adaptec

APA-460 SlimSCSI™

PCMCIA-to-SCSI Adapter

Hardware Installation Guide

1 Introduction

This guide describes installation and operation of the Adaptec™ APA-460 **SlimSCSI**™ PCMCIA-to-SCSI adapter (hereafter referred to as **SlimSCSI** adapter) for PCMCIA type II-compatible computer systems. This guide also contains installation and operation of CardSoft Card and Socket Services software.
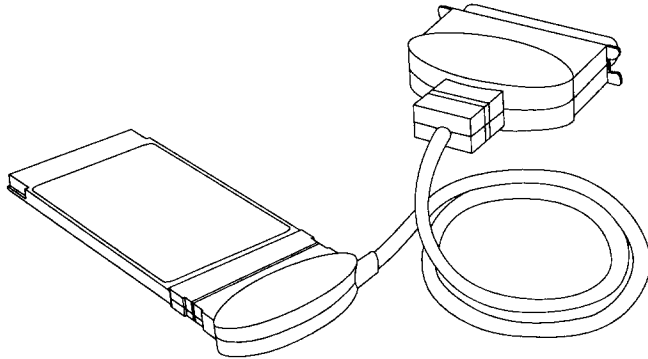

Figure 1   APA-460 SlimSCSI Adapter

1.1   SlimSCSI Features and Benefits

Your **SlimSCSI** adapter has been designed to provide simple, flexible control of most SCSI hard disks, removable-cartridge disks, Floptical® drives, magneto-optical drives, SCSI-interfaced Bernoulli® and SyQuest® drives, SCSI floppy and tape drives, CD-ROMs (including single- and multi-session Kodak® Photo CD), and HP® ScanJet® II scanners. Some of the important features include:

- High-speed operation.
- Simple installation—with the reversible 3-foot cable, just plug it into your **SlimSCSI** adapter and connect to your SCSI device(s).
- Standard SCSI interface connector, permitting the use of almost any SCSI-compatible device.
- Small size and light weight for easy portability.
- Easy-to-use SystemSoft® CardSoft Card and Socket Services software to enable "plug and play" features in your PCMCIA system.
- Easy-to-use **SCSIworks!**™ software for supporting most SCSI devices; OS/2®, Windows NT, and Novell® NetWare™ operating systems; and includes *Magic Lantern*™ photo CD viewer, *Music Box* CD-ROM audio control software, and **Tape Mate** II SCSI tape backup software.

1.2 Hardware Requirements

The **SlimSCSI** adapter is designed to be as universally usable as possible, but there are three primary hardware compatibility requirements:

- The SCSI device chain must be properly terminated as per ANSI SCSI specifications.
- A computer with PCMCIA type II or III slot.
- The host PCMCIA controller must be supported by CardSoft software.
- A 100% IBM®-compatible BIOS. Operation with an incompatible BIOS may be possible but is not guaranteed.

1.3 Checklist

You should have received the following items in your **SlimSCSI** adapter package:

- ❏ **SlimSCSI** SCSI host adapter and cable.
- ❏ 3.5-inch, 1.44-MB low-density CardSoft software distribution diskette.
- ❏ 3.5-inch, 1.44-MB high-density **SCSIworks!** software distribution diskettes #1 and #2.
- ❏ *Hardware Installation Guide* (this document).
- ❏ *SCSIworks! Software User Guide.*
- ❏ Product Registration card.
- ❏ Microsoft® MSCDEX Software Registration card.

If anything is missing, please contact your dealer immediately.

1.4 Installation and Operation Overview

Installation and operation of the **SlimSCSI** adapter consists of three steps which must be followed in this order:

1 If your system did nmot come with card and socket services software to enable PCMCIA slot "plug and play" features, Adaptec has supplied CardSoft card and socket services software. See *Appendix A* for complete installation and configuration instructions.
2 Installing the **SlimSCSI** adapter into your PCMCIA-compatible computer. See *Chapter 2* for details.
3 Installing **SCSIworks!** software and operating the **SlimSCSI** adapter; see *Chapter 3* for details; this chapter also includes common error messages and remedies.

2   SlimSCSI Hardware Installation

This chapter details **SlimSCSI** adapter installation and the SCSI connector pinouts.

2.1   Hardware Installation

Hardware installation involves plugging the **SlimSCSI** adapter into a PCMCIA type II slot and connecting it to the applicable SCSI device(s) as described in the following steps. Please see *Section 3.3* for troubleshooting assistance with possible problems which may develop.

NOTE

If your system did not come with card and socket services software installed, you must install CardSoft card and socket services software provided by Adaptec NOW. **If you do not install card and socket services software your system will not recognize the PCMCIA slot(s) or the adapters and devices connected.** See *Appendix A.*

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1   Connect your **SlimSCSI** adapter to its proprietary cable connector; the reversible connector allows it to be connected either way. (see *Figure 2*).
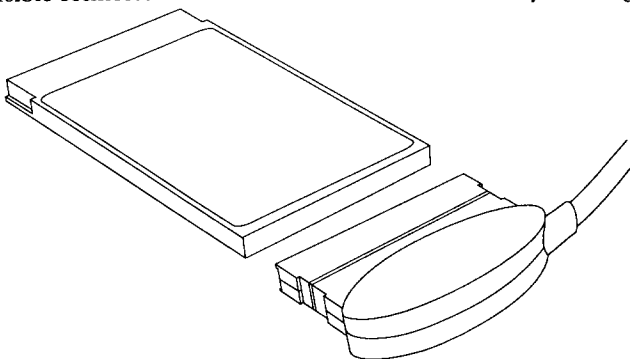

Figure 2   SlimSCSI Proprietary Connector

2   Insert the **SlimSCSI** adapter into the PCMCIA type II, type III or Toshiba type IV slot.

3   Connect the first SCSI device to the SCSI connector on the **SlimSCSI** adapter (see *Figure 3*). Other SCSI devices (up to 7 total) may be daisy-chained to the first SCSI device; see your dealer for details if you are not familiar with multiple-device connections.
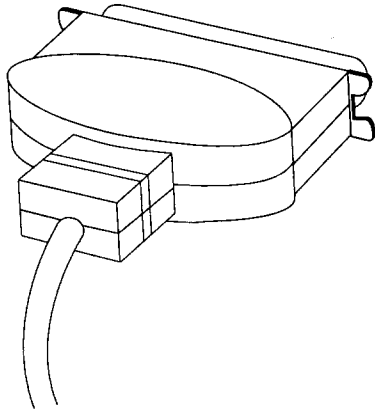
Figure 3   SlimSCSI Male SCSI Connector

4 The SCSI device(s) connected to the **SlimSCSI** adapter must provide TERMPOWER output if it is necessary. See your SCSI device manual or dealer to confirm that this is the case. Note that the **SlimSCSI** adapter does not provide TERMPOWER.

