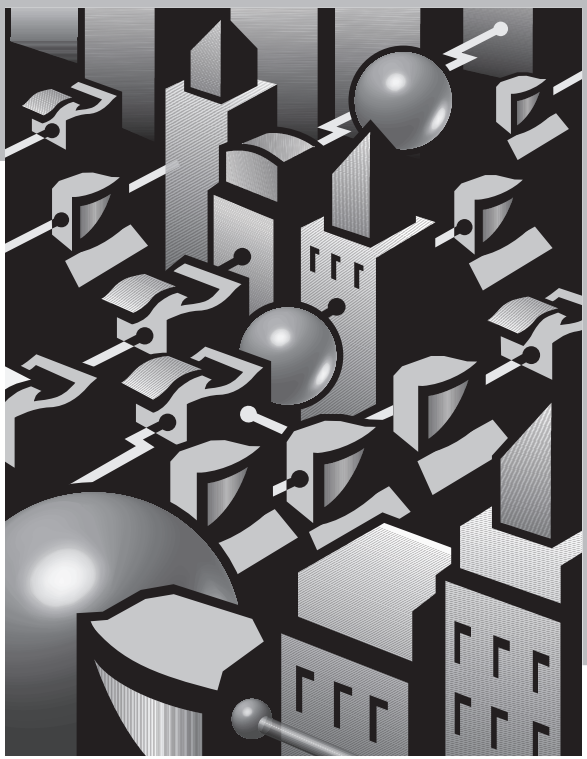
HEWLETT® PACKARD

Installation Guide



HP PCI LAN Adapters

Support is as close as the World Wide Web!

Come see us at this URL: http://www.hp.com/go/network_city

...and follow the links that lead you to Support, Drivers, and Technology. Our Web site has everything you need in one place, around the clock, seven days a week:

- Software, agent firmware, and drivers (see "When Downloading Files", below)
- Troubleshooting information
- Product information
- Support contacts

Your HP Reseller can help, too!

Be sure to talk to your reseller about the support services they offer for your HP networking products.

Other HP Electronic Support Services

If you don't have World Wide World access, these sources provide firmware, drivers, and technical information.

```
ftp ftp.hp.com
Name: anonymous
Password: john@mycompany.com
ftp> bin
ftp> cd /pub/networking/software
ftp> get filename
ftp> quit
```

HP Bulletin Board Service (BBS)

With your communication/terminal emulation software:

- In the U.S., dial 208-344-1691
- In other countries, contact your reseller or local HP Customer Support Center (see chart on other side) for the BBS telephone number for your country.

Follow the menu system to find and download the latest software, agent firmware, or drivers for your HP networking product.

When Downloading Files

Files are typically named to correspond to the HP product number of the product their intended for. If the file you download has a file extension of ".exe", it is a compressed file. For example, the product HP J3200A may have a file **j3200a.exe** that is extracted by typing **j3200a** Enter.

HP FIRST Fax Retrieval Service

HP FIRST is an automated fax retrieval service that is available 24 hours a day, seven days a week. HP FIRST provides a variety of product and technical information.

To access HP FIRST, dial one of the following telephone numbers:

- In the U.S. and Canada, dial 800-333-1917 from your fax machine or touch-tone phone.
- In other countries, contact your reseller or local HP Customer Support Center (see chart below) for the HP FIRST telephone number for your country.
- To access the U.S./Canada HP FIRST system from another country, dial +1 208 344 4809 from your fax machine.

Enter the number of the document you want to receive. If you're not sure what the number is, you can request an index by following the prompts. The information will be sent to you by return fax.

(continued on next page)

Additional HP Support Services
Limited free telephone support is offered through the HP Customer Support Center (CSC) in your country:

North America		Portugal	01 441 7199
United States	970-635-1000	Russia	7095 923 50 01
Canada (English)	970-635-1000	Spain	902 321 123
Canada (French)	800-387-3867	Sweden	08 619 2170
Europe, Middle East, and Africa		Switzerland	0848 80 11 11
Africa	+41 22/780 71 11	Turkey	90 1 224 59 25
Austria	0660 6386	United Kingdom	0171 512 52 02
Belgium (Dutch)	02 626 8806	**Asia Pacific**	
Belgium (French)	02 626 8807	Australia	61 3 9272 8000
Czech Republic	42 (2) 471 7321	China	8610 6505 3888
Denmark	3929 4099	Hong Kong	800 96 7729
English (non-UK)	+44 171 512 52 02	India	91 11 682 6035
Finland	0203 47 288	Indonesia	6221 350 3408
France	01 43 62 34 34	Japan	81 3 3335 8333
Germany	0180 52 58 143	Korea	82 2 3270 0700
Hungary	36 (1) 252 4505	Malaysia	03 295 2566
Ireland	01 662 5525	New Zealand	09 356 6640
Italy	02 26410350	Philippines	63 2 867 3551
Middle East	+41 22/780 71 11	Singapore	65 272 5300
Netherlands	020 606 8751	Taiwan	886 2 717 0055
Norway	22 11 6299	Thailand	661 4011
Poland	48 22 37 50 65		

Each CSC takes calls during the normal HP business hours for its location. This service is for basic questions only, relating to installation, general configuration, troubleshooting, and usage. Advanced topics including network design, consultation, performance tuning, and configuration recommendations are not available through this service.

HP has other telephone and onsite services available that provide you with expert HP technical assistance. HP SupportPacks, purchased from your local reseller, provide a variety of services, including advanced technical support and around-the-clock availability. Other services offer network design, consulting, or remote telephone support. Contact your reseller or local HP Sales and Support Office for more information.

Installation Guide

HP PCI LAN Adapters

Publication Number

5967-0892
October 1997

Applicable Products

HP J2970A	HP J2973A	HP J2585B
HP J2971A	HP J2974A	HP J3009B
HP J2972A	HP J2975A	HP J3010B

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Warranty

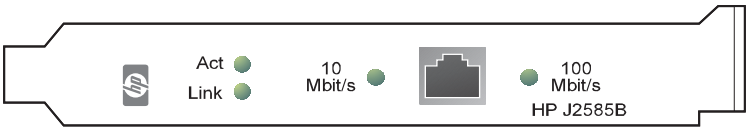
See the warranty booklet and the registration form included with the product.

A copy of the specific warranty terms applicable to your Hewlett-Packard product and replacement parts can be obtained from your HP Sales and Service Office or authorized dealer.

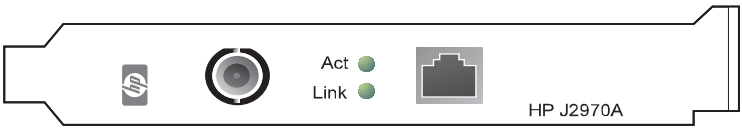
Hewlett-Packard Company
8000 Foothills Boulevard
Roseville, California 95747-5551
916-786-8000
http://www.hp.com/go/network_city

HP PCI LAN Adapters for PCI Slots

At A Glance



HP J2585B 10/100VG PCI LAN Adapter



HP J2970A 10-Mbit PCI Combo Adapter

HP J2973A 10-Mbit PCI LAN Adapter

Features

- For client and server computers with PCI slots (Peripheral Component Interconnect version 2.0 and later).
- Fully PCI Plug-and-Play compatible; no switches or jumpers.
- Compatible with IEEE 802.3 and Ethernet standards.
- Compatible with IEEE 802.12 100VG standard for 100-Mbit/s (HP J2585B 10/100VG adapter only).
- A single RJ-45 twisted-pair connector with automatic detection of LAN type 10-Mbit/s or 100-Mbit/s (HP J2585B 10/100VG adapter only) when the cabling is attached.
- BNC thin coaxial 10Base2 connector for 10-Mbit/s ThinLAN, an alternative to the twisted-pair connector (HP J2970A Combo adapter only).
- Same driver set for all HP PCI adapters for both 10-Mbit/s and 100-Mbit/s operation.
- Driver support for all major network operating systems.
- Multiple data transfer modes supported to ensure high performance, broad compatibility, and low CPU utilization:
  - Bus master mode, used by default where possible
  - Memory-mapped mode (also known as shared memory)
  - I/O-mapped mode (also known as programmed I/O or PIO)
- Full-duplex capability for 10-Mbit/s operation.
- LEDs for easy monitoring of LAN adapter status.
- Highly integrated design for fewer components and lower failure rates.
- Large on-board packet buffer memory (32 kilobytes).
- Socket for boot ROM: Separate product HP J2582B Boot ROM.
- Configuration and diagnostic program named HPVGSet.
- Information and driver locator program named Setup, for accessing online documentation, drivers, and HPVGSet from one point.
- Capable of supporting Desktop Management Interface (DMI) and SNMP network management.

Contents

Installation Guide

1 Installing Hardware and Software

2 Troubleshooting and Getting Help

Included Parts

- Either the:
  - HP J2585B 10/100VG LAN Adapter,
  - HP J2970A 10/100 LAN Adapter, or
  - HP J2973A 10/100 LAN Adapter
- One 3.5-inch HP Support Disk in a software license envelope.
- The *Installation Guide* for the HP PCI LAN Adapters, part number 5967-0892 (this manual).
- Warranty booklet.
- Service/support address and phone reference card.
- Product Registration packet.

100VG (IEEE 802.12) Upgrading Checklist

(For HP J2585B 10/100VG PCI LAN Adapter only)

Use the following checklist to install the computer on, or upgrade to, a 100VG (IEEE 802.12) network. Neither the network cabling nor network drivers need to be changed.

☐ Verify that the cabling meets 100VG network specifications.

- If the existing cabling meets IEEE 802.3 10Base-T (twisted-pair) cable specifications, then it will work for your 100VG network.
- Be sure that all four pairs of your twisted-pair LAN cables are available for use by the 100VG network. (For example, two pairs cannot be used for an integrated phone connection.) For cable information, see appendix A, “Connectors and Cables”.

☐ Connect the cabling to a 100VG network.

- Each computer connection requires a port on a 100VG hub (or switch or router, etc.).

