



Fast and Ultra SCSI Host Adapter

User Manual

Products Included:

ABP-902/03

ABP-915/16

ABP-922/25

ABP-940UA

ABP-970UA

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 manufacture'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 are 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 the 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

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Changes or modifications not expressly approved by the manufacture 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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Fast and Ultra SCSI Host Adapter User Manual

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Chapter 1: Quick Start Installation

This chapter is written for the experienced user. More complete instructions for installing the AdvanSys PCI to Fast/Ultra SCSI Host Adapter Card and the AdvanSys driver are covered in *Chapter 3: Hardware Installation*, *Chapter 5: SuperInstall and SuperView*, and *Chapter 6: Software Drivers Installation*.

Installation of the Advansys Host Adapter Card is fully Plug-and-Play-compatible. Board configuration is automatically controlled by the system BIOS. Simply follow the instructions below 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 slot.

NOTE: If you are working within a Windows 95 and 98 environment, please go to *Chapter 5: SuperInstall and SuperView*.

Host Adapter Card Installation

NOTE: *Replacing or Adding to Existing SCSI Boards.* If you are replacing an existing SCSI host adapter with the AdvanSys board, remove the existing board first, as well as any associated software device drivers. If you are simply *adding* the AdvanSys 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. Install the AdvanSys Host Adapter Card in a PCI bus slot on your CPU's motherboard.
3. Connect all SCSI devices you want to use. 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 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 in the user's manual for each SCSI device.

Driver Installation from CD-ROM on a PC

If Your Cd-Rom Has Auto-insert Notification Enabled

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

If Your Cd-Rom Does Not Have Auto-insert Notification Enabled:

Windows 95 comes with *Auto insert notification* activated. If you have disabled it, make certain that it is activated before attempting installation by performing the following steps:

1. Click on *START*.
2. Choose *SETTINGS*.
3. Click on *CONTROL PANEL*.
4. Double-click on the system icon.
5. Click on *DEVICE MANAGER*.
6. Double-click on the CD-ROM icon.
7. Double-click on the listing for your CD-ROM drive.
8. In the Properties window, click on the *SETTINGS* tab. Click on the checkbox next to *Auto insert notification*.
9. Reboot your system.

If You Do Not Have a CD-ROM Drive

If you do not have a CD-ROM drive, and need to install the software from floppy diskettes, you will have to use a friend's CD-ROM to create the installation/boot floppy diskettes from the AdvanSys SuperSCSI CD. Please refer to *Chapter 6: Software Drivers Installation* for instructions on creating installation diskettes from the CD, and then continue with the procedure "Installation From Diskettes" on page 1 - 3.

Installation From Diskettes

1. Insert the 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. Refer to *Chapter 4: BIOS Setup Values*. 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.
5. Press the Spacebar to perform diagnostics. A complete test of the AdvanSys host adapter 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.
8. You have completed the hardware installation. Load the system software for your operating system. For more detailed instructions, See *Chapter 5: SuperInstall* and *SuperView* or *Chapter 6: Software Drivers Installation*.

For Macintosh Users

No driver installation is required for Macintosh systems.

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Chapter 2: Host Adapter Specifications

This chapter describes the AdvanSys PCI to Ultra 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 (*ABP970UA 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
- 5-Volt only PCI board

SCSI Bus Interface

- 8-bit Ultra SCSI, 10-20 MB/sec synchronous data transfer rate across the SCSI Bus
- Single-ended SCSI interface, provided through a 50-pin internal SCSI connector and a 50-pin high density external SCSI connector (see the installation checklist in *Chapter 3: Hardware Installation* for notes on cabling Ultra SCSI devices)
- SCSI-3, SCSI-2 and SCSI-1 devices peripheral device connectivity
- Tagged queuing supported for SCSI
- Scatter/gather function supported
- Each host adapter card supports up to seven 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 ASC 3050* and *ASC 3030* Advanced Ultra 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 makes jumpers and switches unnecessary. (non-Macintosh systems).

- The AdvanSCSI Ctrl+A BIOS utility makes selecting SCSI bus characteristics easy. See *Chapter 4: BIOS Setup Values*
- 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.

Product Overview

Easy SCSI Installation (non-Macintosh systems)

- The AdvanceWare Configuration Software boot disk handles configuration of SCSI hardware connections to the host adapter.
- Drivers and utilities are installed in one simple 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, simply run the AdvanceWare configuration utility in BIOS.

Compatibility

The compatibility of the AdvanSys host adapter card has been established through extensive testing with all types of host systems, operating systems, and SCSI peripherals.

The PCI Bus Master Kit includes support for many operating systems. Please refer to the I/O Operating System Support section under “Technical Specifications” on page 2 - 5 for a complete listing.

Reliability

AdvanSys builds its host adapters to the highest quality standards in ISO-9002 facilities. High-level integration ensures superior reliability and makes it possible for AdvanSys to offer the industry's first limited lifetime guarantee. If anything goes wrong with the host adapter within 5 years of initial purchase, AdvanSys will replace it. Special utilities like AdvanceWare (non-Macintosh) help maintain the function and integrity of the entire I/O system.

AdvanceWare Diagnostic Utility (non-Macintosh systems)

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, you simply need to 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 (see *Chapter 4: BIOS Setup Values*) 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.

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. See 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.

1. Press the Spacebar to perform diagnostics. When the AdvanceWare Diagnostic program begins, it will display a screen that describes 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 Spacebar to continue.

2. 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 next examines 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 appears on the screen.

3. If all your connected devices appear on the list, select *Yes*. If any devices are missing, select *No*. The program provides troubleshooting tips and asks you to reboot.
4. 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 and go to *Chapter 6: Software Drivers Installation* to the section pertaining your operating system or, if you are working in a Windows 95 environment, *Chapter 5: SuperInstall and SuperView*. If your computer doesn't have an operating system installed yet, go ahead and install one.

Product Contents

The PCI Bus Master Kit includes the following items:

- AdvanSys PCI to Ultra SCSI host adapter card
- AdvanSys SuperSCSI configuration/installation software
- User manual
- SCSI ribbon cable for up to three internal peripherals

Technical Specifications

Computer Bus: PCI-Bus

Interface Protocol: Bus Master DMA

Device Protocol: SCSI

Device Support: Up to seven SCSI devices

Bus Width: SCSI: 8-bit and PCI: 32-bit

PCI Host Bus Data Transfer Rate:

- 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

Electrical Terminations: Single-ended

I/O Operating System Support:

- MS-DOS (version 5.0 or higher)
- Windows (version 3.1 or higher)
- Windows 95 and 98
- Windows NT (version 3.51 / 4.0 or higher)
- Novell Netware (version 3.12 / 4.01 or higher)
- DOS (version 5.0 or higher)
- OS/2 (version 2.1 / WARP or higher)
- SCO UNIX (version 4.2 / 5.0 or higher)
- Interactive UNIX (version 4.0 / 4.1 or higher)
- Solaris (version 2.5 or higher)
- UNIXWare (version 2.0 or higher)
- Linux (version 1.2.13 / 1.3.57 or higher)
- MAC OS (Version 7.5.2 or higher) *ABP970UA only*

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

Operating Temperature: 0°C to 55°C

Storage Temperature: -40°C to 75°C

Relative Humidity: 10% to 95% non-condensing

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

Chapter 3: Hardware Installation

You don't need to understand the 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 and I/O devices. This chapter will show you how to customize the host adapter setup. *If you are using a Windows 95 operating system, please go first to Chapter 5: SuperInstall and SuperView for instructions on installing the driver before you install the host adapter card.*

AdvanSys Host Adapter Kit Contents

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

- AdvanSys PCI to Fast/Ultra SCSI host adapter card
- User manual
- Software agreement envelope containing the AdvanSys SuperSCSI CD
- AdvanSys registration card
- Internal 50-pin flat SCSI ribbon cable (see the following section on Ultra SCSI cabling requirements)

Hardware Requirements

For the PC

- An IBM PC (486 or higher) or compatible
- One or more SCSI peripheral devices (up to a total of 7 per adapter card)
- At least 640 KB of RAM
- At least 2 MB of free disk space for a basic installation
- SCSI external cable (for external devices)

For the Macintosh

- An Apple Macintosh PowerPC
- At least 1 MB of free disk space

Cable Considerations

Please use an Ultra SCSI cable to attach Ultra SCSI peripherals to your AdvanSys PCI to Ultra SCSI 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). Impedance 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

Tools Required

You will need a Phillips screw driver to open the computer chassis, remove the blank slot cover on the motherboard, and to secure the adapter once it's installed.

ABP-9XOU Host Adapter Card Overview

The connectors for the ABP-9XOU host adapter card are shown in Figure 3 - 1.

