Applying even pressure at both corners of the ExpressCard, push the card until it is firmly seated in the PCI ExpressCard slot. Figure 15 shows how to insert the card in the 54mm slot.

   The ExpressCard fits snugly into the slot.

Figure 15. Inserting the Unit into the 54mm Slot

Caution

Do not use excessive force when seating the card. Applying excess force may damage the system or the card. If the card resists seating, remove it from the system, realign it, and try again.

7. Make sure the ExpressCard is seated securely.

8. Power on the laptop computer.

   Once the system returns to proper operation, the ExpressCard hardware is fully installed. Next, connect the network cables. See "Connecting the Network Cable" on page 38.

Connecting the Network Cable

The AT-2814FX ExpressCard has a pair of optic connectors for attaching the laptop to a compatible link partner, or an IEEE 802.3z compliant Fast Ethernet switch. One optic connecter is for transmitting and the other is for receiving.

To connect the ExpressCard to a network, you must have a fiber optic cable with SC connectors. For optical characteristics of the AT-2814FX ExpressCard, see Appendix A, “Specifications” on page 79. In addition, the AT-2814FX Datasheet is available on the Allied Telesis website: **www.alliedtelesis.com**.

Note
Allied Telesis recommends installing the driver software before installing the ExpressCard and connecting a fiber optic cable to the card. See Chapter 2, “Installing the Driver Software” on page 21 for more information.

To connect a fiber optic cable to the ExpressCard, perform the following procedure:

1. Remove the rubber plug from the ExpressCard.

   Keep the rubber plug in a safe place. You may need it for future use.

Warning
The fiber optic ports contain a Class 1 LED device. When the ports are disconnected, always cover them with the provided plug. Exposed ports may cause skin or eye damage.

2. Connect one end of the fiber optic cable to the ExpressCard.

3. Connect the other end of the fiber optic cable to the appropriate Ethernet fiber optic port.

   After you connect your laptop to the network and power is supplied, the AT-2814FX ExpressCard attempts to establish the connection at 100 Mbps full-duplex mode by default. See “Speed & Duplex” on page 65 for instructions to change the speed and duplex mode.

4. Observe the LED signal to check the link state.

   After the cable is properly connected at both ends, the ExpressCard port LED is functional. See “LED” on page 17 for a description of the LED operation.

Note

Even minor smudges or dirt on the end face of the fiber can disrupt light transmission and lead to failure of the connection. For instructions that describe how to clean the fiber optic connector, see Appendix B "Cleaning Fiber Optic Connectors" on page 81

Chapter 4

Modifying Advanced Properties

This chapter includes the following topics:

Overview

To modify the advanced properties of the AT-2814FX ExpressCard, you must access the Device Manager on your operating system, then go to each advanced property page. To start the Device Manager, see “Starting the Device Manager” on page 43.

Guidelines

Here are the guidelines to modifying the advanced properties:

- To change the advanced property settings, you must have Administrator privileges.
- When you upgrade the driver software, the settings of the advanced properties may change. Verify the settings after upgrading the driver software.

Starting the Device Manager

The procedures for accessing the Device Manager are different among Windows XP, Windows Vista and Windows 7. To start the Device Manager on your system, perform one of the following procedures:

- "Device Manager on Windows XP" on page 43
- "Device Manager on Windows Vista and Windows 7" on page 47

Device Manager on Windows XP

To start the Device Manager on Windows XP, do the following:

1. Right-click on **Computer** and select **Properties**.

   The System Properties window is opened as shown in Figure 16.

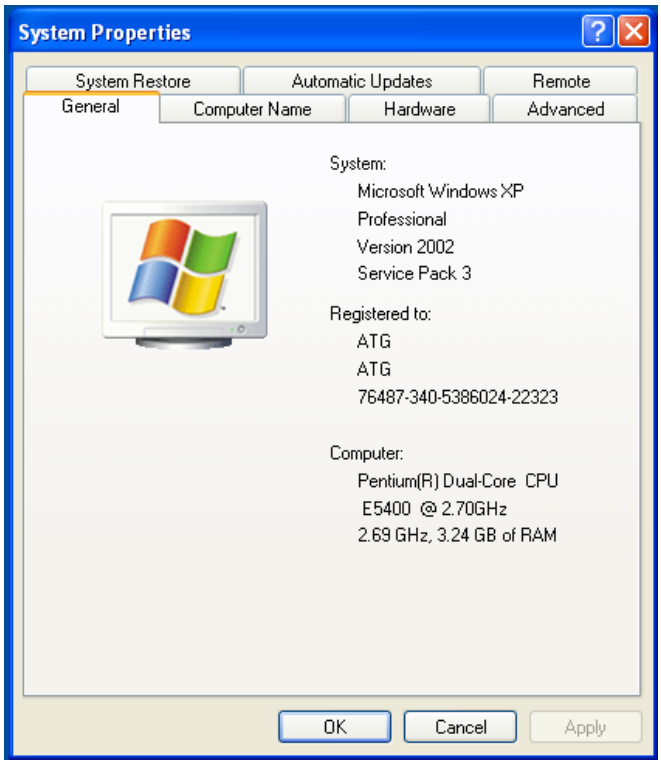

Figure 16. System Properties Window on Windows XP

2. Select the **Hardware** Tab.

   The Hardware page is shown in Figure 17 on page 44.

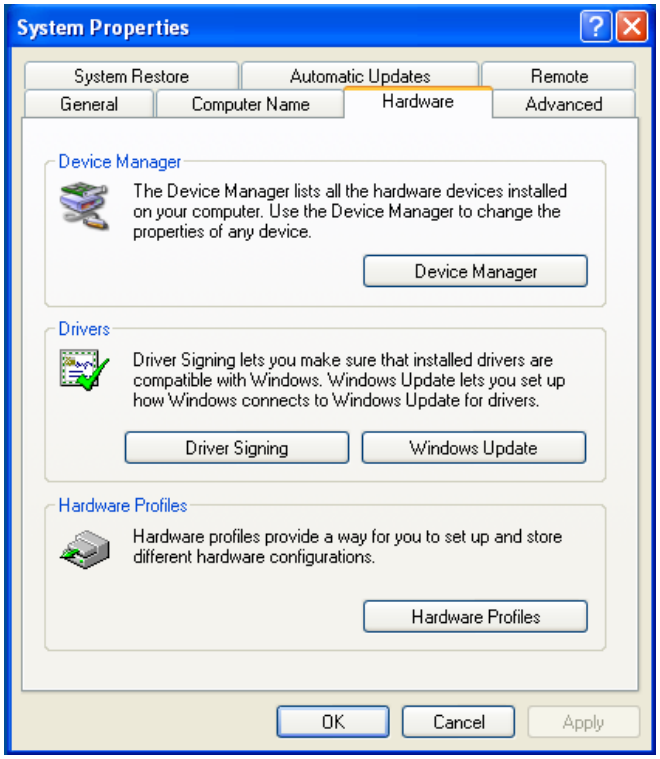

Figure 17. Hardware Page on Windows XP

3. Click **Device Manager**.

   The Device Manager window opens shown in Figure 18.

