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EtherEZ™
ISA Plug and Play Ethernet Adapters
User Guide

SMC8416T
For Twisted-Pair Cabling

SMC8416B
For Thin Coax Cabling

SMC8416BT
For Thin Coax and Twisted-Pair Cabling

SMC8416BTA
For Thin Coax and Twisted-Pair Cabling
or an External Transceiver

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Compliances - Electromagnetic Emissions

FCC – Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following 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.

This equipment generates, uses, and can radiate frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If interference problems do occur, please consult the system equipment owner's manual for suggestions. Some of these suggestions include relocation of the computer system away from the television or radio or placing the computer AC power connection on a different circuit or outlet.

Change or modifications to this product without the express approval of SMC could result in non-FCC compliance, and void the user's authority to operate this equipment.

This product was tested and certified with a shielded/unshielded cable; depending on the availability of the port, therefore, an appropriate cable is to be used.

Canadian Department of Communications – Class B

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le ministère des Communications.

BMPT Vfg 243/1991

Hiermit wird bescheingt, dass (die EtherEZ Adapter Nr:SMC8416xxx) in Übereinstimmung mit den Bestimmung der BMPT-AmtsblVfg 243/1991 funk-entstört ist. Der vorschriftsmässige Betrieb mancher Geräte (Z.B. Messender) kann allerdings gewissen Einschrankungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

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VCCI-2

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EN 60950	EC	TÜV Rheinland — Bauart Geprüft

Chapter 1

Introduction

SMC's EtherEZ™ adapters are a new generation of high-performance, cost-effective Ethernet adapters that support the Plug and Play ISA specification. Designed to connect ISA-bus systems such as network file servers, workstations, bridges, and gateways to Ethernet networks, EtherEZ adapters are fully compliant with the IEEE 802.3 and ISO/IEC 8802-3 10BASE-T (twisted-pair) and 10BASE2 (thin coax) standards.

EtherEZ adapters use SMC's own SMC83C795 Ethernet controller. This controller incorporates our unique SimulTasking™ technology, which increases the data-transfer speed between the network and host PC for unparalleled high-speed performance.

The Plug and Play Specification

The goal of the Plug and Play specification is to make PCs easy to use. Everyone who has tried to install a device in a computer knows that dealing with hardware can be a problem. To resolve this problem, an industry-wide standard called Plug and Play (PnP) was developed. This standard sets forth a comprehensive agreement on how to build a system that can configure itself. The ultimate goal: plug in a new card, turn the computer on, and the card works.

What Is a PnP System?

A PnP system must contain any one or a combination of the following software components: a PnP system BIOS, a PnP operating system, or a PnP Configuration Manager device driver.

EtherEZ and Plug and Play

The EtherEZ adapter is fully compatible with PnP systems, eliminating the need to set jumpers or keep track of addresses and IRQs. When installed in a PnP system, the adapter is configured automatically when you power-on your computer.

The EtherEZ adapter also works in non-PnP systems. For these systems, SMC provides the EZStart and EZdosodi utilities on the SuperDisk. Using EZdosodi, you can configure the adapter for use in a non-PnP system by typing a single command.

Features

- Limited lifetime warranty.
- SMC SuperDisk containing EZStart, EZdosodi, PC Agent/SNMP, and a variety of drivers and support files for all popular network operating systems.
- **EZStart:** This Windows-like utility makes adapter configuration, testing, and driver installation quick and easy.
- **EZdosodi:** This executable file automatically configures the EtherEZ adapter for use as a DOS client in a NetWare 3.12 or 4.x server environment.
- **PC Agent/SNMP:** This SNMP agent collects statistical and configuration information about your computer, adapter, and the network, allowing your computer and adapter to be monitored by any SNMP Manager. For complete instructions regarding PC Agent/SNMP, refer to the `PCAGENT.DOC` file on the SuperDisk.
- I/O-Mapped or Memory-Mapped addressing modes.
- Automatic detection of media interface.
- Diagnostic indicators (Link Integrity and Activity) mounted on bracket for easy viewing and troubleshooting.
- Advanced UMAC/LMAC™ driver architecture assures the widest driver support available in today's LAN marketplace.
- No switches or jumpers to set.

Package Contents

- EtherEZ adapter
- SuperDisk diskette
- EtherEZ User Guide
- Quick and EZ Guide
- SMC Warranty Registration Card

Make sure you have received all of these items. If any item is missing or damaged, contact your place of purchase immediately. Please complete the Warranty Registration Card and return it to SMC.

SuperDisk Contents

The SuperDisk contains drivers and other files to make adapter configuration and testing and driver installation easy.

- `EZSTART.EXE` — EZStart utility.
- EZdosodi — configures the EtherEZ adapter for use as a DOS client in a NetWare 3.12 or 4.x server environment.
- `README.DOC` — contains instructions for installing and using EZStart and EZdosodi, a list of supported Boot ROMs, and SMC technical support hours and telephone numbers.
- `PCAGENT.EXE` — PC Agent/SNMP utility
- `PCAGENT.DOC` file — contains instructions for installing and using PC Agent/SNMP.
- Compressed driver file — contains drivers for all major operating systems.

- Driver-installation files — contain installation instructions for a particular driver.
- Driver-release files — contain history information for a particular driver.

System Requirements

For PnP operation — a computer with a PnP operating system, PnP BIOS, or a PnP Configuration Manager. Refer to page 1-7. (The adapter also installs easily in non-PnP systems.)

For your adapter — a PC with an available 8- or 16-bit ISA bus slot or an EISA bus slot. To use the adapter with older drivers that require memory-mapped mode, you will also need 8 KB of contiguous available memory space (between C000 to EFFF, inclusive).

For an optional Boot ROM — 8 KB of contiguous available memory space (between C000 to EFFF, inclusive).

For EZStart/EZdosodi — an MS-DOS, PC-DOS, or Windows (v3.11 or later) operating system.

For PC Agent/SNMP — approximately 22 KB of additional RAM memory and an agent-compatible network driver (available on the SuperDisk).

Models

SMC's EtherEZ adapters are available in four different models. All four models are functionally identical, differing only in the types of connections offered.

Figure 1-1 shows the location of the connectors and LEDs on the adapter bracket. The LEDs are integrated within the RJ-45 connector.

