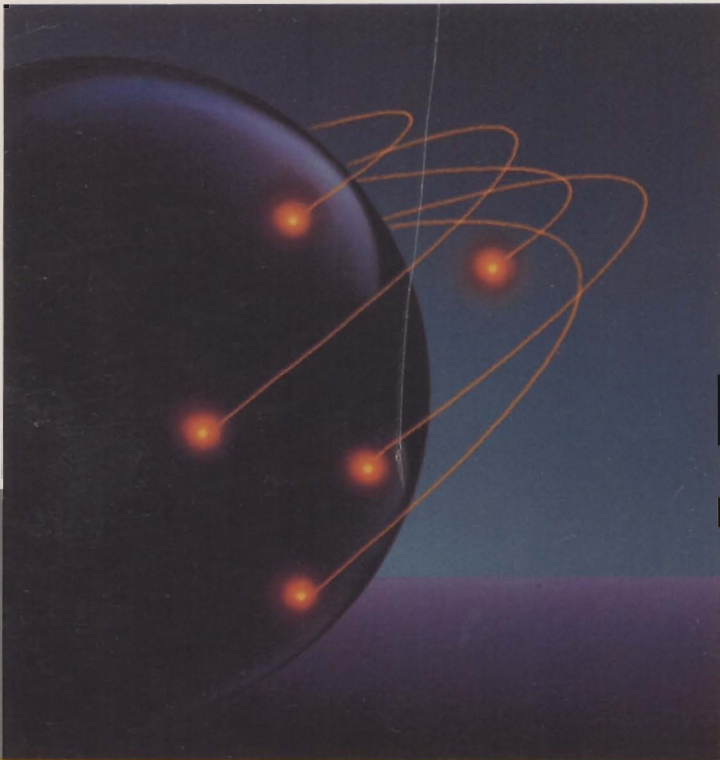


# HP ThinLAN PC Adapter Card Installation Guide



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**HP 27250A**  
**ThinLAN PC Adapter Card**  
**Installation Guide**



**HEWLETT  
PACKARD**

**HP Part Number: 27250-90001**  
**Printed in U.S.A.**

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Hewlett-Packard Company, Roseville Networks Division, Roseville, CA 95678

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## Print History

Edition 1

March 1990

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# Addendum

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## Manual Identification

*HP EtherTwist PC Link Installation Guide*

27245-90001 E0890

and

*HP EtherTwist Micro Channel Link*

*Installation Guide*

27246-90001 E0490

## Addendum Identification

Addendum part number: 5090-2675

Addendum date: April 1991

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The floppy disk labeled Support Disk enclosed with your HP LAN adapter card now contains a Streams LLI driver for SCO UNIX® and SCO Open Desktop. This driver can be used with the following HP LAN adapter cards:

- HP 27245A EtherTwist Adapter Card/8
- HP 27246A EtherTwist Micro Channel Adapter Card/16
- HP 27247A EtherTwist Adapter Card/16
- HP 27250A ThinLAN Adapter Card

The instructions to install the Streams LLI driver are included on the floppy disk in the file:

`/sco_unix/readme.sco`

To read this file, use the UNIX `dosc` command to copy the file from the floppy to your system disk. At your system prompt enter the command:

```
dosc -m A:sco_unix/readme.sco readme.sco
```

Then, use the UNIX `more` command to read the file:

```
more readme.sco
```

UNIX is a registered trademark of UNIX System Laboratories Inc. in the U.S.A. and other countries.



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## **Safety Considerations**

A **WARNING** denotes a hazard that can cause injury or death. A **CAUTION** denotes a hazard that can damage equipment. Do not proceed beyond a warning or caution notice until you have understood the hazardous conditions and have taken appropriate steps.

### **Anti-Static Precautions**

This product contains electrical components that can be easily damaged by small amounts of static electricity. To avoid damage, follow these guidelines:

- If possible, work in a static-free area.
- Handle printed circuit assemblies only by the edges. Do not touch components or traces. We strongly recommend that you use a grounding wrist strap that is connected to the chassis of the device or host computer. If you do not have a wrist strap, touch the chassis before handling assemblies and frequently thereafter to equalize any static charge.