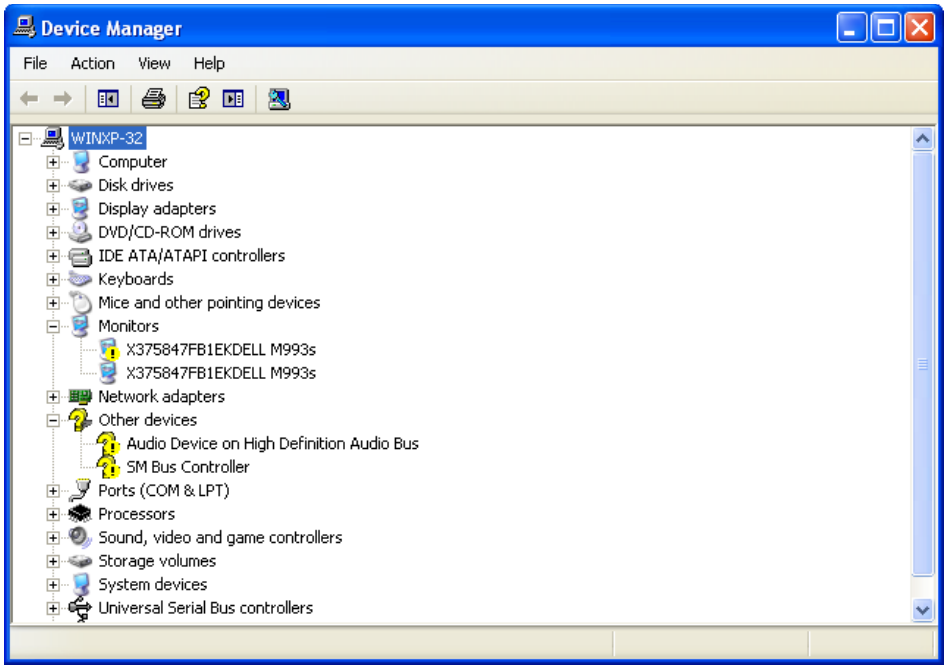

Figure 18. Device Manager Window on Windows XP

4. In the Device Manager window, click the **+** next to the Network Adapters folder.

   The selection expands to show the list of installed network adapter cards as shown in Figure 19.

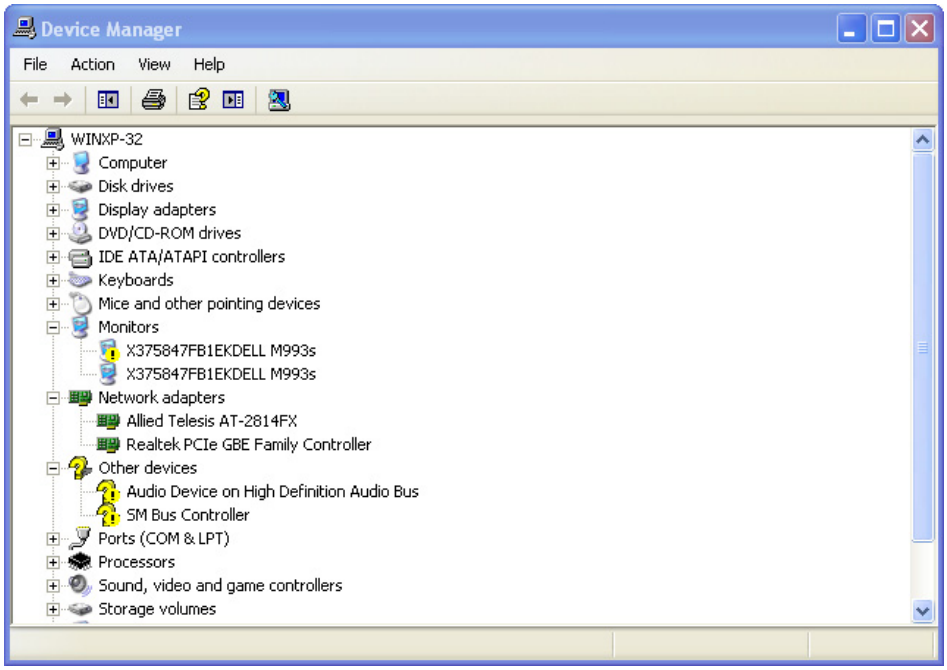

Figure 19. Device Manager with an Expanded List on Windows XP

5. Double-click on Allied Telesis AT-2814FX.

   The properties window opens as shown in Figure 20 on page 46.

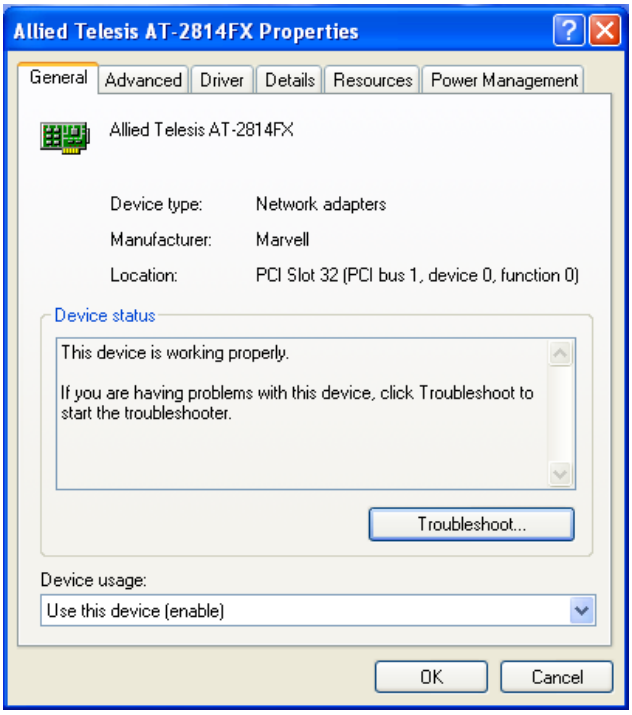

Figure 20. Properties Window

6. Click the Advanced tab.

   The Advanced Properties window opens as shown in Figure 21.

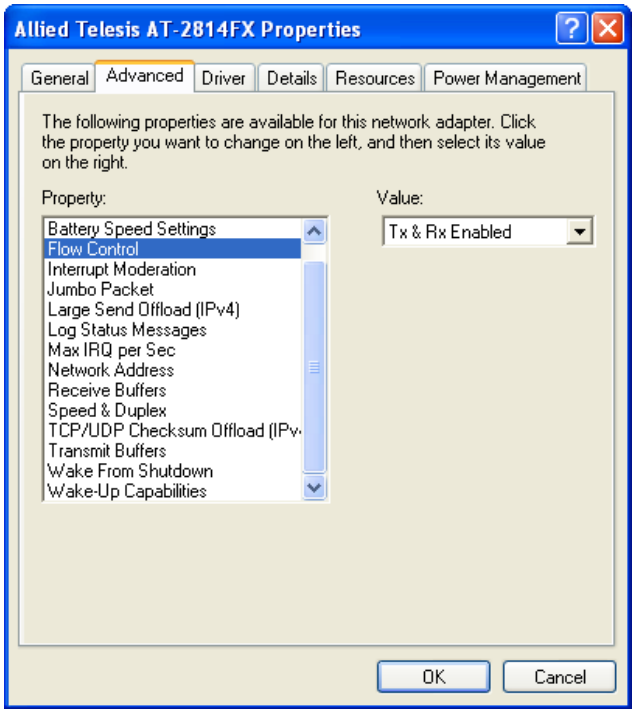

Figure 21. Advanced Properties Window

Device Manager on Windows Vista and Windows 7

The procedures for accessing the Device Manager on Windows Vista and Windows 7 are identical. To start the Device Manager on Windows Vista or Windows 7, do the following:

1. Right-click on **Computer** and select **Properties**.

   The System window is opened as shown in Figure 22 on page 47.

