### Federal Communications Commission Radio Frequency Interference Statement
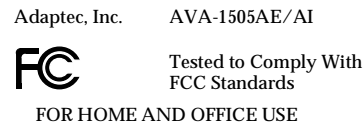
WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. However, if this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Use a shielded and properly grounded I/O cable and power cable to ensure compliance of this unit to the specified limits of the rules.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

| | |
|---|---|
| Adaptec, Inc. | AVA-1505AE/AI |
| **FC** | Tested to Comply With FCC Standards |
| FOR HOME AND OFFICE USE | |

### Canadian Compliance Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Adaptec, Inc.
691 South Milpitas Blvd.
Milpitas, CA 95035

Printed in Singapore
Stock No.: 511351-00, Rev. B MR 2/97

AVA-1505AE/AI Installation Guide    Page 8 of 8
Part Number: 511351-00, Rev. B
Print Spec Number: 496023-00
Current Date: 2/14/97
Last Modified: February 14, 1997 10:01 am
File Location: D:\MARIO\1505AEI\1505aeai
ECN Date: 2/18/97

# Installation Guide

# AVA-1505AE/AI

## External and Internal ISA-to-SCSI-2 Host Adapters

Simple, complete PC connection to a *single* non-bootable external or internal SCSI-2 peripheral

# Introduction

This installation guide explains how to install and use your new SCSI host adapter. You can use the AVA™-1505AE to connect a single external device to your system, or use the AVA-1505AI to connect a single internal device.

Once you have performed the simple installation steps listed on pages 2 and 3, your host adapter and SCSI device are ready for operation.

We recommend that you keep this installation guide with your important computer documents.

This installation guide includes information on the Adaptec® SCSI*Select*® configuration utility. After installation, you can use this utility to reconfigure most of your host adapter settings without having to reopen the computer or handle the card.

J3



**AVA-1505AE**
(external connector)

J3    Pin 1



**AVA-1505AI**
(internal connector)
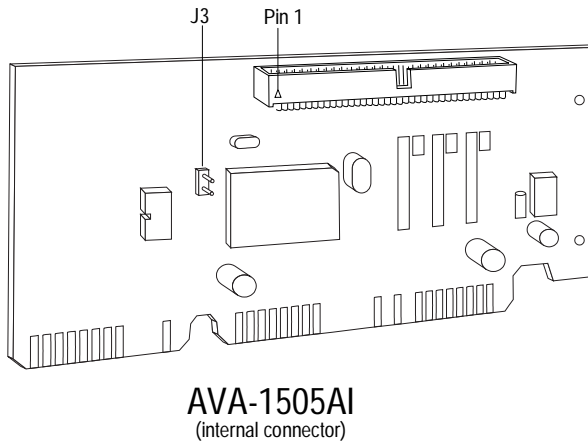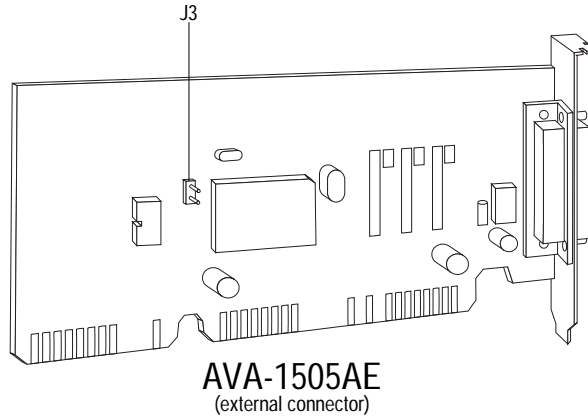
# Contents

## Installation and Setup

## Helpful Hints

## SCSI*Select* Utility

## Need Assistance?

# Installation and Setup

⚡ **WARNING:** Turn OFF power to the computer and disconnect the power cord.