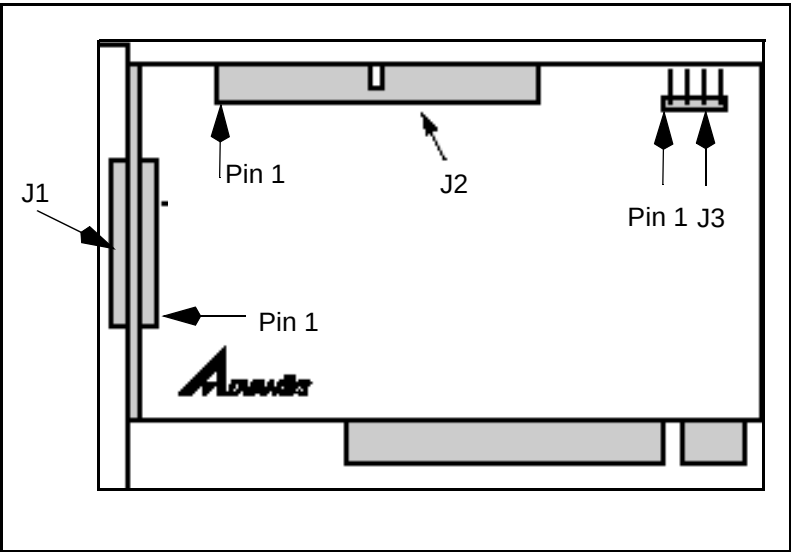


Figure 3-1: Host Adapter LayoutABP9X0U Connectors

Connector	
J1	50-pin external high-density SCSI connector
J2	25/50-pin internal SCSI connector
J3	SCSI Bus Busy LED connector pins 1 & 4: POWER pins 2 & 3: SCSI Bus Busy Signal (active low)

Installing the Host Adapter Card

1. Shut down your system and turn off the power for your PC.
2. Open your computer's chassis.
3. Touch the metal case of your PC to discharge static electricity.
4. Find an available PCI-Bus slot, and plug in the ABP9X0U host adapter card. Make sure that the card is seated properly and firmly in the slot.
5. Secure the card by tightening the mounting screw.

Figure 3 - 2 shows a properly seated AdvanSys host adapter card.

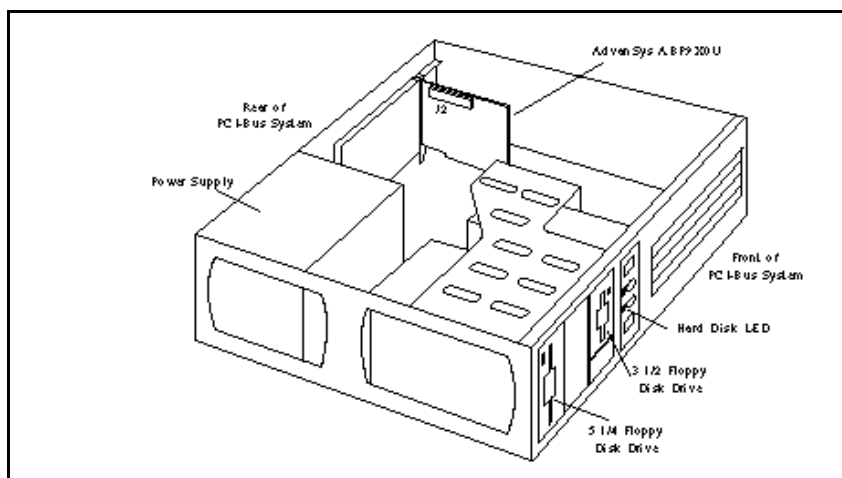


Figure 3-2: Host Adapter Card Seated in a PCI Slot

SCSI Device Installation

Install any internal and external SCSI peripheral devices according to the manufacturers' installation instructions. You can install a maximum of seven SCSI peripheral devices per AdvanSys host adapter.

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 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 demonstrates 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's installation manual for more details.

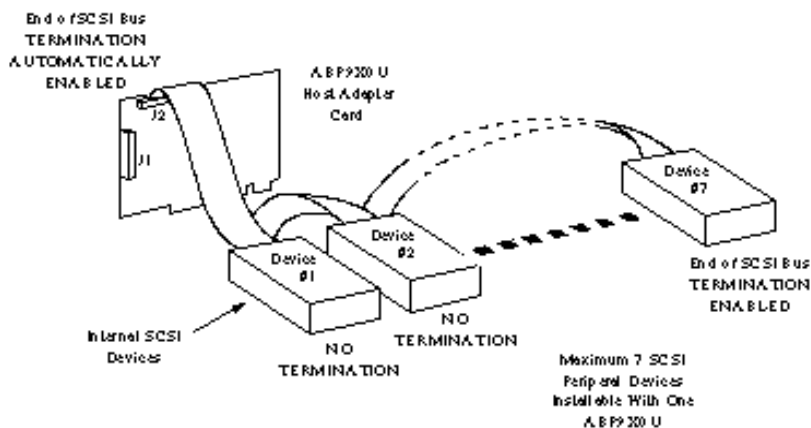


Figure 3-3: Termination With Internal Devices Only

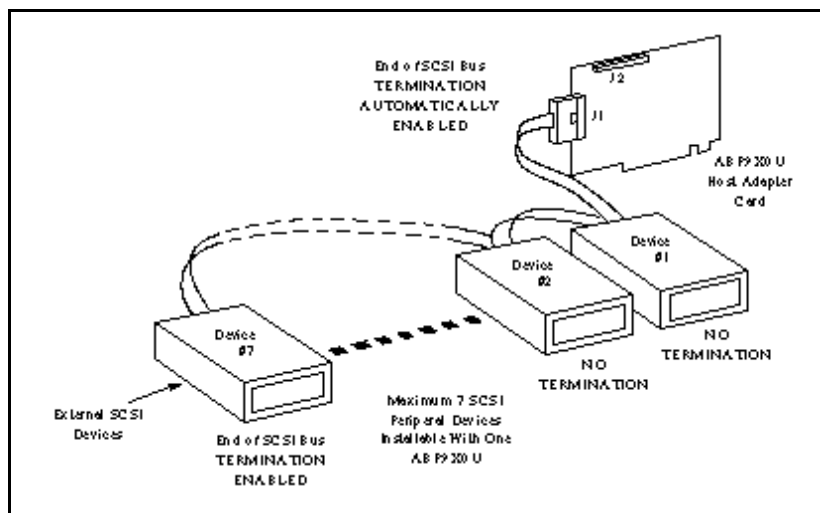


Figure 3-4: Termination With External Devices Only

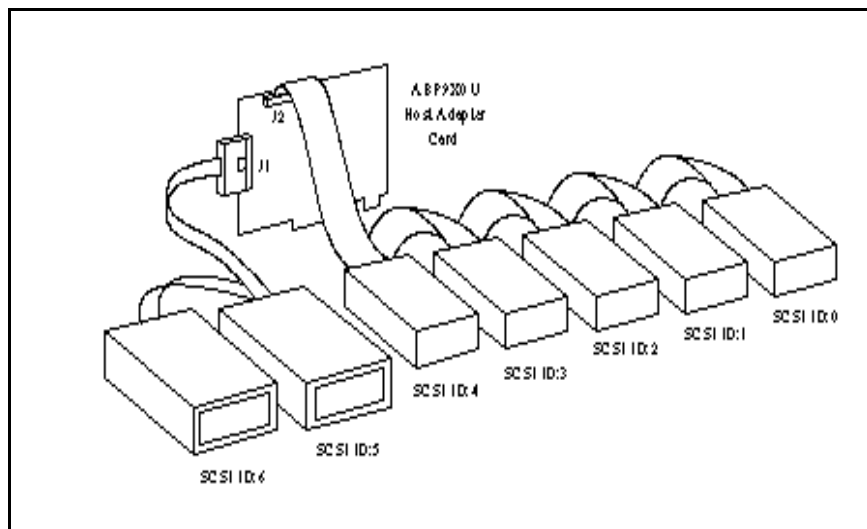


Figure 3-5: Termination With Internal And External SCSI Peripheral Devices

SCSI ID Assignment

Each and every SCSI peripheral device connecting to the same 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.

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!

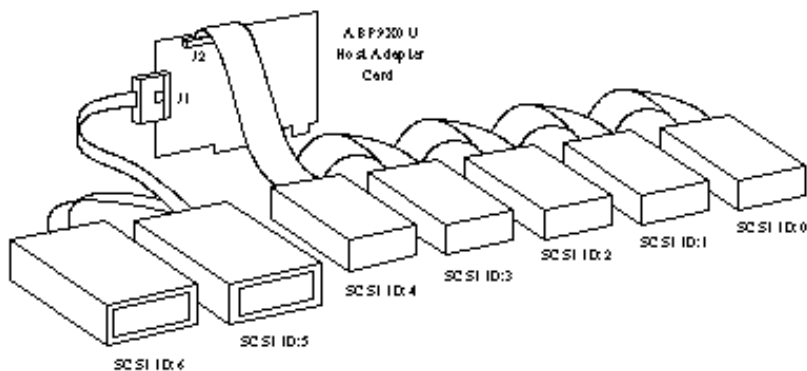


Figure 3-6: Typical SCSI ID Assignment

- Figure 7 shows how to attach the internal SCSI cable to the host adapter card. Connect one end of the internal 50-pin flat SCSI ribbon cable to connector J2 of the ABP9XOU host adapter card, and the other end to any internal device. Be sure to connect the colored edge of the ribbon cable to the side of J2 marked with an arrow (pin # 1). Make certain that the internal SCSI devices are connected with the colored edge of the cable to pin 1 of the device.

