Asanté
EtherPaC 2000+ Series

Plug-and-Play ISA Ethernet Adapter
Installation Guide

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Trademarks

FCC Information

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.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user, at his or her own risk and expense, will be required to correct the interference.

Declaration of Conformity

Asanté Technologies, Inc. declares that the EtherPaC 2000+ Adapter conforms with the following standards, in accordance with the provisions of the EC Directive 89/336/EEC: EN 55022:1994, EN50082-1:1992, IEC 801-2, IEC 801-3, IEC801-4:1988.

Asanté Warranty

Asanté Technologies, Inc. warrants that this product will be free from defects in title, materials and manufacturing workmanship. If the product is found to be defective, then, as your sole remedy and as the manufacturer's only obligation, Asanté Technologies, Inc. will repair or replace the product.

This warranty is exclusive and is limited to the EtherPaC 2000+ Series ISA Ethernet Adapter Card. This warranty shall not apply to products that have been subjected to abuse, misuse, abnormal electrical or environmental conditions, or any condition other than what can be considered normal use.

Warranty Disclaimers

Asanté Technologies, Inc. makes no other warranties, express, implied or otherwise, regarding the EtherPaC 2000+ Series ISA Ethernet Adapter Card, and specifically disclaims any warranty for merchantability or fitness for a particular purpose.

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The liability of Asanté Technologies, Inc. arising from this warranty and sale shall be limited to a refund of the purchase price. In no event shall Asanté Technologies, Inc. be liable for costs of procurement of substitute products or services, or for any lost profits, or for any consequential, incidental, direct or indirect damages, however caused and on any theory of liability, arising from this warranty and sale. These limitations shall apply notwithstanding any failure of essential purpose of any limited remedy.

Table of Contents

1
Introduction

The Asanté EtherPaC 2000+ adapter is a Plug-and-Play Ethernet adapter that connects a personal computer with an Industry-Standard Architecture (ISA) bus to an Ethernet network.

Plug-and-Play technology provides automatic configuration of new devices without user intervention.

The EtherPaC 2000+ adapter has two fixed connectors: RJ-45 and BNC. An optional AUI connector is also available. The adapter can be set to operate in one of three modes:

- ❏ Plug-and-Play
- ❏ Jumperless
- ❏ Jumper

The adapter operates in either 8- or 16-bit slots, and is designed to comply with the IEEE 802.3 Ethernet standard.

Hassle-free installation is achieved by conforming to Plug-and-Play ISA specifications. For compatibility with older, non-Plug-and-Play systems, use the configuration software program to configure the adapter instead of setting jumpers.

The adapter can work with software drivers for Novell NE2000 adapters, including NetWare ODI, Microsoft Windows 95, Windows NT, LAN Manager, Windows for Workgroups, TCP/IP, etc.

Features

- ❏ Operates in Plug-and-Play, Jumperless, or Jumper mode
- ❏ Support for 8- and 16-bit expansion slots
- ❏ Provides UTP/BNC/AUI ports to comply with IEEE 802.3 10BASE-2, 10BASE-5 and 10BASE-T standard
- ❏ Fully compatible with Novell's NE2000 Ethernet adapter
- ❏ Provides drivers for popular Network Operating Systems including Novell's NetWare, Microsoft Windows 95, Windows NT, LAN Manager, Windows for Workgroups, and FTP PC/TCP
- ❏ On-board 16KB RAM for higher performance
- ❏ On-board Boot ROM socket for diskless workstations
- ❏ Conforms to Plug-and-Play ISA specifications
- ❏ Full duplex design to double the performance to 20Mbps
- ❏ Auto-setup of IRQ and I/O address even with non-Plug-and-Play systems
- ❏ Media type auto detection
- ❏ Provides diagnostic software and LEDs to indicate network activity

Package Contents

Please make sure that you have the following items in this package:

- ❏ EtherPaC 2000+ Ethernet adapter
- ❏ This installation guide
- ❏ One driver diskette
- ❏ One T-connector
- ❏ One registration card

2
Installing the Adapter

Using the EtherPaC 2000+ Ethernet adapter to set up your PC network, install the adapter in the computer.

Note: You do not need to set any jumpers or switches on the adapter unless it is necessary to assign specific IRQ and I/O addresses.

1 Turn the power off and remove the computer cover.

2 Align the adapter's edge connector with an expansion slot.

3 Push the adapter down into the slot until the adapter locks into place, as illustrated in Figure 2-1.

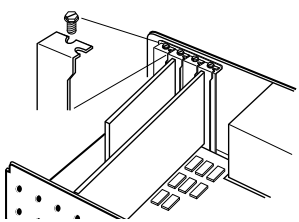


Figure 2-1 Inserting the adapter in an expansion slot

4 Replace the computer cover.

5 Attach the network cable.The adapter provides two connectors for connecting to an Ethernet network: RJ-45 or BNC. (An optional AUI connector is also available.)