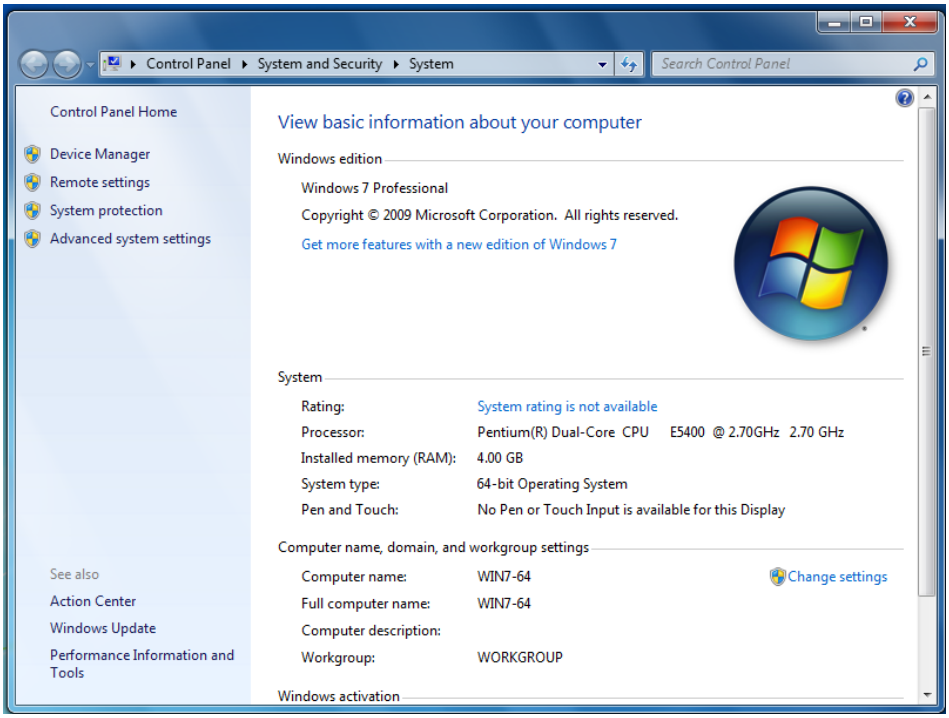

Figure 22. System Window on Windows Vista and 7

2. Click **Device Manager** on the left side bar.

   The Device Manager window opens as shown in Figure 23.

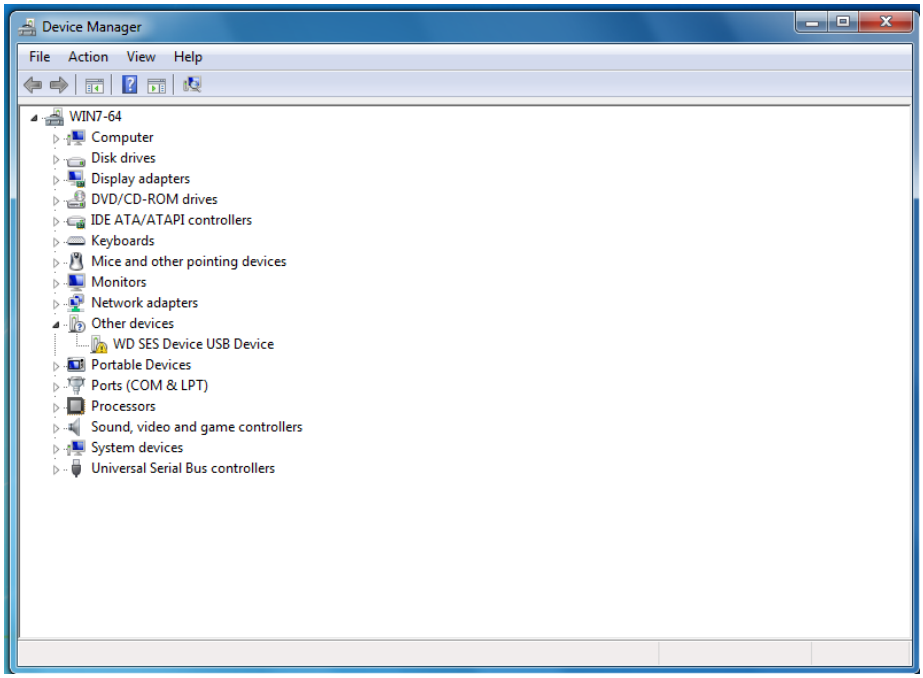

Figure 23. Device Manager Window on Windows Vista and 7

3. In the Device Manager window, click the ▷ next to the Network Adapters folder.

   The selection expands to show the list of installed network adapter cards. See Figure 24.

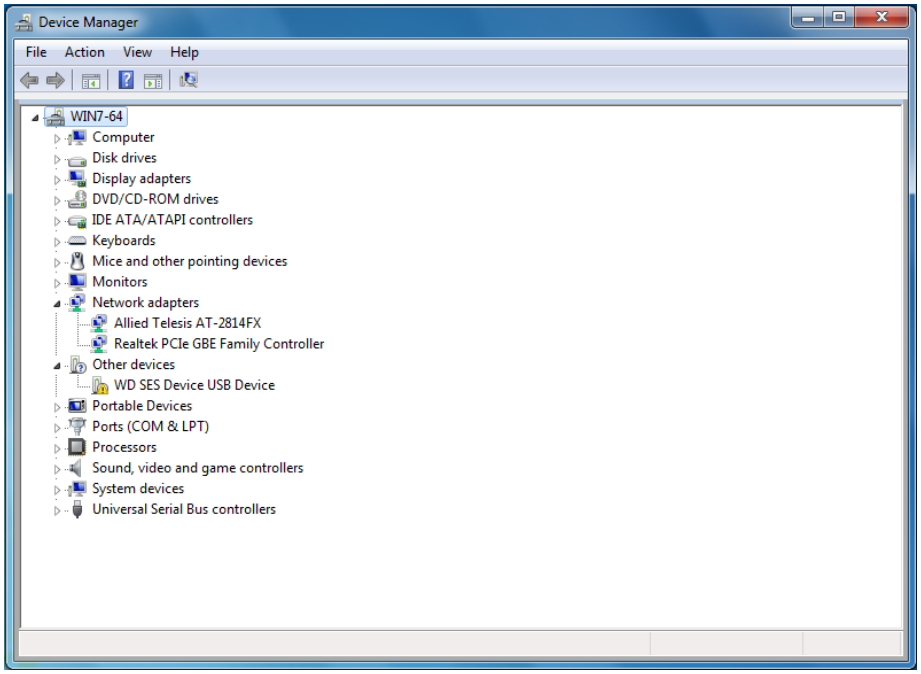

Figure 24. Device Manager with an Expanded List on Windows Vista & 7

4. Double-click on Allied Telesis AT-2814FX.

   The properties window pops up as shown in Figure 25 on page 49.

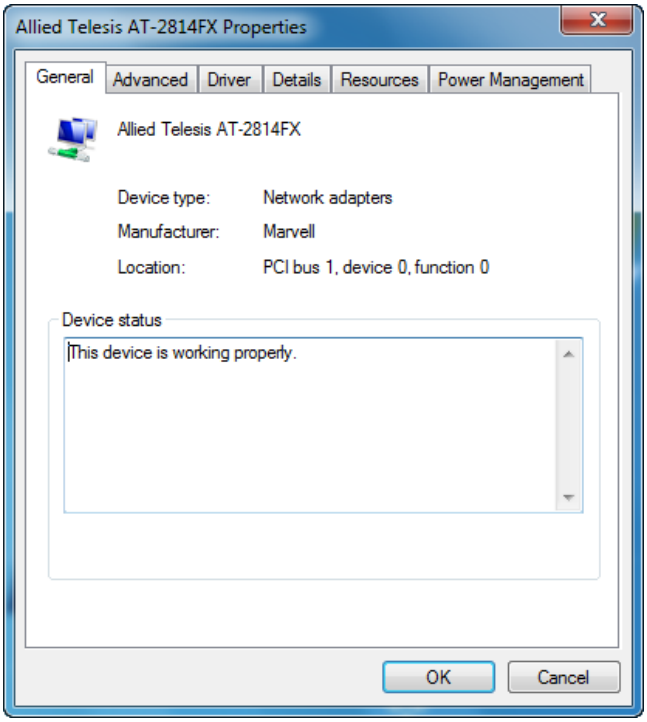

Figure 25. Properties Window on Windows Vista and 7

Flow Control

The Flow Control feature allows you to control the flow between the AT-2814FX ExpressCard and the link partner. You can enable or disable this feature to process received pause frames and transmit pause frames.

To enable or disable the Flow Control feature, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Flow Control** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 26.

