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Where to go for more information

Installation Guide



This Installation Guide shows you how to install the adapter and troubleshoot common problems. If you can't find the answer to your question in this book, see the other sources on this page.

Need a translated guide? There may be installation instructions in different languages on your regional FaxBack service. See the inside back cover for phone numbers.

Help files



For detailed information about the adapter and special configurations, view the online help files.

To view the help files, insert the Intel Configuration and Drivers disk into a disk drive, switch to that drive, and type `SETUP` . Then, select *View Help files*.

Topics include:

Installing EtherExpress™ PRO/100 adapter drivers

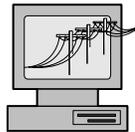
Latest news and general adapter information

Hardware specifications and cabling information

Adapter installation and special configurations

Running diagnostics and understanding error messages

Online Services



You can use your modem to download software updates, troubleshooting tips, installation notes, and more. Online services include:

- Intel BBS
- CompuServe*
- Internet (World Wide Web and FTP server)

See the inside back cover for details.

Installation overview

1 Make sure you have the correct wiring (page 2)

Use category 5 cabling when operating at 100 Mbps.

2 Put the adapter in the computer (page 3)

Put the adapter in a busmaster slot and connect the network cable.

3 Configure the adapter (page 4)

Simply restart the computer to configure PCI cards. Use FlashSet or your computer's EISA configuration utility (ECU) to configure EISA cards.

4 Test the adapter (page 6)

Insert the Intel Configuration and Drivers disk and type:

```
A:\SETUP 
```

Then select Automatic setup.

5 Install network drivers (page 7)

Automatic setup installs Novell NetWare* 3.x or 4.x drivers or displays instructions for other network operating systems.

If the computer doesn't connect to the network after you've completed these steps, see pages 8 and 9 for troubleshooting tips.

1 Make sure you have the correct wiring

To reliably operate your network at 100 Megabits-per-second (Mbps), you must use unshielded twisted pair (UTP) Category 5, or better, Data Grade wire. While Category 3 or 4 wire may initially seem to work, it will soon cause data loss. Simply put, the higher speed needs higher quality wire.

For 10 Mbps operation, you can use either UTP Category 3, 4, or 5 Data Grade wire.

For more information, see the help files called *Hardware specifications and cabling information*.

2

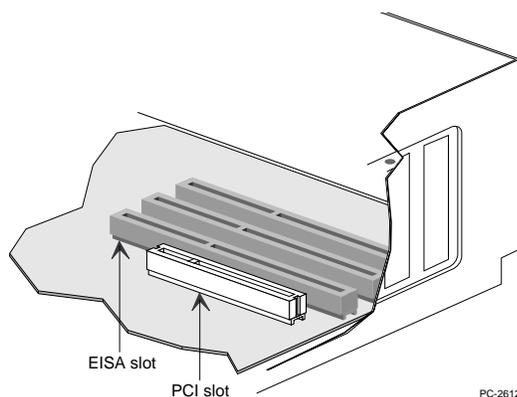
Put the adapter in the computer

- 1 Turn off and unplug your computer. Then remove its cover.



Turn off the power before removing the computer's cover. Failure to do so could shock you and may damage the adapter or computer.

- 2 Remove the cover bracket from an EISA or PCI *busmaster* adapter slot. Not all slots are busmaster. See your computer's documentation to determine which slots are busmaster slots.



- 3 Push the adapter into the slot until the adapter is seated firmly. Then, secure the adapter bracket with a screw.
- 4 Repeat steps 2 and 3 for each adapter you want to install.
- 5 Replace the computer cover and plug in the power cord.
- 6 Connect a 2-pair UTP cable to the adapter.
- 7 To configure the adapter, continue with the procedure on the next page.

3

Configure the adapter

PCI adapters

Peripheral Component Interconnect (PCI) computers are designed to automatically detect and configure PCI-compliant adapters, saving you from running a configuration program.

You simply start your computer, and it automatically configures the adapter while it boots. Configuration is complete when the DOS prompt displays. You can now continue with the test procedure on page 6.



If it didn't work...

Intel has found that some PCI computers require additional configuration (for example, upgrading the BIOS) to install a PCI adapter.

For the latest information on PCI installation, see the help files called *Adapter installation and special configurations* or order these FaxBack documents:

- EISA and PCI Installation Procedures 6365
- Troubleshooting Notes from Tech Support 6328

EISA adapters

You can configure an EISA adapter using either the FlashSet program or your EISA Configuration Utility (ECU). FlashSet is the on-board configuration program stored in flash memory. It automatically runs the first time you install an EtherExpress PRO/100 EISA adapter and turn power on.

If you have any other Intel adapters with flash memory enabled, you must use your ECU (for EISA adapters) or SOFTSET (for ISA adapters) to disable the flash memory on those adapters before configuring the EtherExpress PRO/100 adapter.



Configuring in computers with PCI slots...

If you're installing an EISA adapter in a computer with PCI slots, you *must* configure the adapter using the ECU.

Using FlashSet



- 1 When you start your computer, the adapter displays the configuration program running from the flash chip.



If your computer displays a message like this:

F1 to continue
F2 for Setup

select continue to run FlashSet.