5 The last (or only) SCSI device connected to the **SlimSCSI** adapter should be properly "terminated," per manufacturer's specifications. See your dealer for termination assistance if necessary.

☞ Note that the **SlimSCSI** adapter itself is terminated.

6 If you connect more than one SCSI device to your **SlimSCSI** adapter simultaneously, make sure that each device's SCSI "address" (device number between 0 and 6) is different. Address 7 is reserved for the **SlimSCSI** adapter. Different addresses are essential to prevent conflicts when the **SlimSCSI** adapter communicates with the devices.

2.2   SCSI Connector Pinouts

This section documents the SCSI interface connectors on the **SlimSCSI** adapter cable as well as the typical mating connectors found on SCSI devices. Note that the connector on the **SlimSCSI** adapter itself and the cable connector (that connects to the **SlimSCSI** adapter) are proprietary (see *Figure 2*).

A typical single-ended, shielded female SCSI device 50-pin connector is shown in *Figure 4*. This connector is most often used with external SCSI devices, and SCSI (male) connector on the **SlimSCSI** adapter connects to it.

Pin 25 ── ──Pin 1

Pin 50 ── ──Pin 26
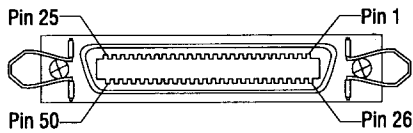
Figure 4   Female SCSI Device Connector

Table 1 lists the pin assignments for each connector type. Definitions of the various signals may be found in any SCSI design reference book. The SCSI interface is fully defined in **ANSI X3.131-1986**; this document is available from Global Engineering Documents, 2805 McGaw Ave, Irvine, CA 92713-9539 USA, telephone (714) 261-1455.

Pinout (Fig. 3)	Function	Function	Pinouts (Fig. 3)
1	Gnd	-DB0	26
2	Gnd	-DB1	27
3	Gnd	-DB2	28
4	Gnd	-DB3	29
5	Gnd	-DB4	30
6	Gnd	-DB5	31
7	Gnd	-DB6	32
8	Gnd	-DB7	33
9	Gnd	-DBP	34
10	Gnd	Gnd	35
11	Gnd	Gnd	36
12	Gnd	Gnd	37
13	Open	Termpwr	38
14	Gnd	Gnd	39
15	Gnd	Gnd	40
16	Gnd	-ATN	41
17	Gnd	Gnd	42
18	Gnd	-BSY	43
19	Gnd	-ACK	44
20	Gnd	-RST	45
21	Gnd	-MSG	46
22	Gnd	-SEL	47
23	Gnd	-C/D	48
24	Gnd	-REQ	49
25	Gnd	-I/O	50

Table 1   SCSI Connector Pin Assignments

3   SlimSCSI Adapter Operation

This chapter details initial installation steps for **SCSIworks!** software and operation of the **SlimSCSI** adapter.

☞ Make sure you have installed CardSoft software (if you don't already have a card and socket services software installed) before you install **SCSIworks!** software. See *Appendix A*.

3.1   Notes on SCSIworks! Software Installation

Here are a few brief notes on installing **SCSIworks!** software.

1   From the Card and Socket Services install program select **Install SCSIworks!** or insert **SCSIworks!** disk 1 and type **A:\INSTALL**.

2   Load the software as explained in the *SCSIworks! Software Users Guide*.

3.2   Operation

When you first use your **SlimSCSI** adapter with CD-ROMs or hard disk devices, these devices must be connected to the system via the **SlimSCSI** adapter and turned on at bootup to load the device drivers. Tape drives do not have to be installed at bootup because they work directly through the ASPI manager and not through a device driver.

Once you have installed **SCSIworks!** software you may remove and insert the **SlimSCSI** adapter at any time except when data is being transfered via the SCSI bus and **SlimSCSI** adapter; the device busy light is ON when data is being transferred.

If you do not have the **SlimSCSI** adapter installed when you try to access a device connected to it, you will receive a "*Read Fault Error Reading Drive X.*" Reinsert **SlimSCSI** adapter into the PCMCIA socket and it will work fine if no changes have been made to the SCSI configuration.

3.3   Common Error Messages and Remedies

The following are error messages or descriptions of problems you may encounter. Be sure to read the *Common Error Messages and Remedies* in the *Software User Guide* for other software related error messages and remedies.

I can't boot from a device connected to the SlimSCSI adapter.

- Even though you may create a bootable partition with your **SlimSCSI** adapter using TFORMAT, you will not be able to boot your computer with this partition through your **SlimSCSI** adapter. Your computer does not expect to boot from a device connected to the PCMCIA adapter. Therefore, your **SlimSCSI** adapter device drivers must be loaded during the boot process from another disk.

"0 host adapter found" Message Appears During Bootup

- Insert the **SlimSCSI** adapter with devices connected.

I receive a "Read Fault Error Reading Drive X."

- Reinsert the **SlimSCSI** adapter with devices connected into any PCMCIA type-II slot.

During Bootup, the Driver Recognizes the SlimSCSI adapter and the SCSI Device(s), Then Stops With a "No SCSI Functions in Use" Message.

