

EXHIBIT D

EXPOSITORY STATEMENT (See User's Manual)

Instruction Manual for AdvanSys ABP-940UW68 PCI Bus Ultra Wide SCSI Host Adapter Card

1. This ABP-940UW68 is configured and ready to go.
2. Plug ABP-940UW68 into a PCI Bus System. You will need a separate bootable IDE hard disk drive with Windows 95 installed.
3. Attaching peripherals to ABP-940UW68:
 - Connect the internal SCSI hard disk drive with the 50-pin internal SCSI cable to J3.
 - Connect the external SCSI hard disk drive with the 68-pin external SCSI cable to J1.

Note: These units are all configured and ready to go. No need to worry about selecting SCSI IDs and enabling/disabling termination.
4. Power on your system first, then power on the external unit.
The AdvanSys BIOS should come up and you should be able to see the following message:

```
AdvanSys Ultra Wide SCSI PCI Bus Host Adapter BIOS v3.1E
Press <CTRL><A> to run AdvanceWare Utility
>>> AdvanSys Ultra Wide SCSI PCI Bus Host Adapter Found At I/O Address 0xFFFF <<<
SCSI ID #0: Quantum Maverick 540S - Drive 0x81
SCSI ID #8: SEAGATE ST31051W 0526-Drive 0x82
```

5. Boot Windows 95 from your IDE drive. Windows 95 should find the newly installed AdvanSys ABP-940UW68. The "Update Device Driver Wizard" window will pop up and ask you to install drivers for ABP-940UW68. The Windows 95 drivers can be found in the enclosed floppy diskette.

Click on "My Computer" icon.

If ABP-940UW68 is installed properly, you should be able to see both the "D" and "E" drives., with "D" drive being Seagate, and "E" drive being Quantum.

If not, insert the enclosed diskette into drive "A". Then go to "Start" → "Settings" → "Control Panel". Click on "System" icon → "Device Manager" → "SCSI Controllers" → "AdvanSys PCI Ultra Wide SCSI Host Adapter Driver" → "Driver" → "Update" to update the drivers.

6. To exercise AdvanSys ABP-940UW68, you can create a batch file under DOS as follow:

```
:start
xcopy E:\TESTDIR D:\ /y
goto start
```

The LED for the CD-ROM should be active during the whole testing period, indicating activities on the SCSI peripherals. Don't forget to start your usual "sending continuous H's to Printer and Monitor" also.

EXHIBIT E

USER'S MANUAL

Addendum to AdvanSCSI User Manual

If you have purchased a AdvanSYS ABP-940UW68 (AdvanSYS Ultra Wide SCSI PCI Host Adapter Board), please follow the hardware installation instructions below.

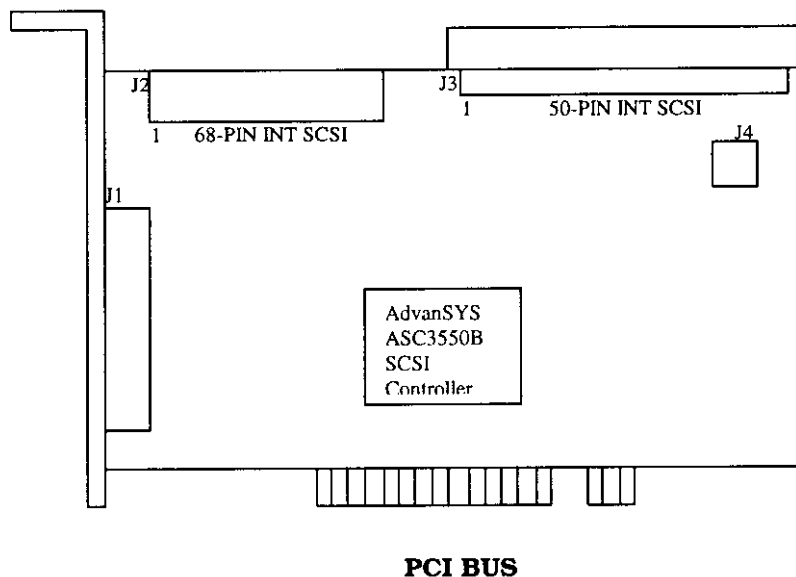
Features:

The Hardware Specifications of ABP-940UW68 are the same as dictated in Chapter 2 of

AdvanSCSI User Manual, except that ABP-940UW68 has

1. **SCSI ASIC**

- Advanced System Products ASC3550B Advanced Ultra Wide SCSI processor

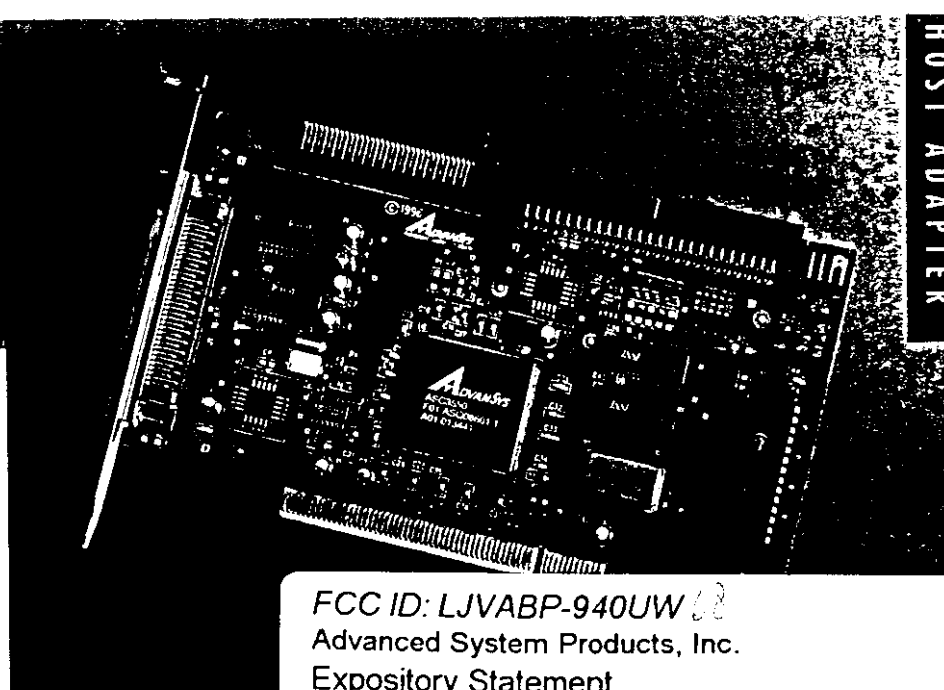


Board Layout of ABP-940UW68

Jumper Header	Functions
J1	68-PIN External SCSI Connector
J2	68-PIN Internal SCSI Connector
J3	50-PIN Internal SCSI Connector
J4	"SCSI Bus Busy" LED Connector Pin 1 & 4: POWER, Pin 2 & 3: SCSI Bus Busy Signal (Active Low)

ADVANSYS AdvanSCSI

PCI Ultra Wide SCSI ABP940-UW



FCC ID: LJVABP-940UW
Advanced System Products, Inc.
Expository Statement
Exhibit D

HIGHLIGHTS

- Easy to install
 - Plug and Play
 - No jumpers to set
- Up to 15 device connectivity
 - Any combination of SCSI-1, SCSI-2, SCSI-3 or Ultra SCSI devices
 - Backward compatibility
- Memory features
 - 8KB of internal RAM for microcode and command/response packets
 - Up to 64K of external RAM supported
 - Supports external expansion ROM or flash up to 64KB
- Compatibility designed-in
 - Extensive compatibility testing
- Differential and single-ended support

OVERVIEW

The AdvanSCSI PCI940 Ultra Wide Host Adapter is our latest entry into solving the I/O bottleneck. Increased power, connectivity and flexibility make the 940-UW the superior choice for interfacing host computers with any combination of SCSI devices.

The power of the 940-UW lies in its proprietary RISC processor. Bus Master technology allows large blocks of data to be processed with minimum CPU utilization.

The PCI Bus provides connection to system memory at full processor bandwidth. The local memory holds all the information needed to support multiple segments without burdening the CPU system bus.

What AdvanSys adapters mean to you is simple. We can provide a full retail version of AdvanSys products, complete with cables, software, BIOS, manuals and sleeve or board only, with or without BIOS.

No wait-state PCI DMAs support Data transfer rates up to 133 Mbytes/sec. Performance unchallenged in the industry. When used in client/server environments the performance of the I/O subsystem will not deteriorate with additional clients.

The ABP940-UW Host Adapter connects up to 15 devices in any combination of SCSI-1, SCSI-2, SCSI-3 or Ultra SCSI.

Easiest SCSI Installation

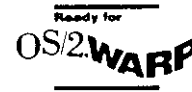
Plug and Play makes installation easy for any type of SCSI device. There are no jumpers or switches to set. Forget about having to know PC technical settings, such as BIOS address, port address and interrupt. Installation of all the drivers and utilities is a simple, one-step process.

The ABP940-UW includes SCAM software which automatically assigns unique SCSI IDs to SCAM compatible devices when the system is booted.

I/O Operating System Support:

- Windows for Work Groups (version 3.11)
- Windows NT (version 3.51, 4.0)
- Windows 95
- Novell Netware (version 3.12, 4.1 and greater)

PHOTOGRAPH BY [illegible]





AdvanSCSI ABP940-UW⁶⁸
PCI to Ultra Wide SCSI
Host Adapter

User Manual

PRELIMINARY

FCC Part 15 Class B Registration Warning

This equipment generates and uses radio frequency energy and, if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference with radio and television reception. It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specification in Subpart B of Part 15 of FCC Rules & Regulations, which is designed to provide reasonable protection against such interference in a residential installation. If this equipment does cause interference to radio or television 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: (1) Reorient the receiving antenna (2) Relocate the computer with respect to the receiver (3) Move the computer away from the receiver (4) Plug the computer into a different outlet so that the computer and receiver are on different branch circuits. If necessary, the user should consult the dealer or an experienced radio/television professional for additional suggestions. The Federal Communications Commission produces a booklet: *How to Identify and Resolve Radio-TV Interference Problems*, which the user may find helpful. This booklet is available from the U.S. Government printing office, Washington, DC 20402. Stock No. 004-000-00345-4

Shielded cables and certified Class B peripherals must be used with this product. Using unshielded cables or uncertified peripherals may result in this unit being out of compliance with FCC Rules Part 15.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules & Regulations. 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.

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Chapter 1: Quick Start Installation

This chapter is written for the experienced user. More complete instructions for installing the ABP940-UW PCI to Ultra Wide SCSI Host Adapter Card and the AdvanSys driver are covered in Chapters 3, 4 and 5.

Installation of the AdvanSys Host Adapter Card is fully Plug and Play compatible. Board configuration is automatically controlled by the system BIOS. The following instructions tell you how to complete installation and configuration.

A number of the PCI motherboards currently available do not correctly assign interrupts for Plug and Play products. To ensure easy installation, check the system BIOS settings for PCI configuration. The PCI slots should be enabled (some come default NA), and interrupts should be available for each slot. Interrupt 9 is a good choice for the AdvanSCSI Host Adapter Card slot.

Note: If you are working within a Windows 95 environment, please go to *Chapter 4: SuperInstall and SuperView for Windows 95*.

Host Adapter Card Installation

Note: **Replacing or Adding to Existing SCSI Cards:** If you are replacing an existing SCSI host adapter with the ABP940-UW, remove the existing card first, as well as any associated software device drivers. If you are simply *adding* the ABP940-UW card to a system with SCSI or IDE controllers already in place, there is no need to change existing boards or software.

1. Shut down your system and turn off the power to your computer.
2. Remove the CPU cover.
3. Install the AdvanSys Host Adapter Card in a PCI bus slot on your CPU motherboard.
4. Connect all SCSI devices you want to use.
5. Replace the CPU cover.

For external devices, leave the power off. Make sure all signal and power cables are properly connected. Although AdvanSCSI will automatically set termination correctly on the host adapter, you must ensure that all other SCSI devices are terminated correctly. Only the last device on both the internal and/or external SCSI bus can be terminated. Follow the directions as specified in the user manual for each SCSI device.

Driver Installation From CD-ROM

Auto insert Notification Enabled

1. Turn on your computer.
2. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the AutoRun program to come up.

Auto insert Notification Disabled

1. Double-click the **My Computer** icon.
2. Double-click the icon for your CD-ROM drive.
3. Double-click the **AutoRun** folder.
4. Double-click the **RunThis** program icon.
5. In the AdvanceWare window that comes up, click on the icon for your operating system.

The Install program will proceed to install the AdvanSys driver.

No CD-ROM Drive

Use another computer that has a CD-ROM drive to create the AdvanceWare installation/boot floppy diskettes from the AdvanSys Super SCSI CD. Please refer to *Chapter 4: SuperInstall and SuperView for Windows 95*, for instructions.

Driver Installation from AdvanceWare Diskettes

1. Insert the AdvanceWare Installation/Boot Diskette into drive A.
2. Turn on your computer: Once the system boots, the program will display a *Welcome* screen.

NOTE: If your computer boots from a hard drive, temporarily change the boot disk to drive A, then run your BIOS Setup Program. *Remember to run the BIOS Setup Program again after installing the AdvanSCSI to reset your original boot drive.*

3. Turn on your external SCSI devices.
4. Press the **Spacebar** to continue installation (if you have a monochrome monitor, press **F9** instead of the spacebar).
5. Press the **Spacebar** to perform diagnostics.

A complete test of the ABP940-UW Host Adapter Card and the SCSI subsystem will be completed within a few moments.

6. Select **Yes** and press **Enter** when the program asks to examine the SCSI Bus and list devices.

The program will perform its examination and display a list of the devices attached.