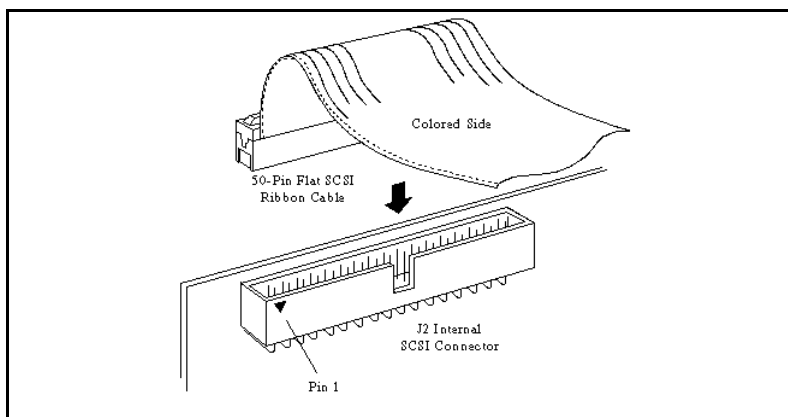


Figure 3-7: Connecting an Internal SCSI Cable to the Host Adapter Card

7. Connect any external SCSI peripheral devices installed in step 5 to the ABP9xx connector J1.

8. You can connect the hard disk LED cable of your PC to the “SCSI Bus Busy” LED CONN (connector J3) so that the user will know when a SCSI device is active.

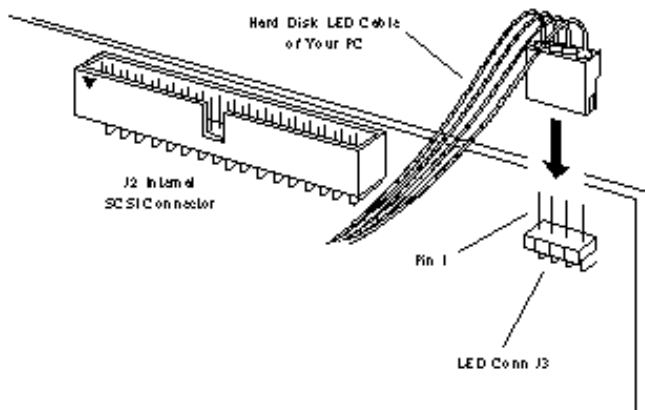


Figure 3-8: Connecting the SCSI Bus Busy LED

NOTE: The J3 connector and SCSI Bus Busy LED are not available on all AdvanSys host adapters.

What's Next?

For automatic system configuration, see *Chapter 5: SuperInstall and SuperView* (for a Windows 95 environment) or *Chapter 6: Software Drivers Installation* (for all other PC environments).

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Chapter 4: BIOS Setup Values

Board configuration is automatically controlled by the system BIOS. However, once the Plug-and-Play-compatible AdvanSys host adapter card is installed, experienced PC users may access and adjust the default configuration values. (Macintosh users don't need the information in this chapter, since values are assigned automatically.)

Accessing the System BIOS Values

1. Restart your computer system. The system detects the SCSI host adapter, indicates that the system is running, conducts a BIOS scan, and lists all peripherals on the SCSI chain. The AdvanSys banner appears.

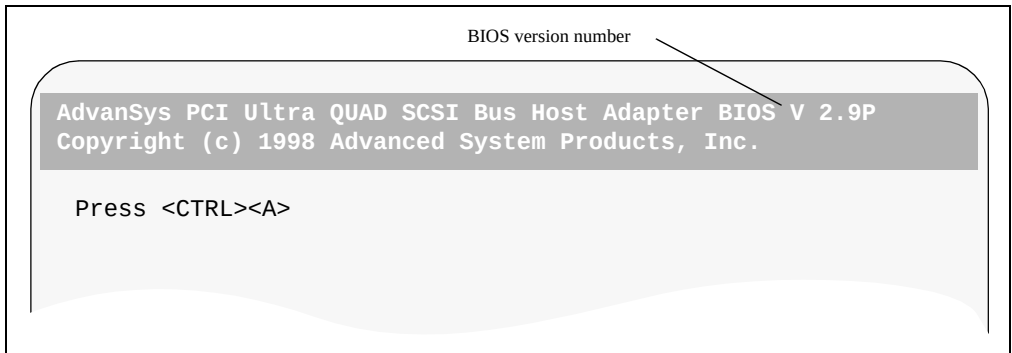


Figure 4-1: The AdvanSys Banner

2. Check the BIOS version shown in the banner to verify that it is the latest.
3. Press **Ctrl A** to interrupt the booting process and display the system values. The port address, IRQ (interrupt request), SCSI ID of the host adapter, BIOS address, and Serial number appear in the banner. The Main Menu also appears below the banner.

The Main Menu

The Main Menu allows you to configure the host adapter, detect which peripherals are on the SCSI bus, reformat a hard drive, and implement or discard changes.

- Use the up/down Arrow keys to select an item in the Main Menu.
- Press Enter to activate the item or access the values for that item.

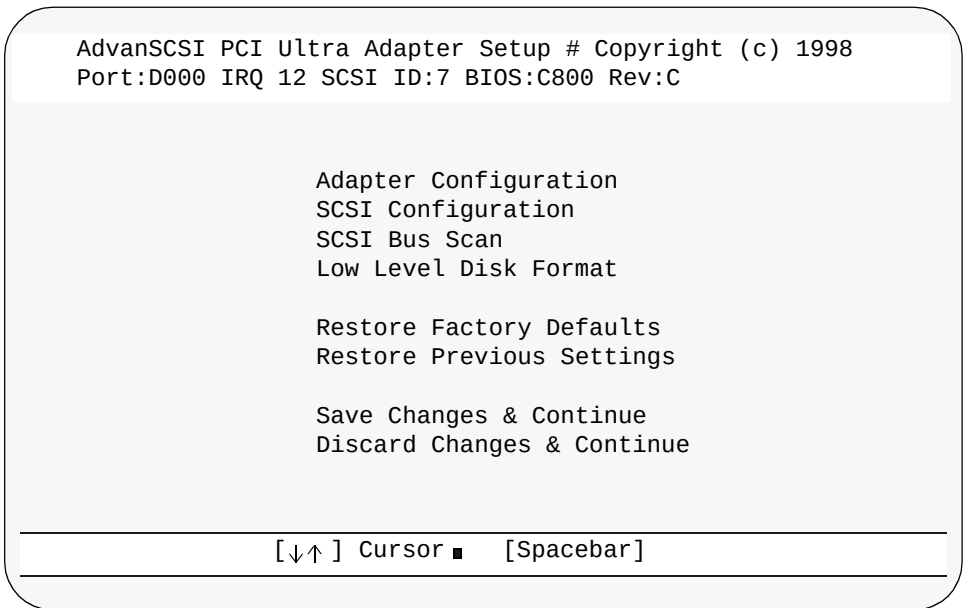


Figure 4-2: The Main Menu

Adapter Configuration

When you select Adapter Configuration from the Main Menu, the Adapter Configuration menu appears. This menu allows you to configure the peripheral startup speed, termination, data rate capacity, bootability, error-scanning, and command queue.

- Press the Spacebar to scroll through the menu list.
- Use the up/down Arrow keys to toggle or scroll through the values.
- Press Esc to return to the Main Menu.

```
AdvanSCSI PCI Ultra Adapter Setup # Copyright (c) 1998
Port:D000 IRQ 12 SCSI ID:7 BIOS:C800 Rev:C
```

Adapter Configuration	
Host SCSI ID	7
Start-up Delay Time	1
SCSI Bus Termination	Automatic
PCI Burst Mode	Enabled
Multi-Drive Support	Enabled
Removable Media Support	Disabled
CD Bootability	Enabled
SCSI Parity	Enabled
Ultra SCSI Feature	Enabled
Host Queue Size	16
Device Queue Size	8

[↓↑] Cursor ■ [Spacebar] Select■ [Esc]

Figure 4-3: The Adapter Configuration Menu

Host SCSI ID

The host SCSI ID should always be 7.

Start-up Delay Time

The **0–10** (1 second is default, 0 seconds means there is no SCSI reset) value determines how much time is allotted for all peripherals to come up to speed at startup.

SCSI Bus Termination

The **Automatic** (default), **Disable**, or **Enable** value determines the ability of the SCSI bus to terminate a peripheral. **Automatic** allows the SCSI bus to automatically sense which internal or external peripherals need termination. **Disable** means termination on the host adapter is turned off, and **Enable** means termination is on.

PCI Burst Mode The **Enabled** (default) or **Disabled** value determines whether data will be sent to the peripherals at high speeds on the PCI bus. Use **Disabled** only if a peripheral requires a significantly low burst rate.

Multi-Drive Support

The **Enabled** (default) or **Disabled** value determines whether SCSI peripherals can be booted from.

Removable Media Support

The **Enabled** or **Disabled** (default) value determines whether the computer system can boot up from a removable/magneto-optic drive, such as a Jaz or Syjet.

CD Bootability The **Enabled** (default) or **Disabled** value determines whether the computer system can boot up from a CD-ROM drive.

SCSI Parity The **Enabled** (default) or **Disabled** value determines whether the BIOS scans for any errors on the SCSI chain. AdvanSys highly recommends that this setting always be **Enabled** so that a warning will appear if an error is found.

Ultra SCSI Feature

The **Enabled** (20 MB/sec) or **Disabled** (10 MB/sec) value determines whether the SCSI takes advantage of the Ultra SCSI board's increased bandwidth. The default value is:

Host Queue Size The numbered (**16** is normal) value determines how many commands a host adapter may hold in its queue at a time.