- 2 On the FlashSet screen, choose *Continue* to display the Select adapter menu.
- 3 Press F10 to save the configuration shown, or highlight an adapter and press  to change its settings. FlashSet copies the configuration settings to the computer's NVRAM, just like the ECU.
- 4 Continue to the end of the procedure and choose *NO* to disable FlashSet. This keeps FlashSet from running again the next time you start your computer. If you must run FlashSet again, follow the instructions in the help files.
- 5 Copy !INT1060.CFG from the Intel Configuration and Drivers disk to this computer's ECU disk or to the ECU directory on your hard disk. The ECU can then use this file if you need to change the adapter's settings later.
- 6 Continue with the test procedure on page 6.

Using the ECU

If FlashSet doesn't operate on your computer, you must use the ECU that came with your computer to configure the adapter.

- 1 Insert the ECU disk into a drive and start your computer.
- 2 From the ECU's main menu, choose the command for configuring your computer.
- 3 When prompted for the configuration disk, insert the EtherExpress PRO/100 adapter Configuration and Drivers disk into the specified disk drive and press . The ECU loads the !INT1060.CFG file.
- 4 Follow the instructions in the computer's documentation to complete the configuration.
- 5 Make sure that the flash memory address for the EtherExpress PRO/100 adapter is DISABLED.
- 6 Save the configuration and exit the program.
- 7 Continue with the test procedure on page 6.

4

Test the adapter

Intel's diagnostic software lets you test the adapter to see if there are any problems with the adapter hardware, the cabling, or the network connection.

It's a good idea to run diagnostic tests every time you install an adapter. You can also use diagnostics to isolate problems during troubleshooting.

- 1 If this computer already has EtherExpress PRO/100 network drivers installed, restart the computer without loading them. For example, if the drivers are loaded from the AUTOEXEC.BAT file, add `REM` in front of each line that loads a driver. Or, boot from a DOS disk.
- 2 Insert the Intel Configuration and Drivers disk into a drive, switch to that drive, and at the DOS prompt, type:
`SETUP` 
- 3 If you have more than one EISA or PCI adapter in your computer, a Board menu appears on the screen. From that menu, select the adapter you want to test.
- 4 If this is a first-time setup, select *Automatic setup* from the Main menu. Otherwise, select *Test adapter*. Then follow the instructions onscreen. SETUP runs a series of diagnostic tests that make sure the adapter and network are functioning properly. If SETUP finds a problem, it displays the results and some possible solutions.
- 5 When SETUP finishes, the *Install network drivers* screen displays (if you selected *Automatic setup*). See the next page for instructions.

To test the adapter with a responder on the network

- 1 Go to a computer on the same network segment with an EtherExpress 16 ISA, Flash32, EtherExpress PRO or EtherExpress PRO/100 adapter installed.
- 2 If this computer already has EtherExpress adapter network drivers installed, restart the computer without loading them. For example, if the drivers are loaded from the AUTOEXEC.BAT file, add `REM` in front of each line that loads a driver. Or, boot from a DOS disk.
- 3 Run the diagnostics program for the adapter that's installed in the computer.
- 4 From the Main menu, select the command for testing the adapter, then select *Set up as diagnostics responder*.
- 5 Return to the computer you want to test. Run SETUP, choose *Test adapter*, and then choose *Continuous Network test*.

5

Install the network drivers

A network driver is software that lets your adapter communicate with your network operating system (NOS).

If you're currently using *Automatic setup*, skip to step 3.

- 1 Insert the Intel Configuration and Drivers disk into a drive, switch to that drive, and at the DOS prompt type:

```
SETUP ↵
```

- 2 Select *Install network drivers*.

- 3 Select the driver you want to install.

SETUP can install Novell client drivers for you. If you're installing other drivers, SETUP displays a help file with installation instructions.

Use the following table to begin installing your network drivers.

Network	Driver types	How to install drivers
Novell		
<i>DOS ODI</i>	Client	Let SETUP do it for you automatically.
<i>NetWare 3.x, 4.x</i>	Server	View the instructions in SETUP.
<i>NetWare OS/2* requestor</i>	Client	
Microsoft		
<i>WFW 3.x</i>	Client/Server	View the instructions in SETUP.
<i>Windows NT 3.x</i>		
<i>LAN Manager</i>		
IBM		
<i>LAN Server* 3.0</i>	Client/Server	View the instructions in SETUP.
<i>IBM Hosts</i>		
Other		
<i>Banyan</i>	Client/Server	View the instructions in SETUP.
<i>UNIX</i>		
<i>LANtastic</i>		
<i>NDIS 2.x</i>		

- 4 Reboot the computer. You're done.

If the adapter doesn't connect to the network

1 Make sure the cable is installed properly

The network cable must be securely attached at all connections. If the cable is attached but the problem persists, try a different cable.

2 Test the adapter

Run the diagnostic tests on page 6.

3 Look in the *Common problems* table on page 9 and try the recommended solutions

This table lists common problems and their solutions. If none of these work, check the *Late-breaking news* that came with the adapter or call for FaxBack document 6328, *Troubleshooting Notes from Tech Support*.