7. Select **Yes** if all your connected devices appear on the list. If they do not, select **No**. The program will provide troubleshooting tips and prompt you to reboot.

Congratulations!

You have completed the hardware and driver installations.

8. Load the system software for your specific operating system.

See *Chapter 4: SuperInstall and SuperView for Windows 95* and *Chapter 5: Software Installation*.

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Chapter 2: AdvanSCSI Specifications

Introduction to AdvanSCSI

This chapter provides a brief introduction to AdvanSCSI and describes the AdvanSys ABP940-UW PCI to Ultra Wide SCSI Host Adapter Card in detail.

The AdvanSys card is a high performance PCI bus master Host Adapter that provides a highly integrated solution for attaching SCSI devices to your PC or Power Macintosh (*ABP960U/970U versions only*).

Hardware Features

PCI-Bus Interface

- Fully compliant with the PCI Local Bus Specification Revision 2
- 32-bit Bus Master DMA allows for a data transfer rate of up to 133 MB/sec across the PCI Bus
- 64-bit, dual access support
- Scatter/gather function supported
- 5 Volt only PCI board

SCSI Bus Interface

- 8-bit Ultra SCSI, 20 MB/sec synchronous data transfer rate across the SCSI Bus
- 16-bit Ultra Wide SCSI, 40 MB/sec synchronous data transfer rate across the SCSI Bus
- Single-ended SCSI interface, provided through a 50-pin high density internal Ultra SCSI connector and a 50-pin high density external Ultra SCSI connector.
- A 68-pin high density internal Ultra Wide SCSI interface....

NOTE: See the section on Ultra Wide SCSI Cabling Considerations in *Chapter 3: Hardware Installation*, for instruction on cabling Ultra SCSI and Ultra Wide SCSI devices)

- Ultra Wide SCSI, SCSI-3, SCSI-2 and SCSI-1 device peripheral device connectivity
- Tagged queueing supported for SCSI
- Each adapter board supports up to 15 peripheral devices
- Supports a wide range of SCSI devices, including hard disk drives, CD-ROM drives, tape backup units, printers, and scanners

SCSI ASIC

- Advanced System Products ASC3550 Ultra Wide SCSI processor
- Host system has direct access to local RAM so that the host CPU can post SCSI I/O requests efficiently
- Host-accessible internal registers and single-step RISC instruction execution provide for efficient diagnostic capability
- Unique Features of AdvanSCSI
- An EEPROM read-and-write configuration facilitates a Host Adapter without jumpers.
- The AdvanSCSI Ctrl A BIOS utility makes selecting SCSI bus characteristics easy.
- Automatic Active Termination control means you never need to worry about terminating the Host Adapter.
- The watchdog timer prevents system hangs caused by malfunctioning SCSI peripheral devices.
- PCI PC/MAC selectable through jumper configuration is available on the ABP960U/970U versions of the SCSI Host Adapter.

Product Overview

Easiest SCSI Installation

- The AdvanceWare Configuration Software boot diskette handles configuration of SCSI hardware connections to the Host Adapter.
- Drivers and utilities are installed in one step.
- The AdvanceWare Diagnostic utility helps locate problems in the I/O subsystem, Host Adapter, SCSI cable, and SCSI peripherals.
- To add new peripherals to the system, run the AdvanceWare Configuration utility in BIOS.

Compatibility Ensured

The compatibility of the AdvanSys ABP940-UW Host Adapter Card with all types of host systems, operating systems, and SCSI peripherals has been established through extensive testing.

The PCI Bus Master includes support for many operating systems. Please refer to the I/O Operating System Support section under Technical Specifications in this section for a complete listing.

Highest Reliability

Advanced System Products builds its Host Adapter Cards to the highest quality standards, in ISO-9002-certified facilities. High-level integration ensures superior reliability and makes it possible for Advanced System Products to offer the first limited lifetime guarantee in the industry: If anything goes wrong with the Host Adapter, Advanced System Products will replace it. Special utilities, such as AdvanceWare, help maintain the function and integrity of the entire I/O system.

The AdvanceWare Diagnostic Utility

The AdvanceWare Installation/Boot Disk automatically tests the AdvanSys Host Adapter and the SCSI subsystem in each unique system.

When to use AdvanceWare Diagnostics

Once the Host Adapter is installed and configured on the motherboard, you can boot your computer with this diskette. The software will analyze the system. Once the Host Adapter is fully installed, you will not need to use the AdvanceWare Installation diskette again. The disk will run diagnostics to ensure that AdvanSCSI is properly installed and configured.

How the Diagnostic Utility Works

The program requires the computer to boot from the floppy drive. For most systems, turn on your PC with the AdvanceWare Installation diskette in the floppy drive. If your system does not boot from the floppy drive, you must set your existing system BIOS to boot from floppy disk A. Run your BIOS Setup Program and temporarily change the boot disk to drive A.

A number of the PCI motherboards currently available do not correctly assign interrupts for Plug and Play products. To ensure easy installation, check the system BIOS settings for PCI configuration. The PCI slots should be enabled (some come default NA) and interrupts should be available for each slot. Interrupt 9 is a good choice for the slot containing the AdvanSCSI Host Adapter.

1. Insert the AdvanceWare installation diskette into drive A.
2. Turn on your computer and let the system boot. After the system self-tests, the installation program will load and display a *Welcome* screen.

3. Turn on your external SCSI devices as the system boots.
4. Press the spacebar to continue the installation. If you are using a monochrome monitor with a color video board, press **F9** at the welcome screen to force a monochrome video mode. Otherwise, the computer will try to display in color mode, some of which may be unreadable on a monochrome monitor.

Do not reboot or power down the system until the AdvanceWare Installation program tells you to do so.

If an error message appears on the screen, please write it down. If you have difficulty, call AdvanSys Technical Support, or go to the AdvanSys Web Site at <http://www.advansys.com> for troubleshooting information).

AdvanSCSI Subsystem Diagnostics

The AdvanceWare Diagnostic program will test the Host Adapter to establish that the I/O subsystem is functioning correctly.

5. Press the space bar to perform diagnostics.

When the AdvanceWare Diagnostic program begins, it will display a screen that will keep you apprised how the diagnostics are progressing. The entire set of diagnostics should not take more than five minutes to complete.

If any error messages appear, or if the AdvanceWare Diagnostic program reports that one or more tests have failed, write down as much information as possible and contact *AdvanSys*' technical support at 1-800-525-7440 or 408-467-2930.

When all tests are successfully completed, press the space bar to continue.

6. When all tests are completed, select **Yes** and press **Enter** when the program wants to examine the SCSI Bus and List Devices. The program will perform its examination and display a list of devices.

The AdvanceWare Diagnostic program will next examine the SCSI bus and the peripherals connected to it. The program will communicate with all devices that it finds to ensure that all systems are correctly communicating. A listing of all the SCSI devices that the program located will appear on the screen.

7. If all your connected devices appear on the list, select **Yes**. If any devices are missing, select **No**. The program will provide troubleshooting tips and ask you to reboot.

8. When the AdvanceWare Installation program instructs you to do so, remove the AdvanceWare Installation Diskette from the disk drive and press the spacebar. Your computer will reboot.

What's next?

At this point, the AdvanSys Host Adapter and its attached SCSI devices are ready to use. If an operating system is already installed in your computer, boot up, go to *Chapter 5, Software Installation*, and follow the instructions for your operating system. If you are working in a Windows 95 environment, go to *Chapter 4: SuperInstall and SuperView for Windows 95*, for instructions. If your computer does not have an operating system installed, now is the time to install one.

Product Contents

- AdvanSys ABP940-UW PCI to Ultra Wide SCSI Host Adapter Card
- AdvanSys SuperSCSI configuration/installation software
- Operating system support for MS-DOS, Windows 3.x, Windows 95, Windows NT, and Novell Netware.
- User Manual
- 50-pin Ultra SCSI ribbon cable for connecting up to (X) internal peripherals
- 68-pin Ultra Wide SCSI ribbon cable for connecting up to (X) internal peripherals

Technical Specifications

Computer Bus: PCI Bus

Interface Protocol: Bus Master DMA

Device Protocol: SCSI

Device Support: Up to 15 Ultra and Ultra Wide SCSI devices

Bus Width: SCSI: 8-bit and 16-bit Ultra Wide SCSI; PCI: 32-bit and 64-bit

PCI Host Bus Data Transfer Rate:

- 3.3 MB/sec asynchronous burst on the SCSI bus
- 10 MB/sec synchronous burst on the Fast SCSI bus
- 20 MB/sec synchronous burst on Ultra SCSI bus
- 40 MB/s synchronous bursty on Ultra Wide SCSI bus

AdvanSCSI ABP940-UW User Manual

Electrical Terminations: Single-ended and differential

I/O Operating System Support

- MS-DOS (version 5.0 or higher)
- Windows (version 3.1 or higher)
- Windows 95
- Windows NT (versions 3.51/4.0 or higher)
- Novell Netware (versions 3.12/4.01 or higher)
- OS/2 (version 2.1/ WARP or higher)

I/O Hardware: Internal 50-pin low density, internal 68-pin high density, and external 50-pin high density SCSI Connectors

Operating Temperature: 0°C (32°F) to 55°C (131°F)

Storage Temperature: -40°C (-40°F) to 75°C (167°F)

Relative Humidity: 10% to 95% noncondensing

FCC Certification: 47 CFR Part 15, Subpart B, Class B Digital Device Compliance to ANSI C63.4-1992

CE Compliance: EN 50081-1:1992 Emissions, EN 50082-1:1992 Immunity Compliance in accordance with CISPR 22B:1985, IEC 1000-4-2:1995, IEC 1000-4-3:1995 and IEC 1000-4-4:1995

AdvanSys Contact Information

Advanced System Products, Inc.
1150 Ringwood Court, San Jose, CA 95131
USA
Telephone: 408-383-9400

Tech Support

Telephone: 800-525-7440 and 408-467-2930
FAX: 408-467-2955
Internet: <http://www.advansys.com>
email: support@advansys.com

BBS

408-383-9540 (14,400 Baud, No Parity, 8 bit data, 1 stop bit)

Interactive FAX

408-383-9753

Anonymous FTP

<ftp.advansys.com> (login: anonymous)

AdvanSCSI ABP940-UW User Manual

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Advanced System Products, Inc.

Chapter 3: Hardware Installation

This chapter provides detailed instructions for installing an ABP940-UW Host Adapter Card on your PC. **If you are using a Windows 95 operating system, please go to *Chapter 4, SuperInstall and SuperView for Windows 95* for instructions on installing the driver before the Host Adapter card.**

AdvanSys ABP940-UW Host Adapter Card Package Contents

Before you install and configure the host adapter card, make sure that your package includes all of the following items:

1. AdvanSys ABP940-UW PCI to Ultra Wide SCSI Host Adapter Card
2. Software agreement envelope containing the AdvanSys SuperSCSI CD, which has the following:
 - a. SuperInstall Instructions
 - b. SuperView Instructions
 - c. User Manuals
3. AdvanSys Registration Card
4. 50-pin Ultra SCSI ribbon cable for connecting up to (X) internal peripherals
5. 68-pin Ultra Wide SCSI ribbon cable for connecting up to (X) internal peripherals

Hardware Requirements

- An IBM PC (386 or higher) or compatible
- One or more SCSI peripheral devices (up to a total of 15 per adapter card)
- At least 640KB of RAM
- At least 2 MB of free disk space for a basic installation
- 50-pin Ultra SCSI external cable (for external devices)

Ultra SCSI Cabling Considerations

Please use an Ultra SCSI cable to attach Ultra SCSI peripherals to your ABP940-UW Host Adapter Card. An Ultra SCSI cable is required for the following reasons:

- If you are attaching fewer than five SCSI devices to the Host Adapter, the maximum cumulative cable length for Ultra SCSI (20 MB/sec SCSI data transfer) is 3.0 meters (versus 6.0 meters for FAST SCSI-2). If you plan to attach from five to eight devices, the maximum cumulative length for cabling is 1.5 meters.
- Termination should be active on both sides because Ultra SCSI (2-3pF) has a lower capacitance than FAST SCSI-2 (8-10pF).
- Impedence is lower for Ultra SCSI ($90\Omega \pm 10\Omega$) than for FAST SCSI-2 ($110\Omega \pm 10\Omega$). The REQ and ACK signals have even lower impedance at $90\Omega \pm 6\Omega$.
- Active negation for Ultra SCSI versus Open Drain for FAST SCSI

Ultra Wide SCSI Cabling Considerations

Please use an Ultra Wide SCSI cable to attach Ultra Wide SCSI peripherals to your ABP940-UW Host Adapter Card. An Ultra Wide SCSI cable is required for the following reasons:

- If you are attaching fewer than five SCSI devices to the Host Adapter, the maximum cumulative cable length for Ultra SCSI (20 MB/sec SCSI data transfer) is 3.0 meters (versus 6.0 meters for FAST SCSI-2). If you plan to attach from five to eight devices, the maximum cumulative length for cabling is 1.5 meters.
- Termination should be active on both sides because Ultra SCSI (2-3pF) has a lower capacitance than FAST SCSI-2 (8-10pF).
- Impedence is lower for Ultra SCSI ($90\Omega \pm 10\Omega$) than for FAST SCSI-2 ($110\Omega \pm 10\Omega$). The REQ and ACK signals have even lower impedance at $90\Omega \pm 6\Omega$.
- Active negation for Ultra SCSI versus Open Drain for FAST SCSI

ABP940-UW Host Adapter Card Overview

You do not need to understand highly technical PC jargon to install your high performance Host Adapter. The next sections will walk you through the tasks of installing the Host Adapter Card and I/O devices.

