

# **Intel® PRO/Wireless 5000 LAN Products**

*Quick Installation Guide*

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# Intel® PRO/Wireless 5000 LAN Products

## User Documentation

In addition to this Quick Installation Guide, Intel provides additional documentation for PRO/Wireless 5000 LAN products on the Intel CD-ROM in HTML format. This documentation is viewable with Microsoft Internet Explorer version 4.0 or later or Netscape Navigator version 4.0 or later.

To access the online documentation, insert the Intel CD-ROM and wait for the Intel® PRO Network Connections menu screen to display. On the menu screen, click View User Guides. On the Intel® Network Products User Information screen, click PRO/Wireless 5000 LAN Adapter or PRO/Wireless 5000 Access Point to display the user guide for each product. If the PRO Network Connections menu screen does not display, run the program **autorun.exe** from the Intel CD-ROM.

## Products Covered in This Guide

Installation information is provided in this Quick Installation Guide for the following Intel® PRO/Wireless LAN products:

### PRO/Wireless LAN Access Points

- **Model WDAP5000** - dual-function access point supporting both 802.11a and 802.11b wireless networks
- **Model WSAP5000** - single-function access point supporting 802.11a wireless networks; upgradeable to dual function with the addition of 802.11b hardware
- **Model WSAP2000** - single-function access point supporting 802.11b wireless networks; upgradeable to dual function with the addition of 802.11a hardware

### PRO/Wireless 5000 LAN CardBus Adapter

- **Model WCB5000** - 802.11a CardBus PC Card client adapter

### PRO/Wireless 5000 LAN PCI Adapter

- **Model WPCI5000** - 802.11a PCI client adapter

# Installing the Access Point

## Package Contents

- Intel® PRO/Wireless LAN Access Point (model WDAP5000, WSAP5000, or WSAP2000)
- Mounting hardware
- Power supply and power cord
- CD-ROM containing software and online documentation
- Quick Installation Guide (this manual)

## Installation Options and Requirements

- **(Recommended)** To set up and configure the access point, use a wired client workstation connected to the access point directly or connected to the wired LAN to which the access point is connected. Initial setup and configuration must be done over a wired connection, but subsequent changes can be made over a wireless connection.
- **(Optional)** Use DHCP server support for automatic assignment of an IP address to the access point over the wired network. You can configure the access point to use DHCP to get its IP address. See Use DHCP to Obtain Network Addresses.

## Connect and Power Up the Access Point

### Connect the Access Point to the Wired Network

- Plug an RJ-45 Category 5 Ethernet cable into the RJ-45 connector on the access point and into a 10/100 Ethernet wall connector or hub.

### Connect the Access Point to a Source of AC Power

- Plug the power adapter into a wall outlet.
- Plug the power adapter cable into the socket on the bottom of the access point.

## Check the LED Indicators

Once the access point is connected to a wired network and powered on, check the LEDs to verify that the unit is functioning correctly. If the access point fails to initialize, restart by disconnecting and reconnecting power.



The Intel® PRO/Wireless 5000 LAN Access Point can be mounted "right side up" on a desk or table or "upside down" on a wall or ceiling. The LED table that follows is based on an "upside down" wall- or ceiling-mounted configuration in which the "Ready" LED will be the topmost LED and "Wired link" will be the bottom LED.

- The "Ready" LED should be lit.

- If the access point is connected to a LAN through an Ethernet cable, the "Wired link" LED should be lit (green for 10 Mbps, orange for 100 Mbps) and the "Wired network activity" LED should be blinking.
- If the access point is communicating with a wireless adapter, the "Wireless radio activity" LED should be flashing steadily. The Wireless radio activity LED blinks faster when the access point is sending or receiving information from a wireless adapter.
- Note that there are separate sets of LEDs for "Wireless radio activity" and "Wireless radio association" for 802.11a and 802.11b networks. The description indicates which models use which set or sets.

Viewed on a wall- or ceiling-mounted access point, the LED indicators have the following locations and functions.

