PC Adapter Quickstart Guide

MANU0281-03 - Rev. A - November, 1999
Software Version 5.0.2/4.1.6

This quickstart installation guide is for system administrators with experience install-ing network adapters. You should also be familiar with ATM Forum LAN Emulation or Classical IP and your operating system.

For complete procedures, refer to the on-line manual included on the *ForeRunner®* soft-ware CD. See page 16 for information about viewing the on-line manual.

If Your FORE PC Adapter isn't Described in This Quickstart

If your adapter isn't one of those shown on page 2, you must get the latest drivers and documentation from FORE's Technical Assistance Center (TAC). This can be done TACTics Online, as described on page 17.

(If you are using a UNIX adapter, please refer to the *UNIX Adapter Quickstart Guide* included with the adapter.)

For the Latest *ForeThought* Driver Software

Due to frequent enhancements and upgrades to the *ForeThought* drivers, the software CD included with your adapter may not have the latest versions. To make sure you have the latest drivers and documentation, visit FORE's Technical Assistance Center (TAC) website, as described on page 17.

The *ForeRunner* PC Adapters
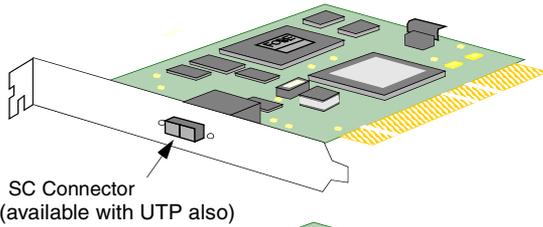
HE 155
5.8" x 3.3"
Requires 33MHz
PCI Bus Master Slot
Available with
UTP or SC connectors

SC Connector
(available with UTP also)
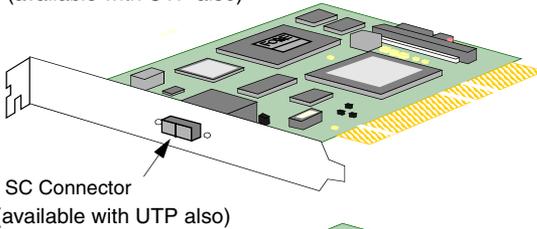
HE 622
5.8" x 3.3"
Requires 33/66 MHz
PCI Bus Master Slot
Available with
SC or UTP connectors

SC Connector
(available with UTP also)
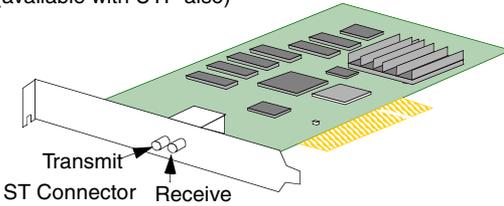
PCA-200EPC
5.8" x 3.3"
Requires
PCI Bus Master Slot
Available with
SC, ST, or UTP connectors

Transmit
ST Connector   Receive
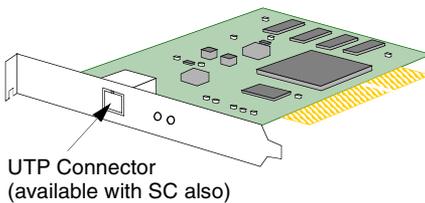
LE 155 Mbps
5.8" x 3.3"
Requires
PCI Bus Master Slot
Available with
SC or UTP connectors

UTP Connector
(available with SC also)
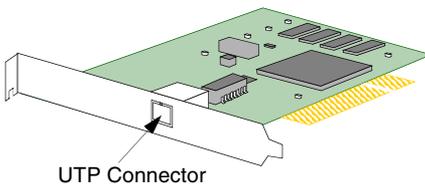
LE 25 Mbps
4.7" x 3.3"
Requires
PCI Bus Master Slot
Available with
UTP connectors only

UTP Connector

Supported Operating Systems

Adapter	Supported Operating System
ForeRunnerHE	Windows NT 4.0 (Intel or DEC Alpha-based PCs)
PCA-200EPC	Windows 95 and 98 Windows NT 4.0 (Intel or DEC Alpha-based PCs) NetWare 3.12 and 4.11
ForeRunnerLE	Windows 95 and 98 Windows 2000 ("thin" driver only) Windows NT 4.0 (Intel or DEC Alpha-based PCs) NetWare 3.12 and 4.11