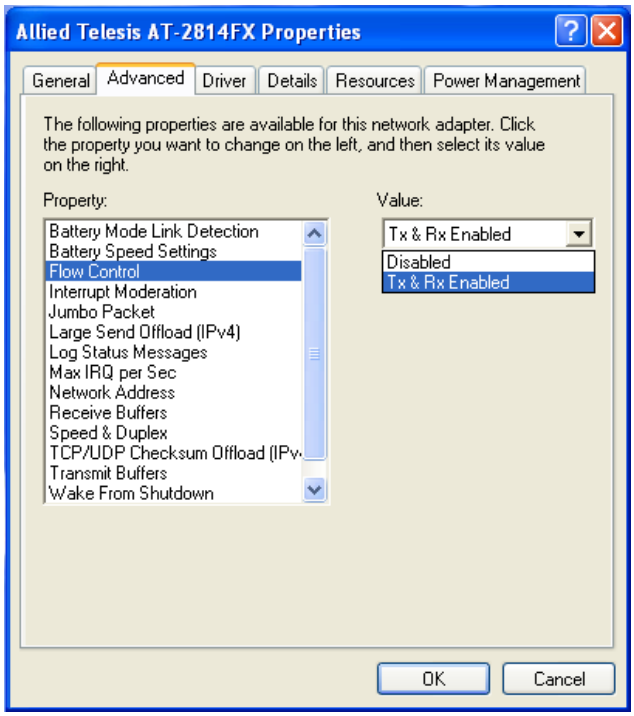

Figure 26. Flow Control Page

5. Select one of the following options:

   - **Disabled**— The AT-2814FX ExpressCard ignores PAUSE frames.

- **Tx & Rx Enabled**— The AT-2814FX ExpressCard processes pause frames when receiving and transmits pause frames This is the default setting.

6. Click **OK**.

Interrupt Moderation

The Interrupt Moderation feature allows you to limit the rate of interrupts to the CPU during packet transmission and packet reception. When this feature is enabled, interrupts are handled as a group so that the CPU utilization decreases; however, the latency may increase. The interrupt rate is specified using “Max IRQ per Sec” on page 60.

To enable or disable the Interrupt Moderation feature, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Interrupt Moderation** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 27.

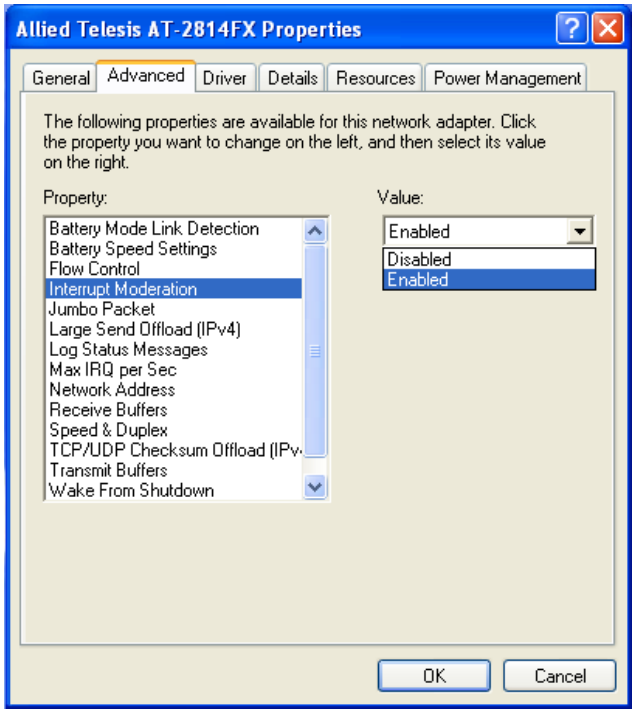

Figure 27. Interrupt Moderation Page

5. Select one of the following options:

   - **Disabled**— The Interrupt Moderation feature is disabled
   - **Enabled**— The Interrupt Moderation feature is enabled. This is the default setting.

6. Click **OK**.

Jumbo Packet

The Jumbo Packet property specifies the size of the frame that the AT-2814FX ExpressCard supports. The network performance usually improves when the larger packet size is specified; however, the network must be capable of supporting such large packets.

To change the Jumbo Packet size, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Jumbo Packet** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 28.

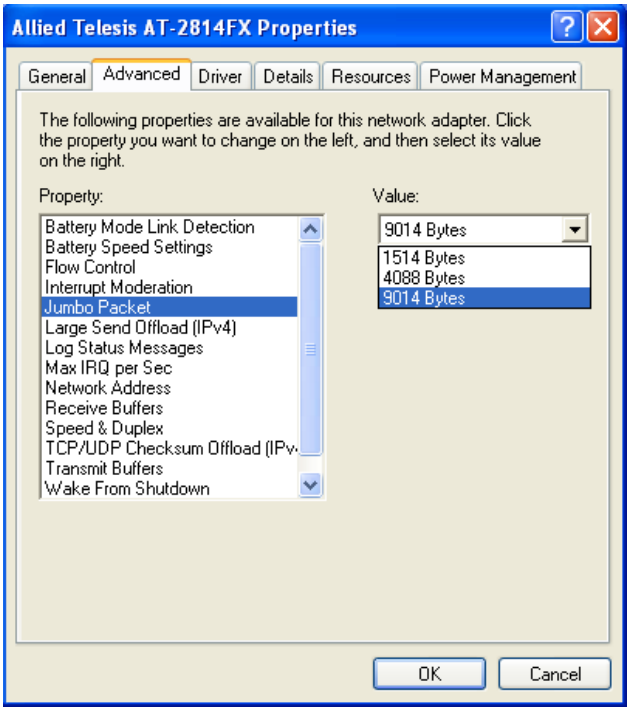

Figure 28. Jumbo Packet Page

5. Select one of the following options:

   - **1514 Bytes**— The AT-2814FX ExpressCard supports up to 1514 bytes in a packet size. This is the default value.
   - **4088 Bytes**— The AT-2814FX ExpressCard supports up to 4088 bytes in a packet size.
   - **9014 Bytes**— The AT-2814FX ExpressCard supports up to 9014 bytes in a packet size.

6. Click **OK**.

Large Send Offload (IPv4)

The Large Send Offload feature for IPv4 traffic allows you to control the load of sending out large packets. When this feature is enabled, the AT-2814FX ExpressCard segments large packets and reduces the CPU load.

To enable or disable the Large Send Offload (IPv4) feature, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

   to start the Device Manager on your system.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Large Send Offload (IPv4)** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 29.

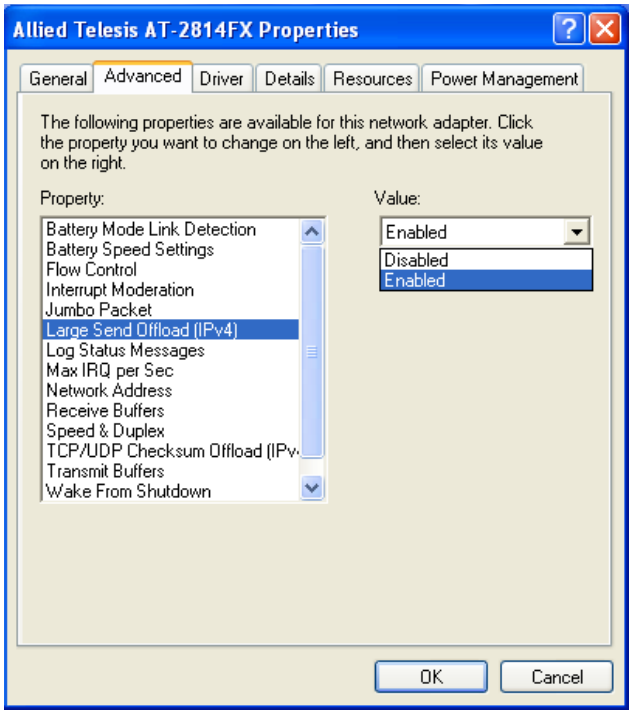

Figure 29. Large Send Offload (IPv4) Page

5. Select one of the following options:

   - **Disabled**— The AT-2814FX ExpressCard does not segment packets.
   - **Enabled** — The AT-2814FX ExpressCard segments large packets before sending them out. This option reduces the CPU load as the AT-2814FX ExpressCard performs the segmentation. This is the default setting.