- The software driver is looking for a different device. For example, you may have the CD-ROM driver loaded, but you are trying to work with a hard disk drive or vice versa. Each software driver recognizes the existence of all SCSI devices attached to the SCSI chain, but device drivers only work with the device for which they were written (i.e. hard disk drivers see CD-ROMs but only communicate with hard disks). Install the correct driver or remove an unwanted driver from your CONFIG.SYS file using a text editor program.
- When the device is not formatted correctly this message appears. Use an appropruate formatting utility to format the device. **SCSIworks!** software contains a formating utility called TFORMAT; see your **SCSIworks!** software and documentaion.

A   Card and Socket Services Installation

Your **SlimSCSI** adapter, PCMCIA-compatible system, and **SCSIworks!** software package require Card and Socket Services to function properly. CardSoft software provided by SystemSoft is the PCMCIA solution enabling the computer to recognize the PCMCIA slots and allocate system requirements providing you with a complete "plug and play" system for DOS.

CardSoft software comes standard with an installation program and a configuration utility. The install program installs the CardSoft software components onto the system with the option of a standard or custom installation.

The configuration utility lets you easily change any CardSoft parameters that were set up during installation. By using this utility, you avoid having to modify parameters located in CONFIG.SYS.

A.1   Introduction

The CardSoft solution consists of the following drivers and utilities:

Socket Services

Socket Services provides a standard software interface to host controller chips such as the Intel® 82365SL PCMCIA, ASCII, Cirrus®, Vadem, Motorola®, and the DataBook® TCIC-2/N and isolates the socket hardware from higher level software. Socket Services includes functions such as configuring a socket for an I/O interface and controlling socket power voltages. The socket services driver installed for your system depends upon your host controller chip.

Card Services (CS.EXE)

The Card Services driver manages competition for system resources, adapter and card resources, and configuration.

Card Identification (CARDID.EXE)

This client device driver detects the insertion and removal of PCMCIA PC cards, automatically determines the card type upon insertion, and then configures the card and socket/adapter. This driver communicates with PCMCIA-aware device drivers.

Memory Card Driver (MEMDRV.EXE)*

MEMDRV.EXE is SystemSoft's version of the Microsoft memory card driver for SRAM and flash card support. It provides the interface to the Flash File System that is provided through Microsoft's MS-FLASH.SYS.

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MEMDRV allows booting from memory cards. You can remark out the line referring to this driver from the AUTOEXEC.BAT file, if you are not using a memory card in your PCMCIA slot.

SRAM Card Driver (SRAMDRV.EXE)*

This SystemSoft device driver recognizes and supports SRAM cards and is used in place of MEMDRV.EXE and MS-FLASH.EXE if you are using SRAM cards only. You can remark out the line referring to this driver from the AUTOEXEC.BAT file, if you are not using a SRAM card in your PCMCIA slot.

IDE/ATA Support (ATADRV.EXE and ATAINIT.EXE)*

ATADRV.EXE is a block device driver that supports ATA/Type 3 hard drive PCMCIA cards. The ATAINIT.EXE utility places a hard disk partition table onto a blank ATA drive. This utility initializes the ATA drive in the same manner as FDISK does with a standard hard drive.

Windows Enhanced Mode PCMCIA Support (SSVCD.386)*

This Virtual Communications driver permits hot insertion/removal of communications I/O and memory cards within Windows.

Card Boot*

The CardBoot (INT13.ROM, ENDBOOTB.COM, ENDBOOTR.COM, FLASHFMT.EXE) product consists of a suite of components that provide boot capabilities to SRAM or Intel Series II cards:

INT13.ROM is the Boot Extension ROM. It redirects reads of drive A to reads of the PCMCIA card. It is a binary image of a ROM file that should be put into the system ROM and will be found during the standard BIOS extension ROM scan.

ENDBOOTB.COM and ENDBOOTR.COM turn off the drive A redirection, making floppy drive A accessible after the boot from the PCMCIA card is completed. ENDBOOTB.COM is used if the boot code is included in the INT13 handler of a SystemSoft BIOS. ENDBOOTR.COM is used if the boot code is included in extension ROM.

Resource Allocation Utility (CSALLOC.EXE)

CSALLOC is a DOS utility that scans the system for available memory, I/O Port, and IRQ resources. It then writes this information to the file CSALLOC.INI, which is used by Card Services to determine what system resources are available for PC Card configuration.

CSALLOC can be run in two modes, both of which must be run from the DOS command line (they cannot be run from within a Microsoft Windows "MS-DOS® Prompt" window):

CSALLOC /G   Runs CSALLOC in non-display mode. When you enter this command at the DOS prompt, you are prompted to remove PC Cards that are present in the system. Remove any inserted PC Cards, then press any key. CSALLOC then scans the system for available resources, and writes information similar to the following in the CSALLOC.INI file.

```
MEM=C000-CFFF,D000-DFFF
IOP=108-16F,178-1EF,1F8-1FF,208-36F,380-3BF,
    3E0-3EF
RIOP=170-177,370-377,3F0-3F7,IRQ=3,4,5,7
```

CSALLOC /G /D   Runs CSALLOC in display mode. When you add the /D switch to the command, CSALLOC displays a series of messages as it scans system resources, then lists the available resources on the screen (in the same format shown above).

☞ You should run the CSALLOC utility whenever you have changed I/O Port, IRQ, or memory settings (for example, if you change your COM Port settings in Windows, or you enable the EMM386 or other memory manager).

Card Information Utility (CARDINFO.EXE)

CARDINFO is a DOS utility that scans the PCMCIA sockets on the system and lists their contents on the screen. It can be run in two modes, both of which must be run from the DOS command line (they cannot be run from within a Microsoft Windows "MS-DOS Prompt" window):

CARDINFO   Runs CARDINFO in non-verbose mode. When you enter this command at the DOS prompt, information similar to the following appears:

```
Slot 1: Memory card, or unknown I/O card
```

CARDINFO /v   Runs CARDINFO in verbose mode, which displays more extensive information about the PCMCIA slots. (We recommend that you use the DOS MORE switch with this command, since the information may require more than one

screen to appear). Following is a sample of CARDINFO information using the /V switch. The type of information that appears depends on the type of cards that are present in the slots.

```
Client Information for handle 738E:
Client Revision = 1.18
CS Support Level = 2.01
Revision Date = 09-30-1993
Client Name = "SCSIMGR$"
Vendor Name = "Adaptec, Inc."

Slot 1:
   Memory card, or unknown I/O card
[Configuration Info]
Configuring client handle is 738E
Memory+I/O interface, Vcc 50, Vpp1 0, Vpp2 0
Config base 80000000, Config values:
Option value: 48   I/O range 360-36F, 16-bit
Assigned IRQ is 3 (enabled)

[Memory Range Information]
Window 1B3E000 - 1B51FFF, 8-bit common memory
Window 1C000 - 31FFF, 16-bit attribute memory
```

A.2   Installation

This easy-to-use program installs all or some of the CardSoft components onto the system, with the option of a standard or custom installation. Follow these instructions for installing CardSoft software.