**Step 1:** Remove the cover from the computer case. (Refer to the instructions in your computer documentation.)
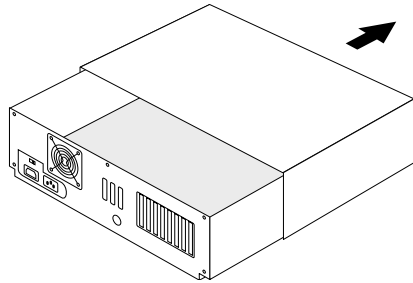
**Step 2:** Locate an unused 16-bit ISA expansion slot (this slot is typically black). If you are installing the AVA-1505AE, unscrew and remove the expansion slot bracket that covers the card-slot opening. If you are installing the AVA-1505AI, it is not necessary to remove the expansion slot bracket.

16-bit ISA
Expansion Slots
(typically black)
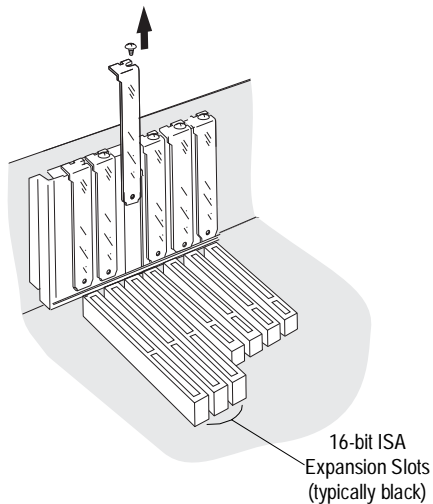
**Step 3:** Insert the host adapter in the slot; press down firmly so that the bus contacts are securely seated in the slot. If you are installing the AVA-1505AE secure it with the screw you removed in Step 2.
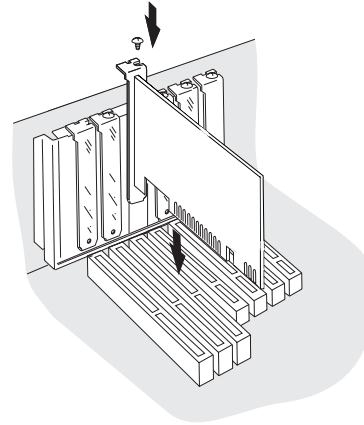
**Step 4:** Prepare the SCSI device for installation. The host adapter is already terminated.

■ Make sure the SCSI device is assigned a unique SCSI ID from 0 to 6. Refer to the device's documentation for instructions on setting the SCSI ID.

■ Install (or enable) terminators on the device. On most external SCSI devices, termination is controlled by installing or removing a terminating plug (see Step 5). Refer to the device's documentation to determine how to enable or disable termination on your particular device.

**Step 5:** Install the SCSI device.

■ If you are installing an internal device with the AVA-1505AI, plug one end of the internal 50-pin flat ribbon cable into the host adapter's 50-pin connector, and the other end of the ribbon cable into the 50-pin connector on the internal SCSI device. Be sure to maintain Pin-1 orientation. Terminate the device.

Pin 1
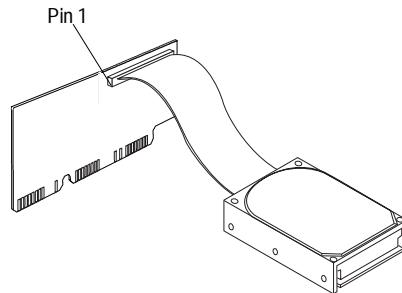
■ If you are installing an external device with the AVA-1505AE, plug one end of the external DB25 SCSI cable into the host adapter's external DB25 SCSI connector, and the other end of the cable into a free SCSI connector on the external SCSI device, and install a terminator plug.

Terminator
Plug

**Step 6:** Connect the SCSI device to a power source.

■ If installing an internal device, connect a DC power cable from your computer's

power supply to the power connector on the SCSI device.

■ If installing an external device, connect the power cable.