---

## Regulatory Statements

### FCC 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 A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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

### Funkentstörung Deutschland (German EMI Compliance)

#### Herstellerbescheinigung

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Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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**Third Party Products** HP designed the HP 27250A PC Adapter Card to operate with industry standard hardware and software products.

HP has conducted limited testing with certain non-HP products to determine compatibility with the HP 27250A PC Adapter Card. Please contact your authorized HP dealer or HP representative for the current list of tested products.

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## Product Description

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### Features

The HP 27250A ThinLAN PC Adapter Card connects certain personal computers that have IBM PC, XT, or AT architecture to an IEEE 802.3 CSMA/CD 10 Mbit/s network.

This card has:

- A BNC connector for connection to ThinLAN coaxial cable.
- An AUI (attachment unit interface) connector for connection to ThickLAN coaxial, twisted-pair, or fiber-optic cable. For these connections, a ThickLAN, twisted-pair, or fiber-optic MAU (medium attachment unit) is needed.

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### Product Package

The HP 27250A ThinLAN PC Adapter Card includes:

- LAN adapter card, 27250-60001
- Support Disk for HP PC LAN Cards
  - 3.5-inch disk
  - 5.25-inch disk
- AUI retainer, 5062-3351
- *HP 27250A ThinLAN PC Adapter Card Installation Steps*, 27250-90006
- *HP 27250A ThinLAN PC Adapter Card Installation Guide* (this booklet), 27250-90001

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## **Additional References**

- *Planning Guide for LANs*, 50929-90000.
- *HP LAN Configuration Guide for IEEE 802.3 and Ethernet Networks*, 5090-2607.
- *The Planning and Setup Guide – HP's PC Integration Products*, D1810-90004.

# Installation

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## 1. Check the basics.

### Systems

This card is compatible with certain personal computers that have IBM PC, XT, or AT architecture. Ask your authorized dealer or HP representative for further details. The computer must have MS-DOS version 3.3 or later, or OS/2 version 1.1 or later.

### Network Software Driver Preparation

- Novell NetWare v2.15. For a new installation, copy the Novell NetWare driver files from the Support Disk to a work disk with volume label LAN\_DRV\_424.
- 3Com® 3+Open™ v1.1. For a new installation, copy the 3Com 3+Open driver files from the Support Disk to one of the following locations.
  - for DOS: to the subdirectory named \3OPEN\DOSDRV\MAC on a work copy of 3Com's DOS Drivers Disk.
  - for OS/2: to the subdirectory named \3OPEN\OS2DRV\MAC on a work copy of 3Com's DOS Drivers Disk.
- HP LAN Manager (based on Microsoft® OS/2 LAN Manager and on 3+Open™). No preparation is necessary.

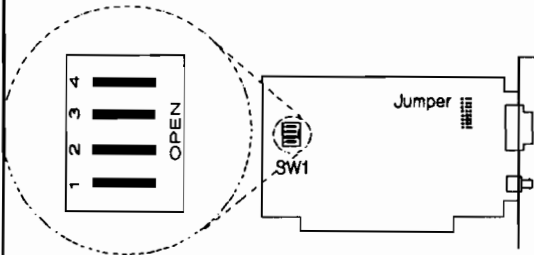
Ask your authorized dealer or HP representative about others.

### Anti-Static Handling

Work in static-free area if possible. Handle the card by its edges and don't touch the components. Touch the computer chassis frequently to equalize static charge.

## 2. Configure the card.

Make sure the I/O address range does not conflict with another card in the computer. To set the base address, use switches 1 through 3. (The address range includes the base address and the next 31 addresses.) Note: It does not matter how switch 4 is set.



If you will be using the AUI connector, set the jumper to enable the AUI port. See "Selecting the Active Port" in this chapter for information about how to do this.

I/O Base Address	Switch Settings
200h	
240h	
280h	
2C0h	
300h factory default	
320h do not use on HP Vectra CS	
340h	

## 3. Install and test.

**Install the card.** Disconnect the power cord from the computer. See your computer's reference manual for installation instructions.