<b>Ready</b>	Green. This indicator will stay illuminated after the access point has completed the initialization sequence. The Ready light flashes quickly 3 times during a reset to factory default settings.
<b>Wireless radio activity (802.11a)</b>	Yellow flashes steadily if no client adapter is associated to the access point, and more rapidly when transferring data. Applies to models WSAP5000 and WDAP5000.
<b>Wireless radio association (802.11a)</b>	Green will be ON if a client adapter is associated to the access point and OFF if not. Applies to models WSAP5000 and WDAP5000.
<b>Wireless radio activity (802.11b)</b>	Yellow flashes steadily if no client adapter is associated to the access point, and more rapidly when transferring data. Applies to models WSAP2000 and WDAP5000.
<b>Wireless radio association (802.11b)</b>	Green will be ON if a client adapter is associated to the access point and OFF if not. Applies to models WSAP2000 and WDAP5000.
<b>Wired network activity</b>	Yellow blinking shows activity.
<b>Wired link</b>	Green for 10 Mbps wired network speed and orange for 100 Mbps.

## Configure the Access Point for the First Time

1. Set up a portable or desktop computer as a configuration workstation from which to view the browser-based Configuration Management System used to configure the access point.
2. Connect the configuration workstation to the access point either directly (using a crossover RJ-45 cable) or through a hub or switch (using a standard RJ-45 cable).
3. The configuration workstation must be running Microsoft Windows\* XP, 2000, Me, or 98, and one of the following web browsers: Microsoft Internet Explorer version 5.50 or Netscape Navigator version 4.78 or 5.x.

4. Set up the configuration workstation initially with an IP address compatible with the **default IP address** and **default subnet** of the access point. For example, based on the access point default IP address 192.0.2.1 and default subnet 255.255.0.0, the client workstation could be set to 192.0.2.2, 192.0.2.3, or a similar address not in use by another device.
5. Once the workstation has been configured as just described, type the default access point IP address as a URL in the browser address field: **http://192.0.2.1**. The Access Point Configuration Management System web interface displays.
6. Click the **Express Setup** button, then type a user name and a password. The default for both is: **Intel**. The password is case-sensitive: capital "I," lower case "ntel."
7. Use Express Setup to configure the access point with a **new IP address, subnet, and other settings** suitable for the network to which it will be permanently connected.
8. Click **Apply** first, then click **Restart AP**. After the access point has restarted, connect it to the required network.
9. Once the access point has been configured and connected to its home network, the configuration interface can be viewed from any workstation on the same network segment or subnet. Open a compatible browser and type the actual IP address of the access point as a URL in the address field.



To view configuration, function or option changes on the browser pages, turn off the browser's caching function as described below:

- For Netscape, from the menu bar select Edit, Properties, Advanced, Cache, then select Document in cache is compared to document on network: Every time.
- For Internet Explorer, from the menu bar select View, Internet Options, Temporary Internet files, Settings, then select Check for newer versions of stored pages: Every visit to the page.

## Settings for First Time Configuration (Express Setup)

For complete coverage of access point settings see the access point Help file, which can be viewed from the online user guide on the Intel CD-ROM.

Setting	Description
<b>Access Point Name</b>	User-defined name for the access point. Any combination of letters and numbers from 1 to 32 characters. Default is the model number of the access point.
<b>Default IP Address</b>	The default IP address is 192.0.2.1. An IP address is not dynamically assigned to the access point under its default configuration. Use the default address initially, then change it to a valid address for the network to which the access point will be connected. For dynamic address assignment, see the section Use DHCP to Obtain Network Addresses.
<b>Default Subnet Mask</b>	The default Subnet Mask is 255.255.0.0 if DHCP usage is Disabled or DHCP service is not available. Change this to a valid subnet mask for the network to which the access point will be connected.
<b>Default Gateway</b>	No default gateway is assigned. Use a valid gateway address for the network to which the access point will be connected. If no valid gateway is defined on your network, use the default gateway 0.0.0.0. For gateway assignment via DHCP, see Use DHCP to Obtain Network Addresses.
<b>DHCP</b>	The Dynamic Host Configuration Protocol (DHCP) dynamically assigns IP addresses on a network with a DHCP server. DHCP default setting for the PRO/Wireless 5000 LAN Access Point is <b>Disabled</b> . To change this to Enabled and install the access point on a network using DHCP support, see Use DHCP to Obtain Network Addresses.
<b>Help URL</b>	User-assigned path to the Help file accessible by clicking the Help button in the access point Configuration Management System. See the online user guide for Help file installation instructions.
<b>SSID 11A or SSID11B</b>	Service Set Identifier (also called Network Name, Network ID, ESSID) identifies the network to which the access point is connected. All access points and client workstations on the same wireless LAN must have the same SSID, which can be any combination of letters and numbers up to 32 characters. Default for Intel PRO/Wireless LAN 802.11a and 802.11b devices is "101." The default SSID is intended only for preliminary setups and connections and should be changed to a descriptive name for your wireless LAN network.

