USER'S REFERENCE

SCSI CARD 1505

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User's Reference

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Understanding SCSI

SCSI (pronounced “scuzzy”) stands for Small Computer Systems Interface. SCSI is an industry standard computer interface for connecting SCSI peripherals (such as a hard drive, CD-ROM drive, or scanner) to a common SCSI bus.

A SCSI bus is an electrical pathway that consists of a SCSI card (such as the SCSI Card 1505) installed in a computer and one or more SCSI peripherals. SCSI cables are used to connect the peripherals to the SCSI card.

For the SCSI bus to function properly, SCSI IDs must be assigned to SCSI devices (SCSI peripherals and SCSI card), and the SCSI bus must be properly terminated.

SCSI IDs

Each peripheral attached to the SCSI Card 1505, as well as the SCSI Card 1505 itself, must be assigned a unique SCSI ID number from 0 to 7. A SCSI ID uniquely identifies each SCSI peripheral on the SCSI bus and determines priority when two or more devices are trying to use the SCSI bus at the same time.

Refer to the peripheral's documentation to set the SCSI ID. Here are some general guidelines for SCSI IDs:

- For internal SCSI peripherals, the SCSI ID is usually set by configuring a jumper on the peripheral.
- For external SCSI peripherals, the SCSI ID is usually set with a switch on the back of the peripheral.
- SCSI ID 7 has the highest priority on the SCSI bus. The priority of the remaining IDs, in descending order, is 6 to 0.
- The SCSI Card 1505 is preset to SCSI ID 7 and should not be changed. This gives it the highest priority on the SCSI bus.
- SCSI ID 0 is recommended for the first SCSI hard drive.
- In Windows® 95, you can use the Device Manager to view the SCSI ID (and other details) assigned to each SCSI device installed.
- If you installed Adaptec® EZ-SCSI® *Lite* software, you can use the SCSI Interrogator utility to view the SCSI ID (and other details) assigned to each SCSI device installed.

SCAM Protocol

The SCSI Card 1505 supports the SCSI Configured AutoMatically (SCAM) protocol, which assigns SCSI IDs dynamically and resolves SCSI ID conflicts automatically when you start the computer. If your computer includes SCSI disk drives or other peripherals that support SCAM, you do not need to manually assign SCSI IDs to these peripherals. To enable SCAM support, see *Configuring the SCSI Card 1505 with SCSISelect* on page 12.

Terminating the SCSI Bus

To ensure reliable communication on the SCSI bus, *terminators* must be installed (or enabled) on the devices at the extreme physical ends of the SCSI bus. The terminators on all devices between the physical ends must be removed (or disabled).

Since the method for terminating a SCSI device can vary widely, refer to the peripheral's documentation for instructions on how to enable or disable termination. Here are some general guidelines for termination:

- Termination on internal SCSI peripherals is usually controlled by manually setting a jumper or a switch on the peripheral, or by physically removing or installing one or more resistor modules on the peripheral.
- Termination on external SCSI peripherals is usually controlled by installing or removing a SCSI terminator.

  On some external peripherals, termination is controlled by setting a switch on the back of the drive.
- Termination on the SCSI Card 1505 itself is controlled manually by removing or inserting termination resistors.
- Most SCSI peripherals come from the factory with termination enabled.

Troubleshooting

Have you reviewed the Troubleshooting Checklist provided in the *SCSI Card 1505 Installation Guide*? You can resolve most problems by following the recommendations in the checklist. If you still experience problems, continue with this section.

Troubleshooting in Windows 95

When I start Windows 95, the system locks up when the Windows logo is displayed. How can I get the system to start so that I can verify the SCSI card is functioning normally?

1. Start or restart your computer. View the messages that appear onscreen.
2. When the message "Starting Windows 95" appears, press and release the **F8** function key while the text is on your screen.
3. From the menu displayed, select **Safe Mode.** (It may take several minutes for Windows 95 to load.)
4. Verify the SCSI Card 1505 software driver is loading properly (see below).

How can I tell if the SCSI Card 1505 software driver is loading properly?