Additional Requirements

- CD-ROM drive (if necessary, diskettes can be made from the CD. Refer to page 18 of this quickstart guide.)
- 1M free disk space in installation directory
- 16M RAM minimum (64M minimum for *ForeRunnerHE* adapter)

FORE WinSock Service Provider Requirements

The FORE Service Provider can be used by application developers working with the WinSock 2 SDK version 2.0 on Windows NT or Windows 95 and 98. For more information on using the Service Provider, please refer to Appendix D of the *ForeRunner 200E/LE/HE ATM Adapters for the PC User's Manual.* This manual is available on the *ForeRunner* 5.0.2 software CD and can be viewed using an Adobe Acrobat Reader, also included on the CD. See page 16 of this quickstart guide.

Before You Begin

Review the latest *ForeThought for the PC* release notes. A printed copy is included with the adapter, and also is available as a PDF file from the FORE web site at:

http://www.fore.com/support/manuals/index.htm

After reviewing the release notes, gather the required network information:

If using LAN Emulation and all LANE services and default settings, you only need to know information for your higher level protocols (i.e. IP address):			
IP Address			
If not using the default settings, you need to know additional information:			
LECS ATM Address	PREFIX	ESI/MAC	SEL
LES ATM Address	PREFIX	ESI/MAC	SEL
UNI Version (3.0 or 3.1)			
ELAN Names			
If using Classical IP, you will need the ATM address of the ARP server:			
ATM Address of ARP Server	PREFIX	ESI/MAC	SEL

Hardware Installation

1 - Shut down the PC and make sure the power is off.

2 - Open the PC card bay.

Consult your PC's documentation for platform-specific procedures.

Card Bay with PCI Bus Master Slots
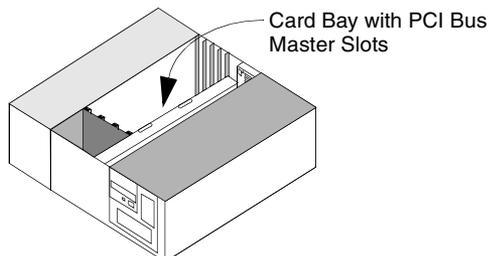
3 - Carefully insert and secure adapter in a PCI bus master slot.

Ground yourself to a metal part of the PC chassis using an anti-static grounding wrist strap to prevent static damage.

HE, LE, or PCA adapter

Note that the edge connector of an HE adapter will overhang the end of a 32-bit PCI slot. This is normal.

Cover Plate Removed

PCI Expansion Slots in Card Bay
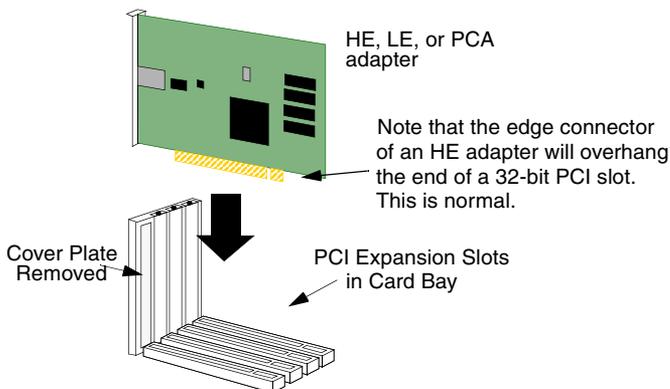
4 - Connect the adapter to the ATM switch.

Connect the adapter to a port that matches the media type used by the adapter. When making a connection with SC or ST fiber optic connectors, make sure the polarity of the connectors is correct (i.e., not reversed on one end). If you have successfully connected the adapter to the switch, the LEDs on the adapter will go out.

5 - Proceed to install the *ForeThought* drivers.

Use the operating system-specific procedures given below to install the drivers.

- See page 6 for NetWare instructions.
- See page 8 for Windows NT instructions.
- See page 9 for Windows 95 instructions.
- See page 10 for Windows 98 instructions.
- See page 13 for Windows 2000 instructions.