**Step 7:** Replace the computer cover and turn ON your computer.
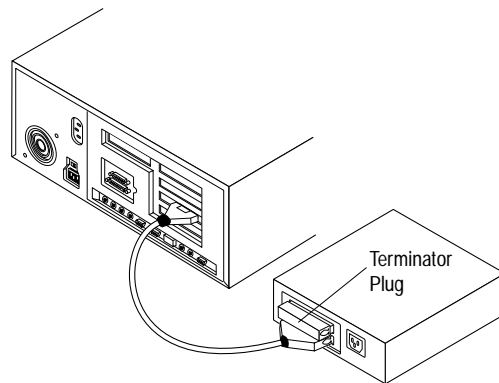
**Step 8:** Install the appropriate host adapter software driver for your operating system:

■ **DOS and Windows® 3.x:** Because drivers for DOS and Windows 3.x are not embedded in the operating system, you must load them yourself. If your host adapter came bundled with Adaptec EZ-SCSI® software, see the EZ-SCSI software documentation for installation instructions. Contact your distributor if you wish to purchase EZ-SCSI.

If you purchased your host adapter as part of a bundle created by a third party, you can use the drivers they provide. Please refer to the documentation provided by the third party or contact them directly for installation instructions.

■ **Windows® 95:** Windows 95 has embedded driver support for your host adapter. When you start Windows 95, the host adapter is detected and the appropriate driver is automatically installed. To take advantage of various productivity tools and accessories, you should also install Adaptec EZ-SCSI software. See the EZ-SCSI software documentation for installation instructions.

■ **OS/2, and Windows NT™:** The most current versions of these operating systems have embedded driver support for your host adapter as part of their installation software. For instructions on installing embedded driver support, see the operating system documentation.

**Congratulations!** Installation of your host adapter is complete. For useful information on using your host adapter, refer to *Helpful Hints* on page  4. For instructions on using the SCSI*Select* configuration utility, refer to *SCSISelect Utility* on page  5. If you need further help, refer to *Need Assistance?* on page  7.

# Helpful Hints

## *Using Your Host Adapter*

Now that your host adapter is installed, read this section for useful tips and information on using your host adapter.

- You may need to install the manufacturer's proprietary device drivers if you use SCSI devices other than hard disk drives and CD-ROM drives. (See your device's documentation.)

- Be sure to use a high-quality SCSI cable to connect the device to the host adapter. This ensures reliable data transfer.

- Your host adapter can support the SCSI Configured AutoMatically (SCAM) protocol, which assigns SCSI IDs dynamically and resolves SCSI ID conflicts automatically at bootup. To enable or disable SCAM support, see *Advanced Host Adapter Settings* on page 6. If SCAM is enabled, and your SCSI device or hard disk drive supports SCAM, you do not need to set SCSI IDs manually. Most SCSI devices currently in use, however, do not support SCAM and must have the SCSI ID set manually.

### *SCSI hard disk drives*

- SCSI hard disk drives are physically formatted at the factory and should not need to be low-level formatted again. Low-level formatting should only be necessary if the hard disk drive is corrupted. See *Using the SCSI Disk Utilities* on page 5 for more information.

  If you connect a new hard disk drive to your host adapter, you must partition and logically format the drive. For DOS and Windows 3.x, use the afdisk command in the *c:\scsi* directory if you have EZ-SCSI. If you do not have EZ-SCSI, read your system documentation and/or contact your distributor for more information. For Windows 95, make sure that Int13 is selected (see your Windows 95 documentation), then reboot and use the fdisk and format commands in a Windows 95 DOS session. For other operating systems, see your operating system documentation.

- Because the host adapter does not have a BIOS, the computer cannot boot from a SCSI hard disk drive connected to the host adapter.

## *Multiple Host Adapters*

- Multiple SCSI host adapters can be installed in your computer; you are limited only by the available system resources (e.g., I/O port and IRQ channel).