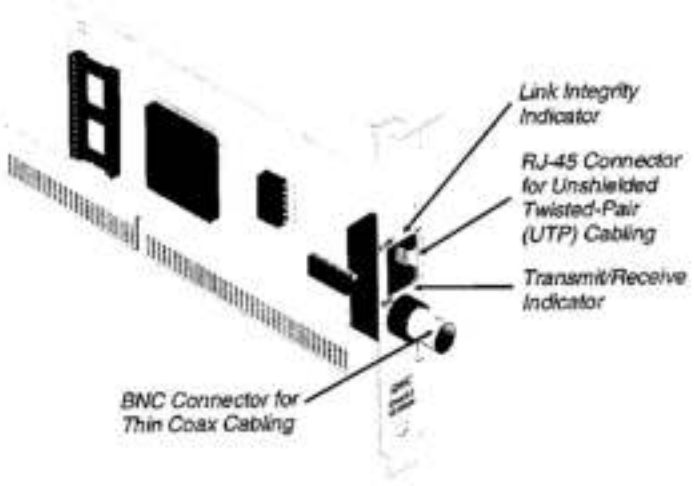


Figure 1-1.
EtherEZ Adapter Components (8416BT shown)

NOTE: *On some previously released EtherEZ adapters, the LEDs are not integrated within the RJ-45 connector as shown but are located on the bracket face, between the RJ-45 connector and BNC connector.*

EtherEZ adapter models and types of connections offered:

- **SMC8416T:** RJ-45 connector for twisted-pair cabling
- **SMC8416B:** BNC connector for thin coax cabling
- **SMC8416BT:** BNC connector for thin coax cabling and RJ-45 connector for twisted-pair cabling
- **SMC8416BTA:** BNC connector for thin coax cabling, RJ-45 connector for twisted-pair cabling, or AUI connector for an external transceiver.

Getting Started

Installing a Boot Rom is *optional* (Chapter 2). The following five steps are required to install and configure your adapter:

- **Step 1:** Install the adapter and connect to the network (Chapter 3).
- **Step 2:** Install EZStart (Chapter 4). (Optional if using EZdosodi.)
- **Step 3:** Configure the adapter (Chapter 5).
- **Step 4:** Install a network driver using EZdosodi (Chapter 5) or EZStart (Chapter 6).
- **Step 5:** Configure your networking software to use the driver (driver-specific SuperDisk documentation).

Terminology

PnP System

A system with PnP software consisting of a PnP system BIOS, a PnP operating system, and/or a PnP Configuration Manager device driver is considered a PnP system. (A **non-PnP system** is a

computer that does not contain any of these PnP software components.) The PnP system BIOS configures PnP adapters with Boot ROMs and optionally configures all remaining PnP adapters. A PnP operating system configures all PnP adapters in the system that were not configured by the system BIOS. If there is no PnP BIOS, the PnP operating system configures all the adapters. A PnP Configuration Manager device driver configures PnP adapters the same way a PnP operating system does. These software components are not supplied with your EtherEZ adapter.

PnP Configuration Manager

A software module loaded through `CONFIG.SYS` that configures PnP ISA adapters that were not configured by the system BIOS. It also allows other device drivers and applications to access the PnP adapter's configuration information.

ISA Configuration Utility (ICU)

Helps to configure traditional (non-PnP) ISA adapters. The ICU records user-selected configuration information for traditional adapters into a database. The PnP system software uses this information to configure PnP adapters while avoiding conflict with traditional ISA adapters.

I/O Mapped Addressing Mode

A way of using I/O registers to access the local buffer RAM on your EtherEZ adapter. This allows the PC and driver to use I/O instructions rather than host memory accesses to transfer data, eliminating the need for the adapter to occupy any memory space.

Memory-Mapped Addressing Mode

Allows the PC and driver to access the adapter's buffer RAM through standard read and write memory instructions. This method requires that memory space (a RAM window) be allocated on the host system.

Chapter 2

Installing a Boot ROM

A Boot ROM allows your computer to load its operating system over the network, instead of from the computer's local hard disk. To obtain a Boot ROM, contact the dealer where you purchased your adapter.

Installation Procedure

Use extreme care when handling the Boot ROM and your adapter. Both devices contain sensitive components that are prone to damage from electrostatic discharge (ESD).

1. Discharge any static electricity from your body by touching a large, metal object.

2. Orient the Boot ROM so that its notch is on the same side as the notch on the adapter socket (figure 2-1, next page). Make sure the Boot ROM is properly oriented. If you install the Boot ROM backwards, it will be damaged.

3. Align the pins on the Boot ROM with the socket on your adapter and press the Boot ROM straight down until it is firmly seated in the socket. Be careful not to bend any Boot ROM pins.

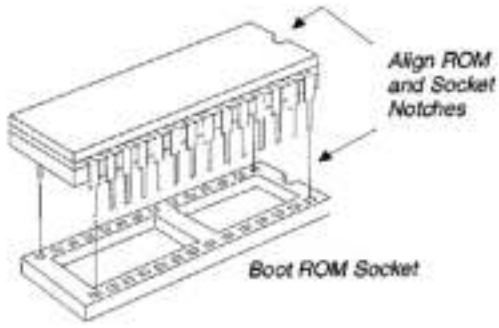


Figure 2-1.
Installing a Boot ROM

4. Refer to the manuals that came with your network operating system and Boot ROM for any additional remote booting instructions.

NOTE: *If you operate the adapter in memory-mapped mode, which is not the default, and you are using a memory-management utility, such as EMM386 or QEMM, you must exclude a 16 KB RAM window for use by the adapter Boot ROM in your* `CONFIG.SYS` *file. Then, reboot your computer before you run EZStart. For example:*

```
DEVICE=C:\DOS\EMM386.EXE X=D000-D3FF
```

Proceed to chapter 3 for directions on how to install and cable your adapter.

Chapter 3

Installing and Cabling the Adapter

This chapter describes how to install the adapter in a computer and connect to your network.

Before beginning any of the procedures described in this chapter, review the README.DOC file located in the root directory of the SuperDisk. This file may contain more up-to-date information than included in this user guide.

There are four easy steps to the installation and configuration procedure:

- Physical installation (This chapter)
- Network cable connection (This chapter)
- Network driver installation with EZStart (Chapters 4, 5 and 6) or EZdosodi (Chapter 5)
- Network operating system configuration (Driver-specific SuperDisk documentation)

Installing the Adapter

Switch off all computer system components, unplug the computer, and remove the computer cover. Work in a static-free area and touch the computer chassis often to equalize static charges.

Install the adapter into an 8-bit or 16-bit ISA bus expansion slot or into an available EISA bus slot. For maximum performance, a 16-bit ISA slot is recommended. Make sure the adapter is completely seated. Refer to your computer manual for details.

Connecting Your Network Cable

EtherEZ adapters support standard IEEE 802.3 and ISO/IEC 8802-3 Ethernet cable connections for unshielded twisted-pair cable or thin coax cable. Use only one connector at a time; the adapter automatically detects the connector in use. On-board transceivers are provided for both thin coax and twisted-pair networks.

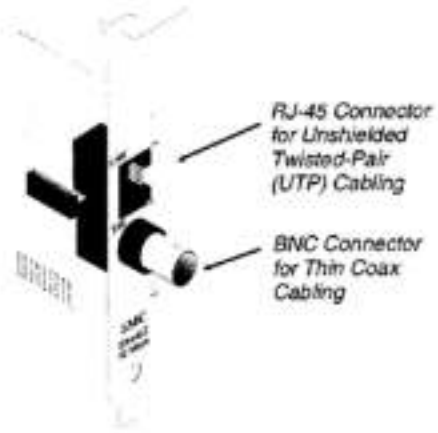


Figure 3-1.
EtherEZ Adapter Connectors (SMC8416BT Shown)

This section describes how to connect your adapter to either of these cable types.