1. Click the **Start** button, point to **Settings**, then click **Control Panel**.
2. Double-click the **System** icon.
3. Click the **Device Manager** tab.
4. Double-click the **SCSI Controller** icon. The driver for the SCSI Card 1505 is listed as "Adaptec AVA-1505 SCSI Host Adapter."
   - If the driver is listed, the SCSI Card 1505 driver is loading properly.
   - If the driver is listed but has an exclamation mark inside a yellow circle, the software driver may be in conflict with other hardware using the same resources. Double-click the icon to see the device status and possible solutions.

- If the driver is listed but has an "X" inside a red circle, the SCSI Card 1505 software driver is disabled and isn't loading (see below).
- If the SCSI Controller icon or the SCSI Card 1505 driver is not listed, reinstall the driver (see below).

Note: Software upgrades (including downloadable drivers) for Adaptec products are available on the Adaptec Web Site at *http://www.adaptec.com*.

An "X" inside a red circle appears with the SCSI Card 1505 software driver in Device Manager. What does this mean?

The SCSI Card 1505 software driver is disabled and isn't loading. To enable the driver:

1. Double-click the SCSI Card 1505 software driver in Device Manager.
2. Under the General tab, check the Original Configuration (current) box.

What if there is no SCSI controller icon under Device Manager, or the software driver for the SCSI Card 1505 does not appear under Device Manager?

If the SCSI controllers icon or the software driver do not appear:

1. Double-click the **Add New Hardware** icon in Control Panel.
2. Select **Yes** on the second screen of the Add New Hardware Wizard to have Windows® search for the SCSI Card 1505.
3. Follow the onscreen instructions.

If Windows 95 does not detect the SCSI card, run the Add New Hardware Wizard again:

1. Double-click the **Add New Hardware** icon in Control Panel.
2. Select **No** on the second screen of the wizard.
3. Select **SCSI controllers** on the next screen.
4. Select the model of your Adaptec SCSI Card.

If your Adaptec SCSI Card model is not on the list, you may be able to install a SCSI card driver from the Windows 95 CD-ROM (or from the Adaptec EZ-SCSI Setup Diskette). Follow these steps:

1. Place the Windows 95 CD-ROM in your CD-ROM drive (or insert the Adaptec EZ-SCSI Setup Diskette in the floppy disk drive) and run the Add New Hardware wizard.
2. Select **No** on the second screen of the wizard.
3. Select **SCSI controllers** on the next screen.
4. Click the **Have Disk** button, then click the **Browse** button.
5. Look in the *\drivers\storage* directory of the CD-ROM (or the root directory of the EZ-SCSI Setup Diskette) and select the model of your SCSI card if it appears.

How can I check the status of a resource (for example, IRQ, Memory, I/O)?

1. Click the **Start** button, point to Settings, then click **Control Panel**.
2. Double-click the **System** icon.
3. Click the **Device Manager** tab.
4. Click **Computer**, and then click **Properties**.
5. On the View Resources tab, click the option button for the type of resource you want to check.
6. The setting and the hardware using the setting is displayed.
   - If a specific resource is not listed, the resource is not used by a device.
   - If a resource is listed more than once, the resource is used by more than one device.
   - If a resource is used by an unknown device, the resource is used but the device using the resource cannot be detected.

How do I use the Hardware Conflict Troubleshooter in Windows 95?

1. Click the **Start** button, then click **Help**.
2. From the Contents tab, double-click **Troubleshooting**.
3. Double-click **If you have a hardware conflict**.
4. Follow the step-by-step instructions in the Windows Help window.

Problems and Solutions

When installing EZ-SCSI, my DOS/Windows 3.x system does not find the SCSI Card 1505.

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 SCSI Card 1505 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 SCSI Card 1505 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 drive or the media and therefore cannot run. You can determine from the Sense Key information (for example, 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 media is inserted in the drive and 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 hard drive, the drive may be physically damaged. Verify the hard disk drive and format the media with SCSI*Select*.
- 04h - Hardware error—The 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 drive; however, the drive 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 peripherals installed and my computer is operating erratically or hangs.