- Each host adapter you install forms a separate SCSI bus with a different set of SCSI devices. SCSI IDs can be reused as long as the ID is assigned to a device on a different host adapter (e.g., each host adapter can have a device with SCSI ID 0).

## *Setting Host Adapter Jumpers*

There is one jumper on your AVA-1505AE/AI host adapter. Jumper J3 controls the I/O Port Address. You do not need to change the J3 Jumper setting in Plug and Play systems.

If you have a non-Plug and Play system, you may need to change the I/O address if it conflicts with another device installed in your system. To change the I/0 Address, remove the shunt from Jumper J3.

| Settings | J3 |
|---|---|
| I/O Port Address—340h | Off |
| I/O Port Address—140h | On |

# SCSI*Select* Utility

## Configuring the Host Adapter

The SCSI*Select* configuration utility allows you to change host adapter and SCSI settings without having to open the computer or handle the board. If, however, you have an I/O Port Address conflict, you must change the setting on the board, as described in *Setting Host Adapter Jumpers* on page 4. SCSI*Select* also contains utilities that allow you to low-level format or verify the disk media of your SCSI hard disk drive.

The SCSI*Select* settings are listed in the table below. If you want to view and/or change the current settings, or if you would like to low-level format or verify a disk, see *Starting the SCSISelect Utility* on this page. Detailed descriptions of each setting begin on page 6.

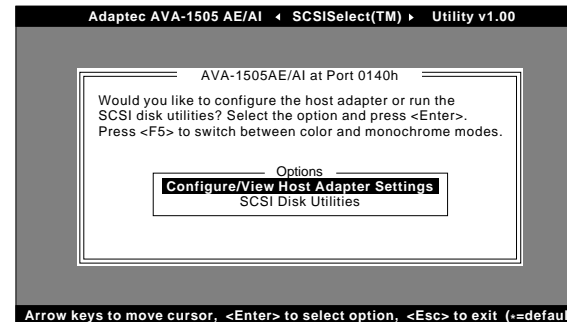| **Basic Host Adapter Settings** |
| --- |
| Host Adapter Interrupt (IRQ) Channel |
| Host Adapter DMA Channel |
| Host Adapter SCSI ID |
| SCSI Parity Checking |
| **SCSI Device Settings** |
| Initiate Sync Negotiation |
| Enable Disconnection |
| **Advanced Host Adapter Settings** |
| ISA Plug and Play Mode |
| Plug and Play SCAM Support |

## Starting the SCSISelect Utility

SCSI*Select* is provided on a bootable diskette. To run, simply insert the diskette in a bootable floppy drive and boot your system. Save this diskette. You may need to run SCSI*Select* in the future.

> **Note:** The SCSI*Select* utility is an executable file named *1505acfg.exe* on the diskette. If you cannot boot from this diskette for whatever reason, but you can run DOS on your system, you can run SCSI*Select* by running this file under DOS.

The first menu that appears displays the options Configure/View Host Adapter Settings and SCSI Disk Utilities.

```
  Adaptec AVA-1505 AE/AI  ◄  SCSISelect(TM)  ►  Utility v1.00


                    AVA-1505AE/AI at Port 0140h

        Would you like to configure the host adapter or run the
        SCSI disk utilities? Select the option and press <Enter>.
        Press <F5> to switch between color and monochrome modes.


                            Options
             Configure/View Host Adapter Settings
                        SCSI Disk Utilities



  Arrow keys to move cursor,  <Enter> to select option,  <Esc> to exit  (*=default)
```

### Using SCSISelect Menus
SCSI*Select* uses menus to list options you can select. To select an option, use the ↑ and ↓ keys to move the cursor to the option, then press **Enter**.

In some cases, selecting an option displays another menu. You can return to the previous menu at any time by pressing **Esc**. To restore the original SCSI*Select* default values, press **F6**. To toggle the display between color and monochrome modes, press **F5** (this feature may not work on all monitors).