Installation on NetWare

Use the following procedure to install the adapter drivers for NetWare (if you need to create installation diskettes, rather than installing from the *ForeRunner* software CD, refer to page 18 of this quickstart guide):

1. Be sure you have the latest versions of the following NLMs. For the latest versions, go to **http://support.novell.com/search/patlst.htm**.

NetWare 3.12	NetWare 4.1 and 4.11
CLIB A3112.NLM AFTER311.NLM NWSNUT.NLM NBI31x.NLM ETHERTSM.NLM TOKENTSM.NLM MSM31x.NLM	CLIB NWSNUT.NLM ETHERTSM.NLM TOKENTSM.NLM MSM.NLM NBI.NLM

2. You must include the following NetWare start-up parameter in the server's STAR-TUP.NCF file:

```
set minimum packet receive buffers=<n>
```

In this parameter, the variable *<n>* has the value 200 for your first FORE adapter card, and must include an additional 100 for each additional physical adapter you have installed in the machine. For example, if you have installed one adapter, set the parameter to 200. If you have two adapters, set the parameter to 300.

3. You must include the following NetWare start-up parameter in the server's STAR-TUP.NCF file:

```
set maximum physical receive packet size=<value>
```

You must assign a value depending on the largest MTU size used by the ELANs to which the host is connected.

If Your MTU Size is...	Set the Maximum Physical Receive Packet Size to...	
	PCA and ESA Adapters	LE Adapters
1514	1584	2048
4542	4608	6144
9232	9312	10240
18188	18240	18432

4. At the NetWare server prompt, use the **SEARCH ADD** command to indicate a path to the \NETWARE directory of the CD. For example, **SEARCH ADD G:\NET-WARE**, where **G:** indicates your CD-ROM drive.

5. Insert the *ForeThought* software CD in the CD-ROM drive.

6. At the server prompt, issue the **LOAD FOREINST** command and run the installation utility. The *ForeThought* installation panel appears.

```
ForeThought Installation  4.10                    NetWare Loadable Module

              ForeThought Installation - Files To Be Copied

   NLM Name     NLM Version            NLM Description

  forelec.nlm      4.10      ForeThought 4.1 LAN Emulation Client Module
  foresig.nlm      4.10      ForeThought 4.1 UNI Signalling Module
  foremux.nlm      4.10      ForeThought 4.1 Adapter Multiplexor
  foreosp.nlm      4.10      ForeThought 4.1 Portability Module
  foreprsr.nlm     4.10      ForeThought 4.1 Parser Module
  foreilmi.nlm     4.10      ForeThought 4.1 ILMI Module
  forecon.nlm      4.10      ForeThought 4.1 ATM Console
  foreveth.lan     4.10      ForeThought 4.1 Virtual Ethernet Driver
  forevtok.lan     4.10      ForeThought 4.1 Virtual Token-Ring Driver
  forefe2.lan      4.10      ForeRunner ESA-200PC ATM Adapter Driver
  forefe2.ldi
  forefe2e.lan     4.10      ForeRunner ESA-200EPC ATM Adapter Driver
  forefe2e.ldi
  forefp2.lan      4.10      ForeRunner PCA-200PC ATM Adapter Driver
▼ forefp2.ldi

 Enter=Install ForeThought Now                            ESCAPE=Exit
```

7. Press <**ENTER**> to proceed through the installation.

8. Edit your `AUTOEXEC.NCF` and `STARTUP.NCF` files as necessary for your site.

   a. Load the appropriate ATM driver for your adapter:
      - `-FOREFPLE` for a *ForeRunnerLE* adapter
      - `-FOREFP2E` for a PCA-200EPC adapter

   b. Load the appropriate ELAN driver, FOREVETH for an Ethernet ELAN, or FOREVTOK for a Token Ring ELAN.

   c. Bind required protocols to the FOREVETH or FOREVTOK driver.

9. Restart the server to implement the changes.

For complete installation procedures and a description of the LOAD commands for the FORE drivers, refer to the manual included on the *ForeRunner* software CD.