## **Configure Authentication and Security Features (Optional)**

Authentication and encryption features are available on the access point for security purposes. It is recommended that users enable and configure the features appropriate for the protection of data on their networks. For information on how to configure these features, view the online user guide and the AP Help file contained on the Intel CD-ROM.

## **Use DHCP to Obtain Network Addresses (Optional)**

The Intel PRO/Wireless 5000 LAN Access Point can be configured to use DHCP to get its IP address, subnet mask, and default gateway:

1. Access the Express Setup page in the browser-based Configuration Management System as described in Steps 1-6 under Configure the Access Point for the First Time.
2. Change the DHCP setting from Disabled to Enabled on the Express Setup page or the Configuration page. Save the new settings by clicking Apply, then click Restart AP. After the restart, connect the access point to the network to which it will be permanently connected.
3. The next time the access point is restarted after DHCP has been enabled, it will attempt to get its IP address, subnet mask, and default gateway from the DHCP server. If no server is available, the access point will use the Default IP Address and Default Subnet Mask settings.
4. When the access point used DHCP to obtain its IP address, you will have to determine the IP address before you can access the configuration pages. There are several strategies you can use for this, based on the MAC address assigned to the access point:
  - Before connecting the "DHCP Enabled" access point to a DHCP network, ask your network administrator to reserve an IP address, based on the MAC address for the access point, in the DHCP "lease table." This will allow the DHCP server to recognize the access point when it is connected to the network and assign it a known IP address based on the MAC address.
  - You can also connect a "DHCP Enabled" access point to a DHCP network immediately, without reserving the MAC address before connection. In this case an address will be assigned automatically, but you will have to request the address from your network administrator, who will obtain it from the DHCP "lease table."
  - You can also use the Intel Access Point Administration Tool AP Discovery to find the access point and display its IP address. See the online user guide for details.

## **Restore Factory Defaults**

The access point has a Reset button that can be used to perform a hardware reset or to restore the access point's factory default settings to start a clean configuration or as a troubleshooting measure.

The Reset button is located in a **pinhole** on the bottom of the access point. Insert the end of an unbent paper clip into the hole and apply pressure as follows:

- Press and release the Reset button quickly to perform a hardware reset.
- Press and hold the Reset button until the “Ready” LED flashes quickly 3 times. This will restore all access point parameters to factory default settings, including default user name, password, and IP address.

### Access Point Factory Default Settings

<b>Access point name</b>	WSAP5000 (or the model number of your access point)
<b>IP address</b>	192.0.2.1
<b>Subnet mask</b>	255.255.0.0
<b>Default gateway</b>	None
<b>User</b>	Intel (case sensitive)
<b>Password</b>	Intel (case sensitive)
<b>SSID 11A</b>	101
<b>WEP 11A</b>	Disabled
<b>SSID 11B</b>	101
<b>WEP 11B</b>	Disabled

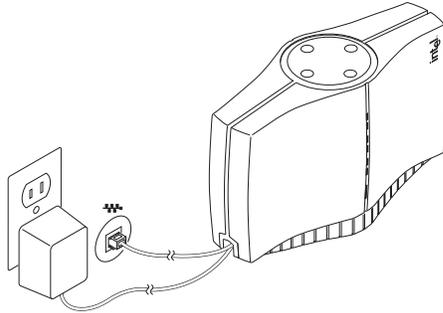
### Set Up a Wireless LAN

For detailed information on site survey, setup, positioning, and testing of access points on your wireless LAN, see the online user guides on the Intel CD-ROM.

