

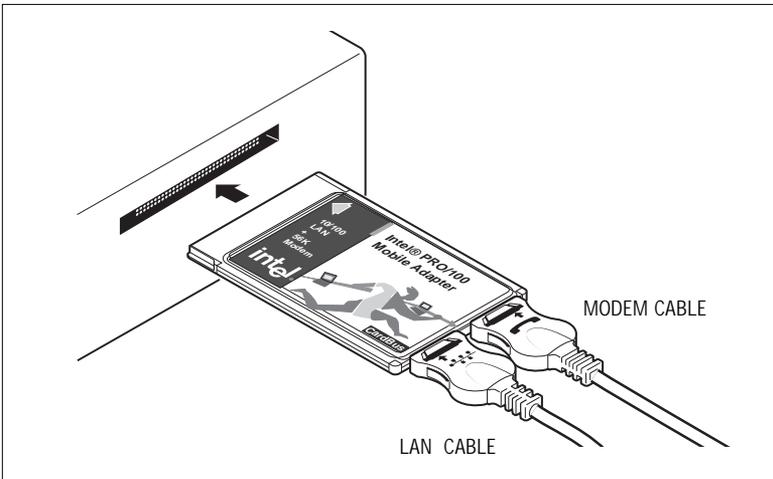
Intel® PRO/100 LAN+Modem56 CardBus Adapter

Quick Installation Guide and Modem Information Guide

for Windows 95, 98, and NT

Hardware Installation

Attach the LAN and Modem cables to the adapter as shown in the diagram. Use the icons on the cables to correctly identify each cable. Fully insert the adapter into a CardBus slot.* Attach network and modem lines to the appropriate cables. Take care not attach the phone line to the LAN cable.



* Note: if the adapter won't fully insert, the slot may not be CardBus compatible. Try a different slot or check your owners manual.

Software Installation for Windows 95 OSR2

Note: if your laptop computer does not have a CD-ROM drive, see "Making a Floppy Disk."

This procedure covers Windows 95 OSR2 (4.00.95B) only. If you are running the original retail version of Windows 95 (4.00.95A) see the README.TXT file on the Intel CD-ROM.

- 1 With Windows running, insert the PRO/100 LAN+Modem56 adapter into the CardBus slot and connect cables as shown above.
- 2 Windows detects a PCI Ethernet adapter and displays the Update Device Driver Wizard. In this procedure, the LAN driver will be installed first and then the modem driver. Insert the Intel CD-ROM and click Next to start the procedure. (If the New Hardware Found window does NOT appear, proceed to step 8.)
- 3 Windows confirms the device name. Click Finish. This installs the LAN driver. Windows may prompt you for the location of Windows networking files. Usually these are located in C:\windows\options\cabs or on your Windows 95 installation disk. If prompted for the M32A.SYS file, change the path back to your Intel CD-ROM. If prompted to restart, click No.
- 4 Windows detects the modem portion of the adapter and repeats the process above for the modem component, or if prompted for other files, try changing the path to the Intel CD-ROM.

Note: Windows may display a message indicating some VXD files are out of date. To determine if this affects operation of your computer, restart and check the modem. If it will not function, see the README.TXT file for detailed information.

- 5 For most networks, you will need to configure properties for your protocols, computer identification, and preferred servers. Contact your network administrator for details if you need assistance.
- 6 Restart the computer for the configuration to take effect.
- 7 When the computer restarts, the Country Identifier utility runs. Specify your location and Save or Exit.
- 8 If the New Hardware Found window does NOT appear, you may need to enable CardBus support in your computer BIOS. See your computer's manual for information or check their website.

Software Installation for Windows 98

Note: if your laptop computer does not have a CD-ROM drive, see "Making a Floppy Disk."

- 1 With Windows running, insert the PRO/100 LAN+Modem56 adapter into the CardBus slot and connect cables as shown above.
- 2 Windows detects a PCI Ethernet Controller and displays the Add New Hardware Wizard. Click Next to continue. In this procedure, the LAN driver will be installed first and then the modem driver. (If the New Hardware Found window does NOT appear, proceed to step 13.)
- 3 On the next screen, Windows prompts for a driver search. Choose "Search for the best driver (Recommended)" and click Next.
- 4 Insert the Intel CD-ROM or floppy disk and click Next to continue. If necessary, specify the path to your CD-ROM or floppy drive and click Next.
- 5 Windows confirms the device name and location of the LAN driver (NETM32A.INF). Click Next to continue. Windows may prompt you for the location of Windows networking files. Usually these are located in C:\windows\options\cabs or on your Windows 98 installation disk.
- 6 A message confirming successful LAN driver installation appears. Click Finish.
- 7 Do not restart your computer yet. When prompted to do so, click No.
- 8 Windows detects the modem portion of the adapter and repeats the process above for the modem (driver name is MDM32A.INF). At the end of this process, a small dialog appears reminding you to restart. Click OK to close.
- 9 The Country Identifier utility also runs at this time. Specify your location and click Exit or Save.
- 10 If the New Hardware Found wizard is present, click Finish.
- 11 For most networks, you will need to configure properties for your protocols, computer identification, and preferred servers. Contact your network administrator for details if you need assistance.
- 12 Restart the computer to complete installation.
- 13 If the New Hardware Found window does NOT appear, you may need to enable CardBus support in your mobile computer's BIOS. See your computer's manual for information.