Device Queue Size

The numbered (**8** is normal) value determines how many commands a peripheral may hold in its queue at a time.

SCSI Configuration

When you select *SCSI Configuration* from the Main Menu, a matrix of settings appears.

- Press the Spacebar to scroll through the list, then use the arrow keys to select a number.
- Type **y** for **Yes** and **n** for **No** or use the Spacebar to toggle the **Yes/No** values.
- Press Esc to return to the Main Menu.

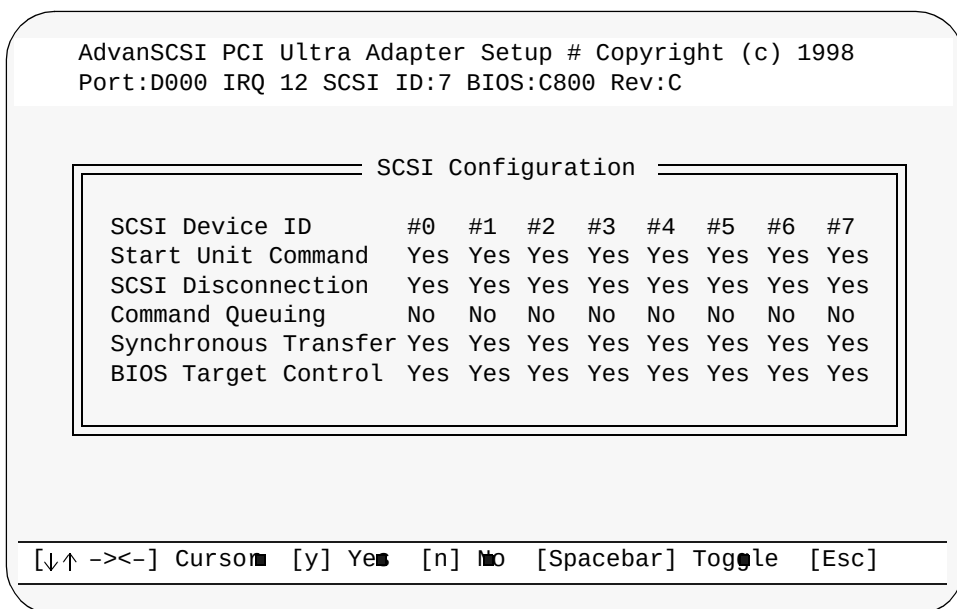


Figure 4-4: The SCSI Configuration Matrix

SCSI Device ID Displays the ID number (0–7) of the peripherals and host adapter(s) on the SCSI chain. The host adapter ID should always be 7.

Start Unit Command

The **Yes** (default) or **No** value determines whether the host adapter will start each peripheral in an automatic sequence. Allowing the host adapter to control the start sequence protects the computer power supply from overload.

SCSI Disconnection

The **Yes** (default) or **No** value determines whether SCSI peripherals can connect to and disconnect from the bus. **Yes** enables multi-threading and multi-tasking, with less idle time and maximum efficiency.

Command Queuing

The **Yes** or **No** (default) value determines whether the host and peripherals can accept multiple command queues. Most peripherals do not implement command queuing, so AdvanSys recommends setting this option to **No**. If you assign **Yes** for Command Queuing, you must specify the values for Host Queue Size and Device Queue Size through the Adapter Configuration menu, discussed later in this chapter.

Synchronous Transfer

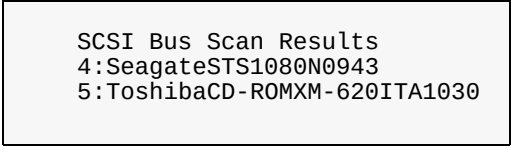
The **Yes** (default) or **No** value determines the bandwidth of the SCSI board. Older SCSI 1 peripherals may be too slow for the **Yes** data-throughput rate of 10 MB/sec minimum. **No** limits the rate to 0–5 MB/sec for those peripherals.

BIOS Target Control

The **Yes** (default) or **No** value determines from which SCSI peripherals the BIOS can boot. The host adapter must always be **Yes**. Assign **No** to any peripheral that should not be booted from.

SCSI Bus Scan

When you select *SCSI Bus Scan* from the Main Menu, the message “Searching for drives...” appears. When the scan is complete, a list of all connected peripherals on the SCSI bus appears, with associated information, including the ID number, manufacturer, type of peripheral, and the firmware version number of the peripheral. Press any key to return to the Main Menu.



```
SCSI Bus Scan Results
4:SeagateSTS1080N0943
5:ToshibaCD-ROMXM-620ITA1030
```

Figure 4-5: SCSI Bus Scan Results

Low Level Disk Format

WARNING: This option will destroy your boot sector!

When you select *Low Level Disk Format* from the Main Menu, a list of all media drives on the SCSI chain appears. If you are certain that you need to reformat your media drive, use the arrow keys to select a drive, and press Enter. A warning message appears: “Are you sure you want to format it?”

- If you select *Yes* and press Enter, the selected media drive is reformatted, and the Main Menu reappears.
- If you select *No* and press Enter, the Main Menu reappears.

Restore Factory Defaults

When you select *Restore Factory Defaults* from the Main Menu, the AdvanSys default setup configuration values for the host adapter and SCSI are immediately restored.

Restore Previous Settings

When you select *Restore Previous Settings* from the Main Menu, the previously saved configuration values are immediately restored.

Save Changes and Continue

When you select *Save Changes and Continue* from the Main Menu, a question appears: “Do you want to save changes and continue?”

- If you select *Yes* and press Enter, all changes you made will be saved to EEPROM, and the computer system will resume booting up.
- If you select *No* and press Enter, the Main Menu reappears. Discard Changes and Continue

When you select *Discard Changes and Continue* from the Main Menu, a question appears: “Do you want to discard changes and continue?”

- If you select *Yes* and press Enter, all changes you made will be discarded, and the computer system will resume booting up.
- If you select *No* and press Enter, the Main Menu reappears.

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Chapter 5: SuperInstall and SuperView

IMPORTANT NOTICE

Unlike the driver software for other operating systems, the AdvanSys drivers for Windows 95 are installed before the Host Adapter Card, using AdvanSys SuperSCSI. Follow the instructions in this chapter to install Windows 95 drivers first.

AdvanSys SuperSCSI

SuperSCSI is a leading-edge product, incorporating the latest and most powerful integration of SCSI software and hardware available in the market. SuperSCSI is a Windows 95 application only. To take advantage of SuperSCSI, you must be running Windows 95 on your system.

SuperSCSI consists of two software programs, SuperInstall and SuperView. *SuperInstall* is a software installation program for your Windows 95 environment. It loads your Windows 95 SCSI host adapter drivers. *SuperView* is a diagnostic tool that provides you with a complete overview of your SCSI environment. It diagnoses and recommends fixes to installation problems, and provides you with valuable information about your SCSI configuration. Once the SuperSCSI CD is running in your CDROM Drive, the installation is a snap. Also, because SuperInstall loads SuperView, you will have SuperView available and ready to give you textual and graphic views of your total SCSI environment.

Included on the Super SCSI CD are complete User Manuals in Adobe Acrobat PDF file format. The Adobe Acrobat Reader is also included in the CD. To print (or view) the manuals, click on *View Manual* in the Autorun window during the SuperInstall procedure. Each manual is approximately 100 pages long. You can print the entire manual or selected pages.

The first part of this chapter will guide you through installation of the AdvanSys drivers, using the AdvanSys SuperSCSI CD. SuperInstall, the installation program for Windows 95, automatically installs the SuperView application at the same time that it installs the AdvanSys drivers. 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.

After completing SuperSCSI installation, refer to *Chapter 3, Hardware Installation*, for instructions on installing the AdvanSys SCSI Host Adapter card on your computer motherboard.

SuperInstall Instructions

Auto Insert Notification

Windows 95 comes with *Auto insert notification* activated. If you have disabled it, make certain that it is activated before attempting installation by performing the following steps:

1. Click on *START*.
2. Choose *SETTINGS*.
3. Click on *CONTROL PANEL*.
4. Double-click on the *SYSTEM* icon.
5. Click on *DEVICE MANAGER*.
6. Double-click on the *CD-ROM* icon.
7. Double-click on the listing for your CD-ROM drive.
8. In the Properties window, click on the *Settings* tab. Click on the checkbox next to *Auto insert notification*.
9. Reboot your system.

SuperSCSI Installation

1. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the AutoRun window for the SuperInstall program to appear (see Figure 4-1). If it does not appear after a few seconds, open *My Computer* by double clicking on its icon. Press **F5** to refresh the My Computer window. Find the *AdvanSys SuperSCSI* icon and double click on it.
2. In the *AutoRun* window, click on the button next to *Run Setup* to activate the Installshield Wizard for the SuperInstall program.



Figure 5-1: The AutoRun Program Window

3. 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.