## Mount the Access Point

Position each access point using the following guidelines and illustrations. For best throughput and range, install the access point as high as practical.

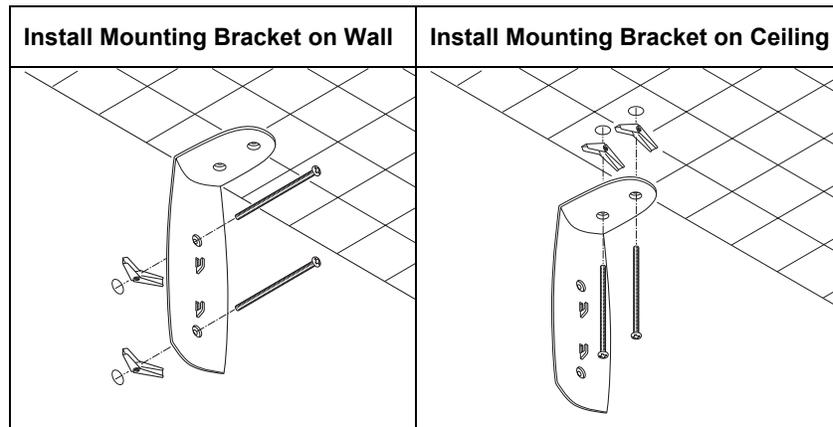
### Desktop or Table Top Location



Set the access point on a flat surface such as a table or desk. If the access point is positioned on a desk or table, the antenna should be on top (as shown above).

### Wall or Ceiling Mounted Location

To install the mounting bracket on a hollow wall or ceiling, use the bracket to position and drill holes for the toggle screws supplied, using a 3/8-inch drill bit. Insert the bolt through the holes in the bracket, then screw on the toggle piece. **Insert bolt and toggle through the hole.** The toggle will open on the other side of the hole. Turn the bolt until the bracket is secure.

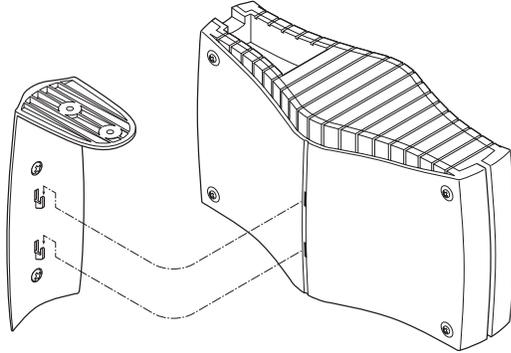


## Attach Access Point to Bracket

If the access point is to be attached to a ceiling or to a wall near the ceiling, it should be positioned with the antenna on the bottom (as shown in the illustrations that follow).

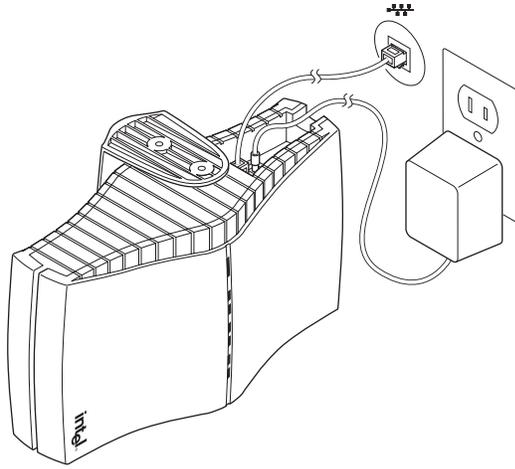
If the access point is mounted at a lower point on the wall, it should be positioned with the antenna on the top (see the illustration for Desk or Table Top location; the access point is designed so that it can be attached to the mounting bracket tabs in either orientation).

Be sure the holes in the access point hook correctly over the mounting bracket tabs and click into place before releasing the access point.



## Connect Wall or Ceiling Mounted Access Point to Network and AC Power

The illustration below shows a typical placement of power and network cables. Refer to the heading Connect and Power Up the Access Point for detailed instructions.