**Test the card.** Make sure the ANSI.SYS driver is installed in your CONFIG.SYS file. Start the computer with DOS running. Insert the Support Disk in drive A. Enter A:TEST and follow the prompts to the main menu. Attach a BNC loopback connector to the BNC port of the card. Select Loopback Test.

**Attach the network cable to the card.**

For installation details, see the descriptions following these steps.



# Installation Details

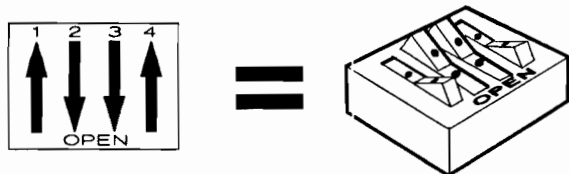
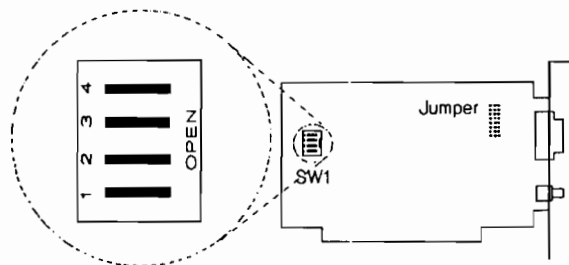


## Setting the I/O Base Address

### Caution

Use anti-static handling procedures. Handle the card by the edges and avoid touching the components. Equalize any static charge on your body and the personal computer by touching the chassis of the computer. Use a non-conductive object such as a toothpick to change switch settings on the card.

The HP ThinLAN adapter card uses a range of 32 consecutive I/O addresses for communication with the personal computer. The lowest-numbered of these addresses is called the I/O base address. This address is set with switches 1 through 3 of the switch pack. The table shows the possible choices for the I/O base address, along with the corresponding switch settings. (Note: it doesn't matter how switch 4 is set.)



I/O Base Address	Switch Settings
200h	
240h	
280h	
2C0h	
300h factory default	
320h do not use on HP Vectra CS	
340h	

In choosing the I/O base address keep the following in mind:

- The I/O addresses used by the HP ThinLAN adapter card must be different from those used by any other card in the computer. If you know the I/O addresses used by the other cards in your computer, choose an address range (base address plus the next 31 addresses) for this card that does not overlap the other card addresses. (You may be able to find information about I/O base addresses and address ranges in your computer manuals or in manuals for adapter cards that you have added.)

If all of the possible I/O addresses for your adapter card are already in use, you may be able to change the I/O base address on one of the other cards in your computer to make an address range available.

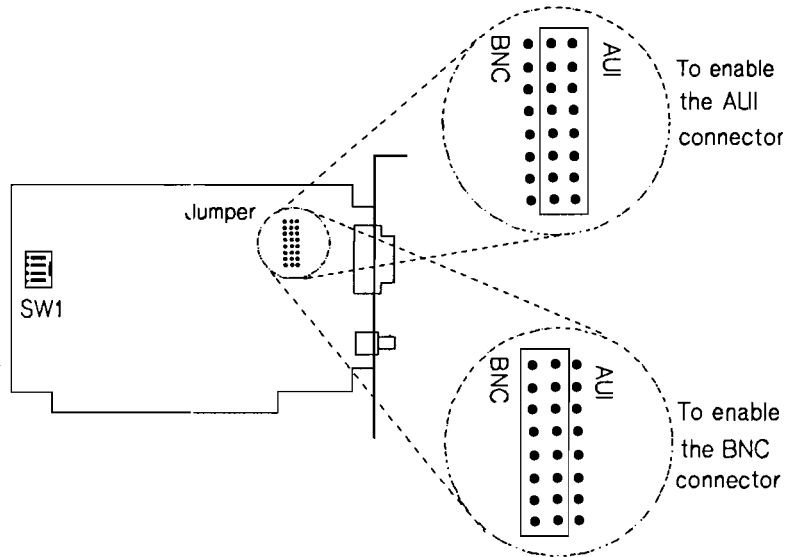
If you do not know the I/O addresses used by the other cards in your computer, use the factory setting (300 hexadecimal). Then, if there is a problem, try a different setting.