6. Click **OK**.

Log Status Messages

The Log Status Messages property specifies which messages to be generated and stored in the event log file.

To change the Log Status Messages setting, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Log Status Messages** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 30.

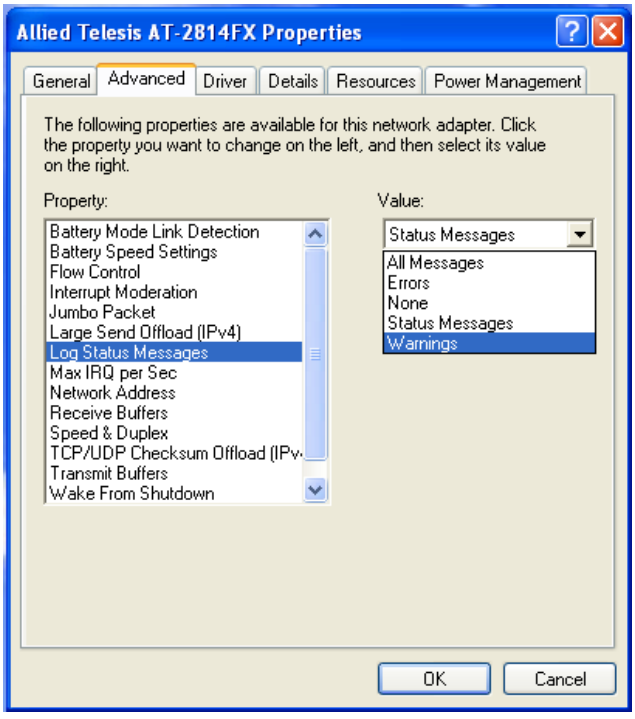

Figure 30. Log Status Messages

5. Select one of the following options:

   - **All Messages**— All messages are generated and stored in the event log.

- **Errors** — Only error messages are generated and stored in the event log file.
- **None**— No message is generated.
- **Status Messages** — An event log entry is generated every time the link status changes and stored in the event log file. This is the default setting.
- **Warnings** — Only warning and error messages are generated and stored in the event log file.

6. Click **OK**.

Max IRQ per Sec

The Max IRQ per Sec property specifies the rate of interrupts to the CPU during packet transmission and packet reception. The interrupt Moderation feature uses this property to group CPU interrupts. When the Interrupt Moderation is disabled, the value of Max IRQ per Sec is ignored.

To change the Max IRQ per Sec value, do the following:

1. Access the Device Manger on your operating system.

   See “Starting the Device Manager” on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Max IRQ per Sec** in the Property box.

   The Max IRQ per Sec page is displayed as shown in Figure 31.

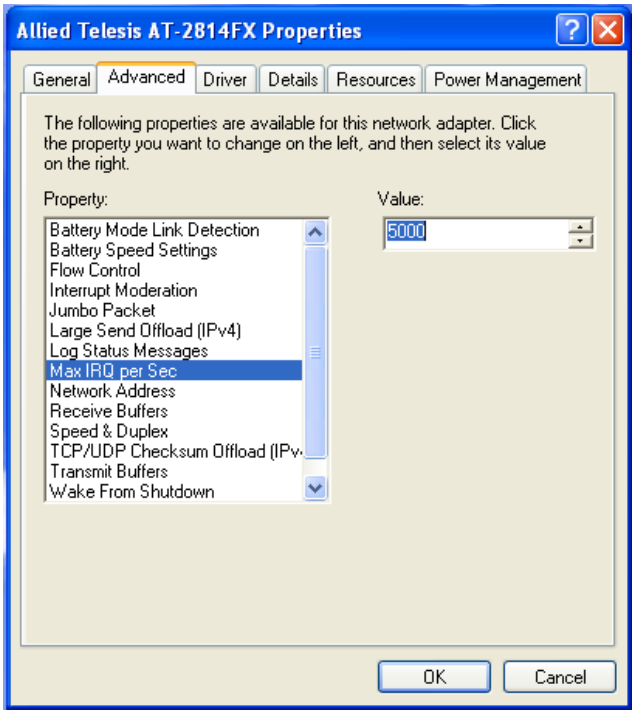

Figure 31. Max IRQ per Sec Page

4. In the **Value** textbox, enter a number from 1000 to 5000.

   The default value is 5000.

5. Click **OK**.

Network Address

The Network Address allows you to replace the MAC address originally assigned to the AT-2814FX ExpressCard with a user-defined address. The user-defined address that you assign to the ExpressCard is called a locally administered address.

Caution

A locally administered address overrides the original MAC address stored in the AT-2814FX ExpressCard hardware. When you change the MAC address, be sure to assign a unique MAC address.

To assign or change the Network Address, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Network Address** in the Property box.

   The Network Address page is displayed as shown in Figure 32.

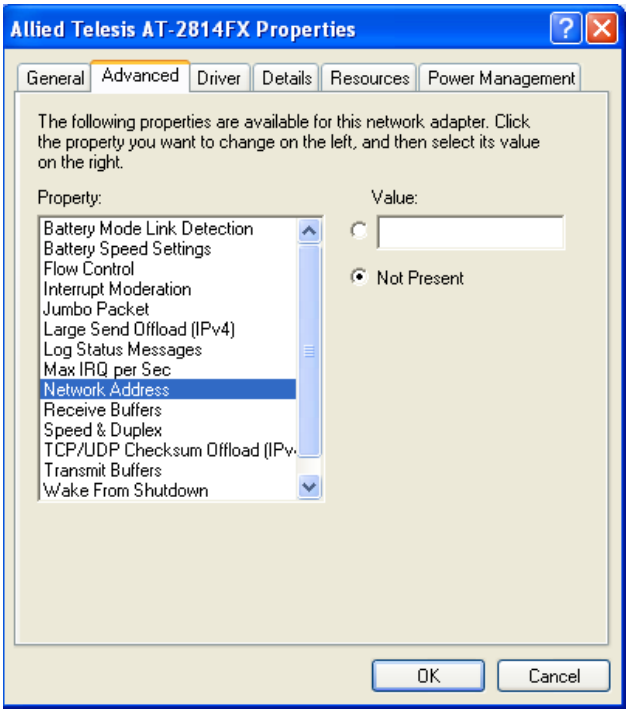

Figure 32. Network Address Page

4. In the **Value** textbox, enter a locally administered address for the AT-2814FX ExpressCard.

   Here are guidelines to assigning a locally administered address:

   - The address must be unique.
   - The address consists of a 12-digit hexadecimal number, for example, “000C46005501.”
   - The range is from 0000 0000 0001 to FFFF FFFF FFFD.
   - Do not use a MAC address whose least significant bit of the most significant octet is 1. The MAC address is a multicast address.

5. Click **OK**.

Receive Buffers

The Receive Buffers property sets the number of receive buffers that is allocated for the AT-2814FX ExpressCard. Increasing this value may enhance performance in receiving traffic, but consumes more system memory.

To change the Receive Buffers value, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select the **Receive Buffers** property in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 33.