Try changing the following SCSI setting in SCSI*Select* for your older SCSI-1 peripheral: 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 SCSI card in a non-Plug-and-Play system.

Check for possible resource conflicts between the SCSI card 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 SCSI card one at a time, with Jumper 3 and SCSI*Select* to isolate the conflict.

I cannot use my SCSI card in a Plug-and-Play System.

Try setting ISA Plug-and-Play Mode to **Disable** in the Advanced Configuration Options of SCSI*Select*. Your SCSI card is now a Legacy card, and you must configure the I/O Port Address and Host Adapter Interrupt (IRQ) channel manually with the Jumper J3 and SCSI*Select*.

Using the SCSI Card 1505 and SCSI Peripherals

This section provides useful information on using the SCSI Card 1505 and your SCSI peripherals. For specific information, refer to the documentation that came with your SCSI peripheral.

Setting SCSI Card Jumpers

There is one jumper on your SCSI Card 1505. Jumper J3 controls the I/O Port Address. You do not need to change the J3 Jumper setting in a Plug-and-Play system (that is, a system with a motherboard Plug-and-Play BIOS and Windows 95, Windows NT or OS/2).

If your system is not Plug-and-Play, you may need to change the I/O address if it conflicts with another device installed in your system. To change the I/O Address, remove the shunt from Jumper J3.

Table 1. Default Settings

Settings	J3
I/O Port Address—140h*	On
I/O Port Address—340h	Off
*Default Setting	

Using SCSI Peripherals

Hard Disk Drives

- Every SCSI hard disk must be physically low-level formatted, partitioned, and logically formatted before it can be used to store data. SCSI hard disks are physically low-level formatted at the factory and do not usually need to be formatted again.

  If you connected a new SCSI hard disk drive to your SCSI card, you must partition and logically format the drive. For DOS and Windows (3.x, 95, NT or OS/2) use the DOS Fdisk and Format commands (see your computer, DOS, Windows, or OS/2 documentation).

- The SCSI Card 1505 does not support the boot option. To boot your system, a bootable hard disk drive must already be installed on a different SCSI card or IDE card.
- If both SCSI and non-SCSI (for example, IDE) disk drives are installed, then the non-SCSI disk drive is always the boot drive.

Scanners

- You may need to install the scanner manufacturer's proprietary software drivers. See your scanner's documentation for details.

Installing Multiple SCSI Cards

- You can install multiple SCSI cards in your computer; you are limited only by the available system resources (for example, IRQ settings, I/O port addresses, BIOS addresses, and so forth) not used by other cards installed in your computer.
- Each SCSI card you install forms a separate SCSI bus with a different set of SCSI peripherals. SCSI IDs can be reused as long as the ID is assigned to a peripheral on a different SCSI bus (for example, each SCSI card can have a peripheral with SCSI ID 2).
- If you have two or more SCSI cards, enable the BIOS on the boot SCSI card only; disable the BIOS on the remaining SCSI cards.

Using SCSI and IDE (or EIDE) Peripherals

- All Adaptec SCSI cards can co-exist with another controller (IDE, EIDE, RLL, etc.) installed in the computer.
- If you have both an IDE hard disk drive and a SCSI hard disk drive, the IDE drive will always be the boot drive.
- You cannot connect an IDE peripheral to a SCSI card, or a SCSI peripheral to an IDE card (controller).

Replacing a Non-Adaptec SCSI Card with an Adaptec SCSI Card

- SCSI is standard, but how data is translated on to a hard disk drive is not. Each SCSI card manufacturer uses its own translation schemes for writing data to a disk. To use a hard disk drive previously connected to a non-Adaptec SCSI card, low-level format the drive after connecting it to the Adaptec SCSI card. (See *Using SCSI Disk Utilities* on page 16.)

Caution: A low-level format destroys all data on the drive. Be sure to back up your data before performing a low-level format.

Configuring the SCSI Card 1505 with SCSI*Select*

SCSI*Select*®, included with the SCSI Card 1505, enables you to change SCSI settings without opening the computer or handling the card. SCSI*Select* also enables you to low-level format or verify the disk media of your SCSI hard disk drives. Table 2 lists the available and default settings for each SCSI*Select* option.