Installation on Windows NT 4.0

Use the following procedure to install the adapter drivers for Windows NT 4.0 (if you need to create installation diskettes, rather than installing from the *ForeRunner* software CD, refer to page 18 of this quickstart guide):

1. In the Network Control Panel, select **Add Adapter**.

2. Select **<Other> Requires disk from manufacturer** in the Add Adapter dialog box.

3. When the Insert Disk dialog box appears, change the path to specify `d:\win-dows\winnt`, where D: indicates your CD-ROM drive.
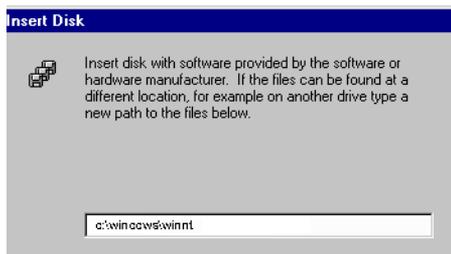
4. Insert the *ForeRunner* software CD in the CD-ROM drive and choose the OK button. The Select OEM Option dialog box appears.
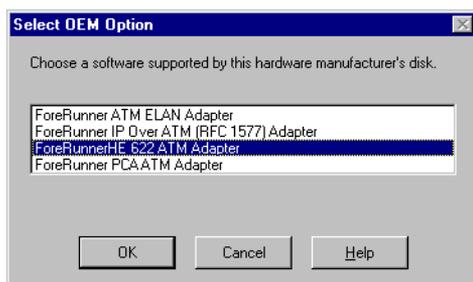
5. Select the *ForeRunner* ATM Adapter driver that matches your adapter (PCA-200EPC, *ForeRunnerHE*, or *ForeRunnerLE*) and proceed through the installation.

6. When you return to the Network Control Panel, select Add Adapter and proceed to install one or more *ForeRunner* ATM ELAN and/or IP Over ATM drivers from the \WINNT directory of the CD.

   - Install an ELAN driver for each ELAN to which you want to connect.

   - Install an IP Over ATM driver for each Classical IP (RFC 1577) LIS to which you want to connect.

7. Bind protocols and assign IP addresses to the ELAN and IP Over ATM drivers as necessary for your site.

8. Reboot as prompted to load the drivers.

The installation is complete. For complete installation procedures, refer to the manual included on the *ForeRunner* software CD.

Installation on Windows 95

Use the following procedure to install the adapter drivers for Windows 95 (if you need to create installation diskettes, rather than installing from the *ForeRunner* software CD, refer to page 18 of this quickstart guide):

1. Install the *ForeRunner* ATM adapter driver via auto-discovery when you boot up your machine after installing the adapter.

   a. When prompted with the New Hardware Found dialog box, insert the *ForeRunner* software CD in the CD-ROM drive and click **OK**.
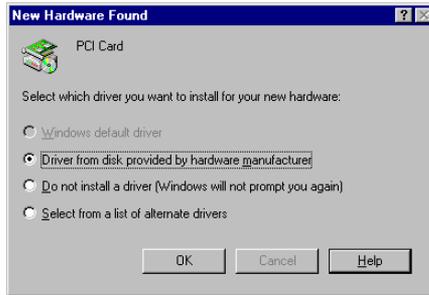
   b. Change the path to specify `d:\windows\win95`, where `d:` indicates your CD-ROM drive and click the OK button. A warning appears, reminding you to install the ELAN or IP Over ATM adapter driver.

   c. Click **OK** to proceed. The driver files are copied from the CD.

2. *If your site is using LAN Emulation* - In the Network Control Panel, select Add. Proceed to install a FORE Systems *ForeRunner* ELAN adapter for each ELAN to which you want to connect. This adapter will appear under FORE Systems in the Select Network adapters dialog box.
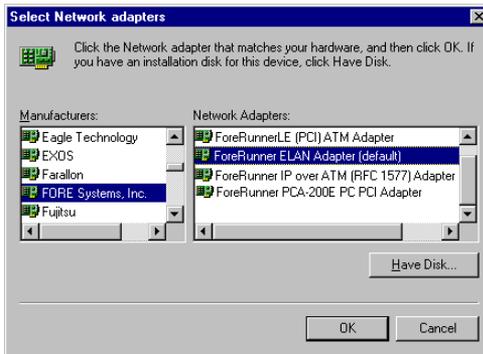
3. *If your site is using Classical IP (RFC 1577)* - In the Network Control Panel, select Add. Proceed to install a FORE Systems IP Over ATM driver for each Classical IP (RFC 1577) LIS to which you want to connect. For each IP Over ATM driver, you must specify the ATM address of the ARP server.