1   Insert the diskette containing the CardSoft software.
2   At the DOS command line, type **A:**, then press [Enter].
3   Type **INSTALL**, and press [Enter].
4   Select **First Time Install** or **Upgrade Install** (whichever is appropriate) and press [Enter].
5   Follow the instructions on the screen. During the installation procedure, you are presented with two types of installation methods listed as follows:

...stallation	Custom Installation
...n.	More choices during the installation procedure.
...the number of ...ystem.	Allows you to specify the number of PCMCIA slots in the system.
...the drive and ...re the CardSoft ...stalled.	Allows you to specify the drive and directory location where the CardSoft components will be installed.
...mponents into the ...ry.	Allows the user to install only the CardSoft components and utilities you want.
...s CONFIG.SYS with ...Creates a backup ...FIG.SYS.	Provides the user the option to make their own modifications to CONFIG.SYS.

Standard In...
Little user-intervention...
Allows you to specify ...PCMCIA slots in the s...
Allows you to specify ...directory location whe...components will be in...
Installs all CardSoft c...newly-created director...
Automatically updates...the necessary drivers....copy of your old CON...

...ard installation, press [Enter]. To select the custom
...[Down Arrow] key to highlight the item and press
...standard and custom installations, steps 7 through 9

...prompting you to choose the number that
...number of PCMCIA sockets in your system. Use
...[Down Arrow] keys to select the appropriate
...[Enter].

...with the name of the directory that will be created
...The default name is CARDSOFT. All CardSoft
...into this directory. To keep the default directory
...]. To change the directory name, use the backspace
...rectory name, then type in a new name. Press
...ned.

...ppears displaying all available drives in the system.
...] or [Down Arrow] keys to select the drive where
...ill be installed. Press [Enter] when finished.

...lation, the utility copies all files from the diskette to
...e and directory.

...ion, the window lists all installable CardSoft
...stall all components, simply press the [Spacebar] on
...toggle to YES and move the highlight bar down to
...t. To select only certain components, use the
...to highlight the desired component, then press the
...to YES. Press [Enter] when finished. The utility
...iles from the diskette to the destination drive.

6 To select the stand...
installation, use the...
[Enter]. (For both ...
are the same.)

7 A window appears ...
corresponds to the ...
the [Up Arrow] or ...
number and press [...]

8 A window appears ...
during installation. ...
files will be placed ...
name, press [Enter]...
key to delete the di...
[Enter] when finish...

9 Another window ap...
Use the [Up Arrow...
the CardSoft files w...

10 For standard install...
...e destination drive...

For custom installat...
components. To in...
each component to ...
the next component...
[Down Arrow] key ...
[Spacebar] to toggle...
copies the selected f...

11 <u>For standard installation</u>, the utility automatically modifies the CONFIG.SYS file by adding the appropriate drivers to it. Your original CONFIG.SYS is saved and given a new name. (The installation program displays the new name on the screen.) After the configuration file is modified, you are prompted to press [Enter] to continue.

<u>For custom installation</u>, the installation utility halts and asks whether you want to have the utility automatically modify CONFIG.SYS. Press **Y** to modify CONFIG.SYS, press **N** to leave it unmodified. If **N** is pressed, you must add the device lines that appear on the screen.

12 When the installation program is complete, remove the diskette from the drive and reboot the system in order for the CardSoft parameters to become effective.

☞ Although the installation procedure is the recommended method for installing the software, the CardSoft files can be copied from the CardSoft diskette into any specified directory. You would then have to edit CONFIG.SYS and add the appropriate device lines. See *page 17* for more information on device line parameters.

A.2.1   Modem and Memory Card Support within Windows 3.1

SystemSoft provides a modified virtual COM device driver (VCD) for use with Windows 3.1. This component permits hot insertion and removal of communications and memory cards within Windows. To install Windows support for PCMCIA:

1   Copy the file SSVCD.386 into the SYSTEM subdirectory under your Windows root directory.

2   Open the SYSTEM.INI file and comment out the following device line located in the [386Enh] section. Comment out the line by adding a semicolon (;) at the beginning of the line.

```
;DEVICE=*VCD
```

3   Add the following line in the same [386Enh] section.

```
DEVICE=SSVCD.386
```

4   Add the following lines in the same [386Enh] section.

```
COMXIRQ=YYY
COMXBASE=ZZZ
COMXNONREMOVABLE=FALSE
```

This information configures the COM ports for non-removable cards so that they can be recognized. In the above lines, X represents the number of the COM port where the PCMCIA modem card will reside

(1 - 4), YYY is the IRQ the PCMCIA modem card will use (in decimal), and ZZZ is the base I/O address to which the PCMCIA modem card will respond (in hexadecimal).

For example, if the PCMCIA modem card was configured as COM4, using IRQ5, and residing at I/O base address 2E8, you would add the following lines:

```
COM4IRQ=5
COM4BASE=2E8
COM4NONREMOVABLE=FALSE
```

5 Since some PC Cards use memory windows, you must inform Windows to exclude using certain memory regions. To do this, add a line similar to the one below.

```
EMMEXCLUDE=D000-DFFF
```

The range that you specify must match the ranges specified in the Card Installation Client and memory card drivers. You can exclude more than one range.

The above line excludes regions D000h through DFFFh from being used by Windows.