Note: The default settings are appropriate for most systems. Run SCSI*Select* if you need to change or view current settings, or if you would like to run the SCSI disk utilities. See the descriptions of each option on page 14 and 15.

Table 2. SCSI*Select* Settings

Host Adapter Interface Definitions	Available Settings	Default Setting
Host Adapter Interrupt (IRQ) Channel	9, 10, 11, 12	10
Host Adapter DMA Channel	5, ,6, 7 Disabled	Disabled
Host Adapter SCSI ID	0-7	7
SCSI Channel Interface Definitions		
SCSI Parity Checking	Enabled, Disabled	Enabled
Host Adapter SCSI Termination	Automatic	Automatic
Additional Options: SCSI Device Configuration		
Initiate Sync Negotiation	Yes, No	No (Disabled)
Maximum Sync Transfer Rate (MB/sec)	5.00	5.00
Enable Disconnection	Yes, No	No (Disabled)
Additional Options: Advanced Configuration		
ISA Plug and Play Mode	Enabled, Disabled	Enabled
Plug and Play SCAM Support	Enabled, Disabled	Disabled

Starting SCSI*Select*

Follow these steps to start SCSI*Select*:

1. Insert the SCSI*Select* diskette in a bootable floppy disk drive. (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.

2. Turn on or restart your computer.
3. From the menu that appears, use the ↑ and ↓ keys to move the cursor to the option you want to select, then press **Enter**.

Note: If you have difficulty viewing the display, press **F5** to toggle between color and monochrome modes. (This feature may not work on all monitors.)

Exiting SCSI*Select*

Follow these steps to exit SCSI*Select*:

1. Press **Esc.** A message prompts you to exit (if you changed any settings, you are prompted to save the changes before you exit).
2. 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.

Using SCSI*Select* Settings

To select an option in a SCSI*Select* menu, 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** from the main SCSI*Select* screen.

Basic Host Adapter Settings

- **Host Adapter Interrupt (IRQ) Channel**—Sets the SCSI card's IRQ. Each add-in card installed in your system, including the SCSI Card 1505, 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 SCSI ID**—Sets the SCSI ID for the SCSI card. The SCSI Card 1505 is set at 7, which gives it the highest priority on the SCSI bus. We recommend you do not change this setting.
- **SCSI Parity Checking**—When set to **Enable**, verifies the accuracy of data transfer on the SCSI bus. Leave this setting enabled unless any SCSI peripheral connected to the SCSI card does not support SCSI parity.

SCSI Device Settings

Note: To configure settings for a SCSI peripheral, you must know its SCSI ID (see *Using SCSI Disk Utilities* on page 16).

- **Initiate Sync Negotiation**—When set to **Yes**, initiates synchronous data transfer negotiation (Sync Negotiation) between the peripheral and SCSI card. The default setting is NO, which puts the SCSI Card 1505 into asynchronous mode. If your SCSI device(s) support synchronous data transfers, then set this option to YES for that device(s).
- **Enable Disconnection**—When set to **Yes**, allows the SCSI peripheral to disconnect from the SCSI bus. Leave the setting at **Yes** if two or more SCSI peripherals are connected to the SCSI card. If only one SCSI peripheral is connected, changing the setting to **No** results in slightly better performance.

Advanced Host Adapter Settings

Note: *Do not* change the Advanced Host Adapter Settings unless absolutely necessary.

- **ISA Plug and Play Mode**—When set to **Enable**, the SCSI card works in both Plug-and-Play and Legacy (non-Plug-and-Play) systems. Disable this setting when your system works erratically or when you cannot get your SCSI card working.
- **Plug and Play SCAM Support**—When set to **Enable**, the SCSI card automatically assigns SCSI IDs to SCSI peripherals that support the SCAM protocol (see *SCSI IDs* on page 2). The default is **Disable**, but you can set it to **Enable** even if you have a non-SCAM peripheral.