NOTE: *Board types OEM8416BA, OEM8416TA, and OEM8416BTA also have AUI connectors.*

Connecting an Unshielded Twisted-Pair Cable

Connection to a 10BASE-T hub requires an unshielded twisted-pair (UTP) cable. The connection can be made directly, or indirectly via a wall outlet that has the proper wiring for an RJ-45 connector.

1. Attach the male RJ-45 connector on one end of a UTP cable to the adapter's RJ-45 port.

2. Attach the male connector on the other end of the UTP cable directly to a 10BASE-T hub.

   OR

   Attach the male connector on the other end of the UTP cable to a wall outlet with an RJ-45 connector properly wired for Ethernet 10BASE-T. Wiring from the wall outlet connection is usually routed to the hub through a punch-down block located in a wiring closet.

Connecting a Thin Coax Cable

Connection to a thin coax cable segment requires a BNC T-Connector.

1. Align the T-Connector's slots with the pins on the adapter's BNC port, push in the T-Connector, and twist the collar clockwise until it is securely in place.

2. Attach one end of a thin coax cable to one side of the T-Connector.

3. Attach one end of another thin coax cable to the other side of the T-Connector. If the adapter is at the end of the cable, attach a 50-ohm terminator to the T-Connector.

Chapter 4

Loading and Using EZStart

EZStart is a Windows-like utility provided on the SuperDisk. This multifunction utility takes the work out of driver installation and lets you test the adapter's basic functions. This chapter describes how to install and run EZStart.

NOTE: *To configure your computer for use as a DOS client in a NetWare 3.12 or 4.x environment, use EZdosodi. See Page 5-1 for information. You do not need to install or run EZStart in this environment.*

EZStart Navigational Keys

EZStart provides a familiar Windows-like interface that can be accessed with a mouse or the keys listed below.

- Use **Tab** to move to the next field or button.
- Use **Shift+Tab** to move to the previous field or button.
- Use the **Enter** key or the **Spacebar** to select a highlighted function.

- Use the **Up** and **Down** arrows to move to selections in a list box.
- Press **F1** for help.
- Use **Alt+underscored character** to select a function that is not highlighted.
- Use **F3** or **Alt+F4** to exit.

NOTE: *When you see the "+" symbol between two keys, press and hold the first key while pressing and releasing the second. For example, for Shift+Tab, hold down the Shift key while pressing and releasing the Tab key.*

NOTE: *For mouse support, load your mouse driver via your system's AUTOEXEC.BAT file or at the DOS prompt* ***before*** *running EZStart.*

Installing EZStart

The EZStart utility can be run from the SuperDisk or from your hard disk. EZStart can also be installed under Microsoft Windows and run by double-clicking on the EZStart icon.

Hard Disk Installation

To run EZStart under DOS without using the SuperDisk, or if you want to run it from your Windows desktop, load EZStart on your hard disk:

1. Insert the SuperDisk in a drive.
2. Using the DOS COPY command, copy all the files from the SuperDisk to a single directory on the hard disk. For example:

```
C:\COPY A:\*.* C:\SMC\*.*<Enter>
```

Running EZStart

1. To run EZStart from the SuperDisk, insert the SuperDisk in a drive, select that drive, type **EZSTART**, and press Enter. For example:

   ```
   C:\>A:<Enter>

   A:\>EZSTART<Enter>
   ```

2. To run EZStart from the hard disk, change to the directory on the hard disk containing the SuperDisk files, type **EZSTART**, and press Enter. For example:

   ```
   C:\>CD SMC<Enter>

   C:\SMC>EZSTART<Enter>
   ```

You will be presented with the EZStart main screen. This screen shows the current configuration information for your adapter.

NOTE: *If multiple adapters have been installed, a screen displays each adapter with its configuration. Select an individual adapter by double-clicking on it, or by highlighting it and either choosing* ***Select*** *or pressing the* ***Enter*** *key. The EZStart main screen will then appear.*

Proceed to Chapter 5 for directions on configuring the adapter.

Chapter 5

Configuring the Adapter

This chapter describes how to configure your adapter. Five procedures are described:

- Automatic NetWare client installation with EZdosodi
- Configuring your adapter for use in PnP systems
- Configuring your adapter for use in non-PnP systems
- Configuring adapters with Boot ROMs
- Configuring the adapter to operate in memory-mapped addressing mode

EZdosodi - For Automatic NetWare Client Installation

EZdosodi is an executable file on the SuperDisk that configures the EtherEZ adapter and your computer for use as a DOS VLM client in a NetWare 3.12 or 4.x server environment. (There is no need to install and run EZStart when using EZdosodi.) **If your computer will not be used as a DOS VLM client in a NetWare 3.12**

or 4.x server environment, use one of the other four procedures described in this chapter.

If your adapter is configured for the default I/O mapped addressing mode, EZdosodi installs the Turbo DOS ODI driver. This driver can significantly improve your workstation's networking performance. The Turbo ODI driver works *only* with EtherEZ adapters and does *not* support PC Agent/SNMP.

If your adapter is configured for memory-mapped addressing mode, EZdosodi installs the dual-mode DOS ODI driver. This driver works in either I/O mapped or memory-mapped addressing modes. It supports the EtherEZ adapter as well as previous generation SMC adapters such as the EtherCard Elite16 Ultra. This driver also supports PC Agent/SNMP.

NOTE: *Either of these drivers can also be installed using EZStart, as described in Chapter 6.*

For more information about EZdosodi and the DOS ODI drivers, refer to the DOS ODI driver installation document (`INSTALL.DOC`) which can be accessed with EZStart. (Run EZStart, select **Documentation**, and then select **Automatic Novell DOS ODI Driver Installation**.)

To use EZdosodi:

1. If in Windows, exit to the DOS prompt. Insert the SuperDisk in a drive.

2. Change to that drive and type:

```
A:\>EZDOSODI<Enter>
```

3. When prompted, type **Y** and press Enter.

EZdosodi will:

- Test the adapter.

- Edit your `AUTOEXEC.BAT` file and save the old version as `AUTOEXEC.00x`.
- If needed, edit your `CONFIG.SYS` file and save the old version as `CONFIG.00X`.
- Copy the driver files to C:\NWCLIENT.
- Select an Ethernet frame type of 802.2 or 802.3, depending on your server configuration.
- Load one of the two DOS ODI drivers.

When your computer is attached to the nearest NetWare 3.12 or 4.x server, you will be issued a login prompt. Your installation and configuration is now complete. If any test cannot be completed successfully, an EZdosodi macro will launch EZStart, where you can continue the installation manually. Refer to Chapter 6.

Configuring Your Adapter for Use in PnP Systems

After installing the EtherEZ adapter in a PnP system, it will be configured automatically when you power-on your computer. Should you experience difficulties, refer to Appendices A and B.

Proceed to page 6-3, *Automatically Testing the Adapter and Copying a Network Driver With EZStart.*

Configuring Your Adapter for Use in Non-PnP Systems

In a non-PnP system, use EZStart to configure the adapter. (For troubleshooting information regarding PnP and non-PnP systems, refer to page B-2.)

1. Before running EZStart, make sure all device drivers for other products (such as other adapters, controllers, CD-ROM drives, etc.) are loaded.