4. Bind protocols and assign IP addresses to the ELAN and IP Over ATM drivers as necessary for your site.

5. Reboot as prompted to load the drivers.

The installation is complete. For complete installation procedures, refer to the manual included in the `\windows\docs` directory of the *ForeRunner* software CD.

Installation on Windows 98

Using the "Thin" Driver Included with Windows 98

After installing the adapter, when you start up the computer Windows 98 recognizes the adapter and displays the New Hardware Found dialog box.

Windows 98 then automatically installs the IDT77211 driver for the adapter, binding it with the Microsoft ELAN client. You can then assign parameters as necessary for your site and reboot as prompted. This completes the installation.
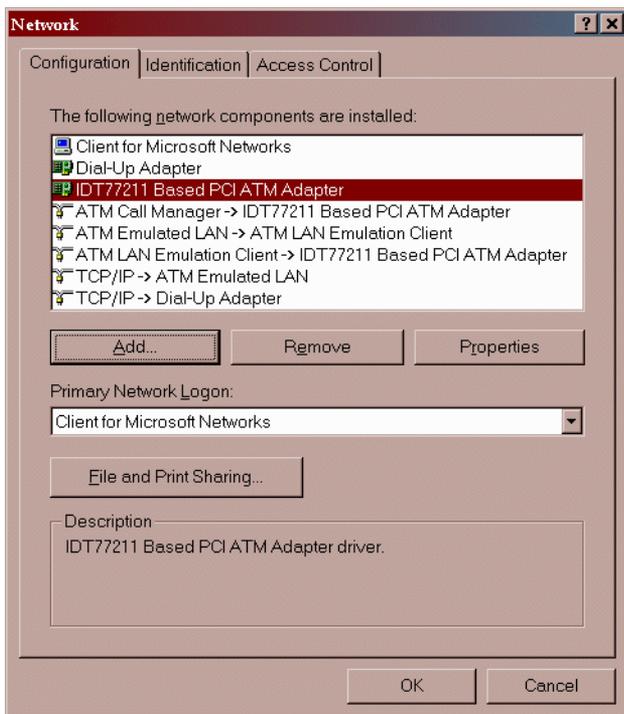
| NOTE | If you are using MPOA or want to use additional features of the FORE "fat" drivers, use the procedures on page 11 and page 12. |

Using the FORE "Fat" Driver for LAN Emulation/MPOA

If you want to use the FORE "fat" drivers provided on the *ForeRunner* software CD or available from FORE Systems' TAC, you must replace the driver that was automatically installed by Windows 98 (as described on page 10). Use the following procedure:

6. In the Network Control Panel, delete the **IDT77211 Based PCI ATM Adapter** driver and all its bindings that were automatically configured by Windows 98.

7. In Windows Explorer or DOS, delete the c:\windows\inf\netfore.inf file.

8. Reboot the computer. Windows 98 auto-discovers the adapter as it starts up and prompts you for *ForeThought* installation files. Insert the *ForeRunner* software CD and specify the \win95 directory of the CD.

9. Proceed to install the FORE ATM drivers from the Network Control Panel. When the Select Network adapters dialog box appears, select **Have Disk...** and specify the `\win95` directory of the CD.
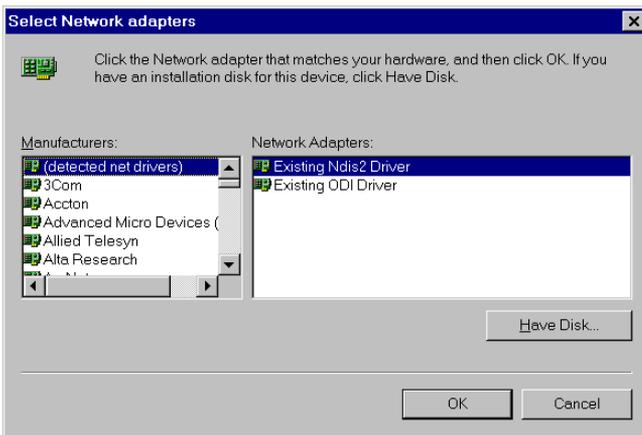
10. When you return to the Network Control Panel, select **Add Adapter** and proceed to install one or more *ForeRunner* ATM ELAN drivers from the `\win95` directory of the CD. You can also install *ForeRunner* IP Over ATM drivers as desired.