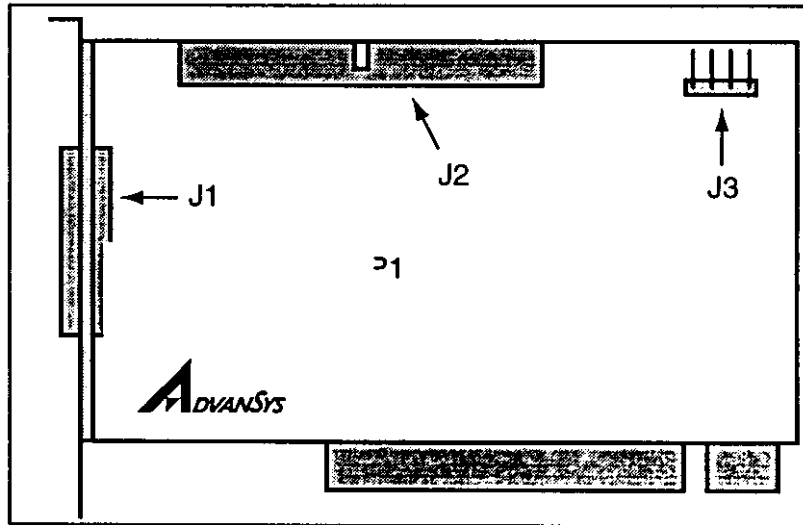


Figure 3-1: Host Adapter Layout

ABP940-UW Connectors

Connector	Functions
J1	50-pin external high-density Ultra SCSI connector
J2	68-pin internal high-density Ultra Wide SCSI connector
J3	50-pin internal Ultra SCSI connector
J4	SCSI Bus Busy LED connector pins 1 & 4: POWER; pins 2 & 3: SCSI Bus Busy Signal (Active Low)

Installing the AdvanSys Host Adapter Card

1. Shut off your system and turn off your PC.
2. Remove the cover from your computer chassis.
3. Touch the power supply of your PC to discharge static electricity.
4. Find an available PCI-Bus slot, and plug in the ABP940-UW Host Adapter card. Make sure that the card is seated properly and firmly in the slot. Secure the card by tightening the mounting screw.

Figure 3-2 is an illustration of a properly seated ABP940-UW Host Adapter card.

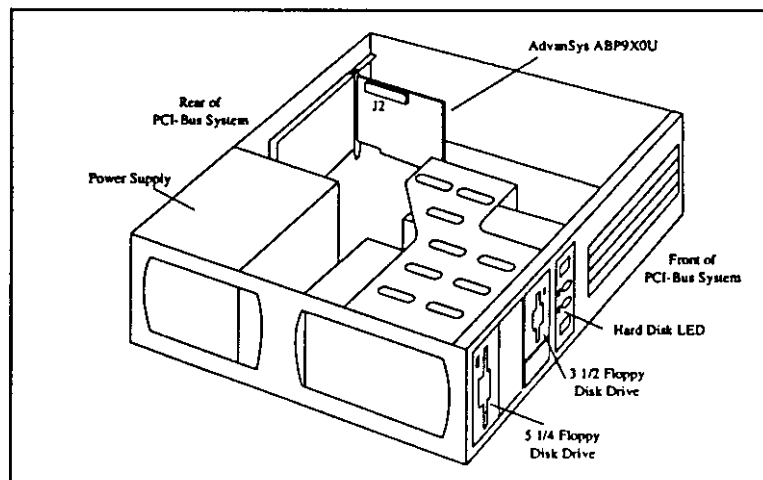


Figure 3-2: Host Adapter Card Seated in a PCI slot

SCSI Device Installation

5. Install any internal and external Ultra or Ultra Wide SCSI peripheral devices according to the manufacturer's installation instructions. You can install a maximum of 15 SCSI peripheral devices to the ABP940-UW Host Adapter Card.

SCSI Device Termination

So that signals can be transmitted properly across the SCSI bus, the devices at both ends of the bus must be properly *terminated*. The AdvanSys Host Adapter card has automatic termination control for the Host Adapter end of the bus cable; however, you must ensure that the terminator at the other end (the last peripheral device only) of the bus cable is enabled.

Figure 3-3 illustrates proper termination when only internal SCSI devices are attached to the Host Adapter card. Figure 3-4 illustrates proper termination with only external peripheral devices attached to the card. Figure 3-5 illustrates proper termination for a combination of both external and internal SCSI devices.

Most devices use resistor networks as terminators. To enable termination, leave the resistor networks installed in their respective SIP (Single In-Line Package) connectors. To disable termination, remove these resistor networks. Active terminators generally have a jumper or switch that controls the enable/disable feature. Refer to the SCSI device installation manual for more details.

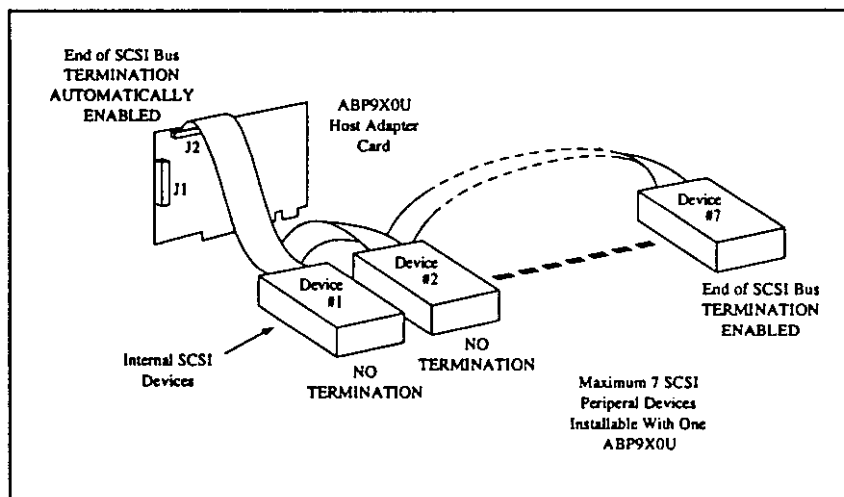


Figure 3-3: Terminating Internal Devices Only

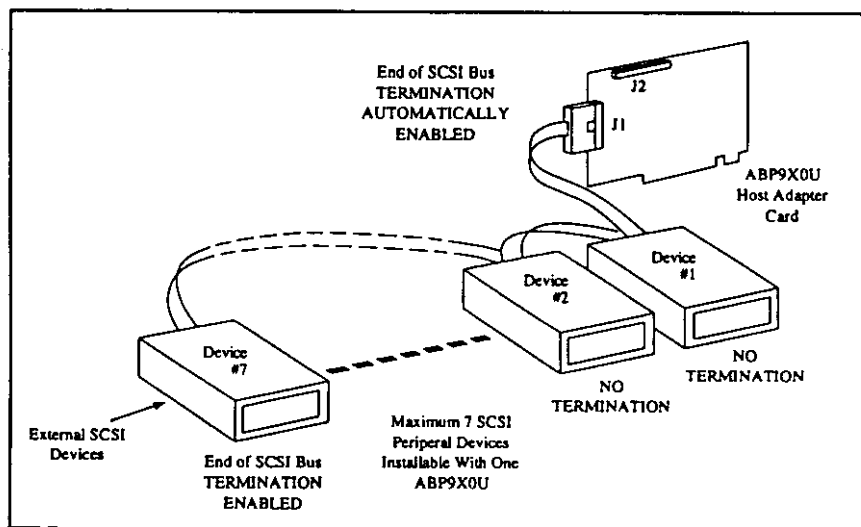


Figure 3-4: Terminating External Devices Only

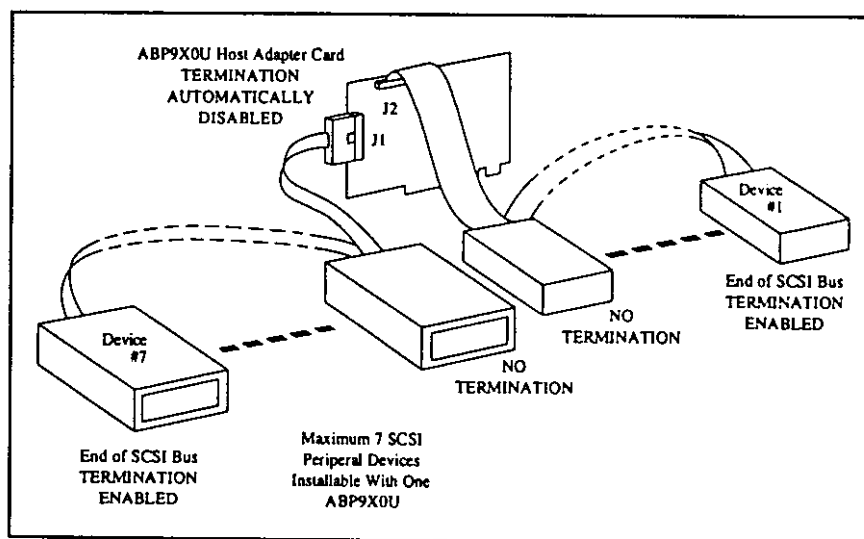


Figure 3-5: Terminating Internal and External SCSI Peripheral Devices

NOTE: Each SCSI peripheral device connecting to the AdvanSys Host Adapter (including the Host Adapter itself) must be assigned its own unique SCSI ID. SCSI IDs are numbered from 0 to 7. The default setting for the AdvanSys Host Adapter is SCSI ID 7.

Example of SCSI ID Assignment

Figure 3-6 illustrates SCSI ID assignment to five internal and two external SCSI peripheral devices attached to an AdvanSys Host Adapter. Each device on the SCSI Bus has a unique SCSI ID number. You can assign the IDs randomly, as long as there is no conflict.

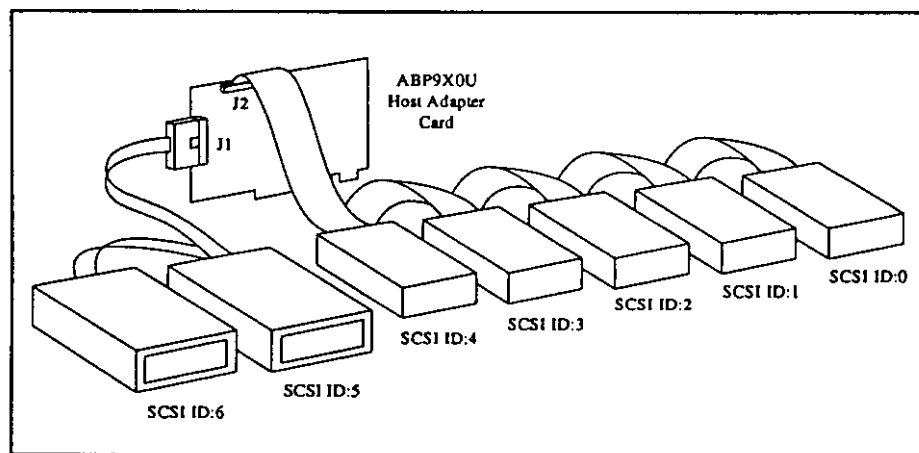


Figure 3-6: SCSI ID Assignment

SCSI Device Cable Connection

CONNECTION NOTE:

There are three connectors on the Host Adapter Card: one internal 68-pin, one internal 50-pin, and one external 50-pin. Only two of these connectors can be active at one time.

Internal 50 Pin & External 50 Pin

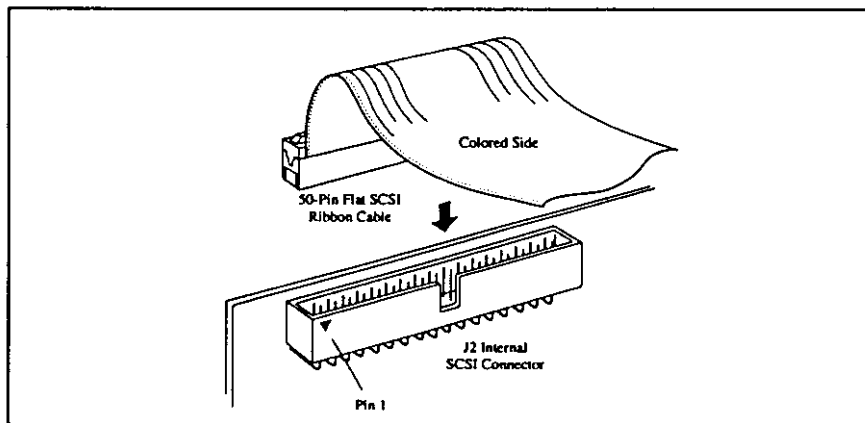
Internal 50 Pin & Internal 68-pin

Internal 68-pin & External 50-pin

Do not attempt to use three connectors at the same time. The board will not function, and damage may occur.

Internal Connection

6. Figure 3-7 shows how to attach the internal 50-pin Ultra Narrow SCSI flat ribbon cable to connector J3 of the ABP940-UW Host Adapter card. Be sure to connect the colored edge of the ribbon cable to the side of J3 (pin #1) marked with an arrow. Also, make certain that any internal Ultra Narrow SCSI devices are connected with the colored side of the cable to pin 1 of the device.
7. Figure 3-8 shows how to attach the internal 68-pin flat Ultra Wide SCSI ribbon cable to connector J2 of the ABP940-UW Host Adapter card. External



Connecting a 50-pin Internal SCSI Cable to the Host Adapter Card

[drawing]

Figure 3-7: Connecting a 68-pin Internal Ultra Wide SCSI Cable to the Host Adapter Card

External Connection

8. Connect any external Ultra Narrow SCSI peripheral devices to the Host Adapter Card external 58-pin connector J1

[drawing]

Figure 3-8: Connecting a 50-pin External Ultra Narrow SCSI Cable to the Host Adapter Card

9. Optionally, you can connect the hard disk LED cable of your PC to the "SCSI Bus Busy" LED CONN (connector J4) so that the user will know when a SCSI device is active.