☐ Install a 100VG LAN adapter in each computer and attach the cable to the 100VG network. To install the HP J2585B 10/100VG PCI LAN Adapter, see chapter 1.

- If a node already uses a combination LAN adapter such as the HP J2585B for 10-Mbit/s operation, the adapter need not be changed for upgrading to 100-Mbit/s operation; simply boot the computer after connecting the other end of the cable to a compatible hub. The driver need not be changed.

☐ If this computer is to operate exclusively with *nodal* high priority, then configure your LAN adapter setup for high priority. Instructions are on the HP Support Disk (described in chapter 3). From the “Support Disk Menu”, select “Other Support Information” and then “Enabling high-priority transmission”.

☐ Verify that the network operates properly by using any available network test or an application that tests the communications between end nodes or devices.

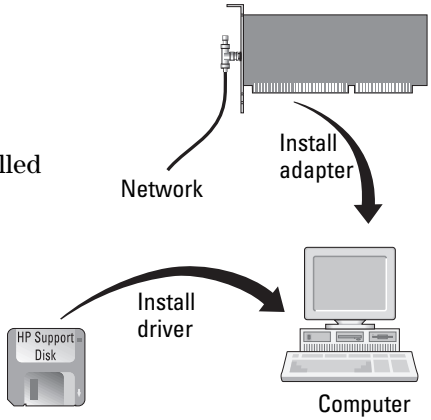
1

Installing Hardware and Software

Overview

To succeed, you'll need:

- The LAN adapter (in the package)
- The network cabling installed
- A computer with a PCI (v.2.0 or later) bus expansion slot
- The appropriate software driver for your computer (in the package)



- The name of your network operating system

  The network operating system and the software driver use the hardware (the LAN adapter and network cabling) to communicate between the network and your computer.

Documentation to Assist You:

- *Installation Guid*e (this manual) containing printed instructions for the most common standard installations. For the other installations, this manual directs you to more specific information in:
- The HP Support Disk (in the package) containing online information—accessible using the Setup utility—for other installation situations, including most operating systems and special features:
  - Dual- or triple-stack (multiple networks on the computer)
  - More than one LAN adapter in the computer
  - Installation in a server, rather than a client

The HP Support Disk contains:

- Driver files for most network operating systems, and a list of drivers in "drivers.txt".
- Installation and configuration documentation in ASCII text files.
- HPVGSet utility for special configurations and troubleshooting.
- Setup utility to guide you to the appropriate driver, to guide you to the documentation files, and to run HPVGSet.

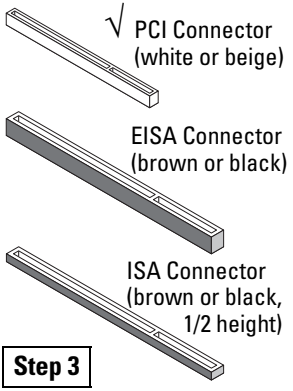
First, install the hardware.

Note If you want to install or upgrade to Microsoft Windows 95, do so before installing hardware.

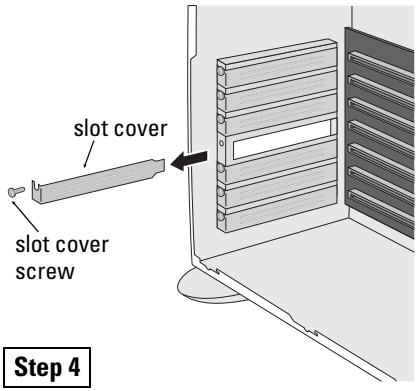
1. Shut down the computer, exiting all running software (e.g., Windows) first. Switch off the power and unplug the power cord.

2. Open or remove any enclosures or covers as necessary to access the expansion slots inside the computer, following the accessory board installation instructions in your computer documentation.

3. Select an open slot with a PCI connector, noting the following:
   - Your computer is either an EISA-and-PCI or an ISA-and-PCI dual-bus machine.
   - A PCI connector is lighter in color and shorter in length than an EISA or ISA connector.
   - Some slots have a PCI connector only.
   - Some slots have two connectors, (1) PCI and (2) EISA or ISA. A board in the slot uses only *one* of the two connectors.
   - The adapter can occupy either a PCI-only slot or shared slot.



Step 3



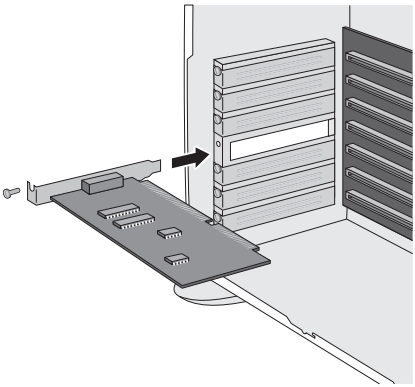
Step 4

4. Remove the slot cover from the selected slot, and save the screw.

   In case of problems:
   If the slot cover is already removed, you need only the screw.

Caution Grasp the LAN adapter only by its edges *and*:

- Touch the frame of your computer often, *or*:
- Connect an antistatic wrist strap to metal on your computer's frame, and then place the wrist strap around your wrist.



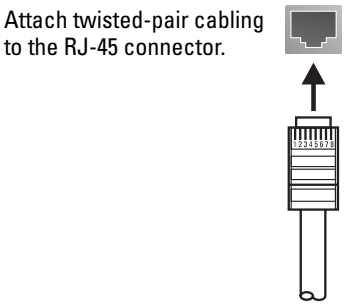
Plugging in the Adapter

5. Align the LAN adapter with its connectors facing out through the slot opening in the computer case, and with its edge connector facing the selected PCI connector.

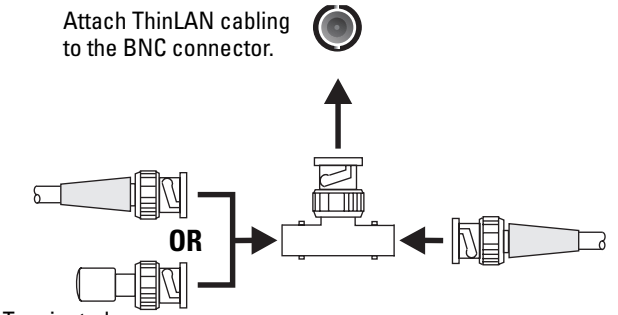
6. Push the adapter straight into the computer's PCI connector until fully seated. Anchor the LAN adapter with the slot cover screw.

7. Reassemble the computer and plug in the power cord, but do not switch on power yet.

8. Obtain your network cable connection. This cabling may be supplied as a cable drop, possibly through a wall jack. Plug one end of the cabling into the compatible connector on the LAN adapter. Plug twisted-pair cable (which resembles telephone cable) into the RJ-45 connector; plug coaxial cable (which resembles cable television cable) into the ThinLAN BNC connector, only on the HP J2970A 10-Mbit PCI Combo LAN Adapter. These two types of connection are illustrated on the next page. (Make sure the other end of the cable is attached to your network.)



Twisted-Pair Connection
(J2585B, J2970A, J2973A)



BNC Connection
(J2970A only)

9. Switch on power to the computer. When you switch power on, the installed LAN adapter automatically configures itself.

Optional Full-Duplex Configuration

By default, the adapter operates at half duplex. Full duplex (sending and receiving simultaneously) can be used when the attached switch (or other device) is also configured for full duplex. It can be used only for 10-Mbit/s operation; it cannot be used for 100-Mbit/s operation.

Decision:

If you need full-duplex operation in a 10-Mbit/s network, configure it at any time using the HPVGSet utility on the HP Support Disk. Refer to chapter 3. Use the manual configuration option "10 Mbit/s Full Duplex" (page 3-12).

Last, install the software and driver for your operating system

Your software instructions depend on the operating system. The following decision gives you the location of your instructions. Your specific instructions are the only section you will use in the remainder of this chapter.

Decision:

What is the operating system for this computer?

- Microsoft:
  - Windows 95: Follow only section A on pages 1-7 to 1-9.
  - Windows for Workgroups: Follow only section B on pages 1-10 to 1-17.
  - Windows 3.*x*: Along with Windows, you have either "Novell" or "Other" for networking; see that bullet below.
  - DOS: Along with DOS, you have either "Windows for Workgroups" or "Novell" or "Other" for networking; see that bullet below.
- Novell:
  - DOS Requestor (VLM), for DOS on this client computer, with or without Microsoft Windows 3.*x*:
    Follow only section C on pages 1-18 to 1-21.
  - DOS Shell (NETX), for DOS on this client computer, with or without Microsoft Windows 3.*x*:
    Follow only section D on pages 1-22 to 1-26.
  - Novell NetWare on this computer as a server:
    If installing the LAN adapter on a server, see "Other" below.
- Other network operating system:
  Skip the rest of this chapter and go to the online instructions on the HP Support Disk (included in your product package). Refer to chapter 3 for assistance in using the Setup utility. From Setup's "Support Disk Menu", select "Instructions for installing" and then select your network service vendor.

A. For Microsoft Windows 95

In addition to the LAN adapter driver, this procedure automatically provides both of the following types of networking software:

- Client for Microsoft Networks, for using resources shared on computers with Microsoft NOSs
- Client for NetWare Networks (with IPX/SPX-compatible protocol), for connecting to NetWare servers

Prerequisite: Before doing this procedure, Windows 95 must have been installed *before* the adapter hardware was installed and cabled.

In case of problems:

- If Windows 95 has not yet been installed or upgraded and the adapter hardware is already installed, then remove the adapter and then install or upgrade Windows 95, before doing the procedure in this section A.
- If the adapter hardware was installed and then Windows 95 was installed and upgraded, then your installation probably will not operate correctly. Stop this procedure and go to the instructions on the HP Support Disk. Refer to chapter 3 for assistance in using the Setup utility. From Setup's "Support Disk Menu", select "Other Support Information" and then "Windows 95 troubleshooting".

Task 1. Install Microsoft Windows 95 driver for the adapter.

1. Windows 95 automatically detects the LAN adapter just installed and displays the "New Hardware Found" dialog box.

   In case of problems:

   If the "New Hardware Found" dialog box does not display, stop this procedure and go to the procedure "Recovering from Missing New Hardware Found Dialog Box" on page 1-9.