- Some network software restricts the choice of the I/O base address. For instance, the driver supplied on the Support Disk for Novell NetWare v2.15 allows only four of the I/O base addresses: 200, 240, 300, 340(hexadecimal). See “Network Software” in this manual for more information.

Once you have decided which I/O base address to use, set switches 1 through 3 of the switch block. Use a pointed, non-conductive object (such as a toothpick) to move the switches into the proper positions. Record the I/O base address for future reference.

## Selecting the Active Port

Before installing the card, determine the type of network you will be connecting to. If you are connecting to a ThinLAN network, leave the jumper in its factory setting (BNC connector enabled). Otherwise, configure the card to use the AUI connector. The figure below shows you how to position the jumper.



## Choosing the Interrupt Channel

There are no hardware switches for setting the interrupt channel. Set it with the network software after you install the card.

The HP ThinLAN adapter card uses the interrupt channel to let the personal computer know it has a request that needs to be serviced.

These are the choices for the interrupt channel:

Interrupt Channel	When Used
2	DO NOT USE.
3	Used for serial port 2 configured as COM2, for the IBM SDLC interface, or for HP-IB. Should not be used if you are going to use GW BASIC or IBM's Fixed Disk Organizer.
4	Used for serial port 1 configured as COM1 and for the IBM bisynchronous and SDLC Interfaces.
5	Used for parallel port 2 configured as LPT2, and for the 10-Mbyte fixed disk on an IBM PC XT. Channel 5 is available on the HP Vectra personal computer and the IBM PC and IBM PC AT unless LPT2 is configured. DO NOT USE on an HP Vectra CS.
6	DO NOT USE.
7	Used for parallel port 1 configured as LPT1 (PRN).
9	DO NOT USE.

**In choosing the interrupt channel, keep the following in mind:**

- **The interrupt channel used by the ThinLAN adapter card must be different from that used by any other card in the computer. If you know the interrupt channels used by the other cards in your computer, choose a different one for this card. (You may be able to find information about interrupt channels in your computer manuals or in the manuals for adapter cards that you have added.)**

**If all of the possible interrupt channels for this card are already in use, you may be able to change the interrupt channel on one of the other cards to make an interrupt channel available.**

**If you do not know the interrupt channels used by the other cards in your computer, choose channel 3. Then, if there is a problem try a different setting.**

- **Some network software restricts the choice of the interrupt channel. For instance, the driver supplied on the Support Disk for Novell NetWare v2.15 allows only four of the interrupt channels: 3, 4, 5, and 7. See “Network Software” in this manual for more information.**

**Once you choose an interrupt channel, record your choice for future reference.**

## Installing the Card

To install this adapter card in a personal computer such as the HP Vectra or IBM PC/XT/AT:

1. If you have an internal hard disk, park the heads before moving the computer. Refer to your computer's reference manual for moving information.

---

**WARNING** Turn off the computer, monitor, and attached peripherals. Disconnect the computer's power cord to prevent electrical shock.

---

2. Remove the computer's cover. See your computer's reference manual for instructions.
3. Choose any available slot unless your computer's reference manual directs you otherwise. Remove the screw and cover plate for an available accessory slot.
4. Hold the adapter card by its top corners and push the card into the card socket.
5. Attach the screw you previously removed.
6. Replace the computer's cover and reconnect the power cord.

## Verifying the Installation

The Support Disk that comes with this card contains a program that runs tests on the card to verify that it is operating properly. To run this program:

1. Make sure the ANSI.SYS driver is installed. To do this, be sure the following line is included in your CONFIG.SYS file:

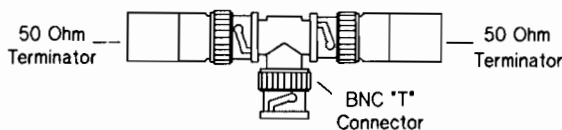
```
DEVICE = [ < d > :][ < path > ]ANSI.SYS
```

For example, if your ANSI.SYS file is in the DOS subdirectory of drive C, the line would be:

```
DEVICE = C:\DOS\ANSI.SYS
```

See your operating system manual for more information.