A.2.2 Installation Notes

- Although the installation procedure is the recommended method for installing the software, the CardSoft files can be copied from the CardSoft diskette into any specified directory. You would then have to edit CONFIG.SYS and add the appropriate device lines. See *page 17* for more information on device line parameters.
- As previously mentioned, CardSoft configurations may not consist of all components and utilities that SystemSoft provides. In fact, some components cannot exist together. For example, the Memory Card drivers SRAMDRV.EXE and MEMDRV.EXE cannot be installed into CONFIG.SYS together. Use one or the other.
- The installation program currently loads all drivers found on the diskette (with the exception of Windows 3.1 support). If it finds both SRAMDRV.EXE and MEMDRV.EXE, it installs both drivers into CONFIG.SYS. However, it is expected that only one memory card driver would ever be present on the diskette. If you receive both memory card drivers, simply edit CONFIG.SYS and remove the device line that is not being used.
- In order to use the memory card driver, MEMDRV.EXE, you must obtain the MS-FLASH driver from Microsoft Corporation. The Installation Utility adds a device line for the MS-FLASH driver if your configuration contains the MEMDRV.EXE driver.

- The installation program does not currently install the driver for PCMCIA support while in Windows 3.1. The SSVCD.386 driver does not reside in the same directory as the other CardSoft components nor does it appear as a device line in CONFIG.SYS. For information on installing this driver, refer to the *Appendix B*.

B CardSoft Software Configuration

This appendix details other CardSoft software utilities and options. This appendix may be useful to you if you have other PC Cards available for use in your notebook, however, it is not necessary for the **SlimSCSI** adapter.

B.1 Configuration Notes

CardSoft components have various parameters that can be modified to suit your particular configuration. Parameters can be modified using either of the following methods:

- Running the Configuration Utility.
- Adding or modifying the device line parameters associated with the device drivers in CONFIG.SYS file.

Configuration Utility

The Configuration Utility is an easy-to-use program for changing the CardSoft components. You have the option of using the keyboard, a pointing device, or both to maneuver around the screen.

☞ The Configuration Utility makes modifications to the CARDID.INI and CSALLOC.INI files (the initiator files for CardID and CSALLOC). When modifications are made to any of the CardSoft components, the time and date of the filename is changed to reflect the change (the size of the file, however, never changes).

Device Line Parameters

Modifications to the CardSoft components can also be done by way of adding or modifying device line parameters. Instead of modifying the executable file, parameters are added to the appropriate device driver within CONFIG.SYS. The following is an example of how the CardSoft device lines might appear in CONFIG.SYS.

```
DEVICE=C:\CARDSOFT\SS365SL.EXE   /SIRM=FFFF   /SKT=3
DEVICE=C:\CARDSOFT\CS.EXE DEVICE=C:\CARDSOFT\ATADRV.EXE
DEVICE=C:\CARDSOFT\MEMDRV.EXE
        (OR DEVICE=DRIVE:\PATH\SRAMDRV.EXE)
DEVICE=C:\CARDSOFT\MS-FLASH.SYS
        (DO NOT USE IF SRAMDRV.EXE IS INSTALLED)
```

☞ Parameters consist of an /IDSTRING and a VALUE. The /IDSTRING must always match exactly one of the available strings. The VALUE is entered as ASCII-hexadecimal or ASCII-decimal. For example, in the example above the /SIRM is the required IDSTRING and FFFF is the value.

B.2 Running the Configuration Utility

The Configuration Utility is an easy-to-use program for changing the CardSoft components. Its interface is a windowed type with pull down menus. You have the option of using the keyboard, a pointing device, or both to maneuver around the screen. The Configuration Utility

- Configures and recognizes various PC cards.
- Modifies the CardSoft executable files.
- Determines available system resources.

To run the Configuration Utility, change to the directory containing the utility (i.e., cd\CARDSOFT) and type **CONFIG**. A screen appears as shown in *Figures 5*.

```
                      CardSoft(TM) Configuration Utility
   File    Utility  Options
                                                              Help
```

Welcome to CONFIG.EXE, the CardSoft Configuration Utility. This utility allows you to change the default configuration for PCMCIA cards (Modem, ATA/disk, Memory, SRAM, FLASH, I/O cards, Multifunction, and Network cards) and select your card insertion feedback.

To alter your PC Card configuration, select the Edit Configuration item from the File menu.

< OK >

Figure 5. Configuration Utility Screen (Option 1)

The initial Configuration Utility screen consists of a menu bar at the top and a help text section at the bottom. When a Card Library file is selected, the card records in that file appear on the left in the Current list box. A second Card Library can be opened in view/copy mode. The records in this file appear on the right in the Card Library list box.

Accessing Menu Items

Each menu bar item contains a pull down menu with various items to choose from. To access each pull down menu, click the left mouse button on the desired item or press [Alt] + the highlighted key. For example, to access the File menu, click on the word File or press [Alt] + **F**. When the pull down menu appears, select the desired item by

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- Clicking on it with the left mouse button.
- Pressing the [Down Arrow] key to highlight the item and then pressing [Enter].
- Pressing the key that corresponds to the highlighted letter.

Exiting the Configuration Utility

To exit the Configuration Utility, select **Exit** from the File pull down menu. If the Current File has been modified, a dialog box appears that enables you to save your changes or discard them before exiting. Select **Yes** to save your changes, **No** to discard them, or **Cancel** to return to the main menu and continue your editing session.

Editing PC Card Configuration Parameters

The Configuration Utility enables you to edit the configuration parameters for Fax/Modem, Modem, LAN, and ATA cards. The configuration parameters include items such as COM Port, LAN Port, and ATA Port information, as well as general parameters such as having a beep enabled on card insertion.