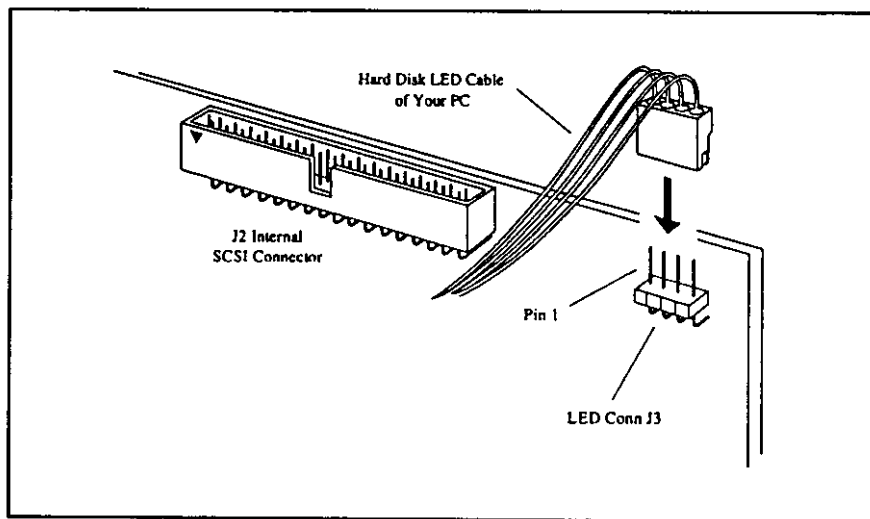


Figure 3-9: Connecting the SCSI Bus Busy LED

Note: The J4 connector and LED SCSI Bus Busy are not available on all AdvanSys Host Adapters.

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Chapter 4: SuperInstall and SuperView for Windows 95

AdvanSys gives Windows 95 its own chapter in this manual, for two reasons.. First, unlike the driver software for other operating systems, the AdvanSys driver for Windows 95 is installed before host adapter card installation, using a special SuperInstall program. Second, Advanced System Products has developed the SuperView program specifically for Windows 95. SuperView is a tool designed to easily and effectively manage SCSI devices, including the Host Adapter card..

The first part of this chapter will guide you through installation of the AdvanSys drivers, using the AdvanSys SuperSCSI CD. After completing installation, you can refer to *Chapter 3, Hardware Installation*, for instructions on installing the AdvanSys SCSI Host Adapter card on your computer motherboard.

SuperInstall, the installation program for Windows 95, automatically installs the SuperView application at the same time it installs the AdvanSys driver. The SuperView program is described later in this chapter.

The final sections of this chapter provide instructions on printing the user manual for SuperView and for uninstalling AdvanSys driver software and the SuperView program.

SuperInstall Instructions

CD-ROM Installation

The following Cases I through III describe three possible installation scenarios. We strongly recommend that you follow the steps outlined in Case I.

Case I: AdvanSys Driver First (Highly Recommended)

1. Go to the Windows 95 Device Manager by performing these steps:
 - a. Click on **START**
 - b. Choose **SETTINGS**
 - c. Click on **CONTROL PANEL**
 - d. Double-click on the **SYSTEM** icon
 - e. Click on **DEVICE MANAGER**
 - f. Double-click on the **CD-ROM** icon
 - g. Double-click on the listing for your CD-ROM drive
2. In the **Properties** window, click on the **Settings** tab. Check to make sure that the **Auto insert notification** checkbox is selected.
3. Next, insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the **AutoRun** window for the SuperInstall program to appear.
4. Click on the **SuperInstall** button to activate the SuperInstall program.



Figure 4-1. The AutoRun Program Window

5. The **Setup Type** window shown in Figure 4-2 appears next. Select **Full installation (recommended)** and click **Next** to install both the drivers and the SuperView program.



Figure 4-2. The Setup Type Window

6. When SuperInstall notifies you the drivers are successfully installed, click **Next**.
7. You will be prompted to choose a destination location. Click **Next** to select the default pathway *C:\Program Files\AdvSCSI*, or use the **Browse** button to select a location you prefer.
8. The SuperInstall Readme file will appear on the screen with instructions for starting up the SuperView program.

Congratulations! You have successfully completed AdvanSys driver installation. Refer to *Chapter 3, Hardware Installation*, for Host Adapter Card installation instructions. When the card is in place and you reboot your computer, Windows 95 will detect the new SCSI card and assign it the AdvanSys driver you installed.

Case II: Host Adapter Card First

1. Go to the Windows 95 Device Manager by performing these steps:
 - a. Click on **START**
 - b. Choose **SETTINGS**
 - c. Click on **CONTROL PANEL**
 - d. Double-click on the **SYSTEM** icon
 - e. Click on **DEVICE MANAGER**
 - f. Double-click on the **CD-ROM** icon
 - g. Double-click on the listing for your CD-ROM drive
2. In the **Properties** window, click on the **Settings** tab. Check to make sure that the **Auto insert notification** checkbox is selected.
3. Next, insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the **AutoRun** window for the SuperInstall program to appear.
4. Click on the **SuperInstall** button to activate the SuperInstall program.
5. The **Setup Type** window shown in Figure 4-2 appears next. Select **Full installation (recommended)** and click **Next** to install both the drivers and the SuperView program.
6. When SuperInstall notifies you the drivers are successfully installed, click **Next**.
7. You will be prompted to choose a destination location. Click **Next** to select the default pathway *C:\Program Files\AdvSCSI* or use the **Browse** button to select a location you prefer.
8. The SuperInstall **Readme** file will appear on the screen with instructions for starting up the SuperView program.

When you restart Windows 95, setup.exe will check for and correct bad drivers. Windows 95 should be able to detect the new SCSI card and assign correct drivers.

Case III: The Host Adapter Card Still Does Not Work

The **Full Installation, recommended** option you selected during setup installed a **SuperView** application on your computer. **SuperView** is designed to help you with the problems you may encounter with the card and its attachments after installation. **SuperView** is described later in this chapter.

Diskette Installation

If you need to install the driver software from a diskette, you must gain access to a CD-ROM drive in order to create the SuperInstall diskette from the AdvanSys Super SCSI CD.

Windows 95 Diskette Creation

1. Go to the Windows 95 Device Manager by performing these steps:
 - a. Click on **START**
 - b. Choose **SETTINGS**
 - c. Click on **CONTROL PANEL**
 - d. Double-click on the **SYSTEM** icon
 - e. Click on **DEVICE MANAGER**
 - f. Double-click on the **CD-ROM** icon
 - g. Double-click on the listing for your CD-ROM drive
2. In the **Properties** window, click on the **Settings** tab. Check to make sure that the **Auto insert notification** checkbox is selected.
3. Next, insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the **AutoRun** window for the SuperInstall program to appear.
4. Click on the **Make Installation Diskettes** button to open the **Diskette Maker** Window (see Figure 4-3).
5. Select **SuperInstall/SuperView Diskette for Windows 95**.
6. Choose a destination drive for the driver files and insert a floppy diskette into that drive.
7. Now click on the **Make Diskette** button.
8. When you see a message indicating that the installation diskette was successfully created, click **OK**.
9. Click **Exit** to quit the Diskette Maker window.

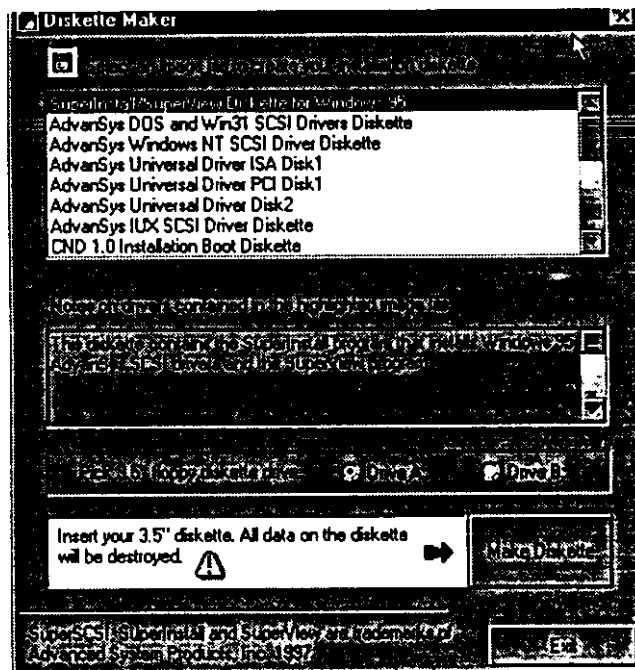


Figure 4-3. The Diskette Maker window

Diskette Creation Using Other Operating Systems

The AdvanSCSI Ctrl A BIOS utility lets you boot from your CD-ROM drive and create SuperInstall diskettes without going through any operating system. Follow the steps outlined in this section to create the diskettes you need.

1. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and restart your PC. The BIOS will look for a bootable CD in the CD-ROM drive attached to your system. When it detects the AdvanSys Super SCSI CD, you will see the following message:

A Bootable CD was detected:

0 - AdvanSys Diskette Creator

Select image number, or press Escape for normal boot:

NOTE: If, after you insert the Super SCSI CD and reboot, your system goes through a normal boot from the hard drive, read the section titled CD-ROM Bootability in *Chapter 5, Software Installation*.

2. Enter the image number for the AdvanSys CD from the list of bootable CDs displayed on the screen (or press the **Esc** key to boot from your hard disk). The following **Diskette Creator** menu will appear on the screen:

AdvanSys Super SCSI Bootable CD Driver Diskette Creator 2.6

Driver diskettes you can create by typing a number below:

- | | | |
|----------------|---------------------|--------------------------------------|
| 1) Windows 95 | 6) Solaris | 11) 2.6 Diskette #1 w/ISA Boot Diag. |
| 2) Windows NT | 7) Interactive Unix | 12) 2.6 Diskette #1 w/PCI Boot Diag. |
| 3) DOS/Win 3.1 | 8) SCO Open Server | 13) 2.6 Diskette #2 |
| 4) OS/2 | 9) SCO UnixWare | |
| 5) NetWare | 10) Linux | |

Commands you can run by typing a letter below:

- A) Toggle floppy drive between A: and B: (Must be 1.44 MB)
- B) Create AdvanSys Support File
- C) Exit the Diskette Creator

Current Device Settings:

Floppy Drive: A:

CD-ROM Drive: ATAPI CD-ROM B

Type a driver diskette number or command letter followed by <Enter>:

3. At the prompt, type in the number corresponding to your operating system and press **Enter**. Enter 1 for Windows 95 to call up the following prompt:

Please insert a blank diskette into your 1.44 MB diskette drive A:
Proceed to overwrite and create diskette for Windows 95? (y/n)

4. Insert a blank diskette, type in **Y**, and hit **Enter** to continue. As the diskette is made, the message "Creating diskette for Windows 95..." will be displayed. Once the files are copied, you'll be notified that the Windows 95 diskettes were successfully created.
5. Now that you've created your installation disk, hit **Enter** to return to the Diskette Creator menu.
6. Enter **C** at the menu prompt, then type **S** and hit **Enter** to shut down the computer, type **R** and hit **Enter** to reboot the computer, or just hit the **Enter** key to return to the main menu.

Case I: AdvanSys Driver First (Highly Recommended)

Before you physically insert the AdvanSys SCSI Host Adapter card into the computer, follow these steps to install the AdvanSys driver.

1. Insert the SuperInstall diskette into the floppy drive.
2. Click the Windows 95 **Start** button.
3. Click **Run**.
4. Type **a:\super97** in the edit box (assuming the diskette is in drive A).
5. Click **OK**.
6. Follow the instructions provided by the setup program and, when it comes up, choose the option **Automatic Installation, recommended**.

Congratulations! You have successfully completed AdvanSys driver installation. Refer to *Chapter 3, Hardware Installation*, for Host Adapter Card installation instructions. When the card is in place and you reboot your computer, Windows 95 will detect the new SCSI card and assign it the AdvanSys driver you installed.

Case II: Host Adapter Card First

Follow the same six steps outlined above for Case I, as follows:

1. Insert the SuperInstall diskette into the floppy drive.
2. Click the Windows 95 **Start** button.
3. Click **Run**.

4. Type **a:\super97** in the edit box (assuming the diskette is in drive A).
5. Click **OK**.
6. Follow the instructions provided by the setup program and, when it comes up, choose the option **Full Installation, recommended**.

When you restart Windows 95, setup.exe will check for and correct bad drivers. Windows 95 should be able to detect the new SCSI card and assign correct drivers.

Case III: The Host Adapter Card Still Does Not Work

The **Full Installation, recommended** option you selected during setup installed a **SuperView** application on your computer. **SuperView** is designed to help you with the problems you may encounter with the card and its attachments after installation. **SuperView** is described later in this chapter.

The SuperView Program

SuperView is a tool designed for use within the Windows 95 environment. It will help you solve any problems you may encounter after installing the AdvanSys driver and AdvanSys SCSI host adapter card. When you install the AdvanSys driver for the host adapter card, you will automatically install the **SuperView** application. **SuperView** will lead you through fast, smart searches for information on and sources of problems with your SCSI devices.

Starting SuperView

There are two ways to start up the **SuperView** application.

Once **SuperView** is installed, a **SuperView** Launcher arrow like the one illustrated above will show up on your Windows 95 task bar. Double-click this arrow to open **SuperView** or open the program by following these steps:

1. Click the Windows 95 **Start** button.
2. Move your mouse pointer to **Programs**.
3. Point next to the **SuperView** folder.
4. Finally, click on the **SuperView** program icon.