2. Run EZStart. (Chapter 4)

3. Select **Automatic** from the main screen. EZStart configures the adapter and performs the Basic Adapter Test. The results of the test are shown in the Automatic Installation screen.

4. Click on **Save**. EZStart displays the *Network Drivers and Documentation Selection* screen.

Proceed to step 5 on page 6-3, *Automatically Testing the Adapter and Copying a Network Driver With EZStart*.

Configuring Adapters With Boot ROMs

To use a Boot ROM, you must run EZStart (even in a PnP system) to modify default adapter settings and properly enable the Boot ROM.

PnP Systems

1. Before running EZStart, make sure all device drivers for other products (such as other adapters, controllers, CD-ROM drives, etc.) are loaded.

2. Run EZStart. (Chapter 4)

3. Select **Custom** from the Main screen.

4. Select **Setup** from the Custom Installation screen.

5. In the Boot ROM section, click on the **ROM Enabled** box.

6. Click on the **Save** button. You may be informed of a resource conflict. If so, EZStart may resolve the conflict or the conflict will be resolved after rebooting your computer.

7. Select **Ok**.

8. Select **Drivers/Documents** from the Custom Installation Screen to install a network driver.

Proceed to page 6-3, *Automatically Testing the Adapter and Copying a Network Driver With EZStart*.

Non-PnP Systems

1. Before running EZStart, make sure all device drivers for other products (such as other adapters, controllers, CD-ROM drives, etc.) are loaded.

2. Run EZStart. (Chapter 4)

3. Select **Automatic** from the main screen. EZStart configures the adapter and performs the Basic Adapter Test. The results of the test are shown in the Automatic Installation screen.

4. Click on **Save**. EZStart displays the *Network Drivers and Documentation Selection* screen.

Proceed to step 5 on page 6-3, *Automatically Testing the Adapter and Copying a Network Driver With EZStart*.

NOTE: *If EZStart fails to recognize the Boot ROM, make sure you have properly excluded a 16 KB memory space as described on page 2-2.*

Configuring the Adapter to Operate in Memory-Mapped Addressing Mode

To use a driver developed for the EtherCard Elite 16 Ultra adapter, or a driver created by another developer that does not support default EtherEZ features (such as I/O mapping), you must configure the adapter to operate in memory-mapped addressing mode. This procedure is described below. Refer also to Appendix A, *Using EZStart for Custom Configuration*.

NOTE: *When operating in memory-mapped mode and using a memory-management utility, such as EMM386 or QEMM, you must exclude an 8 KB RAM window for use by the adapter in your* `CONFIG.SYS` *file. Then, before running EZStart, reboot your computer. For example:*

```
DEVICE=C:\DOS\EMM386.EXE X=D000-D1FF
```

For adapters with Boot ROMs, you must exclude an additional 8 KB, for a total excluded memory space of 16 KB. For example:

```
DEVICE=C:\DOS\EMM386.EXE X=D000-D3FF
```

1. Before running EZStart, make sure all device drivers for other products (such as other adapters, controllers, CD-ROM drives, etc.) are loaded.
2. Run EZStart. (Chapter 4)
3. Select **Custom** from the Main screen.
4. Select **Setup** from the *Custom Installation* screen.
5. In the Addressing Mode section, click on **Memory-Mapped**.

6. Click on **Save**.

   In a non-PnP system: if you receive a resource conflict, return to the main screen and run Automatic. Resolve any conflicts as directed by EZStart.

   In a PnP system: any resource conflicts will be resolved after rebooting your computer.

7. Select **Ok**.

8. Select **Drivers/Documents** from the *Custom Installation* screen to install a network driver.

Proceed to page 6-3, *Automatically Testing the Adapter and Copying a Network Driver With EZStart*.

Chapter 6

Testing the Adapter and Installing Network Drivers

You must install a network driver to allow your adapter to work with your network operating system. This chapter describes how to test the basic functionality of the adapter and install network drivers. After copying a network driver and its associated files to your computer, follow the installation procedures from your SuperDisk documentation (network operating system-specific) to configure your networking software to use the driver.

NOTE: *If you intend to use your computer as a DOS VLM client in a Novell NetWare 3.12 or 4.x environment, run EZdosodi to automatically test, configure your adapter, and install a DOS ODI driver. Refer to page 5-1.*

Overview

SMC provides a broad range of network drivers and interface software, including drivers for NetWare (DOS and OS/2 ODI), Microsoft LAN Manager, Windows NT, and many other network operating systems. These drivers, along with driver installation instructions, release information, and other supporting files, reside in the compressed file SMCG*nn*.EXE, located in the root directory of the SuperDisk. The "G" denotes the adapter type, and the "*nn*" indicates the SuperDisk version number.

NOTE: *Many network operating systems have built-in driver support for SMC adapters. If yours does, follow the network operating system (NOS) instructions to load and use the built-in driver.*

If your NOS does not provide built-in support, or if you wish to replace the NOS-provided driver with one from the SuperDisk, follow the instructions in this chapter to install the driver from the SuperDisk.

NOTE: *The SuperDisk contains the latest drivers available at shipping time. If more recent versions of these drivers are available, you can download them from SMC's 24-hour Bulletin Board. Refer to the back cover of this User Guide for BBS numbers.*

There are two ways to copy driver files:

- Use EZStart to copy the driver and its supporting files automatically. This procedure also allows you to test the adapter's configuration and basic functionality. Refer to page 6-3.
- Manually expand the entire set of drivers and supporting files, and select the ones you need. Refer to page 6-5.

Automatically Testing the Adapter and Copying a Network Driver with EZStart

1. Before running EZStart, make sure all device drivers for other products (such as other adapters, controllers, CD-ROM drives, etc.) are loaded.

2. Run EZStart. (Chapter 4)

3. Select **Automatic** from the EZStart main screen. EZStart performs the Basic Adapter Test and shows the results in the *Automatic Installation* screen.

4. Click on **Save**. EZStart displays the *Network Drivers and Documentation Selection* screen.

NOTE: *To install a driver and skip the Basic Adapter Test, select* ***Custom*** *from the EZStart main screen, then select* ***Drivers/Documents*** *from the Custom Installation screen.*

5. Select your network operating system.

NOTE: *If you plan to use PC Agent/SNMP, you must select one of the following drivers:*

- NDIS DOS Ethernet driver – `SMC8000.DOS` (v1.00 or later)
- DOS ODI Ethernet driver – `SMC8000.COM` (v1.00 or later)
- IPX driver – `IPX.COM` (v5.00 or later)

6. Select **OK**. A *Network Drivers and Documentation* screen appears for the driver you selected.

EZStart suggests a destination directory consistent with the installation instructions for your network operating system. For example, for the DOS ODI driver, `C:\NWCLIENT` is the destination directory. In some instances, EZStart suggests you copy the driver files back to the SuperDisk or to an installation diskette. This facilitates later installation of the driver files as described in the associated driver installation document.

EZStart also displays the names of associated files, such as the driver installation document (typically called `INSTALL.DOC`), the driver release document (`RELEASE.DOC`), and/or configuration files.

7. Either accept the default destination directory or enter a different one and select **Copy Files**. EZStart will automatically create the directory if it doesn't exist.