2. Select "Driver from disk provided by hardware manufacturer" [OK]. The "Install From Disk" dialog box appears.

3. Insert the HP Support Disk into the floppy drive, for example, drive "a" and enter the path:

   ```
   a:\
   ```

4. Respond to prompts for any further disks by inserting each one and entering the path as follows:

When prompted for:	If you have:	Insert:	Press OK then type:
Windows 95 Disk #	Installation floppy disks in drive A	Disk # requested	a:\ OK
Windows 95 Disk #	Windows 95 CD-ROM in drive D	CD-ROM	d:\win95 OK
Manufacturer's disk	HP Support Disk in drive A	HP Support Disk	a:\ OK

In case of problems:

If you don't know the drive letter of the CD-ROM drive, you can scroll to find it.

5. After completing the device and driver setup, remove any disk still in the drive and restart your computer.

6. You may have to respond to the "Enter Network Password" dialog box before you can proceed. (The network administrator should have the information required.)

Task 2. Verify the installation.

The "Network Neighborhood" icon should appear in Windows 95. Double-click on that icon. As long as File & Print Sharing is on or there are shared resources on the network, you will see the computers that are sharing resources in your workgroup.

Double-click the "Entire Network" icon to also see other resources, if any, outside your workgroup. If you see shared resources, or even your own computer, then your LAN adapter is correctly installed.

You have completed your software and driver installation instructions in chapter 1.

In case of problems:

- If your LAN adapter doesn't work correctly, go to "Troubleshooting" in chapter 2—except if your problem is the following:
- If "New Hardware Found" dialog does *not* appear when you have installed new adapter hardware, do the following procedure on the next page.

Note Possible Causes:

- Ignoring the first instance of the "New Hardware Found" dialog box when restarting the computer after installing adapter hardware. This happens when you select the response "Do not install a driver (Windows will not prompt you again)".
- Upgrading to Windows 95 after installing adapter hardware.

1. From the Control Panel, run the "Add New Hardware" Wizard.
2. Click [Next >]. Select "Yes" for detection and click [Next >].
3. Click [Next >] and wait for the device to be found. Then click [Next >] for manual installation.
4. For "Hardware types", click "Network adapters" and [Next >].
5. In the "Select Device" dialog box, click [Have Disk], and the "Install From Disk" dialog box appears.
6. Insert the HP Support Disk into the floppy drive. Enter the path:

   ```
   a:\
   ```

7. In the "Select Device" dialog box, click the product name of the specific LAN adapter you have installed [OK]. Click [Next >].
8. Click [Finish]. Close the Control Panel.
9. Remove the support disk from the floppy drive and restart your computer.
10. Test the LAN adapter according to the procedure "Task 2. Verify the installation" on page 1-8.

In case of problems:

Go to "Troubleshooting" in chapter 2.

B. For Microsoft Windows for Workgroups

Task 1. Record the configured base I/O address.

When you switch on power to your computer after installing the adapter, the adapter is automatically configured. For a Windows For Workgroups installation, you need to record some information from that configuration.

1. Boot your computer in DOS without loading network software, network drivers, or any memory manager. Decide among the alternative methods listed below.

Note This procedure will not work in a DOS window within a Windows environment.

Decision:

- If you run MS-DOS version 6.0 or later (check by using the DOS command "ver"), then boot and press the F5 key when you see the text "Starting MS-DOS...." You should then see "MS-DOS is bypassing your CONFIG.SYS and AUTOEXEC.BAT files".
- Or, boot from a DOS boot diskette, without "config.sys" or "autoexec.bat" file on it. See the DOS documentation for help.
- Or, if you understand how your network software, network drivers, and memory manager are activated, then *temporarily* modify the "config.sys" and "autoexec.bat" files so that those items *do not execute*.

2. Insert the HP Support Disk into the floppy drive, for example, drive "a", and change to that drive if necessary. Run the utility "Setup" on that disk.

```
a:
setup
```

3. From the “Support Disk Menu”, select “View, configure, or test LAN Adapter card”. The configuration of the LAN adapter is displayed in the “Selected Card Status” area.

   In case of problems:

   - If more than one HP adapter is installed, then use “Select carD” to select the specific adapter you are installing.
   - If the utility fails to find your LAN adapter, follow the instructions displayed. Recheck all hardware and software installation procedures, especially the following possibilities:
     – Check that the adapter is plugged into a PCI connector, which is usually white and shorter than an ISA or EISA connector.
     – With the computer’s power switched off, reseat the adapter, pushing it straight into the slot.
     – Check that the PCI slot used is enabled, if the computer’s motherboard allows disabling and enabling PCI slots. Check the computer documentation for this possibility.

     For further diagnosis see “Troubleshooting”, chapter 2.

4. In the “Selected Card Status” area, the second column is the “I/O Address Range” configured for the adapter. The range is shown as two hexadecimal numbers with a dash between and “H” after. Write down the 4 characters displayed before the dash (e.g., if “D000-D0FFH” appears, write down “D000”). You will use this base address in step 7 below on page 1-14.

5. Select “Exit Program” in HPVGSet’s Main Menu.
   Select “Exit SETUP” from Setup’s Support Disk Menu.
   Remove the support disk.

Task 2. Install the network software.

Decision:

- If Microsoft Windows For Workgroups is not yet installed, then do "Task 2 Alternative A" immediately below.
- If Microsoft Windows For Workgroups is already installed, then skip to "Task 2 Alternative B" on page 1-13. Do *not* do "Alternative A" immediately below.

Task 2, Alternative A. Install Windows For Workgroups and select the network.

Install Microsoft Windows For Workgroups 3.11. Refer to the operating system's documentation, for example, "Getting Started" manual.

1. In DOS, insert the Microsoft disk labeled "Disk 1—Setup" into the floppy drive, for example, drive "a", and execute "setup", as follows:

   ```
   a:
   setup
   ```

   Follow the instructions on each window.

2. When you see the dialog box "Network Setup", displaying "No Network Installed", click [Networks] button.

3. In the dialog box "Networks", choose one of the following:

   Decision:

   - If you want the Microsoft Windows Network, click on the radio button "Install Microsoft Windows Network" and then click [OK].
   - If you want a network other than the Microsoft Windows Network, click on the radio button "Install Windows support for the following network only", select the network from the list, and then click [OK].

4. The dialog box "Network Setup" appears. Go on to task 3 on page 1-14 for driver installation (skip "Task 2 Alternative B").

Task 2, Alternative B. If Windows For Workgroups is already installed, select the network.

Note Alternative A is on the previous page.

1. Start Windows.

2. Double-click on the Network group. The Network group window opens.

3. Double-click on the Network Setup icon. The application launches and displays the dialog box “Network Setup”.

4. Click the “Networks” button. The dialog box “Networks” appears. Choose one of the following:

   Decision:

   - If the radio button for “No Windows support for Networks” is selected (which means the network software is not yet set up) and you want the Microsoft Windows Network:

     Then click on the radio button “Install Microsoft Windows Network” and then click [OK].

   - If the radio button for “No Windows support for Networks” is selected (which means the network software is not yet set up) and you want a network other than the Microsoft Windows Network:

     Then click on the radio button “Install Windows support for the following network only”, select the network from the list, and then click [OK].

   - If the network you want has already been set up, click [Cancel].

5. The dialog box “Network Setup” appears. Go on to task 3 on the next page for driver installation.

Task 3. Install the Windows For Workgroups 3.11 driver for the LAN adapter.

1. In the dialog box “Network Setup”, click [Drivers...]. The dialog box “Network Drivers” appears.

2. In the dialog box “Network Drivers”, click [Add Adapter]. The dialog box “Add Network Adapter” appears.

3. In the dialog box “Add Network Adapter”, highlight and select the line “Unlisted or Updated Network Adapter”.

4. When the “Install Driver” dialog box appears, insert the HP Support Disk into the floppy drive, “a” for example, and enter:

   ```
   a:\wfwg
   ```

5. Then the dialog box “Unlisted or Updated Network Adapter” appears, containing the product number and name of your LAN adapter, for example:

   HP J2585B 10/100VG PCI LAN Adapter

   In case of problems:

   If the adapter number and name do not appear, refer to the HP Support Disk for help in diagnosing and resolving this situation. Run the Setup utility. Refer to chapter 3. Select “Instructions for installing”, “Microsoft”, and “Windows for Workgroups”. See the “Note on OEM Information Files” section at the end of the file.

6. In the dialog box “Unlisted or Updated Network Adapter”, highlight and select the adapter number and name. A dialog box titled with that product number and name is displayed.

7. In that LAN adapter dialog box, you are prompted for the “Base I/O Port”—the address you recorded from the HPVGSet “Selected Card Status” display in task 1, step 4, above on page 1-11. Enter the first 4 characters of the address range you saw there.

   (You can omit the “0x” in front of the 4-character number—such as “0xD000”—or you can leave it there. It indicates a hexadecimal number, just as the “H” at the end of the address range in HPVGSet—such as “D000-D0FFH”—indicates hexadecimal numbers.)

   Click [OK]. The dialog box “Network Drivers” appears.

8. In the dialog box “Network Drivers”, click Close. The dialog box “Network Setup” appears. Click Continue button.

9. If the dialog box “Microsoft Windows Network Names” appears, enter the names appropriate for your computer and network (which the network administrator should know), and click OK. Otherwise, go on to the next step.

10. You will be prompted to insert either or both of the following disks, any number of times in any order. Whenever you insert the requested disk, make sure the appropriate path name is entered as follows.

    - After inserting any Windows For Workgroups disk, make sure the path is the root of the floppy drive, for example:

      ```
      a:\
      ```

    - After inserting the HP Support Disk, in drive “a” for example, enter the path:

      ```
      a:\wfwg
      ```

11. After the requested disks have been read, the “Network Setup” dialog box says that the “config.sys”, “autoexec.bat”, “protocol.ini”, and “system.ini” files have been modified.

    Remove the last disk from the floppy drive and click OK. The driver is installed into the Windows For Workgroups environment.