4 Check the LED lights on the adapter

Adapters with 3 LEDs

LNK light: Indicates the adapter is connected to a hub or switch and is receiving link pulses. If the LNK light isn't lit, check all connections at the adapter and the hub. Make sure the hub is transmitting at the correct speed and the drivers are loaded.

ACT light: Indicates read/write activity on the network. It doesn't always mean there is activity on the adapter. If the ACT light isn't lit, make sure the hub and network are operating and the drivers are loaded.

100 light: Indicates 100 Mbps when lit, and 10 Mbps when off.

Adapters with 4 LEDs

LNK light: Indicates the adapter is connected to a hub or switch and is receiving link pulses. If the LNK light isn't lit, check all connections at the adapter and the hub. Make sure the hub is transmitting at the correct speed and the drivers are loaded.

ACT light: Indicates read/write activity on the network. It doesn't always mean there is activity on the adapter. If the ACT light isn't lit, make sure the hub and network are operating and the drivers are loaded.

Green indicates 100 Mbps, and yellow indicates 10 Mbps.

Common problems and solutions

Problem	Solutions
The screen remains blank or displays an error message when you turn on the computer.	<p>The default flash address (D000-D1FFh) probably conflicts with something else in the computer.</p> <ul style="list-style-type: none"> • Check the system setup and disable ROM shadowing at D000h. • Determine what device is using the D000-D1FFh. Reconfigure that device to use a different address. • Remove the adapter and run the ECU. Configure the adapter for a different flash chip address or disable the flash chip. Then reinstall the adapter.
ECU can't find the adapter.	<ul style="list-style-type: none"> • Make sure there's an EtherExpress PRO/100 adapter in this computer. • Make sure the adapter is seated firmly in the slot. This is particularly critical with EISA adapters. • Make sure that the adapter is in a correct slot; EISA or PCI and not an ISA slot. • Try a different busmaster slot. • Try a different EtherExpress PRO/100 adapter.
Diagnostics pass, but the connection fails.	<ul style="list-style-type: none"> • Make sure the network cable is securely attached. • Make sure that you're using Category 5 cabling for 100 Mbps.
LNK LED does not light.	<ul style="list-style-type: none"> • Make sure you've loaded the network drivers. • Check all connections at the adapter and the hub. • Try another port on the hub. • Make sure the adapter is configured for the correct speed, 10 or 100 Mbps. • Make sure the hub port is configured for the correct speed, 10 or 100 Mbps.
ACT LED does not light.	<ul style="list-style-type: none"> • Make sure you've loaded the network drivers. • Network may be idle; try sending data from this workstation. • The adapter isn't transmitting or receiving data; try another adapter.
Data is corrupted or sporadic at 100 Mbps.	<ul style="list-style-type: none"> • Make sure that you're using Category 5 cabling.
The adapter stopped working when another adapter was added to the computer.	<ul style="list-style-type: none"> • Make sure the cable is connected to the EtherExpress PRO/100 adapter. • Make sure your PCI system BIOS is current. • Try reseating the adapter.
The adapter stopped working without apparent cause.	<ul style="list-style-type: none"> • Try reseating the adapter or try a different slot. • The network driver files may be corrupt or deleted. Reinstall the drivers. • Try a different EtherExpress PRO/100 adapter.

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Intel may replace or repair the adapter product with either new or reconditioned parts, and any part or product replaced becomes Intel's property. Repaired or replaced products will be returned at the same revision level as received or higher, at Intel's option. Intel reserves the right to replace discontinued product with an equivalent current generation product.

Returning a Defective Product (RMA)

Before returning any product, contact an Intel Customer Support group and obtain an RMA number by calling:

From Europe:

in English	+44 1793 431144
in French	+44 1793 421777
in German	+44 1793 421333

All other locations: + (503) 264-7000

If the Customer Support Group verifies that the product is defective, they will have the Return Material Authorization department issue you an RMA number to place on the outer package of the product. Intel cannot accept any product without an RMA number on the package.

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April 28, 1994

FCC compliance statement

This product has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC rules. Installed correctly, it probably will not interfere with radio or TV reception. However we do not guarantee the absence of interference.

This product generates and uses energy of about the same frequency as radio and TV broadcasts. Installed incorrectly, it may interfere with reception of radio and TV broadcasts.

If you suspect this product is causing interference, turn your computer on and off while the radio or TV is showing interference. If the interference disappears when you turn the computer off and reappears when you turn the computer on, something in the computer is causing interference.

To reduce interference, try these suggestions:

- Change the direction of the radio or TV antenna.
- Move the computer, radio or TV. For example, if the computer is to the right of the TV, move it to the left of the TV. Or move them farther apart.
- Plug the computer into a different electrical outlet than the radio or TV.
- Ensure that all expansion slots (on the back or side of the computer) are covered. Also ensure that all metal retaining brackets are tightly attached to the computer.

NOTE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

If the device is changed or modified without permission from Intel, the user may void his or her authority to operate the equipment.

German RFI suppression

This certifies that EtherExpress PRO/100 adapters comply with the German RFI suppression requirements of Vfg 243/1991:

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