Software Installation for Windows NT

- 1 Before powering-up your mobile computer, insert the PRO/100 LAN+Modem56 adapter into the CardBus slot, as shown on page 1.
- 2 With the adapter in the CardBus slot, power-up the computer, click Start, click Settings, and select the Control Panel. The Control Panel opens.
- 3 Double-click the Network icon. The Network Settings window opens.
- 4 Click the Adapters tab. The Network Adapters window opens.
- 5 Click Add. The Select Network Adapter window opens.
- 6 Click Have Disk, insert the Intel CD-ROM, and specify the correct path for the CD.
- 7 Click OK. The Select OEM Option window opens, showing the PRO/100 LAN+Modem56 adapter.
- 8 Click OK. The Windows NT Setup window briefly displays.
- 9 The Intel PRO/100 LAN+Modem56 Settings window opens, displaying the default settings.

Note: In most circumstances, the default settings will properly operate the adapter. However, some computers may require changes to the defaults.

- 10 Click OK. The Network Settings window redisplay.
- 11 Click Close. Complete any relevant dialog boxes that appear such as TCP/IP settings. Contact your Network Administrator for help if necessary.
- 12 When the Network Settings Change window opens, click Yes to restart the computer.

Modem Setup

- 13 After the computer has been restarted, select Modems from the Control Panel.
- 14 At the Install New Modem screen make sure that the *Don't detect my modem; I will select it from a list* checkbox is NOT checked. Click Next. NT will query the COM ports looking for the Intel modem. Once the Intel modem is found, click Next. If a *Standard Modem* is found, click Change. On the next screen, click Have disk. Type in the path to your CD-ROM drive and click OK.

- 15 The Country Identifier utility automatically starts. Make the appropriate country selection (United States or Canada is the default).
- 16 At the Install New Modem screen click Finish.
- 17 At the Modems Properties screen click Dialing Properties to set up dialing properties (not necessary if a modem had been previously installed). Click Close.

Modem AT Commands

For a complete list and description of modem commands, view the HELPDOCS.HLP file on the Intel CD-ROM. This is a standard Windows help file. To view it, double-click the file in the Windows Explorer or File Manager.

Making a Floppy Disk

If your laptop computer does not have a CD-ROM drive, you may create a floppy install disk from the CD-ROM on another computer. Follow these steps:

- 1 Insert the Intel CD-ROM disk into the CD-ROM drive.
- 2 Insert a blank, formatted floppy disk into the floppy drive.
- 3 Click Start and then click Run.
- 4 In the window that appears, type:
d:\makedisk d: a: (where d: is your CD drive and a: is your floppy.)
- 5 Click OK to create the floppy disk. An MS-DOS window opens and the program executes, making the floppy.

LAN Diagnostics

If you have trouble installing or setting up the LAN portion of the PRO/100 adapter, try running the LAN diagnostics utility. To run this utility, insert the Intel CD-ROM, click Start, then Run, and type:

M32ADIAG.EXE

and click OK. This starts the diagnostics utility. The utility can perform several self-tests and provide useful data about the network connection. For troubleshooting information, click the Support tab and then click the Troubleshoot button.

Troubleshooting

- Review the README.TXT and HELPDOCS.HLP files on the Intel CD-ROM.
- Be sure you have the current drivers for your adapter. Check the Intel support web site at <http://support.intel.com>.
- When loading drivers or running the test utility, keep the LAN adapter cable attached to the CardBus adapter.
- Plug in to a known working network connection.
- Try using the adapter on a different computer.
- Try another adapter if available.
- If your computer has multiple CardBus sockets, move the adapter to another socket.
- If you have more than one PC Card device in your computer, remove the non-Intel PC Card devices.
- Make sure that the interrupt, memory address, and I/O address for the Intel device do not conflict with other installed hardware (such as sound cards, CD-ROM drives and PEN devices). However, conflicts with the CardBus controllers and/or IRQ handler for PCI steering are normal and do not impact operation of the adapter

56K Modem Information

How does 56K modem technology work?

This modem uses 56K modem technology to reach speeds up to 56Kbps.* 56K modem technology enables users to access information and E-mail on corporate networks, the Internet and other online services at speeds up to 56Kbps over standard phone lines.