    In case of problems:

    If instead of the above result, you are notified of MS-DOS Multiple Configuration Menus in the “config.sys” file, then you must make your own modifications to some of those files. You are notified of the locations of sample files. Note them, click OK, and continue until you return to DOS. Then check the sample files and make the modifications you want. The modifications critical to networking include:

    ```
    DEVICE=C:\WINDOWSDIRECTORY\IFSHLP.SYS
                                        in “config.sys”
    C:\WINDOWSDIRECTORY\NET START
                                        in “autoexec.bat”
    PATH=C:\WINDOWSDIRECTORY;       in “autoexec.bat”
    ```

12. The dialog box “Windows Setup” says you must restart your computer.

    Decision:

    - If Windows For Workgroups has already been fully installed (that is, you did task 2, alternative B, on page 1-13), click Restart Computer.
    - If you were just installing Windows For Workgroups by doing task 2, alternative A, on page 1-12, click Continue now. Then proceed with the Windows for Workgroup Setup program until the setup procedure is completed.

      Click OK or Close to complete any changes in the “Network Settings” or LAN adapter dialog box.

      The installation and/or changes of network configuration will not take effect until the computer is booted.

13. The first time you start Windows For Workgroups after the installation, the dialog box “Welcome to Windows For Workgroups” should request a password.

    Decision:

    - If you do not want password protection, click OK. At the second chance to create a password file, click No.
    - If you want password protection, enter a password and click OK.

    In case of problems:

    If you are not requested to supply a password, the network probably is not installed correctly. Refer to “Troubleshooting” in chapter 2.

Task 4. Verify the installation.

Wait a few minutes and perform a network operation. Examples:

- Start File Manager. Select “Connect Network Drive...” from the Disk menu. If there are shared resources on the network, the “Connect Network Drive” dialog box should display them. There may be some delay before this happens. Failure will usually be reported in less than 5 minutes; no response after 5 minutes usually means that you will eventually get a response.
- Click on the “MS-DOS Prompt” icon to open a DOS window. Enter the following DOS commands:

  ```
  net config
  ```
  (Note your computer name in the response.)
  ```
  net view \\COMPUTERNAME
  ```
  (Supply the computer name.)

If you see no error messages, installation is verified. You have completed your software and driver installation instructions in chapter 1.

In case of problems:

If the network does not work correctly, go to “Troubleshooting” in chapter 2.

C. For Novell DOS Requestor Client (VLM)

This procedure installs the 16-bit Open Data-Link Interface (ODI) driver that allows the DOS Requestor (VLM) to access the LAN and the Novell servers.

Decisions:

- There are two ways a client computer with DOS and/or Windows 3.*x* can use a Novell network: VLM (DOS Requestor) or NETX (DOS Shell). The network administrator should determine whether to use the new, faster VLM or the older NETX. If you are not sure which one to use, and you are installing Novell NetWare using the standard procedure, then use VLM.

  If you need the NETX procedure instead of this VLM procedure, go to section D on page 1-22 instead.

- If you will be using product J2585B 10/100VG PCI LAN Adapter in a 100VG network (rather than in a 10-Mbit/s network), then HP recommends that you install VLM version 1.20B or later in the following procedure. If your version is too early, copy a later version from a Novell server; see page 1-23 for sources.

- If you are using a "dual stack"—Microsoft Windows for Workgroups along with Novell—then use the "Instructions for installing" in the Setup utility on the HP Support Disk instead (described in chapter 3). Select "Microsoft" and then "Windows for Workgroups 3.11 client".

Task 1. Install DOS if not already installed on this computer.

Task 2. Install Microsoft Windows 3.*x* if needed and not already installed.

Task 3. Install the Novell DOS Requestor software and the driver for the LAN adapter.

1. Find the Novell installation diskettes for "Novell Client for DOS and MS Windows" (probably labeled "WSDOS_1" or "WSWIN_1").

Note If you do not have these diskettes, follow the instructions in the Novell documentation to create the NetWare client installation diskettes from the NetWare CD-ROM.

2. In DOS, insert the first Novell installation diskette into the floppy drive and start the Install utility. For example:

```
a:
install
```

3. Follow Novell's installation instructions on the screen to fill in the fields, selecting the following specifics:

4. To allow the Novell installation program to modify the "autoexec.bat" and "config.sys" files, answer "Yes". The result is that every time you boot your computer, the NetWare client will start automatically and attach to the server.

5. To add Windows support, if Windows 3.*x* is installed, answer "Yes".

6. When asked to select the network board driver, press Enter. In the "Network Board" window, highlight the selection "OTHER DRIVERS" at the end of the list displayed and press Enter.

7. When the "Insert the Driver Disk" window is displayed, remove the Novell diskette and insert the HP Support Disk into the floppy drive and press Enter.

8. The "Network Board" window appears. Highlight the Hewlett-Packard selection containing the words "Bus Master".

9. Press Enter, and the driver "hpfeodim.com" will be installed from the support disk to your computer.

10. The Novell Install Utility then offers you a chance to override the settings for the LAN adapter.

    Decision:

    - If you are installing more than one HP LAN adapter in this client computer, you will use some optional overrides at this point. Refer to the "Instructions for installing" in the Setup utility on the HP Support Disk (described in chapter 3). Select "Novell" and then "DOS Requestor client (VLM)". See the end of the file. Then go on to step 11.

11. Continue with the Novell Install Utility. When notified that it is finished, remove the HP Support Disk from the floppy drive.

    Your Novell network installation procedure is complete (you need not load any further networking software).

    The configuration file changes will take effect when you reboot your computer; go on to task 4 for testing.

Task 4. Verify the installation.

Reboot the computer and look for the notification that you are attached to a server. This verifies that you have successfully completed your software and driver installation instructions in chapter 1.

In case of problems:

- If notified to update "lsl.com" or "ipxodi.com" or both, copy the latest versions of the file(s) from a Novell server; see page 1-23. Then repeat task 4.
- If you cannot attach to the server, then check the versions of files "ipxodi.com" and "lsl.com" after you boot in native DOS without loading networking or memory managers, as follows:

  a. Switch off power. Then switch on power and boot cleanly:

     Decision:

     – In MS-DOS version 6.0 or later (check by using the DOS command "ver"), boot and press the F5 key when you see the text "Starting MS-DOS...." You should then see "MS-DOS is bypassing your CONFIG.SYS and AUTOEXEC.BAT files".

     – Or, boot from a DOS boot diskette, without "config.sys" or "autoexec.bat" files on it. See the DOS documentation.

b. Connect to the NetWare directory, probably “nwclient”.

c. At the DOS prompt, execute “ipxodi”. Then execute “lsl”.

d. Check the version numbers:

ipxodi	2.20 or later
lsl	2.11 or later

If versions are too early, copy the latest versions of “lsl.com” and/or “ipxodi.com” from a Novell server; see page 1-23. Then repeat task 4. If versions are correct, there is another problem.

- If the LAN adapter does not work correctly, go to “Troubleshooting”, chapter 2.

D. For Novell DOS Shell Client (NETX)

This procedure installs the 16-bit Open Data-Link Interface (ODI) driver that allows the DOS Shell (NETX) to access the LAN and the Novell servers.

Decisions:

- There are two ways a client computer with DOS and/or Windows 3.*x* can use a Novell network: VLM (DOS Requestor) or NETX (DOS Shell). The network administrator should determine whether to use the new, faster VLM or the older NETX. If you are not sure which to use, and you are installing Novell NetWare using the standard procedure, then use VLM.

  If you need the VLM procedure instead of this NETX procedure, go to section C on page 1-18 instead.

- If you are using a "dual stack"—Microsoft Windows for Workgroups along with Novell—then use the "Instructions for installing" in the Setup utility on the HP Support Disk instead. Select "Microsoft" and then "Windows for Workgroups 3.11 client".

- If you are doing none of the above, then proceed with the tasks:

Task 1. Find supported versions of the Novell DOS Shell client installation files.

The files required for all installations and their supported versions:

`lsl.com`	v. 2.11 or later
`ipxodi.com`	v. 2.20 or later
`netx.exe` ***or***	
`netx.com`	any version and date

There may be additional NetWare client Windows files required for a new client software installation on a computer with Windows 3.*x*.

To check the version numbers of the files wherever they are stored, execute the files on a computer booted in native DOS without loading networking or memory managers, as follows:

a. Switch off power. Then switch on power and boot cleanly:

   Decision:

   – In MS-DOS version 6.0 or later (check by using the DOS command "ver"), boot and press the F5 key when you see the text "Starting MS-DOS...." You should then see "MS-DOS is bypassing your CONFIG.SYS and AUTOEXEC.BAT files".

   – Or, boot from a DOS boot diskette, without "config.sys" or "autoexec.bat" files on it. See the DOS documentation.

b. Connect to the directory containing the files, for example, "a:\nwclient" on a floppy diskette.

c. At the DOS prompt, execute "ipxodi".
   Check that the version number is 2.20 or later.

d. At the DOS prompt, execute "lsl".
   Check that the version number is 2.11 or later.

Sources of up-to-date required files:

- Novell DOS Shell client installation diskette—the diskette you have used to install Novell software on the other computers in your network—possibly in the root or "dosodi" directory.
- Novell NetWare CD-ROM, performing Novell's instructions to create the NetWare client diskettes from the NetWare CD-ROM
- You can update these files with the latest supported version, or get the files in the first place, by downloading from The Novell NetWire using a fully networked PC. Methods of access include:
  - The Internet (or a modem): ftp.novell.com
  - CompuServe, in the area: NOVFILES
  - World Wide Web URL: http://www.netwire.novell.com

Task 2. Install DOS if not already installed on this computer.

Task 3. Install Microsoft Windows 3.*x* if needed and not already installed.

Task 4. Install Novell client files and the LAN adapter driver.