Normal and Advanced User Modes

While navigating through the SuperView program, you have the option of working in either **Normal Mode** or the **Advanced User Mode**. Most users have a PC with two or three SCSI devices attached, and the Normal Mode will be perfectly adequate. This is the startup mode for the program. If, however, you are responsible for administering a complex network of PCs and attached SCSI devices, you will probably need to access the more detailed technical data available through the Advanced User Mode.

The first and largest portion of this manual is devoted to using SuperView in the NormalMode. A description of additional program options featured in the Advanced User Mode is given later in this chapter.

Window Panes in Superview

The SuperView Main Program window comprises several panes that permit you to see how your SCSI devices are organized and functioning. These panes will link you to all kinds of useful and detailed information for which you would otherwise have to search throughout your system. At the click of a mouse, you can go to a list of drivers registered in the Device Manager, a list of IRQs used by attached devices, details on Windows 95 error codes, and other troubleshooting aids. You can access everything from general information about SCSI to highly specific data on a given SCSI device. The window panes for Normal Mode are shown in Figure 4-4. Advanced Mode additions to the main program window are discussed later in this chapter.

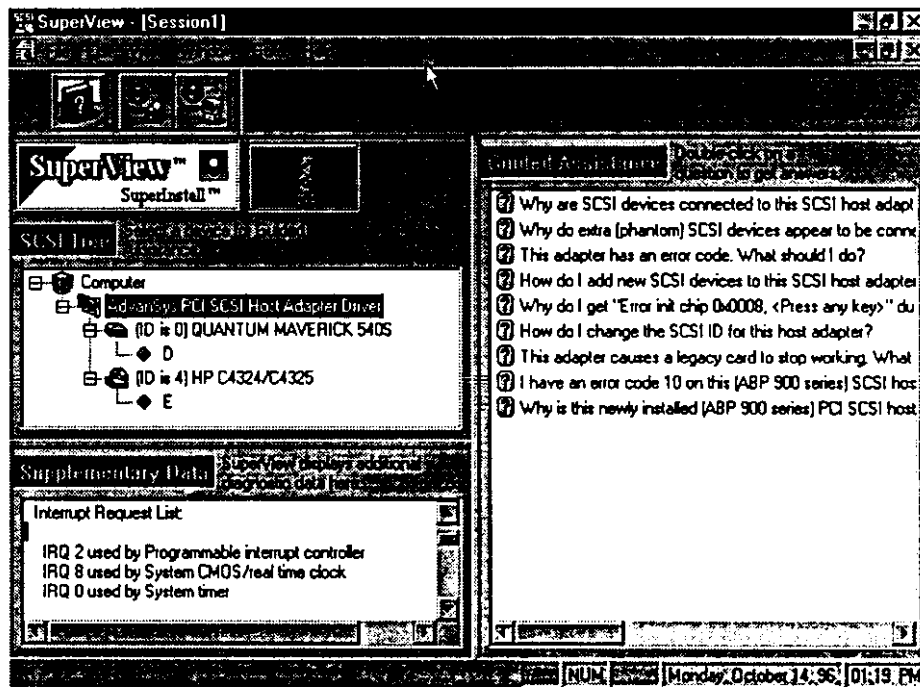


Figure 4-4. SuperView Main Program Window in Normal Mode

1. The **SCSI Tree** pane in the middle left side of the program window shows how all of the SCSI devices are connected to your computer. If SuperView detects a problem at any branch of the SCSI tree, it shows you where the problem is by placing a warning icon there. Locate the icon for the malfunctioning device and click on it once. Look in the **Guided Assistance** section of the screen for help.
2. The **Guided Assistance** section displays a list of focused questions about any device you select in the SCSI tree. When you double-click a highlighted ? icon, a Help window will appear on the screen with suggestions as to what the source of the problem might be, as well as steps you can take to try to solve the problem. Frequently, the Help window contains links to more information on a topic. Navigate through these colored, underlined, text links by clicking on them with the left mouse button.

In some cases, SuperView "knows" exactly what the problem is and points you in the right direction by placing a yellow ? icon next to a question topic. When you double-click on a ? icon, specific details related to the problem (if any) will come up in the **Supplementary Data** section and SuperView Help for that topic will appear on the screen.

3. In the lower left portion of the program window is the **Supplementary Data** pane. This window pane presents problem-specific information for topics you select in the Guided Assistance pane. If, for instance, one of the devices in the SCSI Tree has an error code associated with it, the Supplementary Data pane will display the number of that code when you double-click the appropriate question under Guided Assistance.

Resizing Window Sections

If you wish to see more of the information in a pane, you can resize it. To resize the window panes, place your cursor on one of the splitter bars that act as partitions between the panes. When the cursor assumes the shape of a double-headed arrow, click and drag the splitter bar up and down (on the horizontal bar) or left and right (on the vertical bar) to resize the panes. As you move the bars, you will notice that more information becomes visible in some panes and less in others.

SuperView Menus and Commands

File Menu Commands

New	Creates a new Supplementary Data text document
Close	Closes the Supplementary Data text document
Print	Prints a Supplementary Data text document. The Print command only works when you place your cursor somewhere inside the Supplementary Data text box.
Print Setup	Lets you select a printer and printer connection
Operating Mode	Lets you move between Normal and Advanced User operating modes
Uninstall Drivers	Uninstalls driver software for all AdvanSys ISAPNP and PCI adapters.
Exit	Exits the program

Edit Menu Commands

NOTE: The Edit commands only work in the **Supplementary Data Pane**.

Undo	Reverses the last editing operation you performed
Cut	Deletes data from the document and moves it to the clipboard
Copy	Copies data from the document to the clipboard
Paste	Pastes data from the clipboard into the document

View Menu Commands

Toolbar	Shows or hides the toolbar. The toolbar can also be dragged and docked at different sides of the application window.
Status Bar	Shows or hides the status bar.

Window Menu Commands

In the Windows menu, the following commands let you arrange multiple views of hardware "snap shots" in the application window:

Cascade	Arranges windows in an overlapped fashion
Tile	Arranges windows in non-overlapped tiles
Arrange Icons	Arranges icons of closed windows
Session 1, 2	Goes to a specified session window

Goto Menu Commands

The Goto menu in Normal Mode has one active command:

Internet Links	Connects to the AdvanSys home page on the Internet (where you can get information about the AdvanSys SCSI host adapter card) and an FTP site (where you can download new drivers).
----------------	--

Help Menu Commands

The SuperView Help menu offers the following commands:

Help Topics	Executing this command opens the Help Topics window. The Contents page will be showing, and you can click on a tab to go to the Index or Find pages.
About SuperView	Displays the version number of this application, and memory and current disk space usage.

SuperView Help Topics

The Help Topics in SuperView provide all kinds of information on both the program itself and on your SCSI devices. You will find complete instructions for executing many tasks. The following are some examples:

- Installing a SCSI host adapter card
- Connecting SCSI devices to a host adapter card
- Getting to the Windows 95 Device Manager
- Changing drivers
- Assigning resources to SCSI devices
- Resolving Windows 95 errors
- Terminating SCSI devices
- Assigning SCSI ID number to SCSI devices
- Getting into and configuring the BIOS main menu

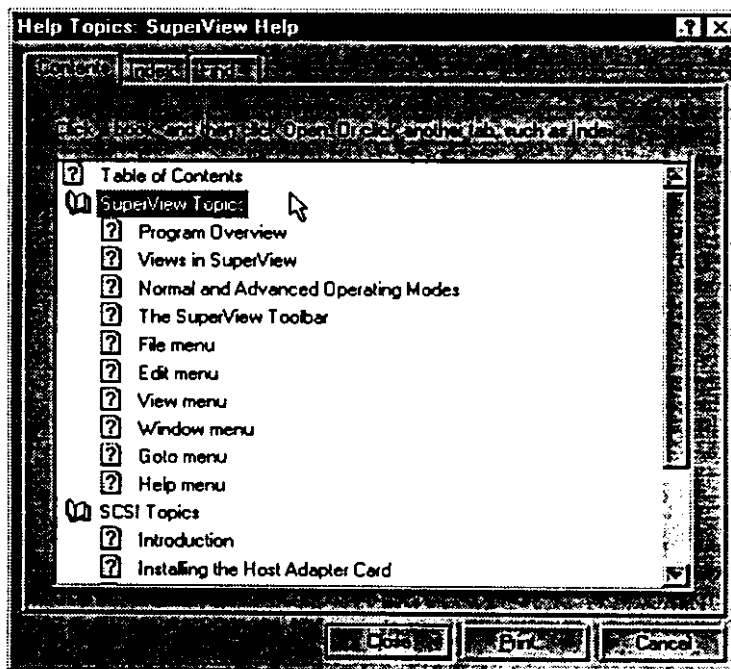


Figure 4-5. SuperView Help Topics Window

The Help Topics also include an extensive Troubleshooting section as well as answers to Frequently Asked Questions.

The SuperView Toolbar

In Normal Operating Mode, SuperView displays a toolbar consisting of three buttons. From left to right, these correspond to **Help Topics** in the Help menu, the **Web Home Page** selection under Internet Links in the Goto menu, and the **FTP Site** selection under Internet Links.



Figure 4-6. The SuperView Toolbar in Normal User Mode



Click on the first of these to call up the SuperView **Help Topics** window shown on the previous page. From this window, you can access a table of contents, a help index, program-specific help, SCSI-specific help, and answers to FAQs (frequently asked questions).



Selecting the second button will connect you to the **AdvanSys Home Page** on the Internet, where you can get information about the AdvanSys SCSI host adapter card.



The third button connects you to the **AdvanSys FTP site**. Go to this site to download SuperView program updates or other files associated with future program development.

SuperView Advanced User Mode

The Advanced User Mode has all of the features of Normal Mode, and more. To switch to the Advanced User Operating Mode, perform the following steps:

1. Go to the **File** menu
2. Click on **Operating Mode** to call up the window shown in Figure 4-7.
3. Select the **Advanced User Mode** radio button
4. Click **OK**.

We recommend that you switch to Advanced User Mode only if you are an experienced user and can use the kinds of registry information available there.

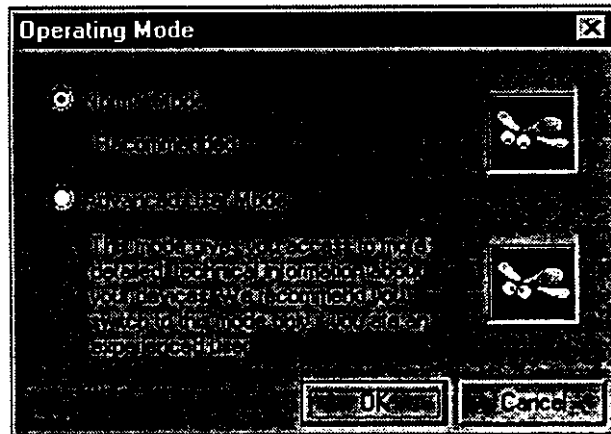


Figure 4-7. Operating Mode Selection Window

Additional Window Panes

The **Devices** pane replaces the SCSI Tree and Supplementary Data panes in the left half of the program window. It displays a list of every device on your computer, including the SCSI host adapter card and its attachments. You can go here to locate problems associated with these devices. The Devices section is not available in Normal Mode. Open it by selecting it from the Goto menu or by clicking on its toolbar button from within Advanced User Mode.

The **Registry Data** pane replaces the Guided Assistance pane in the right half of the program window. It displays registry data for all devices on your computer. When you invoke the Devices pane, Registry Data comes up automatically alongside it. The Registry Data pane is not available in Normal Mode.

Open the Registry Data pane by selecting it from the Goto menu or by clicking its toolbar button while in the Advanced User Mode. You can also bring it up alongside the SCSI Tree to check out registry data on your SCSI host adapter and the devices connected to it. Using the right mouse button, click on a device listed in the SCSI Tree, then select Registry Data from the menu that appears on the screen (see Figure 4-8).

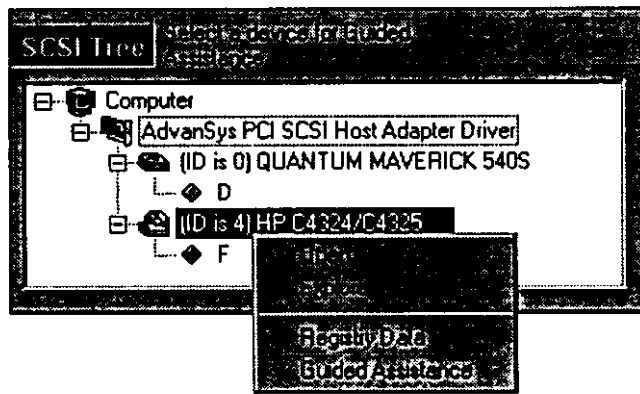


Figure 4-8. Opening Registry Data from The SCSI Tree

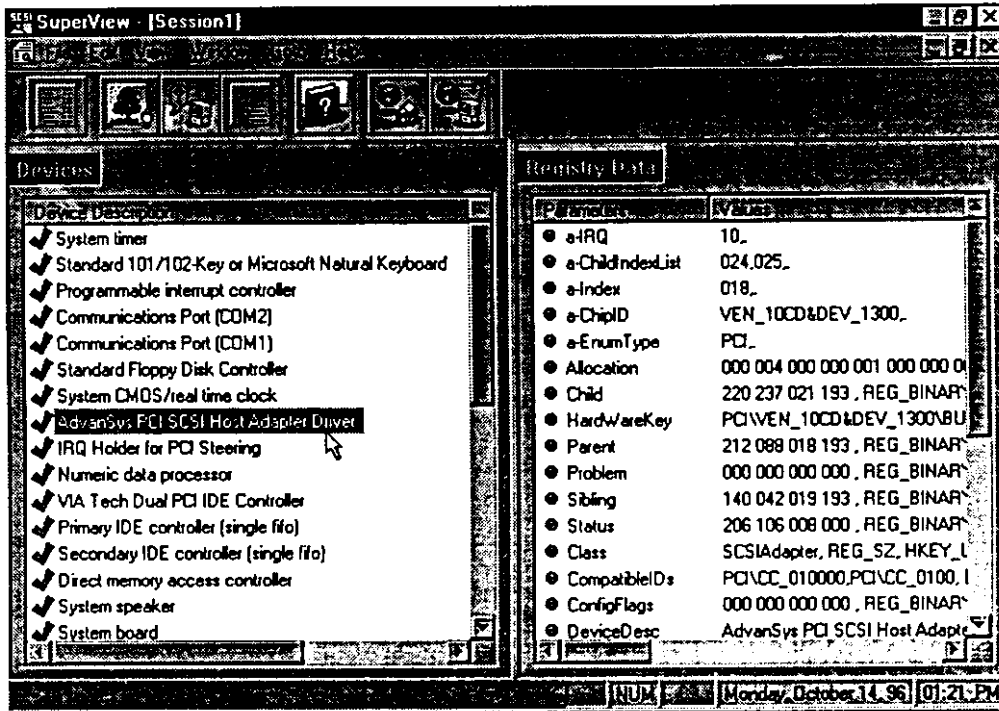


Figure 4-9. SuperView Program Window in Advanced User Mode

Additional Toolbar Options

In Advanced User Mode, the toolbar displays the four additional buttons illustrated below.