6 Power on the computer.

Optional AUI Connector

An optional AUI connector is available from Asanté (see back cover). The JP3 connector on the adapter is used to attach a cable to a bracket with the AUI connection.

To install the AUI connector cable:

1. Hook up the cable to the connector marked JP3: AUI.

   Important: Make sure the red line on the cable is aligned with the pin 1 (lower left) location.

2. Secure the bracket to the computer.

Configuring the Adapter

The EtherPaC 2000+ adapter provides three methods for configuration (setting IRQ and I/O base addresses): Plug-and-Play mode, Jumperless mode, and Jumper mode.

Plug-and-Play mode (default mode)

When using the adapter in a Plug-and-Play-compliant system, no software or jumper-setting configuration is needed. The Plug-and-Play system automatically configures the adapter.

To set the adapter into Plug-and-Play mode:

- ❑ Remove the jumper on jumper-pair 8 of JP1 (default setting)

Jumperless mode

When using the adapter in Jumperless mode in a non-Plug-and-Play-compliant system, you can configure the adapter by software configuration with the SETUP.EXE program. (Refer to the README.EXE program for details on using the SETUP program to configure the adapter.)

To set the adapter into Jumperless mode:

- ❏ Remove the jumper on jumper-pair 8 of JP1 (default setting)
- ❏ Use the SETUP.EXE program to set to Jumperless mode

Jumper mode

When using the adapter in Jumper mode, you can configure the adapter with jumper settings JP1 and JP2. (See Appendix A for a description of jumper settings.)

To set the adapter into Jumper mode:

- ❏ Place the jumper on jumper-pair 8 of JP1

Full Duplex mode

The adapter supports full duplex mode, which transmits and receives data simultaneously. Full duplex mode is set by using the SETUP.EXE program. Refer to the README.EXE program for details on using the SETUP.EXE program.

Important: If the adapter is set to full duplex mode, the hub it is connected to should be a switching hub that supports full duplex mode.

Testing the Adapter

The SETUP.EXE program provides diagnostic software for testing the EtherPaC 2000+ adapter. The diagnostic program checks the adapter then reports the results. It can help you to isolate any problem on the adapter and figure out whether the problem is caused by the adapter or the cable. The diagnostic program can be used at any time.

Important: Make sure the drivers are not loaded into memory before running the diagnostic program. If you are using Windows 95, restart the computer in the MS-DOS mode to prevent Windows 95 from loading drivers.

To run the diagnostic program:

1. Insert the Driver Diskette into drive A.
2. Type the following at the DOS prompt: **A:SETUP**
3. Press return.

   A screen appears displaying the main menu.
4. Select **DIAGNOSTICS**, then press return.

   The sub-menu appears, displaying two options:

   - ❑ Diagnostics on Board — tests your LAN card and network connection
   - ❑ Diagnostics on Network —tests the LAN card on the network to see if the adapter can receive and send data to the network accurately
5. Select **Diagnostics on Board** or **Diagnostics on Network**, then press return.

   The program runs a number of tests.The names of the tests and their results are displayed on the screen.Verify the results to make sure that all tests passed.

   Press **F1** or the **space bar** at any time for detailed information on the tests.

   Note: If a test fails, check for conflicts with IRQ and I/O address parameters. If a conflict is discovered, change to a parameter that is not being used by other devices.
6. Press **ESC** to end the test.
7. Select **Exit**, then press return to return to DOS.

LED Indicators

Figure 2-2 shows the two LEDs that indicate Link and Activity status for installation verification and diagnostic purposes.

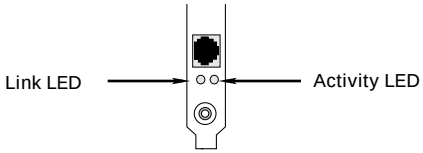


Figure 2-2 LED Indicators

Activity LED

The amber Activity LED indicates the activity (transmit and receive data) status of the EtherPaC 2000+ controller board. This LED should blink when data packets are being transmitted or received from the cable.

State	Description
Blinking	• Data packets being transmitted or received
Off	• Power off
On	• Power on • Data packets not being transmitted or received

Link LED

The green Link LED indicates whether the twisted-pair link is connected. If link integrity is not detected, there is a link failure and the Link LED will be off. The transmit and receive functions of the jack also will be disabled.