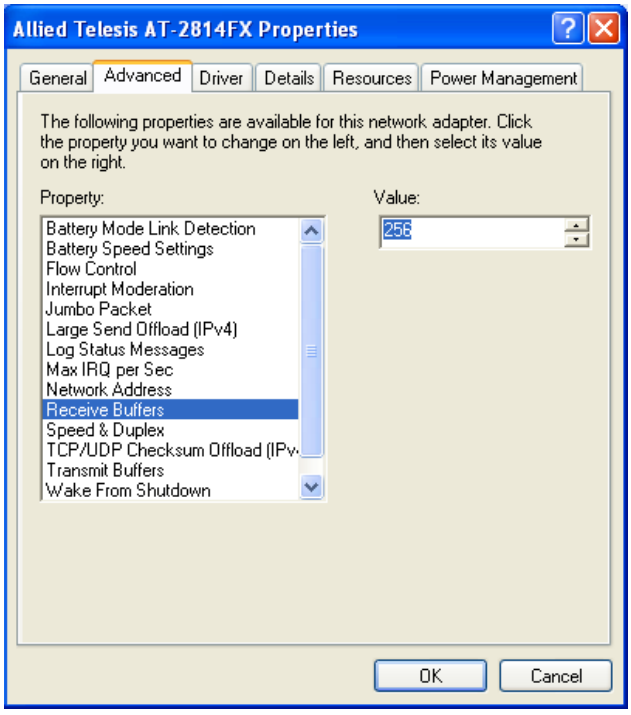

Figure 33. Receive Buffers Page

5. Select one of the following numbers:
   - **256**— This is the default value.
   - 512
6. Click **OK**.

Speed & Duplex

The Speed & Duplex property set both the link speed and the duplex mode of the AT-2814FX ExpressCard.

To change the Speed & Duplex property, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Speed & Duplex** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 34.

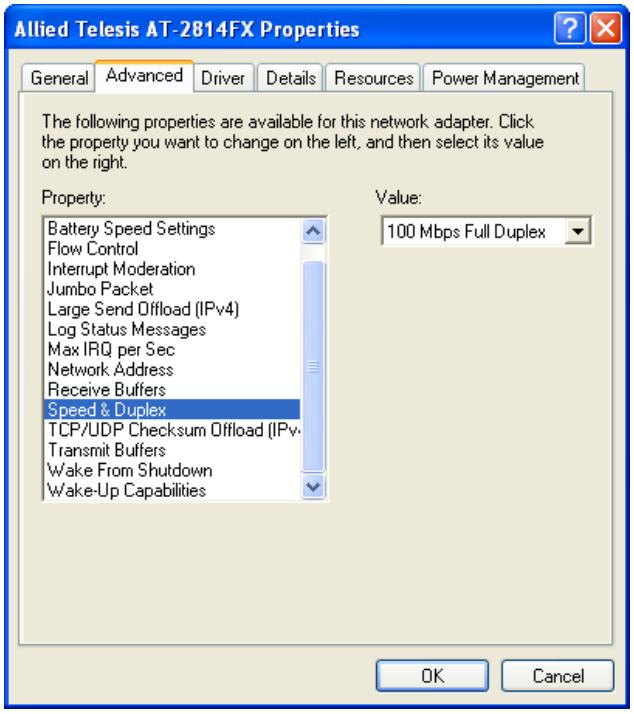

Figure 34. Speed & Duplex Page

5. Select one of the following options:

   - **100 Mbps Full Duplex**— 100 Mbps speed in the full duplex mode. This is the default setting.

- **100 Mbps Half Duplex**— 100 Mbps speed in the half duplex mode.

6. Click **OK**.

TCP/UDP Checksum Offload (IPv4)

The TCP/UDP Checksum Offload (IPv4) function enables the AT-2814FX ExpressCard to compute the checksum of transmitting packets and verify the checksum of receiving packets, taking load off from the CPU on your laptop.

To enable or disable the TCP/UDP Checksum Offload (IPv4) feature, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **TCP/UDP Checksum Offload (IPv4)** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 35.

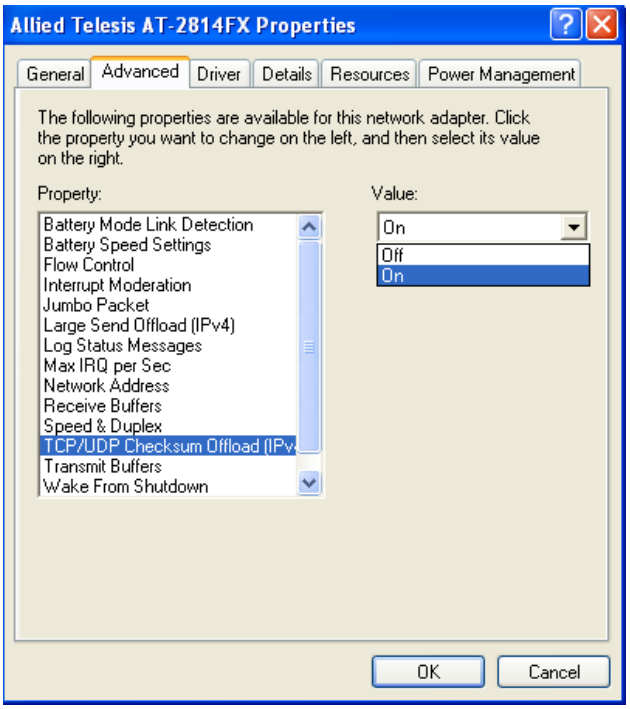

Figure 35. TCP/UDP Checksum Offload (IPv4) Page

5. Select one of the following options:
   - **On**— Enables the TCP/UDP Checksum Offload function. This is the default setting.
   - **Off**— Disables the TCP/UDP Checksum Offload function.
6. Click **OK**.

Transmit Buffers

The Transmit Buffers property specifies the number of transmit buffers that is allocated for the AT-2814FX ExpressCard. Increasing this value may enhance performance in transmitting traffic, but consumes more system memory.

To change the Transmit Buffers, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select the **Transmit Buffers** property in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 36.

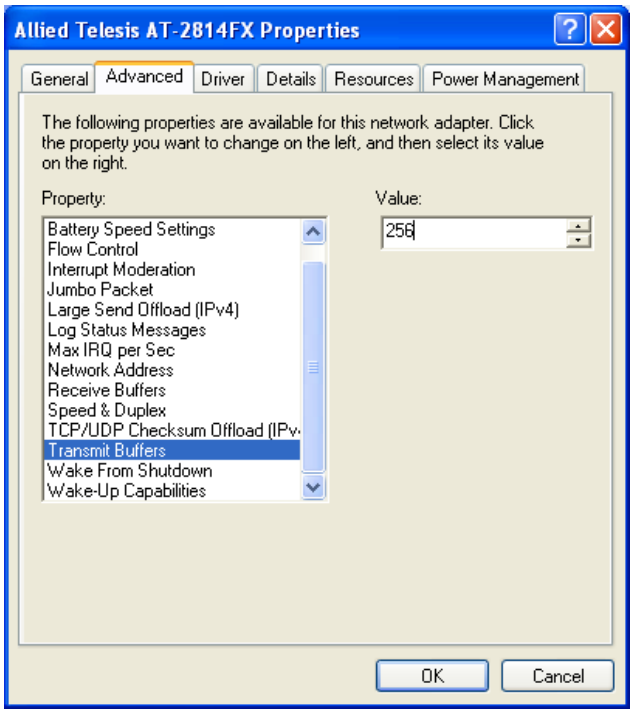

Figure 36. Transmit Buggers Page

5. Select one of the following numbers:
   - **256**— This is the default value.
   - **512**
6. Click **OK**.

Wake From Shutdown

The Wake From Shutdown feature enables your laptop to start from the shutdown state when the AT-2814FX ExpressCard receives the types of frame that are specified by "Wake-Up Capabilities" on page 73.

To enable or disable the Wake From Shutdown function, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select the **Wake From Shutdown** property in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 37.