The 56Kbps modem technology utilizes the fact that today's telephone network infrastructure is primarily digital. With this new technology, speeds up to 56Kbps can be achieved downstream (when downloading data from the "Host" modem) when all of the following conditions are met:

1. The line must be digitally terminated at the host side.
2. The connection can only go through a single digital to analog conversion (which means that satellite transmission and communications through digital PBXs will not operate at 56Kbps).
3. There must be two compatible modems: one at the "Host" and one on the notebook computer. For your Intel modem, this means that the "Host" modem must support the the K56flex* technology.

Different Flavors of 56K and the V.90 Standard

There are different flavors of 56K technologies available today. Your Intel modem uses one type of 56K technology called *K56flex*.* This means that your Intel modem can connect at speeds up to 56K with K56flex compatible modems. When connecting with non-K56flex modems, your Intel modem connects at speeds to 33.6Kbps.

There is an official 56K standard called V.90 that is expected to be ratified in 1998 by the ITU (The International Telecommunications Union, the global standards body which develops and approves telecommunications standards.) Because Intel is a strong advocate of standards-based products, Intel will be compatible with this standard once it is approved.

When the ITU 56K standard is approved, your Intel modem can be upgraded with a free software update available on the Intel web site (see back cover).

* 56Kbps refers to server download speed only, and requires compatible modems at both the user and server sites. Download speeds of 56K are currently unavailable in the U.S. Other country-specific regulations may impose similar limits. For additional technical information on K56flex, go to www.intel.com/network/mobile. K56flex is a trademark of Lucent Technologies and Rockwell International.

How can I improve my 56K connections?

First, check the Intel web site for modem firmware updates (see Note below). Second, check with your service provider to verify that they are using the latest 56K technology compatible with the Intel modem..

In addition, there are two different modem settings you can change to improve your K56flex connections. These commands can be added to an application's initialization string or sent directly to the modem by using any communications or terminal application. When sending the commands by themselves, start the command with AT (example:

AT+MS=V34), and press the Enter key. When adding the command to an application's initialization string, the "AT" should already be present.

Changing Top Speed (+MS Modulation Selection)

You can set the top speed at which your modem attempts to negotiate at. The default is K56 (32000 to 56000 bps).

Hint

If you routinely try to connect to non-K56flex modems or are having trouble establishing connections, then try to lower the "top speed" by changing the +MS setting to +MS=V34 or lower.

+MS=K56	K56flex (32000 to 56000 bps)
+MS=V34	V.34 (2400 - 33600 bps)
+MS=V32B	V.32bis (4800 - 19200 bps)
+MS=V32	V.32 (4800 or 9600 bps)
+MS=V23C	V.23 with constant carrier (1200/75 or 75/1200 bps)
+MS=V22B	V.22bis (2400 bps)
+MS=V22	V.22 (1200 bps)
+MS=V21	V.21 (300 bps)
+MS=B212	Bell 212A (1200 bps)
+MS=B103	Bell 103 (300 bps)

Change Setting For Particular Type of Location (S108 - Digital Loss Selection)

The S108 setting can be changed to improve the likelihood of obtaining a K56 connection, depending on your type of location. S108 changes how digital loss is to be used during a K56flex connection.

Hint

If you are connecting at speeds greater than 33.6Kbps, but want to get closer to a top speed of 56Kbps, try changing your S108 setting. Different settings may improve your connection speed, depending on your type of location.

S108=0	0 dB digital loss (with no robbed bit signalling)
S108=1	3 dB digital loss (recommended for use with PBX systems)
S108=2	2 dB digital loss
S108=3	3 dB digital loss (normal)
S108=6	6 dB digital loss (recommended for long distance, default setting)
S108=7	0 dB digital loss

In which countries can my Intel modem achieve 56K speed?

Currently, the 56K modem reaches maximum download speeds in most countries in Europe, the Pacific Rim, and the Americas. Intel is working with many other countries to certify 56K modem operation. Because these efforts are ongoing, the list of currently certified countries is posted on our support web site (see box below).

Note

- Check the latest Intel Mobile product news at www.intel.com/network/mobile.
- Download software, firmware, and country-specific upgrades from support.intel.com.

Parts and Accessories

For the most recent list of PRO/100 LAN+Modem56 adapter parts and accessories, visit www.intel.com/network/mobile. Look for a link called "Parts and Accessories" on this page.

Web and Internet Support Sites

Support: <http://support.intel.com>

Network Products: <http://www.intel.com/network>

Corporate: <http://www.intel.com>

FTP Host: download.intel.com

FTP Directory: [/support/etherexpress](ftp://support.intel.com/etherexpress)

Copyright © 1998 Intel Corporation. All rights reserved.

Intel Corporation, 5200 N.E. Elam Young
Parkway, Hillsboro, Oregon 97124-6497

Intel Corporation assumes no responsibility for errors or omissions in this document. Nor does Intel make any commitment to update the information contained herein. †Other product and corporate names may be trademarks of other companies and are used only for explanation and to the owners' benefit, without intent to infringe. Windows and NT are Microsoft trademarks.

First Edition, June 1998

715356-001