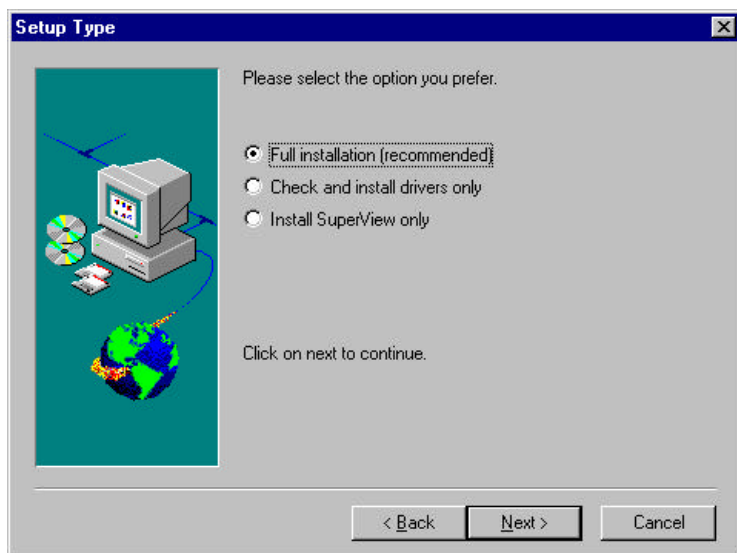


Figure 5-2: The Setup Type Window

4. You will be prompted to choose a destination location. Click **Next** to select the default pathway **C:\Program Files**, or use the **Browse** button to select a location you prefer.
5. The *Start Copying Files* window appears, listing the programs that will be installed. Note that list includes the drivers and SuperView. Click on **Next**.
6. When SuperInstall finishes, an information dialogue box appears, announcing that SuperSCSI installation is complete. It also contains instructions on what to do next.

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 drivers you installed.

The *Full Installation, recommended* option you selected during setup installed the 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.

SuperSCSI Installation from Diskette

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.

Diskette Creation

NOTE: Make sure that *Auto insert notification* is enabled. See instructions earlier in this chapter.

1. Insert the AdvanSys Super SCSI CD into your CD-ROM drive and wait for the AutoRun window to appear.
2. Click on *Make OS Driver Diskettes* in the *AutoRun* window.
3. In the Make Installation Diskettes window, select *Ultra* or *Ultra Wide SCSI*.
4. The *Diskette Maker* window appears (see Figure 4-3).
5. Select your operating system, choose a 3.5" floppy disk drive, and insert a floppy diskette into that drive.
6. Click on the *Make Diskette* button.
7. A Confirmation window will appear. Click *OK* to proceed.
8. The Progress bar at the bottom of the window will indicate diskette creation status. When the Finished window appears, click *OK*.
9. Click *Exit* to quit the Diskette Maker window.

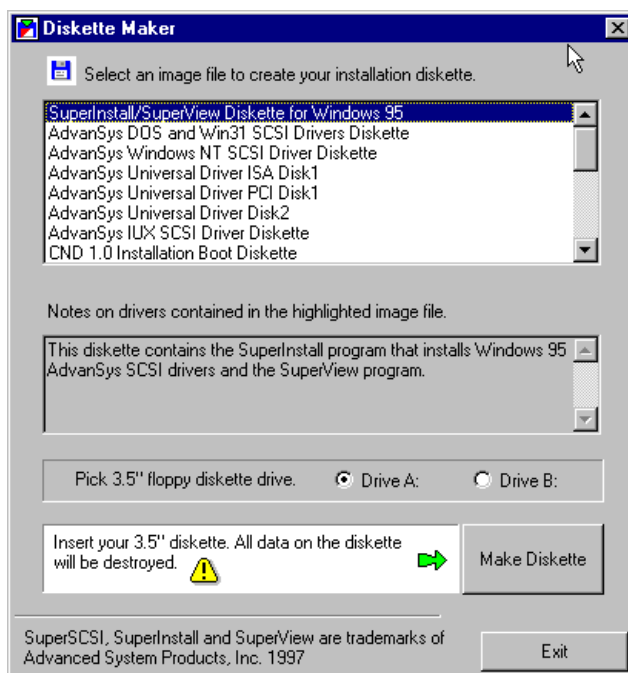


Figure 5-3: The Diskette Maker Window

Diskette Installation

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

1. Insert the SuperInstall diskette into the floppy drive.
2. Click the Windows 95 **Start** button.
3. Click *Run*.
4. Type **a:\setup.exe** in the edit box (assuming the diskette is in drive a:).
5. Click *OK*.
6. 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.

7. You will be prompted to choose a destination location. Click *Next* to select the default pathway **C:\Program Files**, or use the *Browse* button to select a location you prefer.
8. The Start Copying Files window appears, listing the programs that will be installed. Note that list includes the drivers and SuperView. Click on *Next*.
9. When SuperInstall finishes, an Information dialogue box appears, announcing that SuperSCSI installation is complete. It also contains instructions on what to do next.

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.

SuperView Troubleshooting

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

Either of the following steps will open SuperView:

Click on the *AdvanSys SuperView* icon on your Windows 95 screen,

or:

1. Click the Windows 95 *Start* button.
2. Move your mouse pointer to *Programs*.
3. Move your mouse pointer to *AdvanSys SuperSCSI*.
4. Point to and click on the *SuperView* program icon.

The Normal Mode Superview Window will appear after completing either step.

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 start-up 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 next section of this manual describes how to use SuperView in the Normal Mode. A description of additional program options featured in the Advanced User Mode is given later in this chapter.

The SuperView Main Program windows comprise 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.

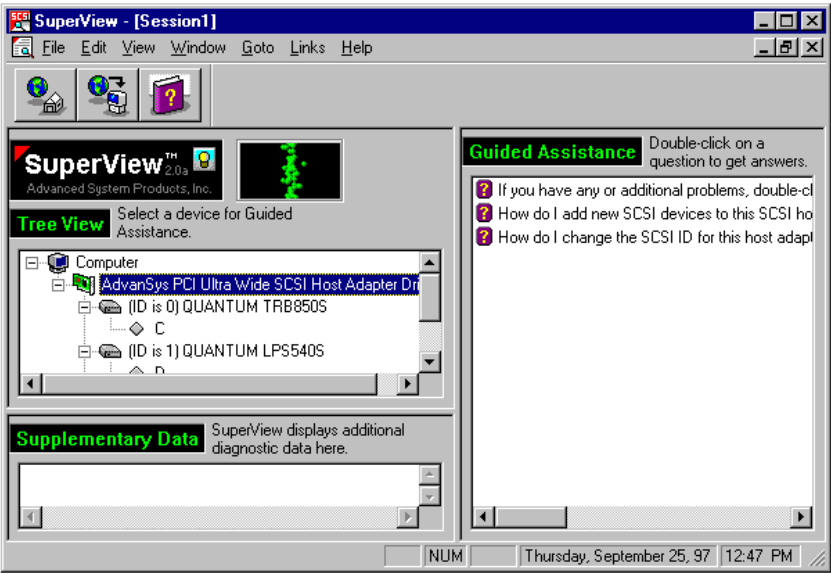


Figure 5-4: SuperView Main Program Window in Normal Mode

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.

The *Guided Assistance* section displays a list of focused questions about any device you select in the SCSI tree. When you double-click a question (or its icon), the SuperView On-line Help window will appear on the screen. It contains suggestions as to the source of the problem, as well as steps you can take to try to solve the problem. The first item in the Guided Assistance window will generate an *additional topics* window, where you can click on an item for additional information. 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 (or item), 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.

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 bars that act as partitions between the panes. When the cursor assumes the shape of a double-headed arrow, hold your left mouse button down 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, information becomes more visible in some panes and less in others.

Menus and Commands

File Menu Commands

New	Creates a new SuperView Session.
Close	Closes the current SuperView Session.
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 all PnP AdvanSys SuperSCSI devices and device drivers.
Exit	Exits SuperView.

Edit Menu Commands

The Edit menu 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 or the bottom 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 (to open a second window, click on <i>New</i> in the File menu). Each new window will permit viewing data for different devices at the same time. You can create multiple windows in each session. To close the windows, click on the <i>X</i> in the upper right corner of each window, or <i>Close</i> in the File menu to close all at the same time. When all the windows have been closed, pull down the File menu and click on <i>New</i> . A new session will begin, in the same mode. Other Window menu commands are available only in advanced operating mode. These commands are listed on page 4-19.

Goto Menu Commands

The Goto menu functions only in Advanced Operating Mode. A detailed description of its functions appears later in this chapter.

Links Menu Commands

Internet Home Page	Connects you to the AdvanSys Home Page on the internet, where you can get information about the AdvanSCSI Host Adapter Card.
Internet Download	Connects you to the AdvanSys down-load site on the internet, where you can download SuperView program updates and other program development files.

Help Menu Commands

The SuperView Help menu offers the following commands:

- Help Topics This command opens the Help Topics window. The *Contents* page will be showing. You can click on a tab to go to the *Index* or *Find* pages. Click on a topic, and its subsections will be listed.
- About SuperView Displays the version number of this application, along with memory and current disk space usage and availability.
- Help Topics Help Topics provides all kinds of information on the SuperView program and SCSI devices. Help Topics includes a Table of Contents tab with hyperlinks, an Index tab with entry search capability, and a Find utility with two word searches and a topic search.