   The selected driver and associated files are copied to the destination directory.

8. When the *Installation Notes* window appears, select **OK**. If the driver you selected supports PC Agent/SNMP, you will be prompted to install it. To install the utility, select **Yes**. Otherwise, select **No** to return to the *Network Drivers and Documentation* screen. (Further PC Agent/SNMP instructions can be found in the `PCAGENT.DOC` file. When you run EZStart, select **Custom**, **PC Agent**, **Install**, and then **Documentation** from the *PC Agent/SNMP* screen.)

9. Select **Previous** until you are presented with the *Network Drivers and Documentation* screen.

10. Select **Documentation** from the *Network Drivers and Documentation* screen. A *Document* screen appears.

11. Select the **Document** drop-down box at the top-left area of the *Document* screen. A list of the documents and configuration files associated with the driver appears. The primary installation file for the driver is the first file in the list.

12. Select the document or file you want to view. You can also use a text editor or word processor to view and print driver configuration files and documents after the driver files are copied from the SuperDisk.

13. To print the file, make sure the printer attached to LPT1 is on-line. Select **Print** from the *Document* screen.

14. Select **Previous** and then exit EZStart.

Configuring Networking Software to Use the Driver

After installing a driver, you must configure your networking software to use it. The appropriate SuperDisk driver installation document (specific to the network operating system) describes how to perform this task.

After completing the installation and configuration, you must reboot your computer.

Manually Installing a Driver

With this method, you can manually expand all of the network drivers and supporting files from the `SMCGnn.EXE` file on the SuperDisk to a directory on your hard disk without using EZStart. Then, you can decide which ones you need. (The manual installation procedure does not incorporate the Basic Adapter Test. Refer to Appendix B for information about adapter diagnostics.)

Make sure you have enough disk space available before expanding the drivers. Refer to the `README.DOC` file in the root directory of the SuperDisk to determine how much disk space is required.

1. Insert the SuperDisk in a drive and select that drive:

```
C:\>A:<Enter>
```

2. Type the following at the command line and press Enter.

   ```
   A:\>SMCGnn drive [\destination
   directory]<Enter>
   ```

   where:

   nn is the SuperDisk version number.

   drive is the drive to which the files are to be copied.

   destination directory is the name of the subdirectory you have chosen to store the driver files in.

   For example:

   ```
   A:\>SMCG10 c:\drivers<Enter>
   ```

   If the destination directory is omitted, the files will be stored in the root directory.

3. View or print the driver installation document using a text editor or word processor.

Configuring Networking Software to Use the Driver

After installing a driver, you must configure your networking software to use it. The appropriate SuperDisk driver installation document (specific to the network operating system) describes how to perform this task.

After completing the installation and configuration, you must reboot your computer.

Appendix A

Using EZStart for Custom Configuration

For most environments, you can use EZdosodi or EZStart's **Automatic** feature to *automatically* configure your adapter. EZStart also provides a **Custom** feature you can use for greater control over the adapter's configuration.

Use EZStart's Custom Setup feature:

- To enable a Boot ROM and set its base address and size. (Refer also to Chapters 2 and 5.)
- To configure an adapter that will be using a driver developed for the EtherCard Elite16 Ultra adapter or a driver created by another developer that does not support all EtherEZ features. (Refer also to Chapter 5.)
- To manually specify the adapter's RAM base address, I/O base address, IRQ channel, and/or network interface if you encounter conflicts with other devices installed in your computer. (In a PnP system, settings configured manually via EZStart might be overridden by the PnP software.)
- To enable or disable the adapter's PnP capability.

Using Custom Setup

To use Custom Setup:

1. Install the adapter in your computer and attach the network cabling. Refer to Chapter 3.

2. Run EZStart. Refer to Chapter 4.

3. Select **Custom** from the EZStart main screen.

4. Select Setup from the *Custom Installation* screen. The *Manual Setup* screen appears. This screen has five areas:

   - **Addressing Mode** — lets you select I/O mapped or memory-mapped addressing mode, specify a RAM base address, and enable or disable zero wait state. Refer to page A-4.

   - **Plug and Play Adapter Feature** — lets you enable or disable the PnP feature of the adapter. Refer to page A-5

   - **Required Settings** — lets you specify the adapter's I/O base address and IRQ. Refer to page A-5.

   - **Boot ROM** — lets you enable an installed Boot ROM and specify its ROM base address and ROM size. Refer to page A-7.

   - **Network Interface** — lets you specify the type of cable your adapter uses to connect to the network. Refer to page A-8.

Software Options

The following sections describe software options that can be modified using EZStart's Custom Setup feature. Refer to the quick reference table below.

Table A-1. EtherEZ Adapter Option Settings

Option	Default	Available
RAM Base Address	C800h*	C000h, C200h, C400h, C600h, C800h, CA00h, CC00h, CE00h D000h, D200h, D400h, D600h, D800h, DA00h, DC00h, DE00h E000h, E200h, E400h, E600h, E800h, EA00h, EC00h, EE00h
I/O Base Address	340h	240h, 260h, 280h, 2A0h, 2C0h, 2E0h, 300h, 320h, 340h, 360h, 380h
IRQ Channel (Interrupt Request Level)	3	2/9*, 3, 5, 7, 10**, 11** ** AT or EISA bus only.
Boot ROM Base Address	Disabled	C000h, C200h, C400h, C600h, C800h, CA00h, CC00h, CE00h D000h, D200h, D400h, D600h, D800h, DA00h, DC00h, DE00h E000h, E200h, E400h, E600h, E800h, EA00h, EC00h, EE00h
Boot ROM Size	Disabled	8 K, 16 K, 32 K
Network Interface Type	Automatic Media Detection	Automatic Media Detection, Non-Standard StarLAN 10, Auto Select 10BASE-T or BNC, Auto Select 10BASE-T or AUI
* Applies only when adapter operates in memory-mapped mode		

Addressing Mode

The following settings can be made in the **Addressing Mode** area of the *Manual Setup* screen.

I/O Mapped or Memory-Mapped Mode

Your adapter can be configured for either of two memory modes, I/O mapped or memory-mapped. **I/O Mapped** is the default. This selection allows the adapter to operate without occupying computer memory space. If you want to make as much memory available to other installed devices as possible, use this selection.

Memory-mapped lets you assign an 8 KB memory window for the adapter to use. If you select this option, the **RAM Base** and **Zero Wait State Enabled** options appear automatically.

RAM Base Address

The RAM base address defines the beginning of an 8 KB address space shared by the adapter and the computer. For example, if the RAM base address is D000 (hex), the address space allotted is D000 through D1FF, which is 8 KB. Your adapter's RAM base address can be designated at every 8 KB boundary, starting at C000.

Available selections are C000, C200, C400, C600, C800, CA00, CC00, CE00, D000, D200, D400, D600, D800, DA00, DC00, DE00, E000, E200, E400, E600, E800, EA00, EC00, and EE00.

Zero Wait State

This option can be enabled only when operating in memory-mapped mode. Enable this option only with certain LAN servers that experience a heavy processing load, where the reduction of CPU utilization will be significant. Zero wait state capability is not supported by all computers. If you enable this option, run the Basic Adapter Test (refer to Appendix B) with the Repeat feature and verify that your adapter is working properly with this setting.