11. Bind protocols and assign IP addresses to the ELAN drivers as necessary for your site.

12. Reboot as prompted to load the drivers.

The installation is complete. For complete installation procedures, refer to the manual included in the `\windows\docs` directory of the *ForeRunner* software CD.

Using the FORE "Fat" Driver for Classical IP

If you want to use the FORE "fat" drivers provided on the *ForeRunner* software CD or available from FORE Systems' TAC, you must replace the driver that was automatically installed by Windows 98 (as described on page 10). Use the following procedure:

1. In the Network Control Panel, delete the **IDT77211 Based PCI ATM Adapter** driver and all its bindings that were automatically configured by Windows 98.

2. In Windows Explorer or DOS, delete the `c:\windows\inf\netfore.inf` file.

3. Reboot the computer. Windows 98 auto-discovers the adapter as it starts up and prompts you for *ForeThought* installation files. Insert the *ForeRunner* software CD and specify the `\win95` directory of the CD.

4. Proceed to install the FORE ATM drivers from the Network Control Panel. When the Select Network adapters dialog box appears, select **Have Disk...** and specify the `\win95` directory of the CD.
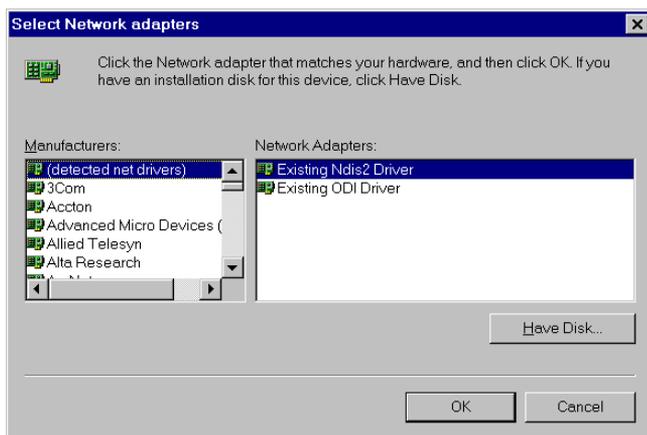
5. When you return to the Network Control Panel, select **Add Adapter** and proceed to install one or more *ForeRunner* IP Over ATM drivers from the `\win95` directory of the CD. You must specify the ATM address of the ARP server.

    You can also install *ForeRunner* ATM ELAN drivers as desired.

6. Bind protocols and assign IP addresses to the ELAN drivers as necessary for your site.

7. Reboot as prompted to load the drivers.

The installation is complete. For complete installation procedures, refer to the manual included in the `\windows\docs directory` of the *ForeRunner* software CD.

Installation on Windows 2000

When using a *ForeRunnerHE* or PCA adapter with Windows 2000, when you start the PC after installing the adapter, Windows 2000 discovers the hardware and automatically installs the FORE driver for the adapter.

Use the following procedure to install the *ForeRunnerLE* adapter driver for Windows 2000 beta 3:

1. After installing the adapter, when you start up the computer Windows 2000 displays the New Hardware Found dialog box. This indicates that the Windows 2000's Plug-and-Play feature has detected the *ForerunnerLE* adapter that you installed.

   Windows 2000 then also displays the Welcome to the New Hardware Wizard dialog box.

2. Click **Next** to proceed. Windows 2000 displays the Found New Hardware Wizard - Install Hardware Device Drivers dialog box.

3. Select the **Search for a suitable driver for my device (recommended)** option (the default option) and click **Next** to proceed. The Found New Hardware Wizard - Locate Driver Files dialog box appears.