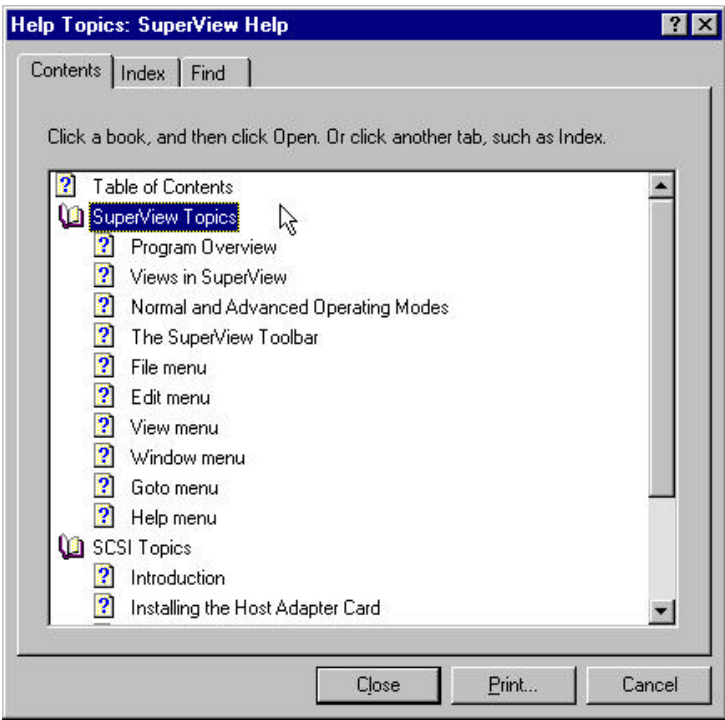


Figure 5-5: SuperView Help Topics Window

The SuperView Toolbar

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



Figure 5-6: The SuperView Toolbar in Normal User Mode



Selecting the first 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 second button connects you to the AdvanSys down-load site. Go to this site to download SuperView program updates or other files associated with future program development.



Click on the third of these to call up the SuperView Help Topics window (see Figure 4-5). From this window, you can access a table of contents, a help index, program-specific help, SCSI-specific help, answers to FAQs (frequently asked questions), and troubleshooting information.

Advanced User Mode

The SuperView Advanced User Mode has all of the features of Normal Mode, and more, to help System Administration. To switch to the Advanced User 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 *Advanced User Mode*.
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.

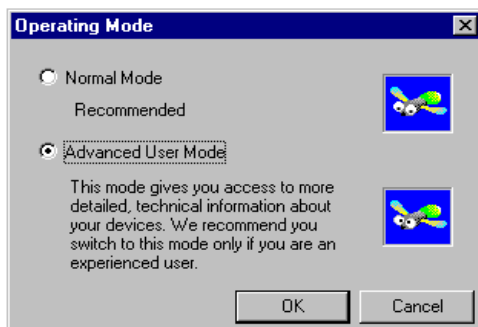


Figure 5-7: Operating Mode Selection Window

Additional Window Panes

The *Devices* pane replaces the SCSI Tree and Supplementary Data panes in the left half of the program window (see Figure 4-8). 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* pane is not available in Normal Mode.

Open the devices pane 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 (see Figure 4-8). It displays registry data for all devices on your computer.

The Registry Data pane is independent of the Devices pane. However, when you invoke the Devices pane, the Registry Data pane comes up automatically alongside it. The Registry Data pane is not available in Normal Mode.

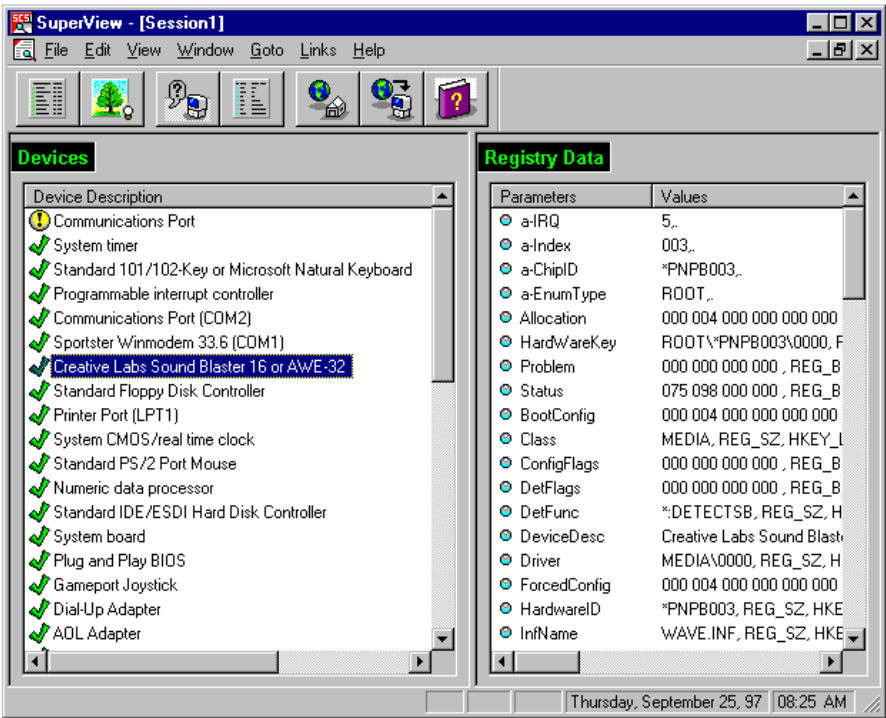


Figure 5-8: Registry Data and Devices Panes in Advanced User Mode

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. Click the right mouse button on a device listed in the SCSI Tree, then select Registry Data from the menu that appears on the screen (see Figure 4-9).

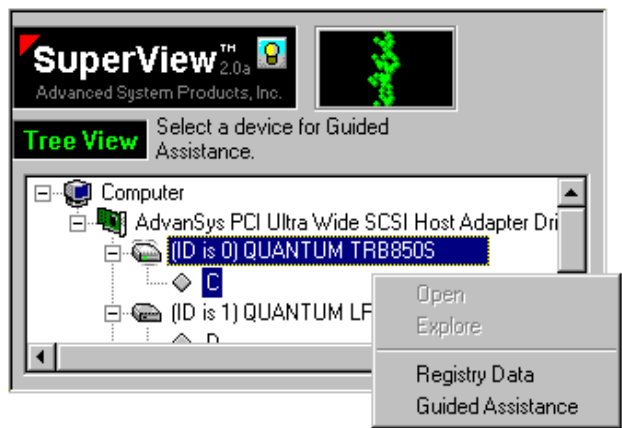


Figure 5-9: Opening The Registry Data Pane from Tree View in Advanced Mode

Additional Toolbar Options

In Advanced User Mode, the toolbar displays the four additional buttons to the left of the Normal Mode buttons (see Figure 4-10).



Figure 5-10: Additional Toolbar Options in Advanced User Mode



Selecting the first of icon on the left 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 icon (!) 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 a SCSI device 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 Window Menu Commands

In the Advanced User Mode, the Window menu offers a command that is not available in Normal Mode.

New Window	This command creates a new window for viewing the same document. Each new window will permit viewing data for different devices at the same time. You can create multiple windows in each session. To close the windows, click on the <i>X</i> in the upper right corner of each window, or <i>Close</i> in the File menu to close all at the same time. When all the windows have been closed, pull down the File menu and click on <i>New</i> . A new session will begin, in the same mode.
-------------------	---

Additional Goto Menu Commands

These commands are only available in advanced user mode.

Devices	Use this command for a list of all devices the Device Manager recognizes on your computer, including the SCSI host adapter and its connected devices. 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.
----------------------	---

Tree View and Supplementary Data

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

If a question listed in Guided Assistance is tagged with a yellow (!) icon, double-click on that icon to display the additional information 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.

Viewing and Printing Manuals

If you need to keep a hard copy of the user manual for your Host Adapter Card, 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 *View SuperSCSI Manuals* button in the AutoRun program window.
3. You will next see a message asking which manual you wish to view.
4. The manual you select will open in the Adobe Acrobat Reader program.
5. You can view the manual, print all of it, or select a range of pages to print.

Uninstalling Driver Software

IMPORTANT NOTICE

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.

1. Go to the SuperView File menu and select the *Uninstall Drivers* command option. A warning window will appear on the screen. See Figure 4-11.



Figure 5-11: Uninstall-Drivers Warning Message

2. To proceed with driver uninstallation, click **OK**. The following informational screen appears

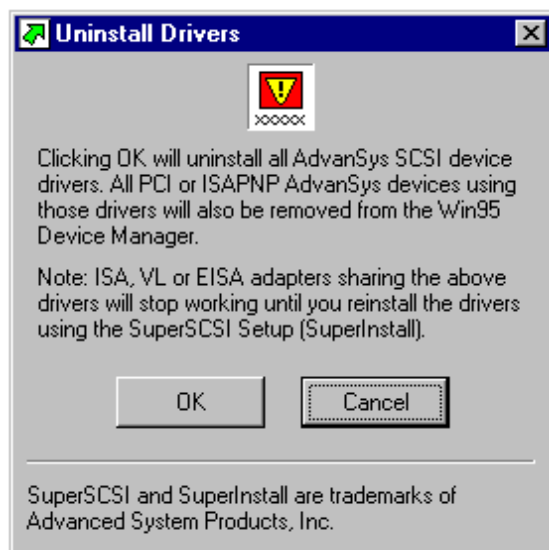


Figure 5-12: Uninstall Drivers Window

3. Click *OK* to uninstall drivers. When drivers are uninstalled, a Finished message will appear. Click *OK* to return to SuperView.