2. Reboot the computer. If the computer does not finish booting, you may have an I/O address conflict. See earlier sections of this chapter to change the settings.
3. If you are running the OS/2 operating system, put it in DOS emulation mode by starting the DOS Command Prompt program.
4. Insert the Support Disk in disk drive A. Enter A:TEST and follow the prompts to the main menu.
5. When the program offers you a choice of tests to run, choose Loopback Test. To run this test, you must attach a BNC loopback connector to the BNC port of the card. A BNC loopback connector is a BNC "T" with two 50-ohm terminators attached.

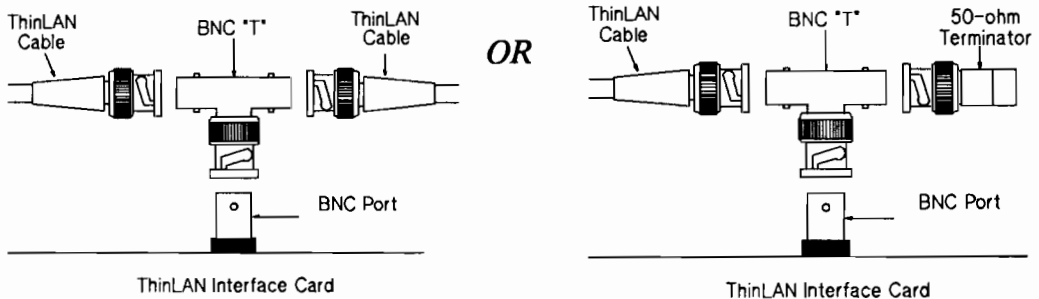


6. If the test fails, follow the instructions on the screen.
7. When you are finished testing, remove the Support Disk and turn off the computer.

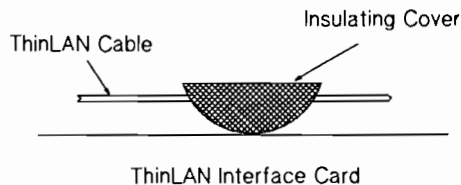
## Attaching the Network Cable

### BNC Connector

1. Make sure the computer's power is OFF.
2. Attach a ThinLAN cable section to one side of a BNC "T" connector.
3. Attach another ThinLAN cable section or a 50-ohm terminator to the other side of the "T" connector.
4. Attach the "T" connector to the port. (If the cables/terminator are already attached as in steps 2 and 3, this will not interrupt operation of the network.)



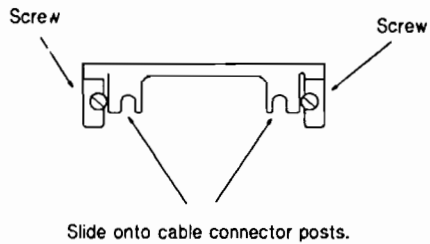
5. Install the insulating cover over the connection.





## AUI Connector

1. Make sure the computer's power is OFF.
2. Slide the AUI retainer onto the AUI connector of a MAU or cable.
3. Secure the connector to the AUI port with the attached screws.





## Network Software

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This chapter explains how to prepare the network software drivers for use. For further information, see your network operating system manuals.

### Novell NetWare v2.15

When using the “floppy disk method” of generation, the Novell NetWare program expects to find drivers on a disk with a special volume name. To copy the driver files:

1. Insert a new disk in drive A.
2. Format the disk by entering:  
`FORMAT A: /V`
3. When you are prompted for a volume name, enter:  
`LAN_DRV_424`
4. The Novell NetWare drivers on the Support Disk are in a subdirectory named `\HPNOVEL`. Copy the entire contents of that subdirectory to the root directory of the disk you just formatted. This is the work disk.
5. During NetWare generation, use this work disk when selecting the LAN driver using the “load and select” option. Once the driver is loaded and when prompted, select “Hewlett-Packard PC LAN/AT for NetWare” as the driver.