1. Create a directory on the DOS boot drive for the Novell and HP files, as in the following example at the DOS prompt:

   ```
   mkdir c:\novell
   ```

2. Copy the Novell client files from their storage media to the directory created in step 1. The required files, supported versions, and sources are described under "Task 1" on page 1-22. For example:

   ```
   copy a:\lsl.com c:\novell
   copy a:\ipxodi.com c:\novell
   copy a:\netx.exe c:\novell
   ```

3. Insert the HP Support Disk into the floppy drive and copy the driver file "hpfeodim.com" from the disk's "dos" directory to the directory created in step 1 above, as follows:

   ```
   copy a:\dos\hpfeodim.com c:\novell
   ```

4. Copy the "net.cfg" file from the "dos" directory on the HP Support Disk to the directory created in step 1 above.

   ```
   copy a:\dos\net.cfg c:\novell
   ```

Note Then the "net.cfg" file contains the following text. It also contains text for an additional driver. Only the section related to the driver you installed will be used.

```
; Bus-master DOS ODI driver
LINK DRIVER HPFEODIM
    FRAME ETHERNET_802.3
```

5. In the "net.cfg" file, verify the Ethernet frame type(s) to be recognized by your station. The network administrator should know this. Edit or add to the "FRAME" line if necessary. The line included in the HP-supplied file listed above causes 802.3 frame type to be recognized. Any number of the following lines may be used. They must be indented at least 2 spaces.

   ```
   FRAME ETHERNET_802.2
   FRAME ETHERNET_802.3
   FRAME ETHERNET_II
   FRAME ETHERNET_SNAP
   ```

   Frame type 802.2 is defaulted if no "FRAME" line is used.

6. Add more parameters to your “net.cfg” file if necessary:

   Decision:

   If you are installing more than one HP LAN adapter in this client computer, go to the “Instructions for installing” in the Setup utility on the HP Support Disk; select “Novell” and then “DOS requestor client (NETX)”. Follow the instructions in the “NET.CFG Parameters” section. Then continue this procedure.

7. Use the “type” command to verify all the changes to “net.cfg”.

8. Edit your computer’s “autoexec.bat” file to start the Novell NetWare client and load the driver automatically when booting the computer, as shown below. Also delete any existing driver name that was used with a LAN adapter that you have replaced. Alternatively, you can execute the commands shown—in DOS—any time that you wish to start networking. (This example assumes that “c:\novell” is the directory made in step 1.)

   ```
   c:
   cd \novell
   lsl.com
   hpfeodim.com
   ipxodi.com
   netx.exe or netx.com (See task 1)
   ```

   Use the “type” command to verify all the changes to the “autoexec.bat” file.

9. The use of the file “netx.exe” or “netx.com” requires that you edit your computer’s “config.sys” file to include the “lastdrive=” statement. Set it to the last letter to be used by your local drives. The next letter will be the first available for Novell network drives. For example:

   ```
   lastdrive=D
   ```

   Use the “type” command to verify the change to the “config.sys” file.

10. Remove the HP Support Disk from the floppy drive.

    Reboot your computer to have the file changes take effect.

    Go on to task 6 on the next page, for testing.

Task 6. Verify the installation.

Reboot the computer and look for the notification that you are attached to a server. This verifies that you have successfully completed your software and driver installation instructions in chapter 1.

In case of problems:

If your LAN adapter does not work correctly, go to “Troubleshooting”, chapter 2.

2

Troubleshooting and Getting Help

Troubleshooting Procedure

To resolve any problems with the LAN adapter:

1. Gather some symptomatic data first:

   a. First, check the basic items listed under "Basic Troubleshooting Tips" beginning on the next page.

   b. Then if necessary, run the diagnostic tests of the LAN adapter and the network that are available in the HPVGSet utility. See "Running the Diagnostics" on page 2-4.

2. Then compare the data you collect from these observations and diagnostic tests with the symptoms table (on page 2-8). Once you find the matching symptom, go to the solutions table (on page 2-9) to find how to resolve the problem.

3. If you cannot resolve the problem as described in the previous steps, refer now to the "Customer Service and Support" section on page 2-12.

Basic Troubleshooting Tips

- **Check the network cables.**

  Make sure the network cable connections are secure and that the cables are not damaged. If you find any connections that are loose or cables that are damaged, fix them and then see if your computer can communicate on the network.

- **Check the LEDs.**

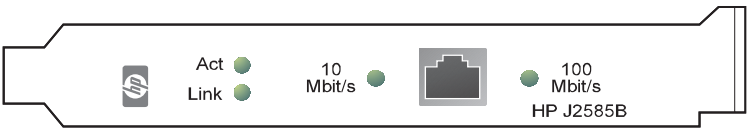
  The LEDs on the adapter—as seen on the illustrations on the next page—help identify problems.

LEDs

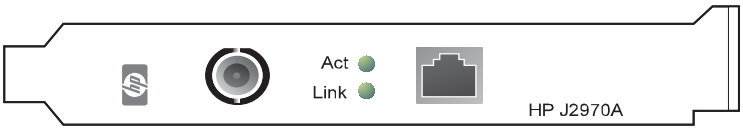
Act (activity) is lit when data is being transmitted or received.

Link is lit during normal operation. Possible causes if it is *not lit:*

- Cable not connected to the adapter.
- Cable not connected to a live network.
- Defective cable.
- Defective LAN adapter.
- ThinLAN is being used (J2970A only). This is normal operation.



HP J2585B 10/100VG PCI LAN Adapter



HP J2970A 10-Mbit PCI Combo Adapter

HP J2973A 10-Mbit PCI LAN Adapter

100-Mbit/s (J2585B only) is continuously lit during 100VG operation (and 10-Mbit/s is *not lit).*

10-Mbit/s (J2585B only) is continuously lit during 10-Mbit/s Ethernet or 10Base-T operation (and 100-Mbit/s is *not lit).*

Both 100-Mbit/s and 10-Mbit/s (J2585B only) flash alternately for the following possible causes:

- Cable not connected to the adapter.
- Cable not connected to a live network.
- Defective cable.

Running the Diagnostics in HPVGSet

General Procedure for Card Test, Link Test

1. Exit to or boot your computer in native DOS with network software and drivers *not* loaded. Depending on your environment:

   - If you run Microsoft Windows NT, OS/2, Novell NetWare on a server, or Unix: Select the shutdown procedure and boot to DOS. Then perform alternative a, c, or d below.
     – If DOS is not installed, then perform alternative c below.
   - If you run Microsoft Windows 95: Perform alternative b, c, or d below.
   - If you run Microsoft Windows for Workgroups or Microsoft Windows 3.*x*: Select the shutdown procedure or exit to DOS. Then perform alternative a, c, or d below.
   - If you run DOS only: Perform alternative a, c, or d below.

   Select one of the appropriate clean boot alternatives:

   a. If you run MS-DOS version 6.0 or later (use the DOS command "ver" to check), then boot and press the F5 key when you see the text "Starting MS-DOS...." You should then see "MS-DOS is bypassing your CONFIG.SYS and AUTOEXEC.BAT files".

   b. In Windows 95, shut down your computer. Cycle power. Press the F8 key when you see the text "Starting Windows 95" at the upper left of a blank screen. You should then see the "Microsoft Windows 95 Startup Menu". Select option 7, "Safe mode command prompt only".

   c. Boot from a DOS boot diskette, without "config.sys" or "autoexec.bat" files on it. See DOS documentation for help.

   d. If you understand how your network, drivers, and memory manager are activated, then temporarily modify the "autoexec.bat" and "config.sys" files so that they do *not* execute.

2. Execute HPVGSet on the HP Support Disk in the floppy disk drive. In DOS, change to the floppy drive and do either:
   - Enter "setup". Select the menu item "View, Configure, or Test LAN Adapter Card".
   - Or simply enter "hpvgset".

3. From the Main Menu, select “Card test” (hot key C) or “Link test (hot key L). Each test is described on the following pages.

Card Test

This tests the LAN adapter’s circuitry through to the LAN connectors. Do not attach cables for this test. HP recommends that you run the card test any time you change the configuration.

Upon selecting the card test, the list of tests is displayed, followed by a pass or fail indication as each test is completed.

Card Test Results

- If the memory-mapped address range has been configured above extended memory, the card test procedure attempts to temporarily move that address range to an empty block of the upper memory area to complete testing. Continue by pressing a key.
- If a test fails, the process stops. If that is the bus master test, see the next item. Otherwise, press the F1 (help) key for instructions.
- If the bus master test fails, this means that the PCI slot is not enabled for bus mastering. Do *one* of the following:
  - Enable bus mastering on that PCI slot. See your computer’s documentation.
  - Move the adapter to another slot enabled for bus mastering. See your computer’s documentation.
  - If you do not have or cannot enable any bus master expansion slots, then install a driver for I/O-mapped or memory-mapped mode (an “IOMEM” driver). Instructions are on the HP Support Disk. Refer to chapter 3 for how to use Setup. From Setup’s “Support Disk Menu”, select “Instructions for installing” and then select your network service vendor. IOMEM instructions are in the file for your specific NOS.

Link Test

This tests the LAN adapter’s ability to send and receive packets. The network cable must be attached to the LAN adapter. The test sends IEEE 802.2 test packets out on the network.

A link test requires two nodes, an initiator to send and a responder to answer. A “smart” hub or managed network device is usually configured to respond to IEEE 802.2 test packets with test response

packets. For most servers and other clients, the two devices must be specifically set in responder and initiator modes at the same time.

When you select the link test, you are prompted to select the role, either initiator or responder, for the local node.

If the two nodes have HP LAN adapters installed, have HPVGSet running link test on both nodes at the same time. Place the responder in responder mode and then place the initiator in initiator mode and start the test. After the test completes, exit the responder mode on the other node. The procedure is detailed below.

Procedure for Link Test Responder

This procedure for setting up a responder is not needed if a node on the network is always configured to respond to IEEE 802.2 test packets. Such a node might be a managed ("smart") hub or switch or router. In this case, skip to "Procedure for Link Test Initiator" below.

If the node to be set up in responder mode *does not* have an HP LAN adapter, see its documentation for how to set it up as a responder to IEEE 802.2 test packets, instead of using this procedure. If it *does* have an HP LAN adapter, then use this procedure on that node.

1. First perform the general procedure on page 2-4, and read about link test initiators and responders starting on page 2-5.