### Exiting SCSISelect
To exit SCSI*Select*, press **Esc** until a message prompts you to exit (if you changed any host adapter settings, you are prompted to save the changes before you exit). At the prompt, select **Yes** to exit, then press any key to reboot the computer. Any changes you made in SCSI*Select* take effect after the computer boots. (Be sure to eject the diskette before you re-boot.)

### Using the SCSI Disk Utilities
To access the SCSI disk utilities, select the **SCSI Disk Utilities** option from the menu that appears after starting SCSI*Select*. Once the option is selected, SCSI*Select* immediately scans the SCSI bus (to determine the device installed) and displays a list of the SCSI IDs of the host adapter and installed device.

When you select a specific ID and device, a small menu appears, displaying the options Format Disk and Verify Disk Media.

- **Format Disk**—Most SCSI disk devices are preformatted at the factory and do not need to be formatted again. If your hard disk drive becomes corrupted, you can use this utility to low-level format the hard disk drive. A hard disk drive must be low-level formatted before you can use your operating system's partitioning and file preparation commands, such as Adaptec's afdisk and format.

  The Adaptec Format Disk utility is compatible with the vast majority of SCSI hard disk drives.

  ⚠️ **Caution:** A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You *cannot* abort a low-level format once it is started.

- **Verify Disk Media**—This utility allows you to scan the media of a hard disk drive for defects. If the utility finds bad blocks on the media, it prompts you to reassign them; if you select *Yes*, those blocks are no longer used. You can press **Esc** at any time to abort the utility.

## SCSISelect Settings

### Basic Host Adapter Settings

The following settings are the SCSI*Select* settings most likely to require any modification:

- **Host Adapter Interrupt (IRQ) Channel**—This option sets the host adapter's IRQ. Each add-in card installed in your system, including the host adapter, must have a unique IRQ. In Plug and Play systems, the IRQ is set automatically. In non-Plug and Play systems you must set the IRQ manually.

- **Host Adapter DMA Channel**—This option sets the host adapter's Direct Memory Access (DMA) channel.

- **Host Adapter SCSI ID**— This option sets the host adapter's SCSI ID. We recommend that you leave the host adapter set to SCSI ID 7, which gives the host adapter the highest priority on the SCSI bus.

- **SCSI Parity Checking**—This option determines whether the host adapter verifies the accuracy of data transfer on the SCSI bus. Most SCSI devices do support SCSI parity. If you are not sure whether a device

supports SCSI parity, consult the documentation for the device.

### SCSI Device Settings

The SCSI device settings allow you to configure certain parameters for your SCSI device. To configure settings for a specific device, you must know the SCSI ID assigned to that device. If you are not sure of the SCSI ID, see *Using the SCSI Disk Utilities* on page 5.

- **Initiate Sync Negotiation**—This option determines whether synchronous data transfer negotiation (Sync Negotiation) between the device and host adapter is initiated by the host adapter. In many applications, enabling synchronous negotiations improves performance.

- **Enable Disconnection**—This option determines whether the host adapter allows the SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). With only one device on the SCSI bus, disabling disconnection will give a slight performance increase.

### Advanced Host Adapter Settings

The advanced host adapter settings should not be changed unless absolutely necessary.

- **ISA Plug and Play Mode**—This option determines whether the host adapter supports Plug and Play functionality. When Plug and Play Support is enabled, the host adapter will work fine in both Plug and Play and Legacy (non-Plug and Play) systems. The only time you should disable Plug and Play Support is when you have an "ill-behaved" Plug and Play system. If you cannot get your host adapter working in a Plug and Play system, as a last resort, try disabling this setting.

- **Plug and Play SCAM Support**—This option determines whether the host adapter automatically assigns SCSI IDs to SCSI devices that support the SCAM protocol (see *Using Your Host Adapter* on page 4). You should disable this option if you have a non-SCAM device.