4. Insert the *ForeRunner* ATM Adapter Software CD in your CD drive.

5. Select **Specify a location** and de-select the other options.

6. Click **Next** to proceed. A dialog box appears in which you can specify the location of the driver files.

7. Specify the path `d:\windows\Windows2000` (where `d:\` indicates your CD drive) and click **OK**.

   The Found New Hardware Wizard - Driver Files Search Results dialog box appears.

8. Click **Next** to proceed. Because the *ForeRunnerLE* adapter did not undergo the formal Microsoft Certification and receive a digital signature, the Digital Signature Not Found dialog box appears.
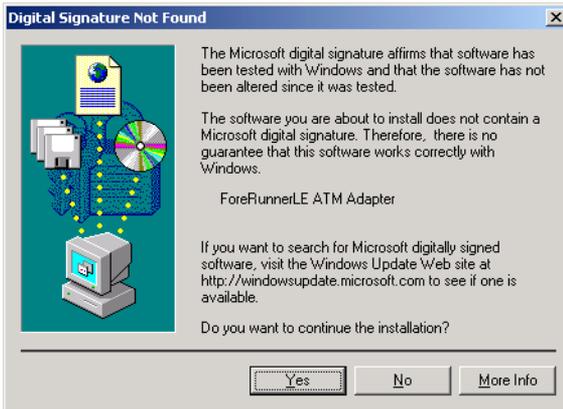
9. Click **Yes** to proceed.

   The install wizard copies the driver to the correct location and installs a default ATM ELAN connection. The system will display a final dialog box to show installation is finished.

10. Click **Finish** to complete the installation process. You do not need to reboot your PC.

To edit the properties of the driver, access the Network and Dialup Connections control panel. Two icons appear, an **ATM Connection** icon and an **ATM ELAN Connection** icon.

- If your site is using Classical IP, double-click the **ATM Connection** icon and edit the TCP/IP properties and specify an ARP server address.
- If your site is using LAN Emulation, double-click the **ATM ELAN** Connection icon to edit the TCP/IP properties and, if not using the default ELAN, change the ELAN name.

For Additional Information

Viewing the On-line Manual

The on-line manual contains:

- Complete installation procedures
- An ATM, LANE, MPOA, and Classical IP overview
- Troubleshooting information
- Additional information for using your FORE adapter.

You can read and print the on-line manual using the Acrobat Reader included with the manual on the *ForeRunner* software CD.

If you already have the Acrobat Reader installed on your machine, you can simply run Acrobat and open `502pc.pdf` (the PC User Manual) in the `\windows\docs` or `\netware\docs` directory of the software CD.

If you do not have Acrobat Reader installed on your machine, run the Acrobat installer to load Reader on your machine. Run the ar302.exe file in the \acrobat\win directory of the CD. The Acrobat Reader is also available, with complete documentation, from:

http://www.adobe.com/

Note for DEC Alpha Windows NT Users

Adobe Acrobat is unavailable on Windows NT running on DEC Alpha. To access the User Manual, print the PostScript version in the `\docs` directory or view it using a PostScript viewer.

Note for NetWare Users

Acrobat is unavailable in NetWare. You must run Acrobat from a Windows-based machine.

The FORE Web Site

For the latest technical documentation and release notes for the FORE adapters and other FORE products, visit the FORE technical manual web site at:

http://www.fore.com/support/manuals/index.htm

The web site provides manuals in Portable Document Format (PDF). They can be viewed or printed using Adobe Acrobat Version 3.0 Readers.

Contacting Technical Support

In the U.S.A., customers can reach FORE Systems' Technical Assistance Center (TAC) using any one of the following methods:

1. Select the "Support" link from FORE's World Wide Web page:

   http://www.fore.com/

2. Send questions, via e-mail, to:

   support@fore.com

3. Telephone questions to "support" at:

   800-671-FORE (3673) or 724-742-6999

4. FAX questions to "support" at:

   724-742-7900

Technical support for customers outside the United States should be handled through the local distributor or via telephone at the following number:

+1 724-742-6999

No matter which method is used to reach the TAC, customers should be ready to provide the following:

- A support contract ID number
- The serial number of each product in question
- All relevant information describing the problem or question

Using TACTics Online

If you have an active ForeMan Support Agreement you can now submit, update, and track your cases electronically via TACTics Online. The latest software updates are also available to download via TACTics Online. TACtics Online provides FORE's Customers and Channel Partners with real time support on the World Wide Web.