Figure 4-10. Additional Toolbar Options in Advanced User Mode



Selecting the first of these brings up the Devices pane. This pane, which displaces the SCSI Tree and Supplementary Data panes, lists all the devices on your computer.

When you bring up **Devices**, the **Registry Data** pane automatically appears alongside it, displacing the **Guided Assistance** pane. Click on an item listed in **Devices** to examine its corresponding registry data. The **Registry Data** pane provides comprehensive information on the selected device, including its assigned IRQ, a description of the device and its driver, the manufacturer, etc. If SuperView detects a problem with one of the devices, it places a yellow warning question mark to the left of it in the list.



Select the second button on the Advanced User Mode toolbar to revert to the **SCSI Tree** and **Supplementary Data** panes. The **Registry Information** pane remains in the right portion of the program window. Click on one of the SCSI devices in the SCSI tree to call up its registry data. If you click on a device with a warning tag next to it, look at the **Problem** parameter in the **Registry Data** pane to determine exactly what is wrong.



To exit the **Registry Data** pane and return to the **Guided Assistance** pane, click on the third toolbar button. Selecting the **Guided Assistance** button automatically restores the **SCSI Tree** and **Supplementary Data** panes, if you have not returned to them already.



Use the fourth (and final) additional button in the Advanced User Mode to call up the **Registry Data** pane independent of the **Devices** pane.

Additional Menu Options

The following are offered in the Advanced User Mode and are in addition to the items available in Normal Mode.

The Window Menu

New Window This command creates a new window for viewing the same document

The Goto Menu

Devices Use this command for a list of all devices, including the SCSI host adapter and its connected devices, that the Device Manager recognizes on your computer. This list appears in the left portion of the window, displacing the SCSI Tree and Supplementary Data window panes.

Registry Data Use this command to bring up registry information on a device listed in either the SCSI Tree or Devices pane. These data will appear in the right portion of the window, displacing the Guided Assistance pane.

SCSI Tree and Supplementary Data

This command brings up the SCSI Tree and Supplementary Data panes in the left side of the window. Select a SCSI device from the SCSI Tree to see a list of questions related to the device under Guided Assistance.

If a question listed in Guided Assistance is tagged with a yellow question icon, double-click on that icon to display the answer in the Supplementary Data window pane. You can Undo, Delete, Cut and Paste the text within the Supplementary Data pane. To save the text, copy a selection to your own text file.

Guided Assistance

This command restores the Guided Assistance pane to the window. The SCSI Tree and Supplementary Data panes will automatically appear along with it.

Printing *SuperInstall* and *SuperView* for Windows 95 Manuals

If you need to keep a hard copy of the *SuperInstall* and *SuperView* for Windows 95 manual at hand, just follow these steps:

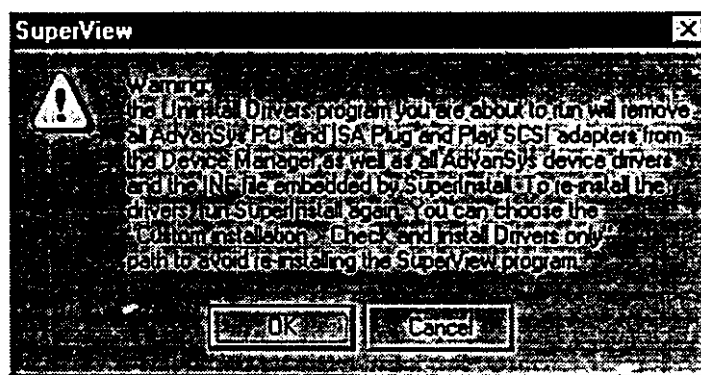
1. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the **AutoRun** program to come up.
2. Click on the **Print Manual** button in the AutoRun program window.
3. You will next see a message that prompts you to be sure that Acrobat Reader is not currently running. If it is, click **Cancel** and quit Acrobat Reader. If it is not running, click **OK**.
4. The *SuperInstall* and *SuperView* for Windows 95 manual will open in the Adobe Acrobat Reader program.
5. Select a range of pages to print.

Uninstalling AdvanSys Driver and the SuperView Program

Please be advised: If you plan to uninstall the driver software, make certain that you do so (according to the instructions provided below) before you uninstall the SuperView program.

To Uninstall The Driver Software:

1. Go to the SuperView **File** menu and select the **Uninstall Drivers** command option. The following window will appear on the screen:



2. To proceed with driver uninstallation, click **OK**.
3. The uninstall program will ask you to confirm removal of all driver software files. Click **OK** in each instance.

To Uninstall SuperView:

1. Click the Start button on the Windows 95 taskbar.
2. Select **Settings** and double-click on **Control Panel**.
3. Double-click the **Add/Remove Programs** icon.
4. Highlight **C:\Program Files\AdvSCSI\SuperView.exe** in the Install/Uninstall window and click the **Add/Remove** button.
5. A **Confirm File Deletion** window will appear, asking if you are sure you want to remove the program. Click **Yes**.

AdvanSCSI ABP940-UW User Manual

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Advanced System Products, Inc.

Chapter 5: Software Installation

Overview

AdvanSCSI is unique in its industry in providing Software Universal Drivers. The Universal Drivers allow the same operating system-specific driver to control any of our AdvanSys Host Adapters. The advantage is that you only need to install one driver to control any number and type of AdvanSys Host Adapter.

This chapter begins with instructions for creating the AdvanSys installation diskettes, which contain the Universal Drivers, from the AdvanSys Super SCSI CD. Next, you'll be guided through installation of the AdvanSys driver on each of the operating systems supported.

Finally, the DOS/Windows 3.x, and Novell AdvanSys driver software provide the industry standard ASPI interface. We recommend that you check with your device manufacturer for instructions on using the ASPI interface with your device. OS/2 includes its own ASPI driver. UNIX operating systems do not support ASPI.

Check the following list for the chapter section that contains installation instructions for your operating system. If you are using Windows 95, refer to *Chapter 4, SuperInstall and SuperView for Windows 95*.

- Section 1. Windows NT
- Section 2. DOS/Windows and CD-ROM Driver installation
- Section 3. OS/2
- Section 4. Novell NetWare
- Section 5. Universal NWPA Host Adapter Module (HAM)

Creating AdvanceWare Installation Diskettes

The AdvanSCSI Ctrl A BIOS lets you boot from your CD-ROM drive and create AdvanSys software installation diskettes for your specific operating system (OS) without going through any operating system. Follow the steps outlined in this section to create the diskettes you need. Unless you are working with Solaris or Linux, you will need just one 1.44 MB diskette for each OS listed. You will find instructions for creating driver disks for Solaris and Linux at the end of this section.

1. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and restart your PC. The BIOS will look for a bootable CD in the CD-ROM drives attached to your system. When it detects the AdvanSys Super SCSI CD, you will see the following message:

A bootable CD was detected:

0 - AdvanSys Diskette Creator

Select image number, or press Escape for normal boot.

NOTE: If your system goes through a normal boot from the hard drive after you insert the Super SCSI CD and reboot, read the section titled CD-ROM Bootability, later in this chapter.

2. Enter the image number for the AdvanSys CD from the list of bootable CDs displayed on the screen (or press the Esc key to boot from your hard disk). The following **Diskette Creator** menu will appear on the screen:

AdvanSys Super SCSI Bootable CD Driver Diskette Creator 2.6

Driver diskettes you can create by typing a number below:

- 1) Windows 956) Solaris 11) 2.6 Diskette #1 w/ISA Boot Diag.
- 2) Windows NT7) Interactive Unix12) 2.6 Diskette #1 w/PCI Boot Diag.
- 3) DOS/Win 3.18) SCO Open Server13) 2.6 Diskette #2
- 4) OS/2 9) SCO UnixWare
- 5) NetWare 10) Linux

Commands you can run by typing a letter below:

- A) Toggle floppy drive between A: and B: (Must be 1.44 MB)
- B) Create AdvanSys Support File
- C) Exit the Diskette Creator

Current Device Settings:

Floppy Drive: A:

CD-ROM Drive: ATAPI CD-ROM B

Type a driver diskette number or command letter followed by <Enter>:

3. At the prompt, type in the number corresponding to your operating system and press **Enter**. If you enter 1 for Windows 95, you will see the following prompt:

**Please insert a blank diskette into your 1.44 MB diskette drive A:
Proceed to overwrite and create diskette for Windows 95? (y/n)**

4. Insert a blank disk, type in **Y**, and press **Enter** to continue. As the disk is made, the message "Creating disk for Windows 95..." will be displayed. Once the files are copied, you'll be notified that the Windows 95 disks were successfully created.
5. Now that you have created the installation disks for your OS, press **Enter** to return to the Disk Creator menu.
6. Enter **C** at the menu prompt, then type **S** and press **Enter** to shut down the computer, type **R** and press **Enter** to reboot the computer, or just press **Enter** to return to the main menu.

Solaris Installation Disks

When you type in 6 (for Solaris) at the Diskette Creator menu prompt, the following text will appear on the screen:

Solaris requires three blank 1.44 MB disks. You will be asked to create the three disks for Solaris following this prompt.

Press <Enter> to continue.

1. Press **Enter** to call up the the following prompt:

**Please insert a blank disk into your 1.44 MB disk drive A:
Press 'y' or 'n' to answer the following question:
Proceed to overwrite and create disk for Solaris boot1? (y/n)**

2. Insert a blank disk into drive A, type **Y**, and press **Enter**.

Creating boot1 disk for Solaris... will come up while the first disk is created.

As boot1 is completed you will see:

**Solaris boot1 disk successfully created.
Press <Enter> to continue.**

3. Insert the second and third blank disks when prompted, and indicate that you wish to continue by typing **Y** at the prompt and pressing **Enter**.
4. When you have created the installation disks you need for Solaris, press **Enter** to return to the Diskette Creator menu.
5. Enter **C** at the menu prompt, then type **S** and press **Enter** to shut down the computer, type **R** and press **Enter** to reboot the computer, or just press **Enter** to return to the main menu.

Linux Installation Diskettes

When you type in 10 (for Linux) at the Diskette Creator menu prompt, the following text will appear on the screen:

AdvanSys Linux

The following Linux boot diskettes which include the AdvanSys driver may be created. The AdvanSys Linux driver is included (but may not be configured) in all Linux kernels later than v.1.3.57. The AdvanSys Super SCSI CD contains the AdvanSys Linux driver source and patches in the directory /advansys/drivers/linux. There is an AdvanSys Linux WWW page at www.advansys.com/linux.html.

- | | | |
|------------------|------------------|----------------|
| 1) Caldera 1.0 | 3) Slackware 3.0 | 5) Red Hat 3.0 |
| 2) Slackware 2.0 | 4) Red Hat 2.0 | 6) Red Hat 4.0 |

Type in a number to create a diskette or <Enter> for the main menu:

1. Select a number corresponding to your version of the Linux OS and press **Enter** to call up the following prompt:

Please insert a blank diskette into your 1.44 MB diskette drive A:
Proceed to overwrite and create diskette for Linux? (y/n)

2. Insert a blank diskette into drive A:, type in **Y** at the prompt, and press **Enter**.

The Diskette Creator will copy the appropriate files to diskette.

3. When the Linux installation diskette has been successfully completed, press **Enter** to return to the Diskette Creator menu.
4. When you have created the installation disks you need for Linux, press **Enter** to return to the Diskette Creator menu.
5. Type **C** at the menu prompt, then type **S** and press **Enter** to shut down the computer, type **R** and press **Enter** to reboot the computer, or just press **Enter** to return to the main menu.

CD-ROM Bootability

Previous instructions for creating installation diskettes from the Super SCSI CD assume that you are either installing a SCSI CD-ROM drive along with your new AdvanSys Host Adapter card, or that you have an IDE CD-ROM drive and a host motherboard BIOS that supports CD-ROM bootability. Insert the Super SCSI CD into an IDE CD-ROM drive and reboot. If your system goes through a normal boot from the hard drive, then means it does not support CD-ROM bootability.