## **Novell NetWare Configuration Combinations**

The Novell NetWare driver on the Support Disk allows only 16 combinations of interrupt channel (IRQ) and I/O base address. Normally, you will choose the first combination available during the Novell NetWare installation process. Other combinations are provided to resolve conflicts with the needs of other cards in your personal computer. These are the combinations, in the sequence presented:

IRQ 3, I/O Base = 300h  
IRQ 4, I/O Base = 300h  
IRQ 5, I/O Base = 300h  
IRQ 7, I/O Base = 300h

IRQ 3, I/O Base = 340h  
IRQ 4, I/O Base = 340h  
IRQ 5, I/O Base = 340h  
IRQ 7, I/O Base = 340h

IRQ 3, I/O Base = 240h  
IRQ 4, I/O Base = 240h  
IRQ 5, I/O Base = 240h  
IRQ 7, I/O Base = 240h

IRQ 3, I/O Base = 200h  
IRQ 4, I/O Base = 200h  
IRQ 5, I/O Base = 200h  
IRQ 7, I/O Base = 200h

## 3Com 3+Open v1.1

The 3Com 3+Open installation program expects to find card drivers in particular subdirectories on your work copies of the 3Com driver disks or in particular subdirectories on your hard disk. To copy the driver files:

### For MS-DOS

1. The 3Com 3+Open drivers on the Support Disk are in a subdirectory named `\NDIS\DOSDRV\MAC`. Copy the entire contents of that subdirectory to one of the following locations:
  - The `\3OPEN\DOSDRV\MAC` subdirectory of a work copy of the 3COM DOS Drivers Disk.
  - The `\3OPEN\DOSDRV\MAC` subdirectory of the hard disk drive containing the installed 3+Open network software.
2. After installing the card, follow 3Com's network software installation instructions. When asked "which network adapter will connect the target computer to the 3+Open LAN Manager Network," select the entry that says "HP EtherTwist PC Link". (The same driver is used for both the HP EtherTwist PC Link and the HP ThinLAN PC Adapter Card.)

### For OS/2

1. The 3Com 3+Open drivers on the Support Disk are in a subdirectory named `\NDIS\OS2DRV\MAC`. Copy the entire contents of that subdirectory to one of the following locations:
  - The `\3OPEN\OS2DRV\MAC` subdirectory of a work copy of the 3COM DOS Drivers Disk.
  - The `\3OPEN\OS2DRV\MAC` subdirectory of the hard disk drive containing the installed 3+Open network software.
2. After installing the card, follow 3Com's network software installation instructions. When asked "which network adapter will connect the target computer to the 3+Open LAN Manager Network," select the entry that says "HP EtherTwist PC Link". (The same driver is used for both the HP EtherTwist PC Link and the HP ThinLAN PC Adapter Card.)

## **HP LAN Manager**

The card driver is compatible with version A.00.00 (or later) of HP LAN Manager. The driver can be used directly from the Support Disk. Follow the installation instructions that came with the network operating system for adding a node or server to your network.

## **HP OfficeShare**

The card driver is compatible with version B.00.02 or later of HP OfficeShare III. The driver can be used directly from the Support Disk. Follow the installation instructions that came with the network operating system for adding a node or server to your network.

## Troubleshooting Tips

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- Make sure cable connections are secure.
- Make sure the I/O base address switch settings are correct. Be sure the I/O base address and range of I/O addresses do not conflict with any other card in the computer. See "Installation Details" in chapter 2 of this manual.
- Make sure the jumper is configured correctly for the connector you are using. See "Installation Details" in chapter 2 of this manual.
- To test the HP 27250A ThinLAN PC Adapter Card: Make sure the ANSI.SYS driver is installed in your CONFIG.SYS file. Start the computer with DOS running. Insert the Support Disk (supplied with the card) in drive A. Enter A:TEST and follow the prompts to the main menu. Attach a BNC loopback connector to the BNC port of the card. Choose Loopback Test.
- If the problem is not resolved, replace the card with a known good card and see if the problem persists. If the replacement card works, your original card is faulty. If the replacement card does not work, consult your authorized HP dealer for assistance.