Plug and Play Adapter Feature

In the **Plug and Play Adapter Feature** box, you can enable or disable the PnP capability of the adapter. If installing the adapter in a PnP computer, select **Yes**. Otherwise, select **No**.

Required Settings

In the **Required Settings** box, you can specify the adapter's I/O Base Address and IRQ setting.

I/O Base Address

The I/O base address designates the beginning of address space available for communication between the computer and its installed devices. Each installed device must have a unique address range.

An ISA or EISA computer uses I/O base address ranges that start at 240, 260, 280, 2A0, 2C0, 2E0, 300, 320, 340, 360, and 380. Your adapter requires 32 (20 hex) contiguous I/O addresses. For example, an I/O base address of 280 uses addresses 280 through 29F.

IRQ Channel

An interrupt request (IRQ) signals the computer when a device needs attention. Each adapter must have an IRQ assigned that is distinct from that assigned to any other add-on device installed in the computer.

Your adapter supports IRQ channels 2/9, 3, 5, 7, 10, and 11 for computers with an AT or EISA bus, and IRQ channels 2, 3, 5, and 7 for computers with an 8-bit (XT) bus. Some devices commonly installed in computers have standard IRQ channels already assigned to them. Table A-2 lists the IRQ channels supported by your adapter and the devices that commonly use those channels.

Table A-2. IRQ Channels Used by Various Devices

IRQ	XT	AT/EISA
2/9*	EGA/VGA	EGA/VGA
3	COM2	COM2
4	COM1	COM1
5	Hard Disk	LPT2
7	LPT1	LPT1
10	N/A	Unused
11	N/A	Unused
15	N/A	Unused

* IRQ 2 for 8-bit buses, and IRQ 9 for 16-bit buses.

Boot ROM

A Boot ROM allows your computer to load its operating system over the network, instead of from the computer's local hard disk. The **Boot ROM** box contains options for enabling and configuring a Boot ROM. For information on installing a Boot ROM, refer to Chapter 2. For further information about configuring an adapter with Boot ROM, refer to page 5-4.

ROM Enabled

If your adapter has a Boot ROM, click on **ROM Enabled**. Otherwise, do **not** select the **ROM Enabled** box.

ROM Base

Use **ROM Base** to select a starting ROM base address for the Boot ROM. Supported ROM base addresses include C000, C200, C400, C600, C800, CA00, CC00, CE00, D000, D200, D400, D600, D800, DA00, DC00, DE00, E000, E200, E400, E600, E800, EA00, EC00 and EE00.

ROM Size

ROM size refers to the amount of computer address space occupied by the Boot ROM. Use **ROM Size** to select the ROM window required by the Boot ROM (refer to your Boot ROM manual to obtain this information). For example, if you select **DC00** for **ROM Base** and **8 K** for **ROM Size**, the Boot ROM will use the ROM window between DC00 and DDFF, inclusive.

Network Interface

In the **Network Interface** box, select the medium (cable type) your adapter will use to connect to the network.

For most situations, use the default selection **Automatic Media Detection**. This selection lets your adapter automatically determine whether it is connected to the network via a 10BASE-T, BNC, or AUI interface. Other options are **Non-Standard StarLAN 10**, **Auto Select 10BASE-T or BNC**, and **Auto Select 10BASE-T or AUI**.

Saving Your Custom Configuration

After making any changes, select **Save** to save them and return to the EZStart main screen.

NOTE: *If any of your selections conflict with other installed devices, a message informs you of the conflict and asks if you want to proceed. If you receive this message, select* ***Yes*** *to ignore or select* ***No*** *to change your selections.*

Select **Exit** from the EZStart main screen to exit EZStart. Then proceed with any additional network operating system software installation or configuration.

Appendix B

Testing and Troubleshooting

This appendix describes how to perform the Basic and Two Node Adapter Tests and troubleshoot adapter problems.

Excluding Memory Space

When operating in memory-mapped mode (for drivers created for the EtherCard Elite16 adapter, or drivers created by third party developers that do not support all of the EtherEZ features) and using a memory-management utility, such as EMM386 or QEMM, you must exclude an 8 KB RAM window for use by the adapter in your `CONFIG.SYS` file. Then, before running EZStart, reboot your computer. For example:

```
DEVICE=C:\DOS\EMM386.EXE X=D000-D1FF
```

For adapters with Boot ROMs, you must exclude an additional 8 KB, for a total excluded memory space of 16 KB. For example:

```
DEVICE=C:\DOS\EMM386.EXE X=D000-D3FF
```

Plug and Play Incompatibilities

The rapid deployment of Plug and Play systems combined with the continuing evolution of the Plug and Play specification has forced many vendors to provide computers with PnP BIOSes that do not adhere to the current Plug and Play specification. As a result, you may encounter incompatibilities between your PnP BIOS and EtherEZ adapter that prevent you from configuring the adapter or loading other device drivers. These incompatibilities occur when the system's PnP BIOS fails to detect the IRQ, I/O Base, and ROM Base addresses used by non-PnP devices and tries to assign these resources to the EtherEZ adapter.

You may choose to disable Plug and Play operation using EZStart (see page A-5) or as described below.

Disabling PnP With EZSetup

If you encounter a problem configuring the EtherEZ adapter or loading other device drivers, use SMC's EZSetup software to disable the EtherEZ's Plug and Play feature. To extract the EZSetup software:

1. Run EZStart. (Chapter 4) and select **Custom** from the Main screen.
2. Select **Drivers/Documents** from the Custom Installation screen.
3. Select **Configuration Files, Utilities and Documentation** from the Network Drivers and Documentation screen.
4. Select **EZSetup Configuration Utility.**
5. Select **Copy File** to copy the file to the default destination directory, or enter a different one.

6. Select **OK** and **Exit** after reading the Installation Notes.

7. At the DOS prompt, change to the EZSetup directory. (For example: **c:\cd ezsetup<Enter>**) You can disable the adapter's PnP feature by typing:

   C:\EZSETUP>**EZSetup -nopnp<Enter>**

   at the DOS prompt. Note that there is a space between **EZSetup** and **-nopnp**, and that **nopnp** must be typed in lower-case characters.

   To re-enable the adapter's PnP feature, type:

   C:\EZSETUP>**EZSetup pnp:*BASE*<Enter>**

   at the DOS prompt. *BASE* is the hexadecimal I/O Base address of the EtherEZ adapter. For example, if the adapter's base address is 280, type **EZSetup pnp:280** and press **Enter**.

Testing the Adapter

EZStart can perform two different tests on the adapter to verify its functionality:

- Basic Adapter Test — verifies the operation of the adapter's basic functions.
- Two Node Adapter Test — verifies the adapter's ability to communicate over the network with another adapter. At least one other computer containing an SMC adapter must be connected to the network.

Basic Adapter Test

This test is actually a series of tests designed to check I/O Port Accessibility, on-board RAM, Network Controller Registers, Interrupt Generation, and Internal Loopback.