No CD-ROM Bootability

If you have an IDE CD-ROM, but your system does not support CD-ROM bootability, you can either arrange for access to a bootable CD-ROM drive, or you can open the CD from your operating system and copy the appropriate driver image files to your hard drive. If you choose to use an alternate computer, follow the instructions provided below to copy the driver images to your diskette. If the alternate system is using Windows 95, use the AutoRun Program Make Installation Diskettes feature described later in this chapter.

No CD-ROM Drive

If you have no CD-ROM drive from which to boot, your only option is to find a computer with a CD-ROM attached and a motherboard BIOS that supports CD-ROM bootability. When you manage to access an appropriate setup, follow the instructions provided below and copy the driver images to diskette. If your alternate system is using Windows 95, use the AutoRun Program Make Installation Diskettes feature described later in this chapter.

Copy Driver Images To Diskette

As suggested in the preceding paragraphs, use this method to copy driver files to your diskette:

1. Start up your operating system.
2. Insert the AdvanSys Super SCSI CD into your IDE CD-ROM drive and insert a blank floppy diskette into your floppy drive.
3. Open the Super SCSI CD and go to the AdvanSys/Drivers folder.
4. Select the folder for your operating system and copy it to the diskette in your floppy drive.

Creating Multiple OS Driver Installation Diskettes

You may want to create installation diskettes that contain driver software for more than one operating system. Select Option 11 on the Diskette Creator menu to create v. 2.6 diskettes for Microsoft operating systems supported, along with boot diagnostics for **ISA** Host Adapter cards. Select Option 12 to create the same type diskettes with boot diagnostics for **PCI** Host Adapter cards. Option 13 lets you create a diskette containing driver software for all the operating systems supported other than Microsoft.

Creating an AdvanSys Support File

The Diskette Creator menu contains a command (B) that lets you create a simple ASCII file containing information about your AdvanSys Host Adapter card and computer. Should you at any time encounter problems with your driver software or other difficulties with your AdvanSys products, the technical support staff at Advanced System Products can use this support file to help you resolve these.

Bring up the Diskette Creator menu, type in B at the menu prompt, and press Enter. If your blank diskette does not have a DOS FAT format, the Diskette Creator can format it for you.

Creating Windows 95 Driver Diskettes From Advansys Super SCSI CD

If the computer to which you gain access has a Windows 95 operating system, you can use the Make Diskette feature included in the AutoRun program that comes on the AdvanSys Super SCSI CD. Follow these steps:

1. Go to the Windows 95 Device Manager and double-click on the icon for your CD-ROM drive.
2. In the Properties window, click on the Settings tab. Check to make sure that the Auto Insert notification checkbox is selected.
3. Next, insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the AutoRun program to come up.



Figure 5-1. The AutoRun Program Window

4. In the AutoRun program window, click on Make Installation Diskettes to open the Diskette Maker window shown in Figure 5-2.



Figure 5-2. The Diskette Maker Window

1. Select the driver diskette image for your operating system from the list in the first portion of the window.
2. Choose floppy drive A: or B: and insert your diskette.
3. Finally, click the button labeled **Make Diskette**.
4. A message will appear on the screen, advising you that the diskette contents will be destroyed in the process of creating the diskette and asking you to confirm that you want to continue. Click **OK** to proceed.

5. While the driver files are copied to diskette, the Make Diskette button displays a ghosted "Making" message. When the process is finished, you will see a message to that effect displayed. Click OK.
6. Finally, click the Exit button at the bottom of the Diskette Maker window to exit to the AutoRun program. Click Exit again in the AutoRun window to quit AutoRun and return to Windows 95.

Section 1: Windows NT Installation

The AdvanSys Windows NT Universal Driver supports AdvanSys Host Adapters for the Windows NT 3.51 and Windows 4.0 releases. Although the driver may work under Windows NT 3.50 and earlier versions, its operation with these releases is not supported.

In order to install the universal driver software on Windows NT, you will first need to create the installation diskettes from the AdvanSys Super SCSI CD. If you haven't already done this, please go back to the section titled *Creating Installation Diskettes for Your Operating System*.

Installation on a New Windows NT system

At the end of the diskette phase of a new Windows NT installation, you will be asked whether you want to: *Specify Additional Driver*. Answer yes by selecting S. From the list of drivers displayed, select Other. When prompted, insert the AdvanceWare installation diskette.

When the AdvanSys driver is found on the diskette, highlight its name. Once the driver is loaded, it will search for the AdvanSys Host Adapter installed in the system.

Windows NT will display a message confirmation message when the successfully loaded driver finds the AdvanSys Host Adapter. Press Enter to continue with the installation.

Installation on an Existing Windows NT system

Windows NT 3.51

1. From the **Program Manager - Main** folder, select the **Windows NT Setup** icon.
2. Select **Options**, then from the Options list, select **Add/Remove SCSI Adapters**.
3. From the **Select SCSI Adapter Option**, scroll down to the end of the list and select **Other**.
4. When prompted, insert the Windows NT AdvanSys Driver diskette. The system must be rebooted for the change to take effect.

Windows NT 4.0

1. Double-click **My Computer** and open the **Control Panel**.
2. From the **Control Panel**, open the **SCSI Adapters** icon.
3. Select the **Drivers** tab.
4. From the **Install Driver** window, press the button labeled **Have Disk**.
5. When prompted, insert the Windows NT AdvanSys Driver diskette. The system must be rebooted for the driver installation to take effect.

Section 2: DOS/Windows 3.1 Installation

DOS Driver Installation

In order to install the universal driver software on DOS or Windows 3.1, you will first need to create the installation diskettes from the AdvanSys Super SCSI CD. If you have not already done this, please go back to the section titled *Creating Installation Diskettes for Your Operating System*.

1. Shut down DOS and switch your computer power off.
2. Plug in the AdvanSys SCSI Card and turn your computer power on.
3. Insert the AdvanceWare installation diskette into the floppy drive.
4. At the C:\> prompt, type A:\ and press Enter.
5. At the A:\> prompt, type install and press Enter.
6. Screen message: This program will install the AdvanSys DOS Drivers... Press Enter here and on the next two screens to confirm that driver files will be copied to the C drive.
7. Screen message: Do you want to include Disk Driver in your CONFIG.SYS file? Press Enter to include the Disk Driver.
8. Screen message: Do you want to include CD-ROM Driver in your CONFIG>SYS file? Press Enter to include the CD-ROM Driver (or select No if you don't have CD-ROM).
9. Screen message: Is it OK to add the following lines to the ends of your CONFIG.SYS and AUTOEXEC.BAT files?... Press Enter to add the lines indicated.
10. Before continuing, remove the disk from the floppy drive.
11. If you want the driver installation to take effect now, reboot by pressing Ctrl+Alt+Delete. Otherwise, press any key to continue.

Congratulations!

Driver installation is complete and
CONFIG.SYS and AUTOEXEC.BAT
are successfully loaded.

ADVASPI.SYS is the AdvanSCSI Universal ASPI Manager for DOS and Windows. It is designed to support all AdvanSys Host Adapters (ISA, EISA, VL, and PCI) using

MS-DOS™ 4.01 or later version.

ADVASPI.SYS is loaded from the CONFIG.SYS file and automatically installed by either the DOS- or Windows-based installation programs. To install it manually, add the following line to the CONFIG.SYS file:

device=advaspi.sys

NOTE: To minimize possible confusion, it is a good idea to create an \ADVSCSI directory to hold all of the AdvanSCSI software files. In this case, the directory path would be:

device=\advscsi\advaspi.sys

NOTE: The automatic install programs use this method.

Command line options (separated by forward slashes and containing no spaces) can be added on the same line. For example:

device=advaspi.sys /P/V

You can also load ADVASPI.SYS into high memory if you install the appropriate memory manager before loading ADVASPI.

Command Line Options

Several command line options can be used with ADVASPI.SYS. Most installations will not require any of these, but there are circumstances for which one or more may be necessary. The command lines are as follows:

/L

By default, logical units (LUNs) are not supported by ADVASPI.SYS. To enable LUN support, specify the **/L** option at the command line.

/P

When you use the **/P** option, ADVASPI will pause until you press a key before continuing when it's loaded.

/V

A verbose display will be printed during initialization, showing adapter I/O ports, IRQs, and other miscellaneous information.

/I<port>

Use the **/I<PORT>** command option to specify the I/O port address of an AdvanSCSI ISA or VL adapter card. You can include up to four of these on the command line. You must specify the I/O port in hexadecimal (the same way the BIOS and the AdvanSCSI Setup display it). For example, to use adapters at ports 190 and 330, add the following command line in CONFIG.SYS:

```
device=advaspi.sys /i190 /i330
```

To avoid searching for any ISA or VL adapters, append a minus (-) to the **/I** as follows:

```
device=advaspi.sys /i-
```

NOTE: ADVASPI will still automatically search for EISA and PCI adapters, regardless of which port you specify.

/NE and /NP

The **/NE** and **/NP** options will disable searching the EISA and PCI bus, respectively, for AdvanSys cards. Because the Host Adapters won't be controlled by ASPI, they will not be available for use by other drivers or applications.

Command Queueing and DOS/Windows

Because DOS/Windows is a single-tasking operating system, there is no need to enable command queueing in the AdvanSCSI Setup (Ctrl+A). In some circumstances, command queueing actually degrades performance under DOS/Windows.

Installing Drivers for Windows 3.1

1. Shut down Windows 3.1 and turn OFF your computer.
2. Plug in the AdvanSys Host Adapter card and turn your computer ON.
3. At the C:\> prompt, type **win** and press Enter.
4. Insert the AdvanceWare installation diskette into your floppy drive.
5. Double-click on the **File Manager** and select **Run** from the **File** menu.
6. At the command line, type in **A:\DOS\SETUP** and click **OK**.
7. We recommend that you opt for **Automatic Installation**, and follow the instructions provided on the screen.
8. Screen message: *Is it OK to reboot your computer now?* Click on **YES**.

9. Remove the disk from the floppy drive and click on **OK**.
10. Installation is complete.
11. Press any key to continue.
12. Now that you have successfully completed setup, click **OK** to exit.

Installing the AdvanSCSI CD-ROM Driver on DOS/Windows

The AdvanSCSI CD-ROM driver can be installed from DOS or from Windows 3.1 environments. Follow these instructions for your installed operating system:

AdvanSCSI ASPI and CD-ROM Installer for DOS

This installer program quickly installs support for a SCSI CD-ROM drive. It is intended for those who want to get their CD-ROM up and running without going through the entire Windows-based installation of AdvanSCSI software and utilities.

The installer creates an ADVSCSI directory on the C or D drive and copies the following:

- AdvanSCSI ASPI Manager**
- AdvanSCSI CD-ROM driver and utility**
- AdvanSCSI Hard Drive / Removable Media Manager**
- AdvanSCSI SCSI Info Utility**
- Text Files describing the above software**
- This install program**

The install program can automatically modify the CONFIG.SYS and AUTOEXEC.BAT programs to install the ASPI Manager and CD-ROM driver. You can skip this step and edit the autoexec.bat and config.sys files yourself.

Instructions

1. Type **INSTALL** at the root directory on your AdvanceWare installation disk.
2. You will be asked to choose the destination (boot) drive, which is typically the C drive.
3. A directory called VADVSCSI will be created on the chosen drive and the ADVANCD software will be copied to it.
4. You will be asked if it is OK to automatically modify and back up your AUTOEXEC.BAT and CONFIG.SYS files. Unless you have a specific reason not to, enter **Y** to go ahead and modify these files. If you have already installed the ADVANCD software, enter **N**.

5. If you answered no (N), you will have to add the CD-ROM driver to the AUTOEXEC.BAT and CONFIG.SYS files manually.
6. If you answered yes (Y), the installation program will install the CD-ROM driver once the AUTOEXEC.BAT and CONFIG.SYS files are modified and saved. After installation, you will need to reboot for the changes to take effect.

II. AdvanSCSI ASPI and CD-ROM Installer for Windows 3.1

Setup method:

1. Start Windows 3.1 and insert the AdvanceWare installation diskette into drive A.
2. Select **File** from the **Program Manager**, and then select **Run** from the **File** drop-down menu.
3. When the **Run** submenu appears, type **a:\dos\setup** in the command line. Click **OK** to continue.
4. The setup program will go through two phases to install and configure the CD-ROM. When prompted, remove the diskette and restart your computer.
5. When the Setup program displays the message, *installation is complete*, click **OK**. Now you can use your CD-ROM.

III. ADVANCD CD-ROM Driver for DOS/Windows 3.1

ADVANCD.SYS SCSI CD-ROM driver

Usage:

The driver is in standard.SYS file format. It is loaded as a device driver:

DEVICE=ADVANCD.SYS [/P] [/D:cdnameE]

Command Line Options:

/P

Pause after loading. Press any key to end the pause.

Once ADVANCD successfully loads, it uses a device name (selected by ADVANCD.SYS) to refer to the CD it is controlling. MSCDEX uses this device name to direct commands to ADVANCD.

mscdex.exe /D:advcd0

The /D parameter gives MSCDEX the device name assigned to the CD-ROM driver. The MS-DOS drive letters assigned to the CD drive(s) start after the last logical hard disk drive. Additional information on MSCDEX.EXE usage is available in the Programmer's Guide for MSCDEX or directly from on-line help in MS-DOS 6.X.

NOTE: The Windows and DOS based installation programs will take care of installing ADVANCD and MSCDEX, plus make all needed modifications to CONFIG.SYS and AUTOEXEC.BAT.

/D:CDNAME

The default name is ADVCD0. It must match the MSCDEX name.

CD-ROM Driver Operation

An MS-DOS CD-ROM driver is a translation layer that fits between the Microsoft CD-ROM extensions (MSCDEX) and the hardware-specific device manager (ADVASPI). It translates CD-ROM commands to ASPI commands, then translates ASPI completion to CD-ROM completion. It is normally called by MSCDEX, but can be called directly from applications. For more information, see the MSCDEX programmer's specifications published by Microsoft.