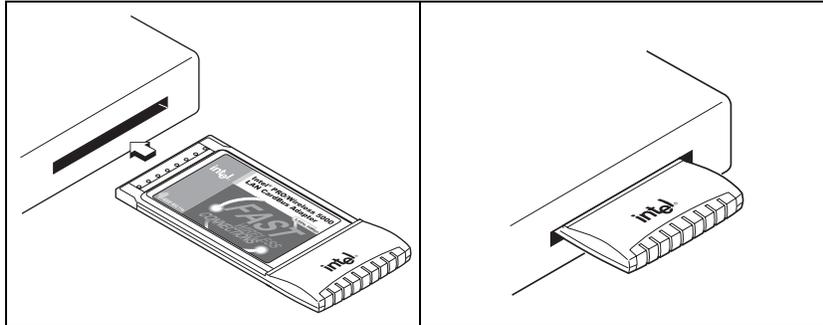
# Installing the CardBus Adapter

## Package Contents

- Intel® PRO/Wireless 5000 LAN CardBus Adapter (model WCB5000)
- CD-ROM containing software and user documentation
- Quick Installation Guide (this manual)

## Hardware Installation

1. Turn on power to the computer and wait for Windows\* to load. Windows XP, 2000, Me, or 98SE is required.
2. Insert the CardBus Adapter into the CardBus PC Card slot on your computer, then proceed to **Step 3** to install drivers and software under the Windows operating system.



## Windows\* Installation

3. Windows will detect the adapter. Follow the procedures below for your version of Windows, then continue with **Step 4**:

### Windows XP



Before proceeding, make sure that you are operating Windows XP with administrative rights. If you log in to Windows XP without administrative rights, you may run into problems during the installation.



The Intel® PROSet II utility or Windows XP can be used to configure wireless network settings. The instructions below include steps for installing the PROSet II utility and for turning off the Windows XP configuration feature. For information on the Windows XP feature, see your Windows XP documentation.

- The **Found New Hardware Wizard** dialog displays. Verify that **Install the software automatically (Recommended)** is checked.

- Insert the Intel CD-ROM into your CD-ROM drive. The **New Hardware Found Wizard** searches for the correct driver files and copies them to your hard drive. If the Intel® PRO Network Connections menu screen appears, leave it open.
- If a Windows Logo testing dialog appears, click **Continue Anyway**.
- When the **My WLAN Places** screen appears, click **Next**. You will return to this configuration screen later to configure wireless settings.
- On the **Found New Hardware Wizard** screen, click **Finish**.
- Click **Start**, **Settings**, and **Control Panel**.
- Double-click **Network Connections**.
- In the **LAN or High-Speed Internet** window right-click the **Wireless Network Connection** and select **Properties**.
- Select the **Wireless Network** tab.
- Click to clear the check box **Use Windows to configure my wireless network settings**, then click **OK** on the **Wireless Network** tab. Do not click any other tabs.
- In the **LAN or High-Speed Internet** window right-click the **Wireless Network Connection** and select **Properties**.
- Select the **General** tab and click **Configure**.
- Select the **My WLAN Places** tab.
  - click **OK** to install using the default profile or
  - click **New** to set up a profile using configuration information obtained from your network administrator. Type a configuration name and the SSID for your wireless network. Set up security and other parameters if required. Consult your network administrator. Click **OK** to close the dialog. Click **OK** to finish setting up the profile. Close the **LAN or High Speed Internet** window.
- Proceed to **Step 4**.

## Windows 2000



You must be logged on as an administrator or member of the administrator's group to install a new device under Windows 2000.

- The **Found New Hardware Wizard** dialog displays. Click **Next**. The **Install Hardware Device Drivers** dialog displays.
- Insert the Intel CD-ROM into your CD-ROM drive. If the Intel® PRO Network Connections menu screen appears, leave it open.
- On the **Install Hardware Device Drivers** screen verify that **Search for a suitable driver for my device (recommended)** is selected, then click **Next**.
- The **Locate Driver Files** dialog appears. Select **Specify a location**, select **CD-ROM** and click **Next**.
- The **Adapter Properties** screen displays. On the **Settings** tab:
  - click **OK** to install using a default profile or

- click **Configure** to set up a profile using configuration information obtained from your network administrator. On the **My WLAN Places** dialog, click the **New** button to create a new profile. Type a configuration name and the SSID for your wireless network. Set up security and other parameters if required. Consult your network administrator. Click **OK** to close the dialog. Click **OK** to finish setting up the profile, then click **Close**.
- On the **Found New Hardware Wizard** screen, click **Finish**. Proceed to **Step 4**.