To edit PC Card configuration parameters:

1 Select the record you want to edit from the Current File list box.
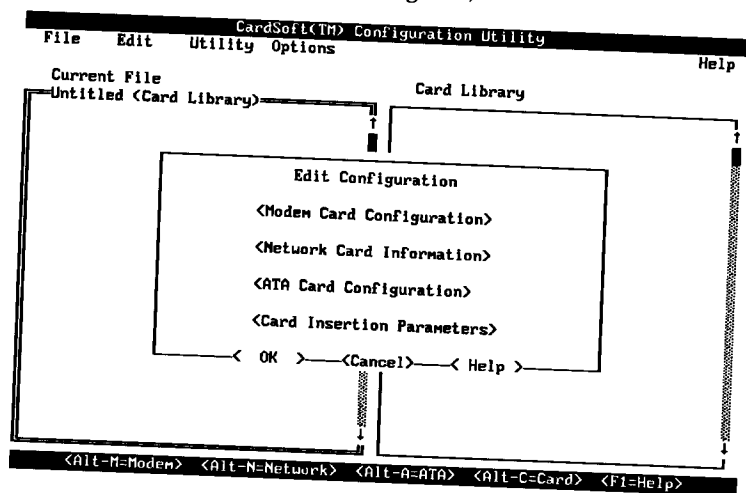2 Select **Edit Configuration** from the File pull down menu. The Edit Configuration menu appears (see *Figure 6*).

Figure 6   Edit Configuration Menu

3 If you are configuring a Fax/Modem or Modem card, select **Modem Card Configuration**.

If you are configuring a LAN card, select **Network Card Information**.

If you are configuring an ATA card, select **ATA Card Configuration**. Then click on **OK**. The following sections describe the screens for each of these configuration functions.

4 When you are finished configuring the port information for the card, select **Card Insertion Parameters**. The Card Insertion Parameters screen appears (see *Figure 7*).
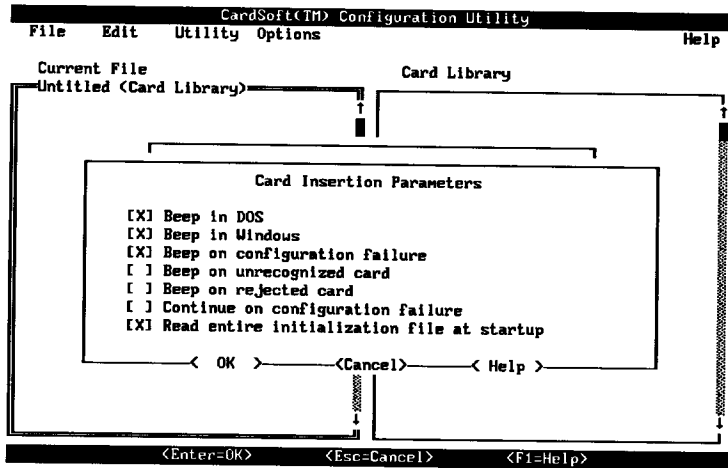
Figure 7   Card Insertion Parameters Menu

The "Beep in DOS" and "Beep in Windows" parameters control whether any beeps are produced in DOS and Windows (which includes the Windows DOS box), respectively. The other beep parameters control whether the specified conditions cause beeps when beeps are enabled in the current system. If Continue on Configuration Failure is enabled, CardID continues to search card library records when a card configuration is attempted and fails. If Read entire initialization file at startup is enabled, all card records are read into memory when CardID is first run. This gives improved performance, compared with reading card records as the cards are inherited. An 'X' indicates that the feature is enabled.

5 When done defining the PC Card configuration, click on **OK** from the Edit Configuration screen to return to the main menu.

Modem Card Configuration

The Modem Card Configuration screen is where you define the behavior of Modem and Fax/Modem cards. You can define I/O ports and IRQ values for as many as four COM ports and the COM Port Assignment Order (the order in which the ports will be selected for configuring Modem or Fax/Modem cards). This order is either Insertion order ("First" is the first card inserted) or Socket order ("First" is the card inserted in the first PCMCIA socket). You can also specify whether to enable audio and Ring Indicate wakeup mode on cards that support those features. See *Figure 8*.
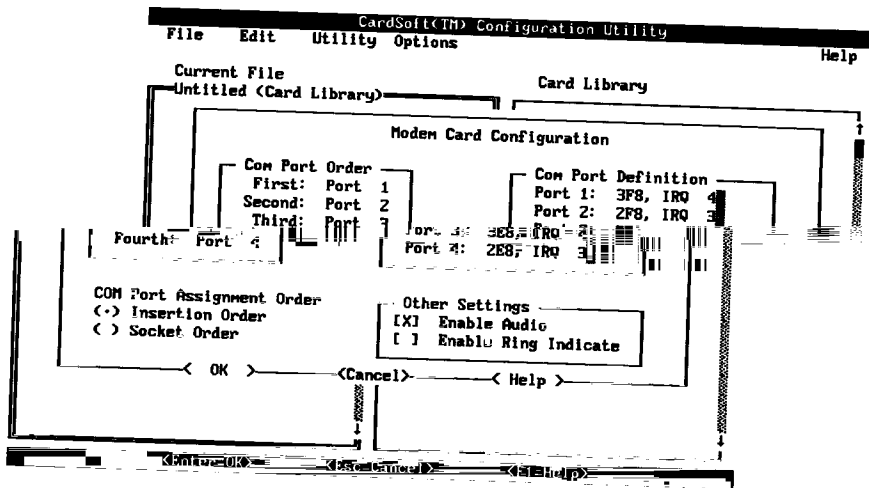
Figure 8   Modem Card Configuration Menu

To change the COM Port order, position the cursor under the value and type in the new value.

To change the Port Address or IRQ line, position the cursor under the value and type the new value.

To select the Assignment Order, click on the desired item, or highlight it and press the [Spacebar]. The selected item is marked with a bullet.

To enable/disable Audio or Ring Indicate, click on the item, or highlight it a press the [Spacebar] ('X' indicates it is enabled).