Section 3: Installing Advansys Driver Software on OS/2 WARP

The AdvanSys OS/2 Universal Driver supports all the AdvanSys SCSI adapters for the OS/2 WARP v 3.0 and later releases. The following installation directions apply to OS/2 WARP.

In order to install the universal driver software on OS/2, you will first need to create the installation diskettes from the AdvanSys Super SCSI CD. If you have not already done this, please return to the section titled *Creating Installation Diskettes for Your Operating System*.

Installing the ACS.ADD Driver on a New System

1. Obtain the OS/2 WARP CD-ROM installation kit, which contains the following items:

IBM OS/2 WARP	Installation Diskette for CD-ROM
IBM OS/2 WARP	Diskette 1 for CD-ROM
IBM OS/2 WARP	Diskette 2 for CD-ROM (WARP v 4.0)
IBM OS/2 WARP	CD-ROM

2. Make a back-up copy of the diskette titled Diskette 1 for CD-ROM, which must be modified to install the ASC driver.
3. Add the file ASC.ADD to the diskette titled Diskette 1 for CD-ROM. Make space on the diskette by removing at least two of the driver files listed below. Be careful not to remove any drivers for adapter cards already installed in your system. The files listed here are either for WARP v 3.0 or for README.INS for WARP v 4.0.

DPT20XX.ADD	BTSCSI.ADD	AHA152X.ADD	AHA154X.ADD
AHA164X.ADD	AHA174X.ADD	AIC7770.ADD	AIC7870.ADD

4. Use a text editor to add the line

BASEDEV=ASC.ADD

as the last line of the CONFIG.SYS file on the Diskette 1 for CD-ROM. Remove or comment out with REM the BASEDEV lines in CONFIG.SYS for the two or more driver files you removed from the diskette.

For WARP v 4.0, add the following line to the top of the CONFIG.SYS file:

Copyfromfloppy=1

5. Insert the installation diskette for CD-ROM into drive A.

6. Insert the installation CD-ROM into the CD-ROM drive, and install OS/2 by following the IBM OS/2 installation instructions.
7. After OS/2 is installed, install the driver from the OS/2 Desktop by following the instructions in the next section.

Installing the ACS.ADD Driver on an Existing System

Follow instruction set A to install from the OS/2 command line, or instruction set B to install from the OS/2 desktop. We recommend using set B, because it is simpler to perform.

A. From the OS/2 command line:

1. Boot up the existing OS/2 system and open the OS/2 window.
2. Insert the **AdvanceWare installation diskette** into drive A.
3. Copy the file **ASC.ADD** from the OS2 directory to the hard drive directory named C:\ (if C is the root drive). Substitute the correct drive letter if your root drive is different.
4. Use a text editor to add the line
BASEDEV=ASC . ADD
as the last line of the drive C (or root drive) CONFIG.SYS file. Add any desired options to the command line at this time. (Refer to *AdvanSys Universal SCSI Adapter Device Driver Options* below.)
5. Reboot the system.

B. From the OS/2 desktop:

1. Boot up the existing OS/2 system.
2. Insert the **AdvanceWare driver diskette** into drive A.
3. Double-click on the OS/2 system icon and select **System Setup**.
4. Select **Device Driver Install** and follow the directions. Specify the OS/2 directory on the diskette as the Source Directory by designating drive A.
5. To add options to the ASC.ADD command line, you must edit the CONFIG.SYS file. First, find the BASEDEV=ASC.ADD command line in the CONFIG.SYS file. Next, using the text editor (tedit) from an OS/2 Window command line, add the desired options.
6. Open the **Launch Pad** icon and select **Shutdown** to reboot the system.

AdvanSys Universal SCSI Adapter Device Driver Options

/V:Verbose

Use the verbose option to display information during OS/2 system initialization.

/A:d Adapter Index

Use the adapter index option to specify an adapter for options that follow like /I, /DM, or /SM. The letter "d" is a decimal number. The first AdvanSys adapter in the system is designated 0, the second is designated 1, and so forth.

/C Claim Interrupts

When the claim interrupts option is enabled, the driver claims ownership of all interrupts presented to it. This option is disabled by default. Refer to the *Troubleshooting and Recovery Suggestions* in OS/2.TXT for more information on this option.

/I Ignore Adapter

Must be preceded by an /A:d option.

/[!]DM:target

or

/[!]DM:(target,lun),... DASD Manager Support

The DASD Manager support option indicates that a device(s) will be controlled by OS2DASD.DMD. *Target* and *lun* are decimal numbers that specify the devices to use. The line must be preceded by an /A:d option. If you place an exclamation (!) after the forward slash (/), the device will not be controlled by OS2DASD.DMD.

/[!]SM:target

or

/[!]SM:(target,lun),...

SCSI Manager Support

This line indicates that a device will be controlled by OS2SCSI.DMD. *Target* and *lun* are decimal numbers that specify the devices to use. The line must be preceded by an /A:d option. If you place an exclamation (!) after the forward slash (/), the device will not be controlled by OS2SCSI.DMD.

/L Enable scanning for lun devices for all targets

By default, no LUN scanning is done.

/I:port Specify an I/O port address

Use this option to specify the I/O port address of an AdvanSys ISA or VL adapter card. You can put up to four of these on the driver command line. *Port* is a hexadecimal number. Place a minus sign rather than a hexadecimal (/I-) to avoid searches for ISA and VL adapters.

/[1]TO

Enable/disable software time-outs for disk I/O operations. By default, the driver will time-out a disk I/O after 10 seconds.

ASC Driver CONFIG.SYS Examples

DEVICE=ASC.ADD /V /I:110

Print adapter and device information during startup. Look for only a single ISA or VL card at I/O port 0x110; look also for EISA and PCI cards.

DEVICE=ASC.ADD /I- /L

Do not look for any ISA and VL cards during startup. The driver will only look for and control EISA and PCI cards. For each adapter card found, scan each target device on the adapter for LUN devices.

BASEDEV=ASC.ADD /A:0 /ISM:5 /IDM:5

Prevent the AdvanSys Adapter 0, Target 5 device from being controlled by the OS2SCSI.DMD and OS2DASD.DMD device manager drivers. If OS2ASPI.DMD is loaded in your CONFIG.SYS file, it will take control of the device. (Refer to OS/2.TXT for more driver examples.)

Section 4: Installing AdvanceWare Driver Software on Novell NetWare

Introduction

ASCxxx.DSK is the AdvanSCSI Universal NetWare disk driver designed to work with all AdvanSCSI Host Adapter cards (ISA, VL, EISA, PCI and ISA PnP) and all major versions of NetWare (3.11, 3.12, 4.X). ASC ASPI.DSK is the ASPI translation layer.

In order to install the universal driver software on NetWare, you will first need to create the installation diskettes from the AdvanSys Super SCSI CD. If you haven't already done this, please go back to the section titled *Creating Installation Diskettes for Your Operating System*.

AdvanSCSI NetWare Driver Naming Scheme

The AdvanSCSI NetWare driver is named according to its version number to allow for easier differentiation between drivers. When upgrading drivers, it is important that you modify the server STARTUP.NCF or AUTOEXEC.NCF to reflect the new driver name.

AdvanSCSI ASPI Translation Layer

The ASCxxx driver relies on an ASPI Translation Layer to provide ASPI services to other modules, which allows for side-by-side functionality with other SCSI Host Adapter drivers.

When it is loaded, ASCxxx automatically loads ASCASPI.DSK. If the module cannot be found, the driver will be unloaded from memory. It is, therefore, important that you install both the ASCxxx.DSK and ASCASPI.DSK in the server boot directory.

Command Line Options

Several command line options can be used with the ASCxxx.DSK driver. Most installations will not require any of these, but there are cases for which one or more may be necessary.

Command line options are specified as part of the LOAD command. For example:

```
LOAD ASCxxx VERBOSE=Y ABOVE16=Y
```

The following is a list of the various command line options.

PORT=*n*

This option specifies that the ASCxxx.DSK driver should only control the AdvanSCSI Host Adapter located at I/O port *n*. This is normally not submenued because ASCxxx.DSK will locate and initialize all installed Host Adapters. This option can be specified as many times as needed.

IGNORE=*n*

This is the opposite of the PORT option. All Host Adapters will be initialized except for the adapter at I/O port *n*. You can specify this option as many times as needed.

ABOVE16={Y | N}

This option indicates that you will be using the ASCxxx.DSK driver on a file server with more than 16 MB of memory.

SCAN={I | V | E | P}

By default, the driver will scan for all types of cards (ISA, VESA Local Bus, EISA, and PCI) at initialization. However, scanning for VESA or ISA cards may cause conflicts with other adapter cards, especially network adapters. The SCAN option can limit the search and prevent these problems. The option can be used with more than one bus type. For example, to search for EISA and PCI adapters, type the following at the command line:

LOAD ASCxxx SCAN=EP

Any combination can be used.

EXCLUDE=*h/t* [, *h/t* . . .]

By default, ASCxxx.DSK will control all fixed, removable, CD-ROM, WORM, and optical devices. If plan to use an ASPI module to control any of these devices, you need to exclude the drive(s) that the module will control. Specify the host (*h*) and target ID (*t*) on the command line with the EXCLUDE option. Use a comma to specify more than one device. Be sure that there are no spaces between commas.

EXCLUDEALL

This is a short way of excluding all devices from ASCxxx.DSK control.

FIXED_DISK=[Y | N]

REMOVABLE=[Y | N]

CDROM=[Y | N]

These options allow for tighter control over the types of devices ASCxxx controls, without having to specify host numbers and SCSI IDs. All three options have a Y default setting.

INCLUDE=h/t[,h/t...]

This option is the reverse of EXCLUDE and should be used in conjunction with the EXCLUDEALL or FIXED_DISK/REMOVABLE/CDROM options. Include will specifically designate a device to be added, even if that device would ordinarily have been omitted by the EXCLUDE option.

CHECKWP=[Y | N]

ASCxxx.DSK will check the write-protect flag on all devices. If the flags on the devices are set, ASCxxx.DSK will report them as read-only to NetWare. Some devices improperly report the write-protect flag, and are therefore set as read-only when they are read-write. Set this option to N to disable write-protect checking.

LUN=[Y | N]

Logical unit (LUN) support is enabled by default. Set to N to disable.

VERBOSE=[Y | N]

When VERBOSE is set to Y, Host Adapter configuration information is displayed at initialization.

ORDERED=[Y | N]

When using command (tagged) queuing, the ASCxxx.DSK driver will use simple tags for all requests. Some devices do not work well with simple tags, and may cause time-out problems. Set this option to Y to use ordered tags instead.

NOTE: It is vital to follow these instructions if you plan to use the ASCxxx.DSK driver with an AdvanSCSI ISA Host Adapter on a file server with more than 16 MB of memory.

Type the MEMORY command at the file server prompt to see a report on the total amount of memory used. If the file server reports less memory than is actually installed, follow instruction set B: otherwise, follow instruction set A.

In either case, whether ASCXXX.DSK is loaded in the STARTUP.NCF file or the AUTOEXEC.NCF file, add the ABOVE16=Y option to its command line as follows:

LOAD ASCXXX ABOVE16=Y

- A. In your STARTUP.NCF file, include the following commands (if they are not present):

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = ON

SET RESERVED BUFFERS BELOW 16 MEG = n

The number of buffers to reserve (*n*) is equal to (4 x number of ISA Host Adapters) + (6 x number of attached SCSI devices). For example, if you had five (5) SCSI devices on two (2) ISA hosts, you would allocate ((4 x 2) + (6 x 5)) = 38 buffers. If you have already declared this statement for another driver or NLM, add this value to the one already specified. The default setting is 20 buffers. There is no reason to set a lower value, even if you require fewer than 20 buffers.

- B. In your STARTUP.NCF file, include the following commands (if they are not present):

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = OFF

SET RESERVED BUFFERS BELOW 16 MEG = n

Using the formula given in instruction set A, determine the number of buffers (*n*) to allocate.

In your AUTOEXEC.NCF file, type the following command:

REGISTER MEMORY 1000000 n

Here, *n* is equal to the amount of available memory above 16 megabytes (in hexadecimal). Use the command that corresponds to the amount of memory installed. For example:

24MB	REGISTER MEMORY 1000000 800000
32MB	REGISTER MEMORY 1000000 1000000
64MB	REGISTER MEMORY 1000000 3000000

Accessing DOS Drives After Loading ASCxxx.DSK

In some cases, after it is loaded, ASCxxx.DSK can cause problems when you try to access the server's local DOS directory. Symptoms include the system hanging after exiting the server, or being unable to load local files, like INSTALL.NLM or STARTUP.NCF. The server has not crashed, but the ROM BIOS cannot access the disk and is timing out the request.

At this time, the only solution is to load the AdvanSCSI DOS ASPI Manager in the server's CONFIG.SYS file before loading the server software. As long as the ASPI

Manager is the same version as the ASCxxx NetWare driver, you should have no problem exiting to DOS.

DATA INTEGRITY IS NOT LOST. If the server appears to hang when trying to load a file from the local DOS directory, wait for the command to time-out. When it is appropriate, down the server, add the ASPI Manager to the CONFIG.SYS file, and restart. If the server hangs when exiting to DOS, the server's file cache has already been flushed to disk and the data is safe.

ASCxxx.DDI and ASCASPI.DDI Installation Information File

Both .DDI files that accompany the DSK drivers are used for automatic hardware detection during installation of NetWare 4.11. Each DDI file contains driver descriptions that specify configurable driver parameters, the input required from the user, and the format of the required output.

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