Using SCSI Disk Utilities

To access the SCSI disk utilities, follow these steps:

1. Select the **SCSI Disk Utilities** option from the menu that appears after starting SCSI*Select*. SCSI*Select* scans the SCSI bus (to determine the devices installed) and displays a list of all SCSI IDs and the devices assigned to each ID.
2. Use the ↑ and ↓ keys to move the cursor to a specific ID and peripheral, then press **Enter**.
3. A small menu appears, displaying the options Format Disk and Verify Disk Media.

   - **Format Disk**—Allows you to perform a low-level format on a hard disk drive. *Most SCSI disk drives are preformatted at the factory and do not need to be formatted again*. Each hard disk drive must be low-level formatted before you can use your operating system's partitioning and file preparation utilities, such as MS-DOS Fdisk and Format.

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**—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.

Obtaining SCSI Cables

High-quality cables are required in high-performance SCSI systems to ensure data integrity. Adaptec provides the highest quality SCSI cables designed specifically for use with Adaptec SCSI cards. For purchasing information, contact Adaptec at 1-800-442-SCSI (7274), Monday to Friday, from 6 a.m. to 5 p.m. (Pacific Time).

External Cables

Table 3. External Cables

Description	Cable Model Number
DB25-pin to DB25-pin Cable (3 ft)	100
DB25-pin to High-Density 50-pin Cable (3 ft)	200

External Connector Diagrams

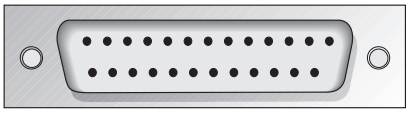

Figure 1. DB25-pin

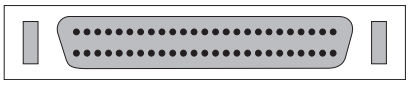

Figure 2. High-Density 50-pin

Internal Cable

Table 4. Internal Cable

Description	Cable Model Number
5 position (4 peripherals + SCSI card), standard 50-pin connectors (1.5 m)	1100

Internal Connector Diagram

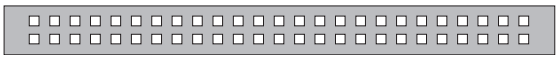

Figure 3. Standard 50-pin

Maximum Cable Lengths

The total length of cabling (internal and external) on the SCSI bus may not exceed the maximum lengths listed in Table 5.

Table 5. Maximum Cable Lengths

Maximum Cable Length	Data Transfer Rate	Maximum Peripherals Supported[1]
3 m (9.8 ft)	Fast SCSI (10 MBytes/sec)	8
6 m (19.7 ft)	5 MByte/sec (asynchronous or synchronous)	8

[1] Includes the SCSI card.

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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-1505

FC Tested To Comply With FCC Standards

FOR HOME OR 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 matérial brouilleur du Canada.

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9 Export: You acknowledge that the laws and regulations of the United States restrict the export and re-export of the Software. You agree that you will not export or re-export the Software or media in any form without the appropriate United States and foreign government approval.

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Should you have any questions concerning this Agreement, you may contact Adaptec by writing to: Adaptec, Inc., Legal Department, 691 South Milpitas Boulevard, Milpitas, California 95035.

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Adaptec, Inc. (“Adaptec”) warrants to the purchaser of this product that it will be free from defects in material and workmanship for a period of five (5) years from the date of purchase. If the product should become defective within the warranty period, Adaptec, at its option, will repair or replace the product, or refund the purchaser’s purchase price for the product, provided it is delivered at the purchaser’s expense to an authorized Adaptec service facility or to Adaptec.

Repair or replacement parts or products will be furnished on an exchange basis and will either be new or reconditioned. All replaced parts or products shall become the property of Adaptec. This warranty shall not apply if the product has been damaged by accident, misuse, abuse or as a result of unauthorized service or parts.

Warranty service is available to the purchaser by delivering the product during the warranty period to an authorized Adaptec service facility or to Adaptec and providing proof of purchase price and date. The purchaser shall bear all shipping, packing and insurance costs and all other costs, excluding labor and parts, necessary to effectuate repair, replacement or refund under this warranty.

For more information on how to obtain warranty service, write or telephone Adaptec at 691 South Milpitas Boulevard, Milpitas, CA 95035, (800) 959-7274.

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