State	Description
On	• Link integrity is detected
Off	• No twisted-pair cable is connected • No power source to hub • Twisted-pair cable is faulty • A non-10BASE-T device connected at the other end of the twisted-pair cable

3

Installing Network Drivers

Network Operating Systems Supported

After installing, configuring and testing the adapter, you are ready to install network drivers and work with your network operating system.

The following network operating systems are supported:

- ❑ Novell NetWare
- ❑ Microsoft Windows 95
- ❑ Microsoft Windows for Workgroups
- ❑ Microsoft Windows NT
- ❑ Microsoft LAN Manager
- ❑ SCO UNIX
- ❑ Other NDIS-and ODI-compliant operating systems
- ❑ TCP/IP

This chapter describes driver installation in the following environments:

- ❑ Novell NetWare Client
- ❑ Microsoft Windows 95
- ❑ Microsoft Windows NT 4.0 Workstation

Generally, the adapter will support a network operating system (NOS) that works with NDIS and ODI drivers. Because of the variety of environments in which the adapter may be installed and used, and the frequency of revisions in those environments, the instructions for driver installation are given as READ ME files on the driver disk supplied in your adapter package.

Review the READ ME files by running README.EXE from the DOS prompt. For complete installation details, see the READ ME file in the subdirectory appropriate to your network operating system.

Installing Network Specific Drivers

Novell NetWare Client

To install a NetWare DOS ODI driver automatically, run the INSTODI auto-installation program on the Driver Diskette. Performing this procedure installs all necessary NetWare DOS ODI client software, modifies the CONFIG.SYS file, and configures the adapter automatically.

1. Insert the EtherPaC 2000+ Driver Diskette into the computer's floppy drive A, then change to drive A.
2. Type the following at the DOS prompt: **`INSTODI`**
3. Press return.
   The main display appears.
4. Press any key to continue.
5. Press **1** to select **VLM** or **2** to select **NETX ODI Environment**.
6. If you are using a non-Plug-and-Play system, you may be prompted to activate the adapter. Press **Y** to activate the adapter.
   The appropriate files will be copied to the default C:\NWNET directory.
7. When the installation is complete, remove the Driver Diskette and reboot the system.
8. Run STARTNET.BAT from the C:\NWNET directory to logon to a NetWare server as a NetWare DOS ODI client.

Microsoft Windows 95

This section explains how to install the driver to use your adapter with Windows 95.The instructions require that you have previously installed the Windows 95 software on the computer without installing a network adapter or driver.

Note: The EtherPaC 2000+ adapter is a Plug-and-Play module with Windows 95; no separate driver installation is needed. After inserting the adapter into your computer, Windows 95 will automatically detect and install the Novell NE2000 driver for use with the adapter.

The Windows 95 installation disks or CD is needed to complete this installation.

1. Install the adapter into an expansion slot.
2. Power on the computer, then start Windows 95.
   When Windows 95 starts, a "New Hardware Found" window appears.

   Note: If the "New Hardware Found" window does not appear, you need to configure the adapter using the Add New Hardware wizard in the Windows 95 Control Panel.
3. Select Windows default driver, then click **OK**.

   Note: If you have not installed a network adapter on the computer before, Windows 95 may prompt you to enter the computer name and workgroup name.
4. Click **Yes** to restart the computer.

Microsoft Windows NT Workstation 4.0

This section explains how to install the drivers to use your adapter with Windows NT Workstation 4.0. The instructions require that you have previously installed Windows NT 4.0 on your computer without installing a network adapter or driver.

1. Install the adapter into your computer, then power on the computer.
2. Start Windows NT 4.0, then click the **Start** button.
3. Open the **Settings** menu and select **Control Panel**.

4 Double-click the **Network** icon.

5 If you have previously installed a network adapter on the computer:

- ❏ Click **Adapters** in the Network window
- ❏ Click **Add**

If you have **not** installed a network adapter on the computer:

- ❏ Click **Yes** in the Network Configuration dialog box
- ❏ Select **Wired to the Network** in the Network Setup Wizard window
- ❏ Click **Next** to continue
- ❏ Click the **Select from list** button

6 Click the **Have Disk** button in the Select Network Adapter window.
The Insert Disk window appears.

7 Insert the Driver Disk into floppy drive A.

8 Type the following at the prompt: `A:\WINNT40`

9 Click **OK**.
The Select OEM Option window appears.

10 Select **EtherPaC 2000+ Ethernet Adapter**, then click **OK**.
If installing the adapter for the first time, follow the Windows NT instructions to install the appropriate protocols and network services.

11 Click **Skip** in the Input Ethernet ID window if only one adapter is installed. The Ethernet Adapter Bus Location window appears.