Running the Test

1. Run EZStart.
2. Select **Custom** from the EZStart main screen. You are presented with the *Custom Installation* screen.
3. Select **Basic**. The Basic Adapter Test screen appears and the test begins. When it completes, the result (either Passed or Failed) is listed alongside each test.

   NOTE: *After running the test, you can select* ***Repeat*** *to run the test continuously (such as overnight). To end a continuous test, press any key.*

   If your adapter fails any of the individual tests, click on **Help** for suggested remedies.
4. Select **Previous** to return to the *Custom Installation* screen.

Two Node Adapter Test

This test verifies that the network cable is connected correctly, so that the adapter can transmit and receive data.

The test requires at least two computers. One computer, configured as the *Initiator*, generates and sends test messages. Another computer, configured as a *Responder*, receives messages and transmits them back to the initiator. Results can be viewed on both the initiating and responding computers.

NOTE: *Run the Basic Adapter Test before running the Two Node Adapter Test to ensure that the adapter's basic functions are working properly.*

Setting Up a Responder

1. Run EZStart.
2. Select **Custom** from the EZStart main screen.
3. Select **Two Node**. The *Two Node Selection* screen appears.
4. Select **Responder**. The *Respond To Test Messages* screen appears.

   The computer is ready to receive and retransmit messages. The numbers in the **Frames Received** and **Frames Transmitted** fields will be dynamically updated once the Initiator begins the test.

NOTE: *Repeat this procedure for all computers you wish to set up as Responders.*

Setting Up an Initiator

1. Run EZStart.
2. Select **Custom** from the EZStart main screen.
3. Select **Two Node**. The *Two Node Selection* screen appears.
4. Select **Initiator**. The *Initiate Test Messages* screen appears.

NOTE: *You can configure several initiators which can all send frames to a single Responder.*

Running the Test

1. From the *Initiate Test Messages* screen, use *one* of the following procedures to select a Responder.

   - Select **Find Responder** to allow EZStart to choose the first Responder that it finds. (Skip ahead to step 2.)

   - Select **Parameters** if a computer has not yet been set up as a Responder, or if you have set up several Responders and wish to specify a particular one. You will be presented with the *Set Parameters* screen. Enter the Destination Address (node address of the Responder) and click on **Ok**. You will return to the *Initiate Test Messages* screen. Refer to "Test Parameters," on the next page, for more information about the *Set Parameters* screen.

2. Select **Start**. Two messages appear: **INITIATING TEST MESSAGES** and **Press any key to stop Initiator**. The **Frames Transmitted** and **Frames Received** fields are dynamically updated during the test.

3. Press any key to stop the test.

4. Select **Statistics** to view test results. You are presented with the *LAN Statistics* screen. Transmit statistics are listed on the left, and Receive statistics on the right.

What to Look For

An acceptable level of error statistics is impossible to define. This level varies depending on the size and configuration of your network, and the applications being run. For example, collisions naturally occur in Ethernet networks. Acceptable levels vary with the number of nodes on each segment and the applications they are running. We recommend you consult your network administrator when reviewing the *LAN Statistics* screen.

Test Parameters

To display and/or change Two Node Adapter Test parameters:

1. Select **Parameters** from the *Initiate Test Messages* screen. You are presented with the *Set Parameters* screen.

2. Make any required changes. Refer to Table B-1 for a description of each field.

3. Select **Ok** to return to the *Initiate Test Messages* screen.

Table B-1. Test Parameters Fields

Field	Description	Options (Range)
Frame Length	Size of packet to be transmitted.	64 bytes through 1,024 bytes, or varying (default).
Iteration	Number of times the test is to run.	1 to infinity. Default is 1,000.
Check Method	Method used to check that data received from Responder matches data that was transmitted.	**Compare** (default) Compares contents of each packet byte-by-byte. Slowest but most accurate method. **Checksum** Adds contents of each packet and compares results. Faster than Compare. **None** Does not check data.
Tx Retries	Number of times Initiator tries to retransmit data if no response is received.	Default is 2.
Rx Timeout	Time (sec.) Initiator waits for response before next retransmission.	Default is 3.
Destination Address	Node address of Responder. Required if a Responder has not been set up, or if several have been set up and you want to specify a particular one.	
Pattern	Data that Initiator repeatedly sends to Responder.	

Troubleshooting

Network problems are often caused by cabling errors, conflicts with other devices installed in the same computer, or software that has been configured incorrectly. This section provides a checklist and procedures that may help you pinpoint the source of the problem.

NOTE: *The SMC Ethernet Connectivity Brochure contains a great deal of information you may consider useful when troubleshooting. It is available via SMC's EliteFax system. To obtain a printed copy, call one of the numbers listed on the back cover of this user guide.*

Basics

- Make sure the cable is within the IEEE 802.3 and/or ISO/IEC 8802-3 Ethernet standard for the type of network you are using.
- Make sure the adapter is securely seated in the expansion slot.
- Make sure the network cable is securely attached to the adapter's connector.
- Make sure the correct network operating system driver is installed.
- Make sure the computer is receiving power. If you suspect the power outlet to be faulty, plug another device into it to verify that it is working. Check to see if the outlet is controlled by a wall switch.

Monitoring the Indicators

Your adapter has two indicators, shown on page C-3.

- **Transmit/Receive Indicator** (Amber) — flashes to indicate network activity — the adapter is transmitting data to the network or receiving data from the network.
- **Link Integrity Indicator** (Green) — when lit, confirms there is an active connection between the adapter and a 10BASE-T hub.

  If the Link Integrity indicator is off, there is a problem with the connection between your adapter and hub. Check the network cable for cuts or splices. If that doesn't resolve the problem, try replacing the cable.

  If you unplug the twisted-pair cable from the adapter and the Link Integrity indicator is still lit, you have selected a network interface of **Non-Standard StarLan 10**. Switch to **10BASE-T** or **Automatic Media Detection**.

Copying Driver Files with EZStart

If you try to load a driver and DOS presents an error, the destination files may have a size of 0 bytes. Increase the value of the "FILES=" statement in your `CONFIG.SYS` file to at least 20. Then use EZStart to copy the driver files to your computer's hard disk again.

Replacing the Compressed `SMCGnn.EXE` File

To replace the `SMCGnn.EXE` file on the hard disk with an updated version:

1. Copy the current file to a diskette for safekeeping.
2. Delete the file from the hard disk.

3. Copy the new file to the directory containing the other EZStart files.

   All the EZStart files and the `SMCGnn.EXE` file must reside in the same directory; otherwise EZStart cannot install drivers. The letter "G" in this filename denotes the EtherEZ adapter, and "*nn*" is the SuperDisk version number.

Solving Network Problems

This section describes common network problems and explains how to solve them.

Detecting and Resolving I/O Conflicts

If your adapter is installed in a non-PnP computer and configured for memory-mapped mode, and you suspect that an I/O conflict has occurred, you can confirm it in one of two ways:

1. If you cannot connect to the network or the network driver will not load (which occurs when you install the adapter without running EZStart to test the configuration), run EZStart's **Automatic** feature to let the program select a nonconflicting configuration.

2. If you receive the message

   "*Adapter Not Found*"

   and you know the I/O address of other adapters installed in your computer, perform the procedure in Method 1. Perform the procedure described in Method 2 if you do *not* know the I/O addresses of other installed adapters.