To submit cases or view details of your existing cases, as well as access the other features within TACtics Online, go to:

http://www.fore.com/

Select **Services and Support** and follow the link for TACtics Online. If you have registered for an account please enter the account name and password. If you need to obtain an account select **Create User Account** from the TACtics Online login page.

Once you are logged in select the feature that you would like to access.

Creating Installation Diskettes

For Windows NT, Windows 95, and Windows 98

Use the following procedure if you need to create installation diskettes for Windows NT, 95, or 98, rather than installing directly from the *ForeRunner* CD.

When creating diskettes for Windows, note that you must create separate installation diskettes for LE and 200E-series adapters.

1. In a DOS window, open the `\windows\winnt` or `\windows\win95` directory in the *ForeRunner* 5.0.2 software CD, depending on your operating system. (The `\win95` directory contains the driver files for use with Windows 98 also.)

2. Insert a blank floppy diskette in your disk drive.

3. From the DOS prompt, run the `CRDISK.BAT` file. This command has the following syntax:

CRDISK [*source-directory***] <pca|le|he>**

source-directory is the path of the directory containing the Windows NT driver files. If you don't specify a source-directory, the default is the current working directory.

`pca` indicates that you want to create a diskette with the files for a PCA adapter.

`le` indicates that you want to create a diskette with the files for a *ForeRunnerLE* adapter.

`he` indicates that you want to create a diskette with the files for a *ForeRunnerHE* adapter.

For example, if you want to create a diskette for a PCA adapter, and the current directory is the directory containing the *ForeThought* 5.0.2 Windows NT files, use the following command:

CRDISK PCA

The `CRDISK.BAT` file will copy all the required files to the diskette.

NOTE: Before you run `CRDISK`, you must set the Windows CPU variable to match that of the system for which you are creating the disk. For example **SET CPU=I386** for an Intel-based system or **SET CPU=ALPHA** for a DEC Alpha-based system.

4. Proceed to install the drivers using the procedure in the manual or this quickstart guide. However, instead of inserting the CD when indicated, insert the diskette in your drive and accept the default path of `A:`, where `A:` indicates your floppy drive.

For Windows 2000

To create installation diskettes for Windows 2000, rather than installing directly from the *ForeRunner* CD, simply copy the files in the \windows\windows2000 directory to a floppy disk. Follow the procedure given in this quickstart. When the Found New Hardware Wizard - Locate Driver Files dialog box appears, confirm that **Floppy disk drives** is checked and click Next to proceed. Windows 2000 discovers and installs the driver files.

For NetWare

Use the following procedure if you need to create installation diskettes for NetWare, rather than installing directly from the *ForeRunner* CD:

1. Insert a blank floppy diskette in your disk drive.

2. In Windows Explorer, copy the files within the `\netware\HSMdriver\pca` directory to the root directory of the diskette: `FORENP2E.LAN` and `FORENP2E.LDI`.

3. Proceed to install the drivers using the procedure in the manual or this quickstart guide. However, you do not need to mount the CD.

   IF YOUR FLOPPY DRIVE IS NOT `A:`, you must specify a search path to indicate the floppy drive.

FORE Systems

Copyright © 1998-1999 FORE Systems, Inc.

All rights reserved.

Trademark Notice

FORE Systems, *ForeRunner*, *ForeView*, *ForeThought*, *PowerHub* and AVA are registered trademarks of FORE Systems, Inc. *ForeRunnerLE*, *ForeRunnerHE*, *CellPath*, *EdgeRunner*, Zero Hop Routing, MSC, TNX, Voice Plus, StreamRunner, Universal Port, ASN, CellStarter, Intelligent Infrastructure, I2, NetPro, *FramePlus*, ASX, Network Of Steel, and Networks Of Steel are trademarks of FORE Systems, Inc. All other brands or product names are trademarks of their respective holders.

FORE Systems

1000 FORE Drive

Warrendale, PA 15086-7502

Phone: 724-742-4444

FAX: 724-742-7742

http://www.fore.com