# Need Assistance?

## Troubleshooting Checklist

Most problems that occur with your host adapter result from errors in preparing and connecting devices on the SCSI bus. If you have problems when using your host adapter, check these items first.

- Is the SCSI device powered?
- Are all the power cables and SCSI bus cable connected?
- Is the host adapter firmly seated and secured in an expansion slot?
- Is the device single-ended (as opposed to differential)?
- Do the host adapter and the device on the SCSI bus have unique SCSI IDs? (See Step 4 on page 2)
- Is the SCSI device terminated properly? (See Step 4 on page 2)
- Is parity checking consistently enabled or disabled on both the device and the host adapter? (See *Basic Host Adapter Settings* on page 6.)

If you still have problems after checking the above items, continue with the following sections.

## Common Problems and Solutions

**When installing EZ-SCSI, my DOS/Windows 3.x system does not find the AVA-1505AE/AI.**
This indicates a resource conflict. Try a different I/O Port Address and/or IRQ and try installing EZ-SCSI again.

**I have both a Soundblaster card with a SCSI controller embedded on it, and an AVA-1505AE/AI installed in the same computer. Am I going to experience any resource conflicts?**
The SCSI controller on the Soundblaster card is typically set, by default, to use I/O port address *340* and *IRQ 11.* To avoid resource conflicts, check the current setting of the AVA-1505AE/AI and make any required changes with the J3 jumper and SCSI*Select.*

**When trying to run the Format/Verify SCSI disk utility in SCSI*Select,* I get an Unexpected SCSI Command Failure pop-up box with error information.**
The utility probably encountered a problem with the disk device or the media and therefore cannot run. You can determine from the Sense Key information (e.g., 06h - Unit Attention) both the cause of the problem and its solution. Here are some of the more common Sense Key values and their meanings:

- 02h - Not ready—The media is not ready to format. Be sure that media is inserted in the drive and that the media is spun up.
- 03h - Medium error—The disk media may be defective. If it is a removable-media drive, try using a different disk media. If it is a fixed hard disk drive, the disk may be physically damaged. Verify the hard disk drive to check for damage. If there is damage, format the media with SCSI*Select.*
- 04h - Hardware error—The hard disk drive may be defective. Consult the hardware documentation and contact the manufacturer.
- 05h - Illegal request—The Adaptec formatting utility does not support a low-level format of this device; however, the device may already be low-level formatted by the manufacturer. (This error rarely occurs.)
- 06h - Unit attention—The removable media may be write-protected. Disable write protection and run the utility again.

**I have some older SCSI-1 devices installed and my computer is operating erratically or hangs.**
Try changing the following SCSI device setting in SCSI*Select* for your older SCSI-1 device: Set Initiate Sync Negotiation to **No.**

**The screen is difficult to read when I run the SCSI*Select* utility.**
Press **F5** to toggle the display between color and monochrome modes. This may make it easier for you to read the screen.

**I cannot use my host adapter in a non-Plug and Play system.**
Check for possible resource conflicts between the host adapter and other cards installed in your computer; the cards may have conflicting I/O port address and IRQ settings. Try changing these settings on the host adapter one at a time, with Jumper 3 and SCSI*Select* to isolate the conflict.

**I cannot use my host adapter in a Plug and Play System**
Try setting ISA Plug and Play Mode to **Disable** in the Advanced Configuration Options of SCSI*Select.* Your host adapter is now a Legacy card, and you must configure it manually with the Jumper J3 and SCSI*Select.*

❑

AVA-1505AE/AI Installation Guide        Page 7 of 8
Part Number: 511351-00, Rev. B
Print Spec Number: 496023-00
Current Date: 2/14/97
Last Modified: February 14, 1997 10:01 am
File Location: D:\MARIO\1505AEI\1505aeai
ECN Date: 2/18/97