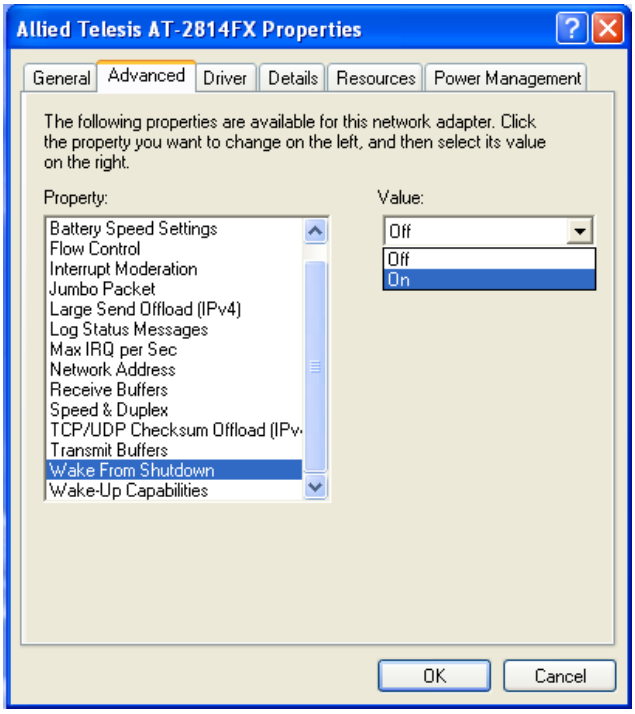

Figure 37. Wake From Shutdown Page

5. Select one of the following options:
   - **On**— Enables the Wake From Shutdown feature.
   - **Off**— Disables the Wake From Shutdown feature. This is the default setting.
6. Click **OK**.

Wake-Up Capabilities

The Wake-Up Capabilities property specifies the type of frame that the Wake From Shutdown feature uses. When the Wake From Shutdown feature is enabled, your laptop starts from the shutdown state as the AT-2814FX ExpressCard receives the type of frame that the Wake-Up Capabilities property specifies. When the Wake From Shutdown is disabled, the value of the Wake-Up Capabilities is ignored.

To change the Wake-Up Capabilities setting, do the following:

1. Access the Device Manger on your operating system.

   See "Starting the Device Manager" on page 43.

2. Click the **Advanced** tab.

   The Advanced page is displayed. See Figure 21 on page 46.

3. Select **Log Status Messages** in the Property box.

4. Click on the ▼ in the **Value** box.

   The options are displayed as shown in Figure 38.

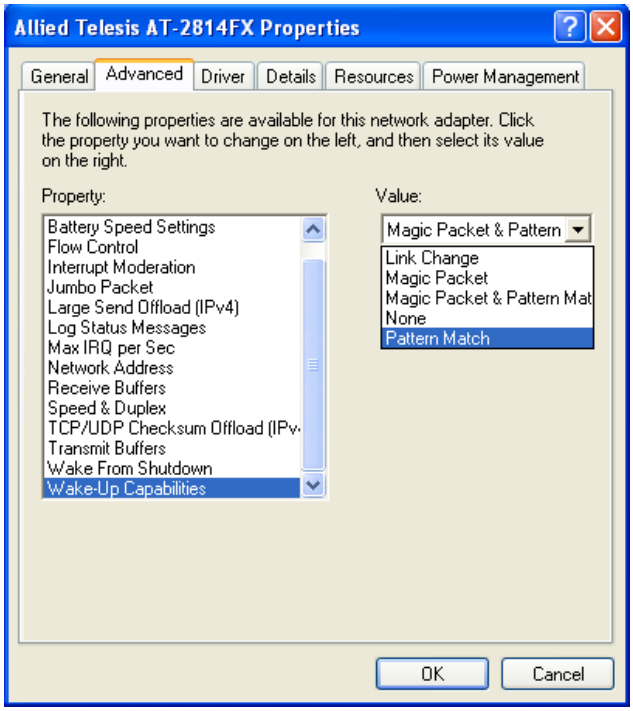

Figure 38. Wake-Up Capabilities Page

5. Select one of the following options:

   - **Link Change**— Your laptop wakes up from the shutdown state when the link status is changed if the Wake From Shutdown feature is enabled.
   - **Magic Packet**— Your laptop wakes up from the shutdown state when the AT-2814FX ExpressCard receives a special packet called a magic packet if the Wake From Shutdown feature is enabled.
   - **None**— Your laptop does not wake up from the shutdown state even when the Wake From Shutdown feature is enabled.
   - **Magic Packet & Pattern Match**— Your laptop wakes up from the shutdown state when the AT-2814FX ExpressCard receives a special packet called a magic packet or a packet that matches the pattern specified by the operating system. The Wake From Shutdown feature must be enabled for your laptop to behave this way. This is the default setting.
   - **Pattern Match** — Your laptop wakes up from the shutdown state when the AT-2814FX ExpressCard receives a packet that matches the pattern specified by the operating system. The Wake From Shutdown feature must be enabled for your laptop to behave this way.

   Note
   See Microsoft's Technet website, technet.microsoft.com for more information.

6. Click **OK**.

Chapter 5

Uninstalling the Driver Software

This chapter describes how to uninstall the driver software for the AT-2814FX ExpressCard.

This chapter contains the following topics:

Overview

When you no longer use the AT-2814FX ExpressCard for your laptop computer, you may want to uninstall the driver software from your operating system.

Guidelines

Here are the guidelines to uninstalling the driver software from your system:

- You must have Administrator privileges to remove the driver software.
- Before uninstalling the Allied Telesis device, capture all of the Advanced Property settings for later use. The properties are lost during the uninstallation process.

Uninstalling the Driver Software

To uninstall the driver software from your operating system, do the following:

1. Start you Windows operating system and log in.
2. Open the Device Manager.

   For instructions on how to open the Device Manager, see "Starting the Device Manager" on page 43.
3. In the Device Manager window, click the ▷ next to the Network Adapters folder.

   Note
   For the Windows XP operating systems, click the **+** next to the Network Adapters folder to expand the Network Adapter folder.

   The selection expands to show the list of installed network adapter cards. See Figure 19 on page 45 for Windows XP or Figure 24 on page 48 for Windows 7 and Windows Vista.
4. Select the Allied Telesis AT-2814FX, right-click on the name, then select **Uninstall** on the options.

   Figure 39 on page 78 shows the Device Manager with the option list.

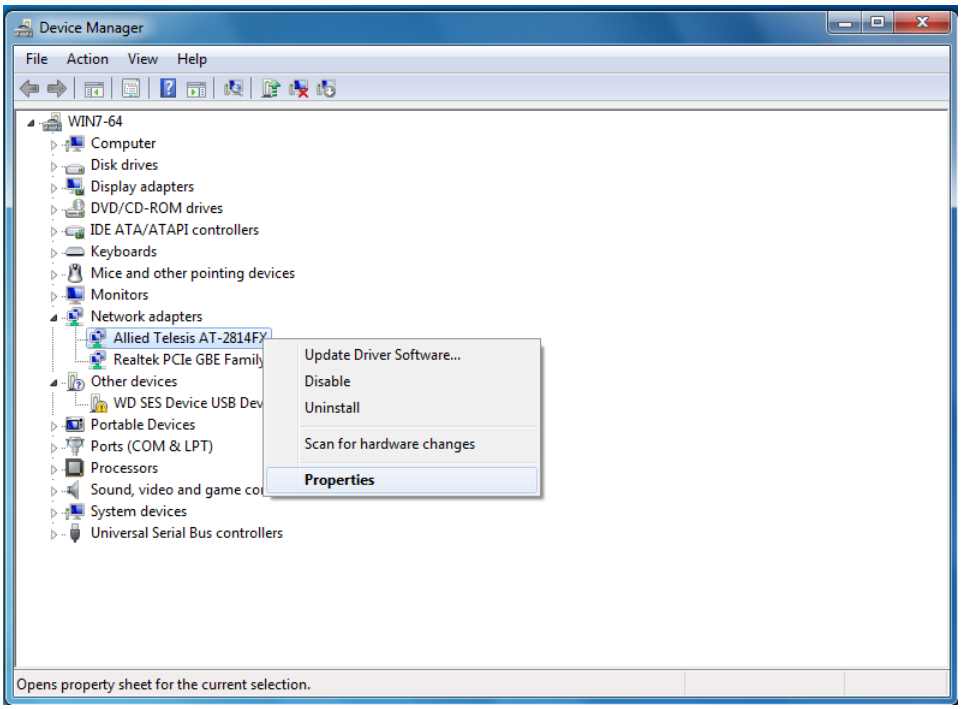

Figure 39. Device Manager Window with an Option List

A Confirm Device Uninstall window pops up as shown in Figure 40.