2. After selecting "Link test" and when prompted for the role of this LAN adapter, select "Respond to test packets". This LAN adapter is then ready to return an IEEE 802.2 response packet for each test packet it receives from an initiator. Perform the "Procedure for Link Test Initiator" below, and when complete, return to this procedure.

3. HPVGSet displays a test window showing counters for the results on this node. After link testing has been stopped on the initiator node, then stop the link test responder mode on this node, and exit HPVGSet.

Procedure for Link Test Initiator

This procedure is used to start a link test on a computer with an HP LAN adapter installed.

1. First perform the general procedure on page 2-4, and read about link test initiators and responders starting on page 2-5.

2. After selecting “Link test” and when prompted for the role of this LAN adapter, select “Initiate test packets”.

3. From the Link Test Initiator Menu, select “Find a responder”.

   - If a responder’s MAC address is displayed and “Start test” is highlighted, then go on to the next step.
   - If no responder is found, then select “Manually enter responder address”. You will be prompted to enter the 12-digit hexadecimal MAC address of a node in responder mode. When “Start test” is highlighted, then go on to the next step.
   - If neither method finds a responder, then see the “Link Test” discussion on page 2-5 and check whether you need to do the “Procedure for Link Test Responder” (page 2-6) to set up a node to be in responder mode. If a responder is ready and this step fails, then this node is not connected to a live network.

4. Select “Start test”. The Link Test Statistics (Initiator) display shows test counters. The test runs continually until you stop it. Press [Enter] or any other key to stop the test.

5. Examine the test counters for the results:

   - If the “test packets transmitted” and “Good test packets received” counters increment equally, and the “Packets received” counter increments equally or to a higher number, then the test has passed perfectly.
   - If only the “test packets transmitted” counter increments, and it does so very slowly, then you will see an error message when you stop the test. Press the [F1] key (the help key) to see the possible causes for this absolute test failure.
   - Results between these two extremes should be diagnosed as a network problem. Consider solutions 4, 5, 8, 10, and 14 in the “Solutions” table starting on page 2-9. If you cannot resolve the problem, you may want to contact your HP-authorized LAN dealer or HP representative for help. In that case, consult the “Customer Service and Support” section on page 2-12.

Symptoms

In the table below, find the symptom you are noticing and then check the corresponding solutions in the table starting on the next page. Notice that the solution numbers are listed in the suggested sequence of what to check first.

Symptom	Solution Numbers
When you run HPVGSet, no LAN adapters are detected.	1, 2, 3, 15, 16, 17, 18, 20, 28
The computer halted when HPVGSet was run or when DOS drivers were loaded.	13, 19
When you run "Card test" in HPVGSet, one or more of the tests fail.	13, 17, 25, 28
When you run "Card test" in HPVGSet, the bus master test fails.	25, 28
In HPVGSet, "Card test" passes but "Link test" fails.	4, 5, 8, 10, 14
The network cable is attached to the LAN adapter, but the Link LED is off.	8, 10, 21
In HPVGSet, both "Card test" and "Link test" pass, but the computer will not communicate on the network.	19, 23, 26, 27
The LAN adapter stopped working when another card was added to the computer.	4, 6, 7, 11, 23, 28
The LAN adapter stopped working for no apparent cause.	4, 9, 10, 12, 28
The network software and /or driver will not start, do not recognize the adapter, or issue start-up error messages.	4, 9, 10, 17, 19
The network software and /or driver are initially unable to connect or communicate with a remote node.	10, 19, 26, 27
Communication between the computer and a remote node fails after working previously.	4, 8, 12, 28
A LAN adapter with a boot ROM installed and enabled will not boot, but "Card test" and "Link test" pass.	22, 24
When you do Ctrl-Alt-Delete or a soft reset to boot your computer, either the booting hangs up, or the computer is unable to connect to the server after booting completes.	26

Solutions

1	Verify that the LAN adapter is installed in your computer.
2	The LAN adapter may not be fully seated in the slot. Try re-seating the adapter and running HPVGSet again.
3	The slot may be defective. Try a different slot.
4	Verify that the network cable is firmly attached to the LAN adapter and that the other end of the cable is firmly attached to the hub, switch, other network device, or wall jack. Verify that the Link LED is lit.
5	Verify that the network cable is attached to the correct LAN adapter.
6	Verify that the LAN adapter was not nudged from its slot when the new accessory was installed.
7	If your HP LAN adapter driver required you to provide the base I/O address, then run HPVGSet again to learn the new base I/O address for the HP LAN adapter you installed earlier. Then reconfigure the driver for that adapter.
8	Verify the integrity of the network cable and the connectors on both ends of the cable.
9	Verify that the LAN adapter has been configured for your computer by running HPVGSet. Make sure that the I/O address range and interrupt channel have been assigned.
10	The network administrator must verify that the cable is attached to an active network. The hub or attached network device is off or malfunctioning, or link beat has been disabled on the hub port for this connection.
11	Verify that LAN adapter's drivers were not accidentally deleted when the drivers for the new LAN adapter were installed.
12	The files containing the network drivers may have become corrupted. Re-install the network drivers from the HP Support Disk and try again. Check for a virus.
13	HPVGSet was run while networking drivers were loaded; this may cause unexpected and unknown problems. Boot the system into DOS without executing the files "config.sys" and "autoexec.bat"). Run HPVGSet again (with the instructions starting on page 3-6).
14	The network administrator must verify that the network cabling is properly wired. See appendix A for cabling pinout information.
15	Run the Setup utility for your computer to verify that the PCI slot is enabled.

16	Some EISA configuration utilities allow you to disable a PCI slot. If you have an EISA computer, run the EISA configuration utility and enable the PCI slot.
17	Verify that PCI interrupt INTA is assigned to an IRQ. Run your computer's configuration utility or set a jumper on the motherboard to set the slot to INTA. See your computer's documentation for details.
18	Your BIOS may not support the most current PCI specification and may need to be upgraded. See your computer's documentation to determine if your BIOS correctly supports the features of the PCI Local Bus Specification (version 2.0 or later). Rerun HPVGSet with the "/pci20" option, i.e., execute: hpvgset /pci20
19	Verify that EMM386 version 4.49 or later is loaded. EMM386 version 4.49 ships with MS-DOS 6.22 and is also available on the HP Support Disk.
20	On some motherboards, an ISA or EISA slot opening is shared with a PCI slot. PCI boards cannot "share" this slot with ISA or EISA bus boards. If the slot into which you are installing the HP LAN adapter is a shared slot and that slot already contains an ISA or EISA card, then move the ISA or EISA card or install the HP LAN adapter in a different PCI slot. For more information on the motherboard, see your computer's documentation.
21	Link beat is not detected on the cable. The network administrator must verify that the cable is attached to an active network.
22	On some computers, the BIOS keeps a static image of system resources in CMOS. Switching power off and then on again will not cause the BIOS to refresh the static resource image. Therefore, these computers will not detect the presence of a boot ROM on a LAN adapter. For these computers: 1. Switch power off to the computer and remove the LAN adapter. 2. Switch power on to the computer to refresh the image in the CMOS. 3. Switch power off to the computer and install the LAN adapter. 4. Switch power on to the computer. The computer detects the presence of the boot ROM on the LAN adapter.
23	Verify that the network drivers are loaded, and that the driver parameters match the configuration on your LAN adapter.
24	Boot image files were not installed on the server. The server has not been configured to remote boot the clients. The network administrator must check the server.
25	On some computers, you must use the PCI BIOS setup program to enable the PCI slot for bus mastering and assign an IRQ. The wording of the parameters varies with your BIOS, but an example is the following: PCI slot#: *selected slot* Master: Enabled Slave: Enabled Latency Timer: 40 Interrupt: *choose among alternatives presented* Edge level: level

26	Shut down the operating system, if running. Switch off the computer's power and then switch it on again.
27	The network administrator must verify the network software configuration (Novell frame type, Microsoft workgroup name, IP address, etc.).
28	The LAN adapter may be defective. Try a different one. See the warranty information accompanying your LAN adapter for exchange instructions if you have no alternate to try, or if the alternate works in place of the questionable one.

Customer Service and Support

Getting Problems Resolved

Collect data before contacting your LAN dealer or Hewlett-Packard, as follows:

History of the Problem:

- What symptoms did you notice?
- Did the symptoms appear when the LAN adapter was first installed, after normal operation, or after its configuration was changed?
- If you changed its configuration, did you also change the driver parameters to match?

Card Configuration Information:

- Run HPVGSet. Select “Manual Configuration”. Record all parameters from the configuration listed.

Computer Information:

- What vendor and model of computer are you using?
- What are the processor speed and bus type (EISA/PCI or ISA/PCI)?
- What is the configuration of other cards installed in your computer?
- What operating system and version are you using?
- What network operating system and version are you using?
- What applications are running on the computer?
- If memory-mapped mode is being used, find out if an expanded memory manager or memory caching is also running? If possible, get the memory manager to output a map of the computer’s memory.
- List the contents of key files such as autoexec.bat, autoexec.ncf, startup.ncf, config.sys, net.cfg, protocol.ini, lanman.ini, system.ini.

Hewlett-Packard offers services for end users’ LAN adapter problems through automated electronic services (24 hours, seven days) and through direct phone assistance (during working hours), as listed on the card at the beginning of this manual.

3

Reference for HP Support Disk

This reference chapter describes how to use the files and the utilities on the HP Support Disk.

All online information and software is accessible by using the Setup utility, “setup.exe”, on the support disk. Setup is a locator program that organizes and helps you select:

- the driver for each environment,
- the configuration and testing functions in the utility named HPVGSet, and
- the complete instructions for installing, configuring, testing, and troubleshooting all supported operating environments.

For the most common operating environments, chapter one of this manual contains all the instructions needed to complete an installation, and chapter two gives the troubleshooting information most commonly needed. Thus, you most likely will use the HP Support Disk only to install the network driver and installation files—when the chapter one procedures instruct you to insert it—and will not need to use Setup.

All users can start with chapter one. Its instructions identify the operating systems, environments, special features and functions, and problems that may require you to use the more complete information and software accessible through Setup on the support disk.