Method 1

1. Turn off the computer's power. Then remove the card that is conflicting with your EtherEZ adapter.

2. Run EZStart and select **Custom**. Select an unused I/O base address.

3. Run Automatic Setup and Test.

4. Turn off the computer's power. Reinstall the removed adapter.

5. Run EZStart and select **Automatic** to test the configuration.

Method 2

1. Turn off the computer's power. Then remove all cards except the video adapter, disk controller, and the EtherEZ adapter.

2. Run EZStart and select **Automatic** to confirm that there are no I/O conflicts. If there are still I/O conflicts, install the adapter in a different computer and test it again. If you still cannot resolve the conflict, contact Technical Support at one of the telephone numbers shown on the back cover of this user guide.

3. Turn off the computer's power. Install one of the cards removed in step 1, run EZStart, and select **Automatic** again. Repeat this step, one card at a time, until one of the messages described on the previous page appears.

4. Remove the last card that you installed.

5. Run EZStart and select **Custom**. Select a different I/O base address.

6. Reinstall the last card that you removed.

7. Run EZStart again and select **Automatic**. If there is still an I/O conflict, repeat this procedure. Keep a list of the I/O base addresses you have tried so you don't use them again.

Cannot Connect to a File Server

Verify that the adapter is properly installed and that the server is up and connected to the network. Then, verify that the frame type the driver is using (as specified in `NET.CFG`, for example) is the same as that used by the server. If using multiple frame types, make sure the *first* one specified is the same as that used by the server.

SMC Driver-Related Error Messages

Using EZStart, select **Documentation** from the *Network Drivers and Documentation* screen to view or print the appropriate driver-installation document. This document describes driver-related error messages.

If you use an older driver (such as one designed for the EtherCard Elite16 Ultra) with the EtherEZ adapter but forget to change the adapter's configuration to operate in memory-mapped mode, you may receive an error message similar to one of the following:

```
SMC - 8000 - 207: Other system ROM already
occupies adapter RAM.
```

```
SMC - 8000 - 7: The adapter did not initial-
ize. SMC 8000 did not load.
```

(Error messages for DOS ODI driver shown.)

Configure the adapter to operate in memory-mapped mode when using older drivers (refer to page 5-6), or use a newer driver from the SuperDisk (refer to Chapter 6).

Adapter Problems After Adding a Device to Computer

Make sure the SMC adapter and the new device have not been assigned identical addresses or interrupts. If necessary, reconfigure one of the devices.

Mouse Will Not Work in EZStart

Load your mouse driver through your system's `AUTOEXEC.BAT` file or at the DOS prompt *before* running EZStart.

Appendix C

Specifications

Adapter

General

Hardware compatibility

IBM-compatible PnP or non-PnP computer with an ISA or EISA bus

Software compatibility

NetWare, LAN Manager, OS/2 Extended Edition, LAN Server, DOS ODI driver, NDIS Driver, FTP TCP/IP, DEC Pathworks, UNIX, Banyan, Windows NT, Windows for Workgroups, and others

Standards supported

IEEE 802.3 and ISO/IEC 8802-3 10BASE-T (twisted-pair) and 10BASE2 (thin coax) standards

Plug and Play Specification v1.0a

Power Requirements

Operating Voltage

+5 V DC +/- 10%
+12 V DC +/- 10% (AUI connector active only)

DC Power

SMC8416BT

TP mode, typical:	2.10 W
TP mode, max:	3.35 W
BNC mode, typical:	2.20 W
BNC mode, max:	3.85 W

SMC8416T

typical:	0.60 W
max:	1.20 W

SMC8416B

typical:	2.20 W
max:	3.85 W

Environmental

Operating temperature (ambient)

32°F to 131°F (0°C to 55°C)

Storage temperature

-4°F to 158°F (-20°C to 70°C)

Operating humidity

10% to 90% (non-condensing)

Storage humidity

5% to 95% (non-condensing)

Dimensions

Length X Width (Without Bracket)

6.25 inches X 3.0 inches
(159 millimeters X 76 millimeters)

Weight (With Bracket)

2.8 ounces (70 grams)

Adapter Connectors and LEDs

Figure C-1 shows the location of the connectors and LEDs on the adapter bracket. The LEDs are integrated within the RJ-45 connector.

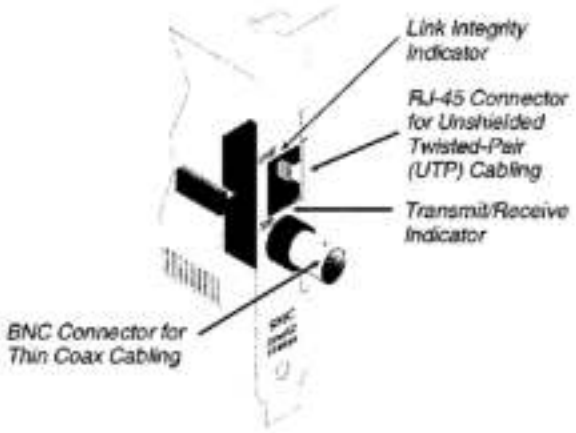


Figure C-1.
Adapter Connectors and LEDs

NOTE: *On some previously released EtherEZ adapters, the LEDs are not integrated within the RJ-45 connector as shown but are located on the bracket face, between the RJ-45 connector and BNC connector.*

- **BNC connector** — a cylindrical, bayonet-shaped connector for thin coax cable (10BASE2).
- **RJ-45 connector** — small snap-in connector for unshielded twisted-pair cable (10BASE-T).
- **AUI connector** — 15 pin for an external transceiver.
- **Link Integrity Indicator** — flashes green to indicate network activity.
- **Transmit/Receive Indicator** — amber light confirms an active connection between the adapter and a 10BASE-T hub.

Software Options

Table C-1. EtherEZ Adapter Software Options

Option	Default	Available
RAM Base Address	C800h*	C000h, C200h, C400h, C600h, C800h, CA00h, CC00h, CE00h D000h, D200h, D400h, D600h, D800h, DA00h, DC00h, DE00h E000h, E200h, E400h, E600h, E800h, EA00h, EC00h, EE00h
I/O Base Address	340h	240h, 260h, 280h, 2A0h, 2C0h, 2E0h, 300h, 320h, 340h, 360h, 380h
IRQ Channel (Interrupt Request Level)	3	2/9*, 3, 5, 7, 10**, 11** ** AT or EISA bus only.
Boot ROM Base Address	Disabled	C000h, C200h, C400h, C600h, C800h, CA00h, CC00h, CE00h D000h, D200h, D400h, D600h, D800h, DA00h, DC00h, DE00h E000h, E200h, E400h, E600h, E800h, EA00h, EC00h,EE00h
Boot ROM Size	Disabled	8 K, 16 K, 32 K
Network Interface Type	Automatic Media Detection	Automatic Media Detection, Non-Standard StarLAN 10, Auto Select 10BASE-T or BNC, Auto Select 10BASE-T or AUI
* Applies only when adapter operates in memory-mapped mode		

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Host name info.smc.com
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