## Windows Me

- The **Add New Hardware Wizard** dialog displays. **DO NOT** click **Next** yet. Verify that **Automatic search for a better driver (Recommended)** is checked.
- Insert the Intel CD-ROM into your CD-ROM drive. Windows installs the driver from the CD-ROM. If the Intel® PRO Network Connections menu appears, leave it open.
- On the **New Hardware Wizard** screen, select **Search for the best driver for you device (Recommended)**, and click **Next**, then select **CD-ROM drive** and click **Next**.
- The **Adapter Properties** screen displays. On the **Settings** tab:
  - click **OK** to install using a default profile or
  - click **Configure** to set up a profile using configuration information obtained from your network administrator. On the **My WLAN Places** dialog, click the **New** button to create a new profile. Type a configuration name and the SSID for your wireless network. Set up security and other parameters if required. Consult your network administrator. Click **OK** to close the dialog. Click **OK** to finish setting up the profile, then click **Close**.
- On the **Add New Hardware Wizard** screen, click **Finish**.
- When prompted to restart the computer, click **No**. Proceed to **Step 4**. Restart manually after completing software installation.

## Windows 98SE

- The **Add New Hardware Wizard** dialog displays. Click **Next**.
- Insert the Intel CD-ROM into your CD-ROM drive. If the Intel® PRO Network Connections menu appears, leave it open.
- On the **New Hardware Wizard** screen, select **Search for the best driver for you device (Recommended)**, and click **Next**, then select **CD-ROM drive** and click **Next**.
- The Adapter Properties screen displays. On the Settings tab:
  - click **OK** to install using a default profile or
  - click **Configure** to set up a profile using configuration information obtained from your network administrator. On the **My WLAN Places** dialog, click the **New** button to create a new

profile. Type a configuration name and the SSID for your wireless network. Set up security and other parameters if required. Consult your network administrator. Click **OK** to close the dialog. Click **OK** to finish setting up the profile, then click **Close**.

- On the **Add New Hardware Wizard** screen, click **Finish**.
  - When prompted to restart the computer, click **No**. Proceed to **Step 4**. Restart manually after completing software installation.
4. On the **Intel® PRO Network Connections** screen, click the menu item **Install Software**. If the menu screen is not visible, remove and re-insert the Intel CD-ROM to display it, or run autorun.exe from the Intel CD-ROM.
  5. On the **Welcome to the InstallShield Wizard for Intel(R) PRO Intelligent Installer** screen, click **Next**.
  6. On the **License Agreement** screen, select **I accept the terms in the license agreement** and click **Next**.
  7. On the **Setup Type** screen, select **Typical** and then click **Next**. This is the recommended setting for a first-time client installation. If you see a **Program Maintenance** screen instead of a **Setup Type** screen, select **Modify**, click **Next**, and click **Next** again on the **Custom Setup** screen to install using default settings.
  8. On the **Ready to Install the Program** screen click **Install**.
  9. After the software is installed on your computer, click **Finish**. Click **OK** to close the log file.
  10. If you are running Windows Me or 98SE, restart the computer.

# Installing the PCI Adapter

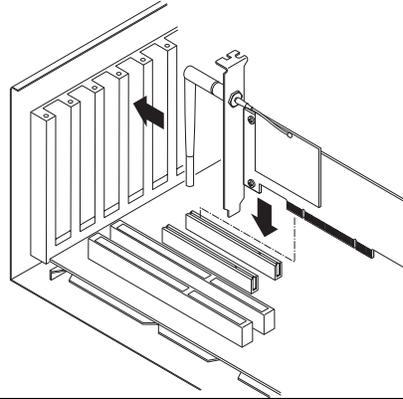
## Package Contents

- Intel® PRO/Wireless 5000 LAN PCI Adapter (model WPCI5000)
- CD-ROM containing software and user documentation
- Quick Installation Guide (this manual)