This chapter contains operating information about the Setup utility, the HPVGSet utility, and describes some of the configuration and testing options in HPVGSet.

Note

The text for the instructions on the support disk can be read in two ways. The Setup utility uses these files to organize and display the instructions, as described in this chapter. Alternatively, you can read or print the files using a text editor, since they are ASCII files. They are contained in many of the directories on the disk. Many of the files are named “readme.” followed by an abbreviation for the specific NOS as a file type.

Setup Reference

Before Running Setup

You must be in DOS to run the “setup.exe” utility from the HP Support Disk.

Note

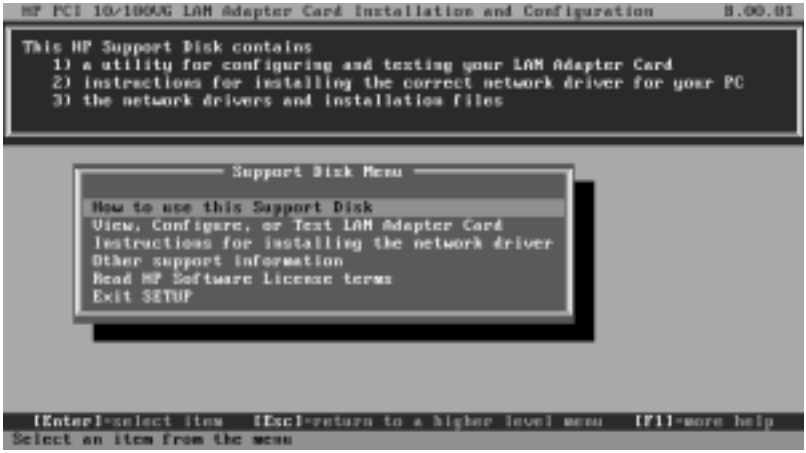
One of Setup’s menu items has special DOS requirements, while the others do not. That one is HPVGSet,which must run in native DOS without networking software or drivers loaded. That procedure is described in “Before Running HPVGSet” on page 3-6.

An alternative to running HPVGSet from within Setup is to use all Setup’s features except HPVGSet without any special requirements, then exiting Setup, and then executing HPVGSet as a separate DOS utility after doing the preparatory procedure on page 3-6.

Running Setup

Insert the HP Support Disk into the floppy drive, and change to the floppy drive if necessary. Run Setup:

```
setup
```



Setup's Main Screen

Navigation and Reading using Setup

- To select a menu item, use the up and down cursor keys—↑ and ↓—to change the highlighted item. Then select the highlighted item by pressing Enter or by clicking on the item with the mouse.
- The bottom line of the display shows some brief help text about the item that is highlighted in the foremost window.
- The second-to-bottom line shows these navigation keys:
  - Enter selects the highlighted menu item.
  - Esc returns to the previous menu.
  - F1 presents more detailed help information about the highlighted item.
- The top line of the display shows the name of the file being displayed. When a new file is loaded and you see that the information is complex, lengthy, or requires you to do a procedure after exiting Setup, HP recommends that you print the information in the file. Press F2 to print the file on the printer attached to this computer. If you have no printer attached to this computer, initially run the Setup utility on another computer with an attached printer, merely to print this information.

Features in Setup

- Complete driver installation instructions for all drivers—those in chapter 1 of this manual and all others, including NOS-related special configuration features.
- Technical Notes: Other information, including full installation instructions for all features and non-driver-related special configurations.
- Access to HPVGSet for card and link testing, and when needed for special configurations.

HPVGSet Reference

HPVGSet is an interactive configuration and diagnostics program on the HP Support Disk that is shipped with the LAN adapter.

Before Running HPVGSet

You must exit to native DOS and/or boot your computer in native DOS with network software and drivers *not* loaded. The procedure depends on your environment as listed below. After you finish running HPVGSet, you can boot your computer normally.

Note You cannot run HPVGSet from a DOS window within a Windows environment.

Decision:

- If you run Microsoft Windows NT, OS/2, Novell NetWare on a server, or Unix: Select the shutdown procedure and boot to DOS. Then perform alternative a, c, or d below.
  - If DOS is not installed, then perform alternative c below.
- If you run Microsoft Windows 95: Perform alternative b, c, or d below.
- If you run Microsoft Windows for Workgroups or Microsoft Windows 3.*x*: Select the shutdown procedure or exit to DOS. Then perform alternative a, c, or d below.
- If you run DOS only: Perform alternative a, c, or d below.

Clean boot alternatives:

a. If you run MS-DOS version 6.0 or later (use the DOS command "ver" to check), then boot and press the F5 key when you see the text "Starting MS-DOS...." You should then see "MS-DOS is bypassing your CONFIG.SYS and AUTOEXEC.BAT files".

b. In Windows 95, shut down your computer. Cycle power. Press the F8 key when you see the text "Starting Windows 95" at the upper left of a blank screen. You should then see the "Microsoft Windows 95 Startup Menu". Select option 7,

"Safe mode command prompt only". You should then see the DOS prompt.

c. Boot from a DOS boot diskette, without "config.sys" or "autoexec.bat" files on it. See the DOS documentation for help.

d. If you understand how your network, drivers, and memory manager are activated, then *temporarily* modify the "autoexec.bat" and "config.sys" files so that these items *do not execute*.

Running HPVGSet

There are two alternative ways to access the HPVGSet utility:

- Run Setup from the HP Support Disk, according to the previous section starting on page 3-3. Select the menu item "View, Configure, or Test LAN Adapter Card".
- From DOS, insert the HP Support Disk into the floppy drive, change to the floppy drive, and enter:

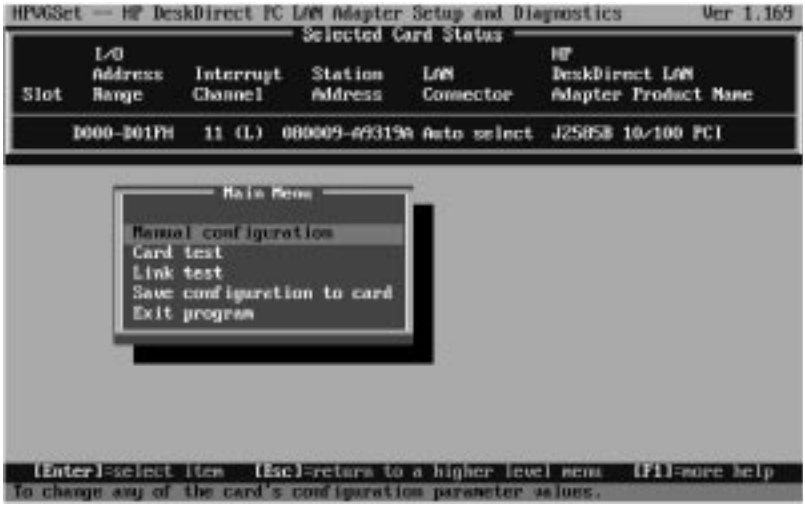
  ```
  hpvgset
  ```

From either point of access, HPVGSet starts up and automatically detects the presence of HP LAN adapters.

In case of problems:

- If the preparatory procedure on the previous page was not followed, HPVGSet will fail to run and remind you of the DOS requirements.
- If more than one LAN adapter from HP is detected, you will be asked to select a specific adapter. Use the item "Select card" in the Main Menu to specify it.

The current configuration of the LAN adapter is detected and displayed, as in the example screen on the next page. The area at the top of the screen labeled "Selected Card Status" displays the current configuration of the LAN adapter. If you make changes to the configuration, the changes will be reflected in this area.



HPVGSet Primary Screen

Navigation Features

- The second-to-bottom line shows the basic navigation keys:
  - Enter selects the highlighted menu item.
  - Esc returns to the previous menu.
  - F1 presents detailed help information, at the bottom of the display, about the highlighted item.
- To select a menu item, do one of the following:
  - Use the up and down cursor keys—↑ and ↓—to change the highlighted item. Then select the highlighted item by pressing Enter or by clicking on the item with the mouse.
  - Press the hot key for that item (indicated by the yellow uppercase letter on a color display and indicated in the function descriptions that follow).

Selected Card Status Area

If one HP LAN adapter is installed, HPVGSet immediately recognizes the adapter and lists its product number and name in the last column of the "Selected Card Status" area. The other columns display the configuration status of the adapter.

In case of problems:

- If more than one LAN adapter from HP is detected, use "Select Card" to select the specific adapter product to configure.
- If the LAN adapter is *not* found, follow the instructions displayed by HPVGSet. Check the following likely possibilities and try the installation tasks again.
  - Check that the adapter is plugged into a PCI connector, which is usually white and shorter than the other ISA or EISA type of connector.
  - With the computer's power switched off, reseat the adapter board, pushing it straight into the slot.
  - Check that the PCI slot used is enabled, if the motherboard on your computer allows you to disable and enable PCI slots. Check your computer's documentation for this possibility.

  For further help see chapter 2, "Troubleshooting", for diagnosis.

Main Menu

On the HPVGSet primary screen shown on page 3-8, the Main Menu items may vary slightly, depending on the options currently relevant.

(The "hot key" listed for each menu item below can be typed to select that item, and F1 can be typed to read more detailed information. See "Navigation Features" on the previous page.)

`select carD` hot key D

Selects the LAN adapter to configure or test. This menu item is displayed only if you have installed multiple LAN adapters from HP.

`Manual configuration` hot key M

Allows changing all configuration functions for the LAN adapter. See "Manual Configuration Functions" on the next page for more information.

`Card test` hot key C

Tests the LAN adapter's hardware and configuration. Does not send packets on the network, so network cable need not be attached. See "Card Test" in chapter 2 on page 2-5 for more information.

`Link test` hot key L

Tests the LAN adapter's ability to send and receive packets over the network. Used to designate one HP adapter as the initiator of the test packets, and/or to designate another HP adapter as the responder. (A smart hub will be automatically found as a responder.) See "Running the Diagnostics in HPVGSet" in chapter 2 on pages 2-4 to 2-7 for more information.