Network Card Information

The Network Card Information screen is where you specify the base I/O address, the IRQ, and up to two memory windows for use with a LAN card. The base I/O address is specified in hexadecimal. Except for rare

cases, the value should be between 100h and 3FFh. The IRQ, specified in decimal, may be any value between 3 and 15 that is available on your computer. The memory windows are paragraph values between C000h and EF00h. Since the last two digits must be zero, you need only enter the first two digits. See *Figure 9.*
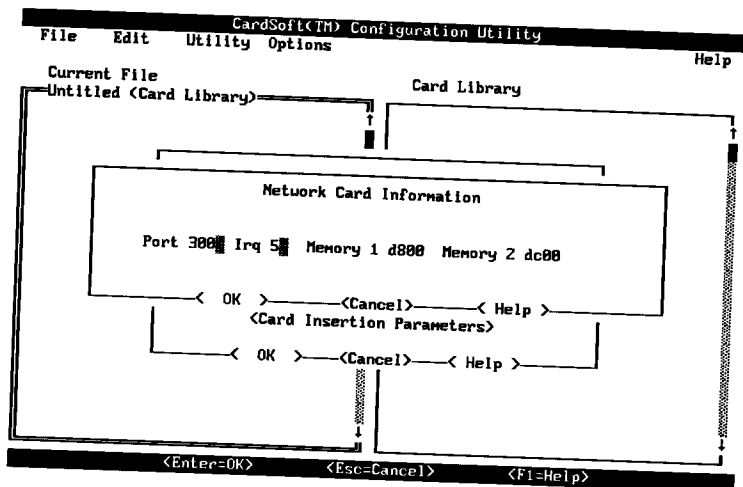
Figure 9   Network Card Information Menu

To edit the information on this screen, simply position the cursor on the value you want to change, then type in the new value. When done, click on OK.

ATA Card Configuration

The ATA Card Configuration screen is where you specify how CardID will attempt to configure ATA cards (including Flash disks and rotating-media disks). You can specify whether CardID should try the standard primary and secondary ATA addresses, and whether it should try to use the linear-address mode available on most ATA cards. It is generally best to avoid the primary ATA address, unless you are certain there is no disk installed on your computer that uses that address. See *Figure 10.*

An 'X' indicates that the item is enabled. To enable/disable an item, click on the item, or highlight it and press the [Spacebar], to toggle the 'X' on/off.

Figure 10   ATA Parameters Menu

Saving PC Card Configuration Parameters

Once you have edited a PC Card configuration, you must save your
settings by selecting **Save Configuration** from the File pull down menu.
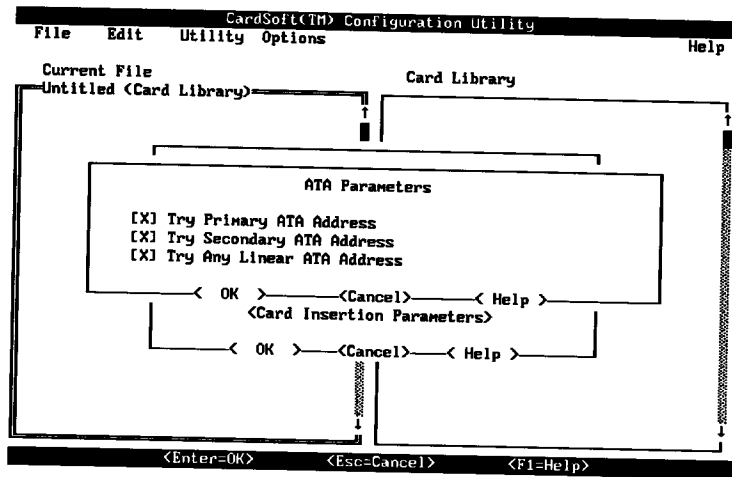The Save Configuration selection is available only if you have edited the
PC Card configuration for the highlighted record in the Current File list
box.

Allocating System Resources for Card Services

The Resource Allocation screen lists the system resources that CSALLOC
has determined are available for use by Card Services. It enables you to
add resources to or delete resources from the resource lists if you are sure
that CSALLOC has incorrectly identified the resources that are available.
You can also specify that particular resources are reserved for use by a PC
card, change the range of available resources, or scan for available resources.

To access the Resource Allocation screen, select **Resource Allocation** from
the Utility menu, then select **Open** from the dialog box that appears. A
screen similar to *Figure 11* appears.

The Memory Address list box displays the memory address ranges that
CSALLOC has determined are not reserved by other system resources
(drivers, adapters, etc.). The memory addresses listed here are made
available to Card Services at system initialization. The values are expressed
in 16-byte paragraphs and are restricted to 4 KB boundaries. Each single value represents a single 4-KB area.
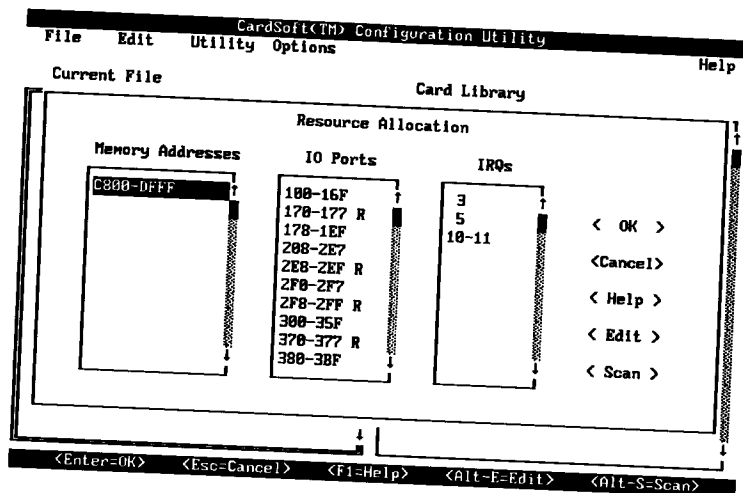
23

Figure 11   Resource Allocation Menu

Similarly, the IO Ports list box displays the I/O Port address ranges that are unused, and therefore available for Card Services management. The values are expressed in bytes. A line with a single value represents a single I/O Port.

The IRQs box displays the IRQs that CSALLOC has determined are unused by the system. A single value represents a single IRQ. Multiple values on one line indicate a range of values (e.g., 11-15 means that IRQs 11, 12, 13, 14, and 15 are available to Card Services).