12 Select ISA bus type, then click **OK**.

13 Click **Close** in the Network window, then click **Yes** to restart.

4

Remote Boot ROM

Booting Your PC From a Server

You may want to boot up your PC from a remote server on the network, or you may have a PC without a boot diskette or a disk drive and need to boot up from a remote server. To boot the PC from a server, you need to:

- ❏ Install the Remote Boot ROM on the EtherPaC 2000+ adapter
- ❏ Install Novell NetWare software on the network
- ❏ Prepare the PC
- ❏ Prepare the server

Boot ROM allows you to load the PC operating system over the network.

Installing the Boot ROM

You install the Boot ROM in the ROM socket of the EtherPaC 2000+ adapter.

Note: If the EtherPaC 2000+ adapter is installed in the PC and connected to the network, turn off the PC, then disconnect and remove the adapter.

1 Take the Boot ROM out of its protective packaging and check all pins on the ROM to make sure none are bent.

2 Locate the socket for the Boot ROM on the adapter.

3 Align the Boot ROM's notch and pins with the socket's notch and pins.

4 Gently press the ROM into the socket (see Figure 4-1). Be careful not to bend the pins.

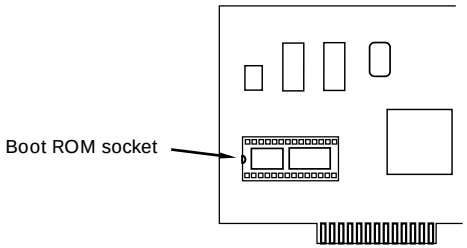


Figure 4-1 Boot ROM socket on the adapter

5 Install the EtherPaC 2000+ adapter in the PC, then turn on the PC.

Enable Boot ROM Function

To use the Remote Boot function, you also need to enable the Boot ROM function in the SETUP.EXE program. Run the setup program from the driver diskette, select **Manual Setup Configuration** and enable the Boot ROM function.

Setting the Boot ROM Address

The Boot ROM address can be setup by running the SETUP.EXE program and selecting the Boot ROM parameter. If using Jumper mode, you need to setup the Boot ROM address using jumpers on JP2.

Preparing the Network Server and PC

The procedure for preparing the server and the PC to use a Boot ROM is dependent upon the Boot ROM product and the network operating system you are using. Please refer to the user documentation that came with your Boot ROM for instructions on preparing the network server and PC. Also see the README.EXE program for detailed instructions on setting up the network software.

A

Jumper Configuration

The EtherPaC 2000+ Adapter can be configured by either jumper settings or software. Please refer to the following illustrations and tables for a detailed description of the jumper settings.

Important: You only need to set the jumper when the card is in Jumper mode.

Hardware jumper setting

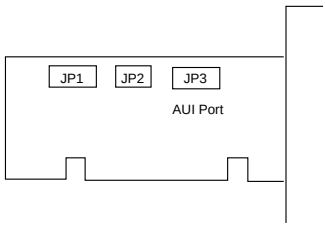
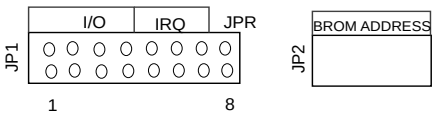


Figure A-1 EtherPaC 2000+ Adapter



JP1: 8 OPEN : Jumperless/Plug-and-Play mode
CLOSE : Jumper mode

Figure A-2 JP1 and JP2 diagram

Jumper Configuration

JP1 : 1-4 (I/O ADDRESS)

1	2	3	4	I/O
0	0	0	0	300H
0	0	0	1	320H
0	0	1	0	340H
0	0	1	1	360H
1	0	0	0	380H
1	0	0	1	3A0H
1	0	1	0	3C0H
1	0	1	1	3E0H
0	1	0	0	200H
0	1	0	1	220H
0	1	1	0	240H
0	1	1	1	260H
1	1	0	0	280H
1	1	0	1	2A0H
1	1	1	0	2C0H
1	1	1	1	2E0H

JP1 : 5-7 (IRQ)

5	6	7	IRQ
0	0	0	2(9)
0	0	1	3
0	1	0	4
0	1	1	5
1	0	0	10
1	0	1	11
1	1	0	12
1	1	1	15

JP2 : BROM ADDRESS

1	2	3	4	5	BROM BASE SIZE
0	0	0	0	0	DISABLE NONE
0	1	0	0	0	C0000H,32K
0	1	0	0	1	C8000H,32K
0	1	0	1	0	D0000H,32K
0	1	0	1	1	D8000H,32K
0	1	1	0	0	C0000H,64K
0	1	1	0	1	D0000H,64K
1	0	0	0	0	C0000H,16K
1	0	0	0	1	C4000H,16K
1	0	0	1	0	C8000H,16K
1	0	0	1	1	CC000H,16K
1	0	1	0	0	D0000H,16K
1	0	1	0	1	D4000H,16K
1	0	1	1	0	D8000H,16K
1	0	1	1	1	DC000H,16K