`Save configuration to card` hot key S

Writes the manual configuration (see above) to the adapter's non-volatile memory.

`Exit program` hot key E

Terminates the HPVGSet session.

Manual Configuration Functions

When the “Manual configuration” menu item is selected from the Main Menu, the Manual Configuration Menu is displayed below the Selected Card Status display, as in the example below.

HPVGSet Manual Configuration Screen

Note

Before configuring one of these functions, detach the LAN cable.

After configuring one of these functions, select “Exit Program”. Then from the Main Menu, select “Card test”, “Save configuration to card”, and “Exit Program”. Then attach the cable and boot the computer.

(The “hot key” listed for each menu item below can be typed to select that item, and F1 can be typed to read more detailed information. See “Navigation Features” on page 3-8.)

`Boot ROM` hot key B

Toggles between enabling and disabling (default) boot ROM. Install the HP J2582B Boot ROM on the adapter, using its documentation. Then enable this function. After testing and saving this configuration, you must switch off power, wait five seconds, switch on power, and then attach the cable.

`BUs master` hot key U

Toggles between enabling (default) and disabling bus master mode, which allows direct data transfer between the adapter and the computer's memory, independently of the CPU. Bus mastering yields higher performance.

`I/O or Memory Mapped` hot key M

Selects the alternative data transfer mode, either I/O-mapped or memory-mapped, when bus mastering is not used. When memory-mapped mode is selected, also specifies whether the address region is assigned by the PCI BIOS or from one of the legal memory-mapped addresses. You have this option only when the bus master option is disabled (see above).

`10 Mbit/s Full Duplex` hot key D

Toggles between disabling (default) or enabling full duplex, (sending and receiving simultaneously) for 10-Mbit/s networks only *(not 100VG)*. Full-duplex operation removes the throughput bottleneck for high-bandwidth devices such as servers, routers, bridges, and switches. When packets flow in both directions simultaneously, effective bandwidth doubles from 10 to 20 Mbit/s. Make sure the computer (commonly a server) is attached to a switch or hub also configured for full-duplex operation.

`LAN Connector` hot key C

Specifies which speed is to be used on the twisted-pair connector: "100 Mbit/s" or "10 Mbit/s", or "auto select" (default) for automatic detection of the speed of the attached network.

`restore Factory default configuration` hot key F

Restores the LAN adapter's configuration to the values it had when shipped from the factory.

`Read configuration from disk file` hot key R

Brings a configuration into HPVGSet from a disk file. The configuration can be saved to this adapter by selecting "Save configuration to card" in the Main Menu.

`Write configuration to disk file` hot key W

Writes the displayed configuration to a disk file that you can subsequently use to configure LAN adapters.

`Exit menu` hot key E

Exits Manual Configuration Menu and returns to Main Menu.

A

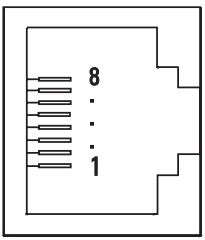
Connectors and Cables

This appendix includes minimum pin-out information for the twisted-pair connector and lists cables available from HP. All connectors on the adapters adhere to the appropriate standards; you can also purchase cables from vendors such as Black Box and Anixter.

Note Incorrectly wired cabling is the most common cause of problems for LAN communications. HP recommends that you work with a qualified LAN cable installer for assistance with your cabling requirements.

Twisted-Pair RJ-45 Connector

Figure A-1. Illustration of RJ-45 Pins



10-Mbit/s Operation

Use unshielded twisted-pair cables that comply with the IEEE 802.3 Type 10Base-T standard.

Pins	Signal
1	(transmit +)
2 (pair 2)	(transmit –)
3	(receive +)
6 (pair 3)	(receive –)

Available HP Cables

- HP 92268A: 4 meters, with attached 8-pin connectors
- HP 92268B: 8 meters, with attached 8-pin connectors
- HP 92268C: 16 meters, with attached 8-pin connectors
- HP 92268D: 32 meters, with attached 8-pin connectors
- HP 92268N: 300 meters, no connectors supplied *

* IEEE 802.3 and Ethernet standards support up to 100 meters only.

100-Mbit/s Operation

Use unshielded twisted-pair cables that comply with the IEEE 802.12 100VG-AnyLAN standard.

Notes

See the illustration of the RJ-45 pins on the previous page.

In the following table, "TPIO" stands for twisted-pair input/output.

	Signal	
Pins	**Hub/Switch**	**End Node**
1	TPIO:3+	TPIO:0+
2 (pair 2)	TPIO:3–	TPIO:0–
3	TPIO:2+	TPIO:1+
6 (pair 3)	TPIO:1+	TPIO:2+
4	TPIO:1–	TPIO:2–
5 (pair 1)	TPIO:2–	TPIO:1–
7	TPIO:0+	TPIO:3+
8 (pair 4)	TPIO:0–	TPIO:3–

Available HP Cables

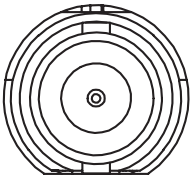
These are the same cables used for 10-Mbit/s operation.

- HP 92268A: 4 meters, with attached 8-pin connectors
- HP 92268B: 8 meters, with attached 8-pin connectors
- HP 92268C: 16 meters, with attached 8-pin connectors
- HP 92268D: 32 meters, with attached 8-pin connectors
- HP 92268N: 300 meters, no connectors supplied *

* IEEE 802.12 standard supports up to 100 meters only.

ThinLAN BNC Connector

Figure A-2. Illustration of BNC Connector



10-Mbit/s Operation

Use thin coaxial cables that comply with the IEEE 802.3 Type 10Base2 standard. Some RG-58 A/U and RG-58 C/U cables meet these requirements.

The maximum length between nodes is 185 meters.
The minimum length between nodes is one meter.

B

Specifications

Physical

	Dimensions	Weight
J2585B	8.9 cm by 13.3 cm (3.5 in by 5.2 in)	89.4 g (3.2 oz)
J2970A	8.9 cm by 13.3 cm (3.5 in by 5.2 in)	96.2 g (3.4 oz)
J2973A	8.9 cm by 13.3 cm (3.5 in by 5.2 in)	78.2 g (2.8 oz)

Electrical

	Typical	Maximum
J2585B	0.43 A @ 5 V	0.50 A @ 5 V
J2970A	0.51 A @ 5 V	0.60 A @ 5 V
J2973A	0.32 A @ 5 V	0.40 A @ 5 V

Environmental

	Operating Temperature	Non-Operating Temperature
J2585B **J2970A** **J2973A**	0°C to 55°C (32°F to 131°F)	-40°C to 70°C (-40°F to 158°F)

	Relative Humidity	Maximum Altitude
J2585B **J2970A** **J2973A**	15% to 95% at 40°C (104°F) non-condensing	4.6 km (15,000 feet)

Electromagnetic

Emissions

	Country	Class
J2585B **J2970A** **J2973A**	USA, Canada, Latin America	FCC part 15 Class B or CISPR-22/EN 55022 Class B
	Europe and others	CISPR-22/EN 55022 Class B
	Japan	VCCI level 2

Immunity See the Declaration of Conformity in Appendix C, "Regulatory Statements", at the end of this guide.

See also the Canadian declaration in Appendix C, "Regulatory Statements", at the end of this guide.

Acoustic Noise

Not applicable

Data Communications

	Cable Interface	Specification
J2585B	Twisted-pair RJ-45	IEEE 802.3 Type 10Base-T IEEE 802.12 100VG-AnyLAN
J2970A	Twisted-pair RJ-45	IEEE 802.3 Type 10Base-T
	ThinLAN BNC	IEEE 802.3 Type 10Base2
J2973A	Twisted-pair RJ-45	IEEE 802.3 Type 10Base-T

C

Regulatory Statements

FCC RFI Statement (For U.S.A. Only)
Federal Communications Commission Radio Frequency Interference Statement

Warning: This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against harmful interference in a residential environment.

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.

If this equipment causes interference to radio reception (which can be determined by unplugging the power cord from the equipment) try these measures: Re-orient the receiving antenna. Relocate the equipment with respect to the receiver. Plug the equipment and receiver into different branch circuits. Consult your dealer or an experienced technician for additional suggestions.

VCCI 2 (For Japan Only)

この装置は，第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

しかし，本装置をラジオ，テレビジョン受信機に近接してご使用になると，受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Canada

This product complies with Canadian EMC requirements.

Korea

사용자 안내문 : A 급기기

이기기는 업무용으로 전자파 적합등록을 받은 기기이오니, 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

Declaration of Conformity

The Declaration of Conformity below complies with ISO/IEC Guide 22 and EN 45014. It identifies the product, the manufacturer's name and address, and the applicable specifications that are recognized in the European community.

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN45014

Manufacturer's Name: Hewlett-Packard Company

Manufacturer's Address: 8000 Foothills Blvd.
Roseville, CA 95747-5502
U.S.A.

declares that the product:

Product Name: HP 10-Mbit PCI LAN Adapter
HP 10/100-Mbit PCI LAN Adapter
HP 10Mbit PCI Combo LAN Adapter

Model Number: HP J2973A
HP J2585B
HP J2970A

conforms to the following Product Specifications:

Safety: EN60950 (1992)+A1,A2 / IEC 950:1991+A1,A2

EMC: EN 55022 (1994) / CISPR-22 (1993) class B
EN50082-1 (1992)
prEN 55024-2 (1992) / IEC 801-2 (1991) 4 kV CD, 8 kV AD
prEN 55024-3 (1991) / IEC 801-3 (1984), 3 V/m
prEN 55024-4 (1992) / IEC 801-4 (1988): 1 kV-(power line)
0.5 kV-(signal line)

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carries the CE marking accordingly. LEDs in this product(s) are Class-1 in accordance with EN60825-1:1994.

Tested with Hewlett-Packard Co. products only.

Roseville, October 3, 1997

Karen Dorchak, Quality Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department TRE, Herrenberger Strasse 130, D-71034 Böblingen (FAX:+49-7031-14-3143).

Index

Symbols

A

B

C

D

E

F

H

I

J

L

M

N

O

P

R

S

T

U

V

W

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