Adding/Appending a New Resource

To add or append a new resource to a resource list:

1   Highlight the resource before which (or after which) you want to add another resource.

2   Click on **Edit** (or press [Alt]+**E**). An Edit Options screen appears.

3   Click on **Add New** (or press [Alt]+**A**). The Add New Resource screen appears.

4   Click on **Insert** (or press [Alt]+**I**) to insert a resource before the item you highlighted in Step 1, or click on **Append** (or press [Alt]+**A**) to add a resource after the item you highlighted in Step 1. For example, if you highlighted 3E0-3EF in the IO Ports list box, and you want to add the range 3F0-3F7, select **Append**; if you want to add the range 3C0-3CF, click on **Insert**. The Add New Resource dialog box appears as shown in *Figure 12.*

```
                  CardSoft(TM) Configuration Utility
    Edit   Utility Options
                                                          Help
rrent File                        Card Library
┌──────────────────────────────────────────────────────────┐
│               Resource Allocation                      1  │
│                                                        ↑  │
│  Memory Addre┌─────────────────────────────────┐          │
│  ┌─────────┐ │        Add New Resource         │          │
│  │C800-DFFF│ │                                 │ ⟨  OK  ⟩ │
│  └─────────┘ │  Memory Addresses               │          │
│              │                                 │ ⟨Cancel⟩ │
│              │  C800 - C7FF        ⟨  OK  ⟩     │          │
│              │                                 │ ⟨ Help ⟩ │
│              │  Minimum C800       ⟨Cancel⟩     │          │
│              │  Maximum C7FF                    │ ⟨ Edit ⟩ │
│              │                     ⟨ Help ⟩     │          │
│              │  [ ] Reserved                   │ ⟨ Scan ⟩ │
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└──────────────────────────────────────────────────────────┘
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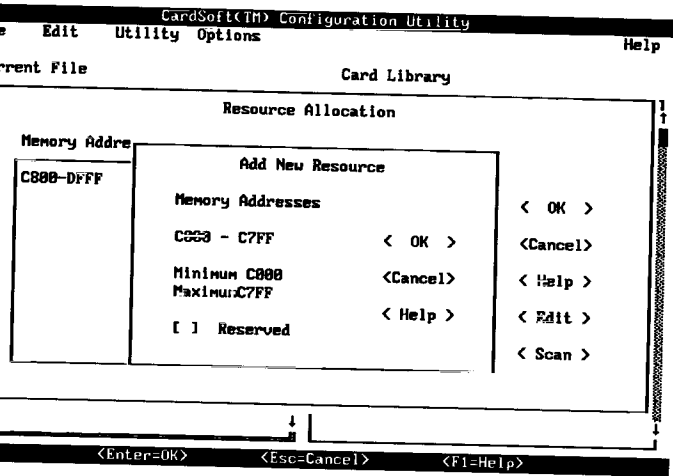
Figure 12   Add A New Resource Screen

in the values. To reserve this resource, click on **Reserved** (or
ight it and press the [Spacebar]) to mark it with an 'X'.

in the value (or range of values) you want to make available to
Services, then click on **OK**.

a Resource

a resource from a resource list:

ight the resource that you want to delete, or that contains the
of values you want to delete. For example, if you want to delete
O Port range 3A0-3AF, highlight 380-3BF.

on **Edit** (or press [Alt]+**E**). An Edit Options screen appears.

on **Change** (or press [Alt]+**D**). The Delete Resource screen
ar to the Add New Resource screen) appears.

want to delete the entire range of values that you selected, simply
on **OK**. If you only want to delete part of the selected range of
, type in the range of values in the fields provided, then click on
For example, if you selected the I/O Port range 380-3BF, and
ant to delete the range 3A0-3AF, type 3A0-3AF in the fields
ed.

firmation screen appears. Click on **OK** to delete the specified
e, or click on **Cancel** to cancel the delete operation.

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Reserving/Unreserving Resources

Resources can be reserved so that they are not available for assignment by Card Services. Basically, a resource should be reserved if you have a PC Card that requires specific resources. For example, if you have a modem card that can only use I/O Ports 370-377 and IRQ 15, you would have to reserve those resources so that Card Services does not assign them to another PC Card when it requests resources from Card Services. An 'R' to the right of a resource indicates it is reserved. Reserved resources are not used unless they are specifically requested by Card Services.

To reserve/unreserve a resource range (or part of a listed resource range):

1 Highlight the resource you want to change.

2 Click on **Edit** (or press [Alt]+**E**).

3 Click on **Change** (or press [Alt]+**C**). A Change Resource screen (similar to the Add New Resource screen) appears.

4 If you want to reserve/unreserve part of the selected resource range, type in the value range you want to change.

For example, if resource range 380-39F is reserved, and you want to unreserve the range from 380-38F, type 380-38F in the fields provided. Then click on **Resource** to toggle the 'X' off (a resource is reserved when an 'X' appears between the brackets).

If you want to reserve/unreserve the entire range, simply click on **Resource** to toggle the 'X' on/off.

5 When done, click on **OK** to have the change take effect.

Scanning for Resources

The Scan function on the Resource Allocation screen enables you to scan the system for available resources. Basically, Scan has the same functionality as CSALLOC. Also, If you have modified the resource lists, this function can be used to revert to the original values that were listed when you first accessed the Resource Allocation screen.

To use the Scan function, simply click on **Scan** (or press [Alt]+**S**). The resource lists will then be updated to reflect the resources that are available for use by Card Services.

Saving a Modified Resource List

Once you have modified the available resources, you need to save your changes. To do so, select **OK** from the Resource Allocation screen, then select **Save** from the dialog box that appears. A message box appears to inform you that your changes have been saved. Select **Done** after the changes have been saved.

You also have the option to cancel the changes you made to the resource lists by selecting Done before you select **Save**. If you select Done, a confirmation box appears. Select **Yes** to save the changes you made, or select **No** to cancel them.

Changing the Configuration Utility Display Mode

The Configuration Utility can be displayed in three modes: color, monochrome, or LCD. To change the display mode, select the **Options** pull down menu, then select the type of display you want to use. The current display mode is indicated by a check mark.