B

Specifications

EtherPaC 2000+ Adapter Specifications

Bus Characteristics

- ❏ Works in 8- or 16-bit Industry Standard Architecture (ISA) bus

Standards

- ❏ IEEE 802.3 10BASE-T, 10BASE-2 and 10BASE-5

Compatibility

- ❏ Novell NE2000 compatible
- ❏ Plug-and-Play ISA specifications

LED Indicators

- ❏ Link integrity (green)
- ❏ Activity (red)

Connector/Cable

- ❏ RJ-45 port: Unshielded twisted-pair wire 22AWG–26AWG for RJ-45 jack (24AWG recommended); maximum length is 100 meters
- ❏ BNC port: IEEE 802.3 10BASE-2 Thin Ethernet supported by BNC T-connector to RG-58 A/U coaxial bus cable

- ❏ AUI port (optional): IEEE 802.3 10BASE-5 Thick Ethernet supported by AUI (DB15) connector

Environment

- ❏ Temperature: Operating 0º C to 50º C; Storage –20º C to +70º C
- ❏ Humidity: Operating 10% to 90% (non-condensing)

Software Configuration

- ❏ I/O address: 200H, 220H, 240H, 260H, 280H, 2A0H, 2C0H, 2E0H, 300H, 320H, 340H, and 360H
- ❏ Interrupt line: IRQ2 (IRQ9), IRQ3, IRQ4, IRQ5, IRQ10, IRQ11, IRQ12, and IRQ15
- ❏ Boot ROM address: C0000H, C4000H, C8000H, CC000H, D0000H, D4000H, D8000H, DC0000H

Emissions

- ❏ FCC part 15 Class A
- ❏ CE

Technical Support

Contacting Technical Support

To contact Asanté Technical Support:

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Bulletin Board Service (BBS)	(408) 432-1416
ARA BBS (guest log-in)	(408) 894-0765
AppleLink Mail/BBS	ASANTE
FTP Archive	ftp.asante.com
Internet Mail	support@asante.com
World Wide Web Site	http://www.asante.com

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DRAFT

Courier-Bold @ 10.0 pt 3-2, 3-5
Courier-Bold @ 9.0 pt 2-4
Garamond-Bold @ 10.0 pt 2-4, 3-2, 3-4–3-5
Garamond-BoldItalic @ 10.0 pt 2-3, 3-3
Garamond-Book @ 10.0 pt 1, i, 1-1–B-2
Garamond-Book @ 18.0 pt A-1, B-1
Garamond-Book @ 5.0 pt 4
Garamond-Book @ 6.0 pt 4
Garamond-Book @ 8.0 pt 4
Garamond-Book @ 9.0 pt 2-1, 2-5, 4-2–A-1
Garamond-Light @ 10.0 pt 2-1
Times-Roman @ 12.0 pt 3, A-2, 1–2
Univers @ 10.0 pt 4–2-5, 3-1–3-5, 4-1–B-2, 1–2
Univers @ 7.0 pt 2-5, 4-2
Univers-Bold @ 10.0 pt i–2-5, 3-1–3-5, 4-1–B-2, 1–2
Univers-Bold @ 12.0 pt i
Univers-Bold @ 13.0 pt 1-2, 2-2–2-3, 2-5, 3-1–3-2, 4-1–4-2, B-1
Univers-Bold @ 14.0 pt 2-1–2-2, 2-4, 3-2–3-5, 4-1–4-2
Univers-Bold @ 18.0 pt 1–3, 1-1–2-5, 3-1–3-5, 4-1–2
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Univers-Bold @ 24.0 pt 1, 3
Univers-Bold @ 48.0 pt 1-1, 2-1, 3-1, 4-1, A-1, B-1
Univers-Bold @ 6.0 pt A-2
Univers-Bold @ 7.0 pt 2-5
Univers-Bold @ 9.0 pt 3–4
Univers-CondensedBold @ 10.0 pt 4
Univers-CondensedBold @ 18.0 pt 3–4
Univers-CondensedBold @ 9.0 pt 3
ZapfDingbats @ 10.0 pt 1-1–1-2, 2-2–2-4, 3-1, 3-3–3-4, 4-1, A-1,

B-1–B-2