Figure 40. Confirm Device Uninstall Window

5. Check the checkbox if you wan to remove additional driver and installation files.

> **Note**
> This option is available only for Windows 7 and Windows Vista operating systems.

6. Click **OK** to complete the uninstall.

Appendix A
Specifications

Physical Specifications

This section provides the dimensions and weight of the AT-2814FX ExpressCard.

Dimensions:	13.7 cm x 3.4 cm (5.4 in. x 1.3 in.)
Weight:	0.02 kg (0.05 lb)

Environmental Specifications

The following environmental specifications apply to the AT-2814FX ExpressCard:

Operating Temperature:	0°C to 45°C (+32°F to +113°F)
Storage Temperature:	-20°C to +70°C (-4°F to +158°F)
Relative Humidity:	5% to 95% (non-condensing)
Altitude:	Up to 3,048 m (10,000 ft.)

Power Specifications

The following power specifications apply to the AT-2814FX ExpressCard:

Power Consumption: 2.5 Watts, @ +3.3V

Performance Specification

The following performance specification apply to the AT-2814FX ExpressCard:

MTBF	3,210,000 hours

Operating Specifications

The following operating specifications apply to the AT-2814FX ExpressCard:

Wavelength:	1310 nm	
Output Optical Power:	62.5/125 µm	-19 (min) / -14 (max)
	50/125 µm	-22.5 (min) / -14 (max)
Input Optical Power Minimum at Eye Center:		-33.9 typical

Appendix B

Cleaning Fiber Optic Connectors

This appendix explains how to clean fiber optic connectors and includes the following topics:

Overview

The fiber optic connector consists of a fiber optic plug and its adapter. The end of the fiber optic cable is held in the core of the ferrule in the plug. Light signals are transmitted through the core of the fiber. Even minor smudges or dirt on the end face of the fiber, completely invisible to the naked eye, can disrupt light transmission and lead to failure of the component or of the entire system. Therefore, it is of utmost importance to clean all fiber optic connectors before use.

Figure 41 shows the ferrule in an SC connector.

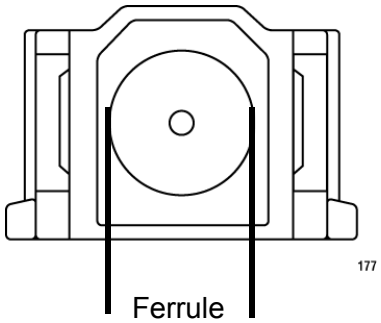

Figure 41. Ferrule in an SC Connector Plug

Figure 42 shows part of the end face of an unclean and clean ferrule.

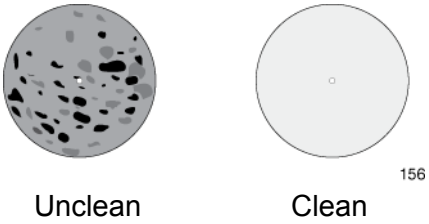

Figure 42. Unclean and Clean Ferrule

Cleaning Fiber Optic Connectors Using a Cartridge-Type Cleaner

Fiber optic cartridge-type cleaners are available from many vendors and typically called "cartridge cleaners." See Figure 43.

Figure 43. Cartridge Cleaner

Note
Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a fiber optic connector using a cartridge cleaner, do the following:

1. With one hand, hold the cartridge cleaner and push the lever on the cleaning cartridge in the direction of the arrow to expose the cleaning surface.

2. Place the ferrule tip on the exposed cleaning surface and rub the ferrule in a downward direction, as shown in Figure 44.

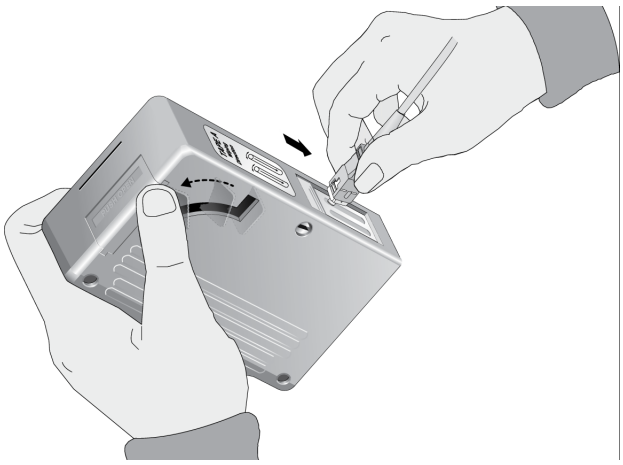

Figure 44. Rubbing the Ferrule Tip on the Cleaning Surface

Note
Rub the ferrule tip on the cleaning surface in one direction only.

3. When you reach the end of the cleaning surface, pick up the ferrule tip, rotate and place it at the top and rub downwards at least 2 times.

Caution
Failing to pick up the ferrule tip when you reach the bottom of the cleaning surface can result in static electricity that can damage the fiber optic cable.

4. If desired, repeat steps 3 and 4.
5. If a fiber inspection scope is available, use the scope to inspect the ferrule end face to make sure that it is clean.
6. Reconnect the cable to the port or protect the ferrule tip with a dust cap.

Note
Always keep a dust cap on a fiber optic cable when it is not in use.

Note
Do not touch the end face of the ferrule in the connector.

Warning
Do not stare into the laser beam. ☞L2

Warning
Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. ☞L6

Cleaning Fiber Optic Connector Using a Swab

Specially treated swabs (stick cleaners) are available for cleaning inside connector adapters or hard-to-reach ferrule tips. These swabs, often referred to as "lint free" or "alcohol free" swabs, are available from many vendors. Stick cleaners are available in both 2.5 mm and 1.25 mm sizes for use on SC and MU connectors respectively. See Figure 45.

Note
NEVER use a household cotton swab and/or alcohol to clean a fiber optic connector. This may leave a residue on the ferrule tip.

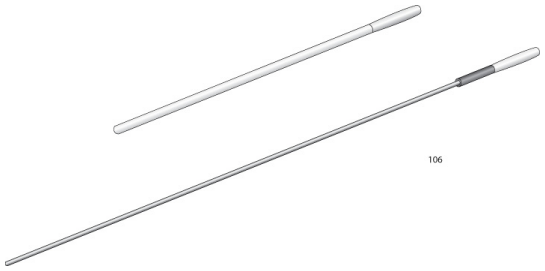

Figure 45. Lint-Free and Alcohol-Free Swabs

Note
Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a recessed ferrule using a swab, do the following.

1. Insert the swab into the adapter as shown in Figure 44 and rub the ferrule tip with the swab.

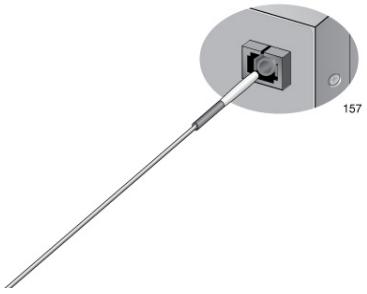

Figure 46. Cleaning a Recessed Ferrule

2. If needed, repeat step 1.

3. If a fiber inspection scope is available, use the scope to inspect the connector to make sure that it is clean and to check for scratches, pits, or other problems that may affect performance.

Note
Always keep a dust cap on a fiber optic cable when it is not in use.

Warning
Do not stare into the laser beam. L2

Warning
Do not look directly at the cable ends or inspect the cable ends with an optical lens. L6