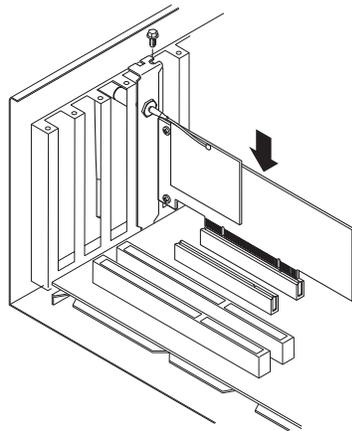
## Hardware Installation

**Caution:** Do not attempt to remove the antenna. The antenna is permanently attached to the Intel® PRO/Wireless 5000 PCI Adapter and cannot be removed. However, it can be rotated in place to facilitate hardware installation, as shown in the illustrations.

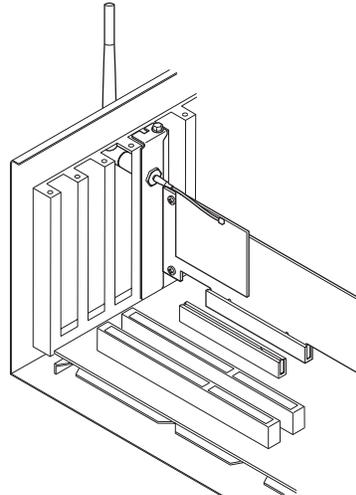
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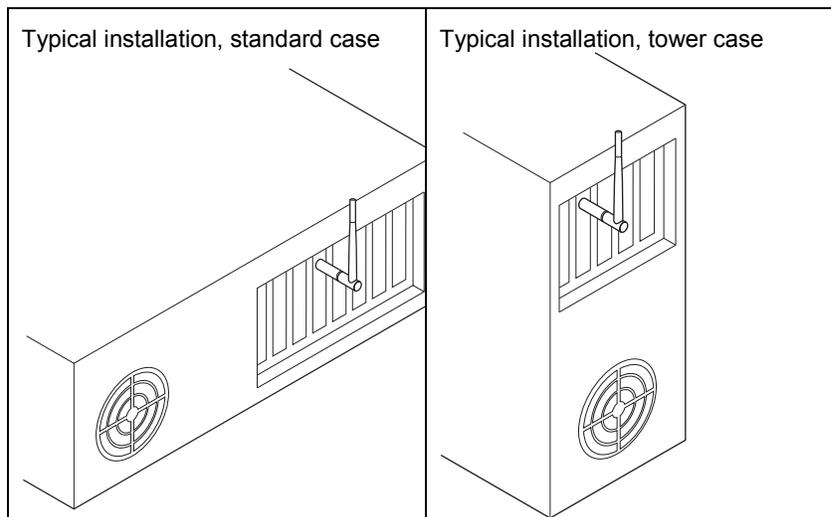


2.



3.





### Windows\* Installation

1. Install the PCI Adapter hardware according to the illustrations shown, then close and secure the computer case.
2. Turn on power to the computer and wait for Windows\* to load. (Windows XP, 2000, Me, or 98SE is required.)
3. Proceed to Windows Installation, Step 3, under the heading "Installing the CardBus Adapter."

# Customer Support

## Web and Internet Sites

- Support: <http://support.intel.com>
- Network Products: <http://www.intel.com/network>
- Corporate: <http://www.intel.com>

## Customer Support Technicians

### For the U.S. and Canada

If you are using this product in conjunction with Intel® PRO/Wireless 5000 LAN hardware in a business or office environment and want customer support, please call +1 916-377-7000 (7:00 – 17:00 M–F Pacific Time). You can also visit the Intel customer support web site (<http://support.intel.com>).

### For Worldwide Access

Intel has technical support centers worldwide. Many of the centers are staffed by technicians who speak the local languages. For a list of all Intel support centers, the telephone numbers, and the times they are open, refer to the Customer Support Phone Numbers web site at

<http://www.intel.com/support/9089.htm>

## Product Warranties

For details of product warranties, see the online manuals.

## Regulatory and Safety Notices

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## Software License Agreement

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## Register Online

Register online to receive technical support, product upgrade notices, information updates, and special offers. To register online, re-insert the Intel CD-ROM and click Online Registration on the menu.