Uninstalling SuperSCSI

Here is the way to install SuperSCSI:

1. Click the Start button on the Windows 95 taskbar.
2. Select *Programs*.
3. Select *AdvanSys SuperSCSI*.
4. Highlight *Uninstall SuperSCSI* and click on it.
5. A *Confirm File Deletion* window will appear (see Figure 4-13), asking if you are sure you want to remove the program. Click *Yes*.

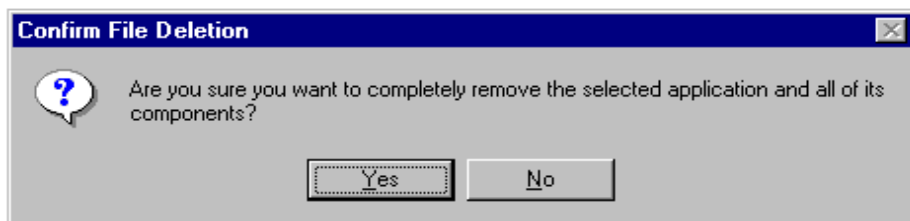


Figure 5-13: Confirm File Deletion Window

6. The following window will appear, indicating what is being deleted from your computer: Click **OK** when the statement **Uninstall successfully completed** appears at the bottom of this screen.



Figure 5-14: Remove SuperSCSI Window

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Chapter 6: Software Drivers Installation

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. All fast/ultra narrow products have embedded support under *Windows 98*. These drivers are part of an “out-of-the-box” solution; products include ABP903, 922, 915, 916, 925, 930, 940UA, and 970UA. For the 940UW (Ultra-Wide), use the “*browse*” feature provided by the operating system. The UW product driver support includes support for the DEC ALPHA platforms.

This chapter provides instructions for creating the AdvanSys installation diskettes, which contain the Universal Drivers from the AdvanSys SuperSCSI CD. Next, you’ll be guided through installation of the AdvanSys driver on each of the operating systems supported.

Finally, the DOS/Windows 3.1, 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 containing installation instructions for your operating system. If you use *Windows 95*, refer to *Chapter 5: SuperInstall and SuperView*. *SuperInstall* and *SuperView* are the two components of the SuperSCSI software installation program for Windows 95.

- Windows NT on page 6 - 9
- DOS/Windows and CD-ROM Driver installation on page 6 - 11
- OS/2 on page 6 - 17
- Novell NetWare on page 6 - 22
- Universal NWPA Host Adapter Module (HAM) on page 6 - 28
- SCO UNIX on page 6 - 30
- Interactive UNIX on page 6 - 32
- Linux on page 6 - 34
- UnixWare on page 6 - 36
- Solaris UNIX on page 6 - 37

Creating Installation Diskettes

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

1. Insert the AdvanSys SuperSCSI 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 SuperSCSI CD, you'll see the following message:

A Bootable CD was detected:

0 - AdvanSys Diskette Creator

Select image number, or press Escape for normal boot:

If, after you insert the SuperSCSI CD and reboot, your system goes through a normal boot from the hard drive, read the section titled *CD-ROM Bootability* on page 6 - 5.

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 SuperSCSI Bootable CD Driver Diskette Creator 2.6

Driver diskettes you can create by typing a number below:

- 1) Windows 95) Solaris11) 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/29) SCO UNIXWare
- 5) NetWare10) 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>: At the prompt, type in the number corresponding to your operating system and press Enter. If you enter 1 for Windows 95, you will next 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)

3. Insert a blank diskette, type in **Y**, and press Enter to continue. As the diskette is made, the message “Creating diskette for Windows 95...” appears. Once the files are copied, you’ll be notified that the Windows 95 diskettes were successfully created.
4. Now that you’ve created the installation disks you’ll need for your OS, press Enter to return to the Diskette Creator menu.
5. Type **C** at the menu prompt, then do one of the following:
 - Type **S** and press Enter to shut down the computer
 - Type **R** and press Enter to reboot the computer
 - Press Enter to return to the main menu.

Solaris Installation Diskettes

At the Diskette Creator menu prompt, when you type **6** for Solaris, the following text will appear on the screen:

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

Press <Enter> to continue.

1. Press Enter to call up the prompt shown next:

```
Please insert a blank diskette into your 1.44 MB diskette
drive A:
Proceed to overwrite and create diskette for Solaris
boot1? (y/n)
```

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

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

As boot1 is completed, you’ll see:

```
Solaris boot1 diskette successfully created.
```

Press <Enter> to continue.

3. As the process continues, insert the second and third blank diskettes when prompted, and indicate that you wish to continue by typing **Y** at the prompt and pressing Enter.

4. Now that you've created the installation disks you'll need for Solaris, press Enter to return to the Diskette Creator menu.
5. Type **C** at the menu prompt, then do one of the following:
 - Type **S** and press Enter to shut down the computer
 - Type **R** and press Enter to reboot the computer
 - Press Enter to return to the main menu.

Linux Installation Diskettes

At the Diskette Creator menu prompt, when you enter **10** for Linux, 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 SuperSCSI 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 1.03) Slackware 3.05) Red Hat 3.0
```

```
2) Slackware 2.04) Red Hat 2.06) Red Hat 4.0
```

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

1. Type 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. Now that you've created the installation disks you'll need for Linux, press **Enter** to return to the Diskette Creator menu.
4. Type **C** at the menu prompt, then do one of the following:
 - Type **S** and press Enter to shut down the computer
 - Type **R** and press Enter to reboot the computer
 - Press Enter to return to the main menu.

CD-ROM Bootability

The instructions outlined above for creating installation diskettes from the SuperSCSI 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.

If--after you insert the SuperSCSI CD into an IDE CD-ROM drive and reboot--your system goes through a normal boot from the hard drive, it means your system does not support CD-ROM bootability. Your options are discussed below.

If You Have an IDE CD-ROM Drive

If you have an IDE CD-ROM (but your system does not support CD-ROM bootability), you can either arrange to get 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 a setup with bootability, you can copy the driver images to diskette as follows. If the system you are using has Windows 95, use the AutoRun program *Make OS Driver Diskettes* feature described on page 6 - 7.

If You Have No CD-ROM drive

If you have no CD-ROM drive to boot, your only option is to find a computer with a CD-ROM attached and with a motherboard BIOS that supports CD-ROM bootability. When you manage to access an appropriate setup, copy the driver images to diskette as follows. If the system you are using has Windows 95, you can use the AutoRun program *Make OS Driver Diskettes* feature described on page 6 - 7.

To Copy the Driver Images to Diskette

1. Start up your operating system.
2. Insert the AdvanSys SuperSCSI CD into your IDE CD-ROM drive and insert a blank floppy diskette into your floppy drive.
3. Open the SuperSCSI 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.

To Create Driver Installation Diskettes For Multiple Operating Systems

You might 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 release diskettes for Microsoft operating systems supported along with boot diagnostics for ISA host adapter cards.
- Select Diskette Creator menu option **12** to create v. 2.6 release diskettes for Microsoft operating systems along with boot diagnostics for PCI host adapter cards.
- Option **13** on the Select Diskette Creator menu lets you create a diskette containing driver software for all the non-Microsoft operating systems supported.

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.

Just bring up the Diskette Creator menu, type **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 Driver Diskettes in Windows 95

NOTE: Make sure that **Auto insert notification** is enabled. See instructions earlier in this chapter on page 6 - 2.

1. Insert the AdvanSys SuperSCSI CD into your CD-ROM drive and wait for the AutoRun window to appear (see Figure 6 - 1).
2. Click on *Make OS Driver Diskettes* in the AutoRun window.
3. In the Make Installation Diskettes window, select *Ultra SCSI* or *Ultra Wide SCSI*.
4. The Diskette Maker window appears (see Figure 6 - 2).

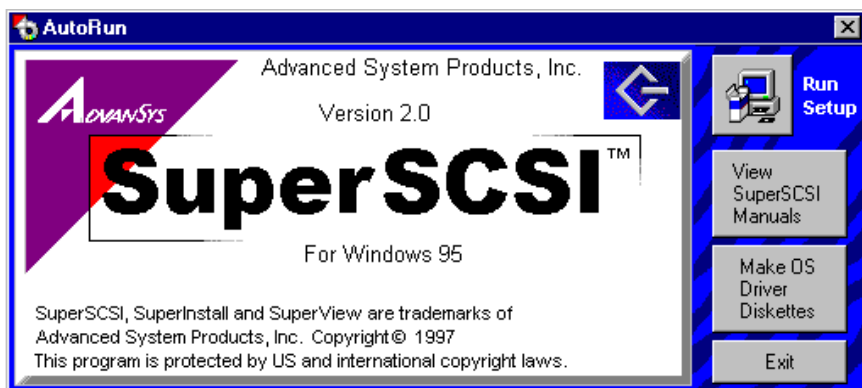


Figure 6-1: The Autorun Program Window

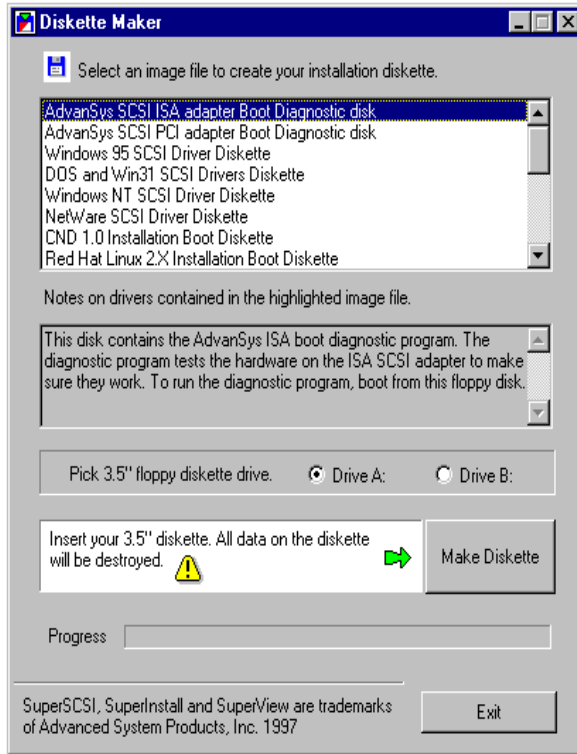


Figure 6-2: The Diskette Maker Window

5. Select your operating system, choose a 3.5" floppy disk drive, and insert a floppy diskette into that drive.
6. Click on the *Make Diskette* button.
7. A Confirmation window will appear. Click *OK* to proceed.
8. The Progress bar at the bottom of the window will indicate diskette creation status. When the Finished window appears, click *OK*.
9. Click *Exit* to quit the Diskette Maker window.

Windows NT Driver Installation

The AdvanSys Windows NT ASC 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 SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

Installing to 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 typing **S**. From the list of drivers displayed, select **Other**. When prompted, insert the 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 confirmation message when the successfully loaded driver finds the AdvanSys host adapter. Press **Enter** to continue with the installation.

Installing to an Existing Windows NT 3.5.1 System

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.

Installing to an Existing Windows NT 4.0 System

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.

DOS/Windows 3.1 Driver 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 SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

1. Shut down DOS, and switch your computer power off.
2. Plug in the host adapter card, and turn your computer power on.
3. Insert the 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. A screen message appears: **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. A screen message appears: **Do you want to include Disk Driver in your CONFIG.SYS file?** Press Enter to include the Disk Driver.
8. A screen message appears: **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. A screen message appears: **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. Eject 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.
12. Driver installation is now 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, simply add the line:

```
device=advaspi.sys
```

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
```

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

With the **/P** option, **ADVASPI** will *pause* and continue when you press any key.

/V

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

/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

Because DOS/Windows 3.1 is a single-tasking operating system, there is no need to enable command queueing in the AdvanSCSI BIOS Setup (Ctrl+A) utility. In some circumstances, command queueing actually degrades performance under DOS/Windows 3.1.

Installing the Windows 3.1 Driver

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 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. Now that you have successfully completed setup, click *OK* to exit.
8. We recommend that you select *Automatic Installation*, and follow the instructions provided on the screen.
9. A screen message appears: **Is it OK to reboot your computer now?** Click on *YES*.
10. Remove the disk from the floppy drive and click on *OK*.
11. Installation is complete. Press any key to continue.

Installing the AdvanSCSI ASPI and CD-ROM Driver

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

From the DOS Environment

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 contents to it:

- 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
1. Type **INSTALL** at the root directory on your installation disk.
 2. You will be asked to choose the destination (boot) drive, which is typically the C drive.
 3. A directory called **ADVSCSI** 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, type **Y** to go ahead and modify these files. If you have already installed the ADVANCD software, type **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.
Reboot for the changes to take effect.

For the Windows 3.1 Environment

You can use the Setup Program to install and configure the CD-ROM driver.

1. Start Windows 3.1 and insert the 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.

Installing the ADVANCD CD-ROM Driver

The default name is **ADVCD0**. It must match the MSCDEX name. The driver is in standard.SYS file format. It is loaded as a device driver:

```
DEVICE=ADVANCD.SYS [/P] [/D:cdname]
```

There is one command line option:

/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 Guide* for MSCDEX or directly from online 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

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 Specifications* published by Microsoft.

OS/2 Driver Installation

The AdvanSys OS/2 Universal Driver supports all the AdvanSys SCSI adapters for OS/2 WARP v 3.0 and later releases. The installation directions below 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 SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

Installing ASC to a New OS/2 System

Install the AdvanSys **ASC.ADD** driver for OS/2 WARP as follows.

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 "From the OS/2 desktop".

Installing ASC.ADD to Existing OS/2 System

You can install the Advansys **ASC.ADD** driver from either the OS/2 desktop or the OS/2 command line (a simpler process). Choose just one of these methods

From the OS/2 desktop

1. Boot up the existing OS/2 system.
2. Insert the installation 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 to install the driver. 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.

From the OS/2 Command Line

1. Boot up the existing OS/2 system and open the OS/2 window.
2. Insert the 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 SCSI Adapter Driver Options” on page 6 - 20.)
5. Reboot the system.

AdvanSys SCSI Adapter Driver Options

/V

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

/A:d

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

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

The *ignore adapter* option must be preceded by an **/A:d** option.

/[!]DM:target or/[!]DM:(target, lun), ...

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), ...

The *SCSI Manager support* option 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 a **/A:d** option. If you place an exclamation (!) after the forward slash (/), the device will not be controlled by **OS2SCSI.DMD**.

/L

By default, no LUN scanning is done.

/I:port

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.

/[!]TO

Use this option 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 start-up. Look for only a single ISA or VL card at I/O port 0x110. Also look for EISA and PCI cards.

DEVICE=ASC.ADD /I- /L

Do not look for any ISA and VL cards during start-up. 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 /!SM:5 /!DM: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.)

Novell NetWare Driver Installation

IASCxxx.DSK is the AdvanSCSI Universal NetWare disk driver designed to work with all AdvanSCSI host adapter cards (ISA, VL, EISA, PCI and ISA Plug-and-Play) 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 Novell NetWare, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

AdvanSCSI NetWare Driver Naming Scheme

The AdvanSCSI NetWare driver is now named according to its version number to allow for easier differentiation of drivers. However, 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.DSK** driver now relies on an ASPI Translation Layer to provide ASPI services to other modules. This allows for side-by-side functionality with other SCSI host adapter drivers.

When it is loaded, **ASCxxx.DSK** now 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

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 sub-menueed 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 vitally important 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.

Enter **MEMORY** 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, continue below with “Reports Memory is Less Than Installed”. Otherwise, continue with “Reports Memory is Not Less Than Installed”.** 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

Reports Memory is Less Than Installed

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 $(4 \times \text{number of ISA host adapters}) + (6 \times \text{number of attached SCSI devices})$. For example, if you had SCSI devices on ISA hosts, you would allocate $((4 \times 2) + (6 \times 5)) = 38$ 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.

Reports Memory is Not Less Than Installed

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 “Reports Memory is Less Than Installed” above, 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:

24MBREGISTER MEMORY 1000000 800000

32MBREGISTER MEMORY 1000000 1000000

64MBREGISTER 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 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.

Universal NWPB Host Adapter Module (HAM) Driver Installation

The AdvanSys Universal NetWare HAM Driver, **ASCHM100.HAM**, is designed to work with all AdvanSys host adapter cards (ISA, VL, EISA, PCI, and ISA Plug-and-Play) and Netware 4.11 or later version.

AdvanSys NetWare Driver Naming Scheme

The AdvanSys NetWare HAM Driver is named according to its version number to facilitate differentiation between drivers. However, when upgrading drivers, it is important that you modify the server **STARTUP.NCF** or **AUTOEXEC.NCF** to reflect the new driver name for the correct version level.

Installing For Slot-Based Cards (EISA, PCI, and ISA Plug-and-Play)

To make the CDROM drive visible to DOS, boot the system with our **ADVASPI.SYS** and **ADVANCD.SYS** driver in the **CONFIG.SYS** file. After bootup, change to the CD-ROM drive, type **install**, and then follow the NetWare installation procedures.

Installing Drivers for Legacy VL and ISA Cards

Legacy VL cards: In addition to the boot procedure described above, you must designate a **PORT** address and an **INT** interrupt line. Then, simply follow the NetWare installation procedures and respond to the screen prompts.

Legacy ISA cards: In addition to the boot procedure described above, you must designate a **PORT** address, an **INT** interrupt line, and a **DMA** channel. Then, simply follow the NetWare installation procedures and respond to the screen prompts.

Since our driver is already embedded in the NetWare CD, you won't need to use the driver diskette during installation. NetWare will automatically detect our cards, assign a unique slot number for each channel, and then load the embedded driver. If you want to upgrade the driver after installation, just copy the driver in the diskette to the server boot directory and update the **STARTUP.NCF** file.

After installation, NetWare will create a **STARTUP.NCF** file which contains our driver loading instance like this:

```
LOAD ASCHM100.HAM SLOT=10001
```

or

```
LOAD ASCHM100.HAM PORT=110 INT=A
```

ASCHM100.DDI Installation Information File

The **ASCHM100.DDI** file that accompanies the HAM driver is used for automatic hardware detection during installation of NetWare 4.11. This DDI file contains driver descriptions that specify configurable driver parameters, the input required from the user, and the format of the required output.

SCO UNIX Driver Installation

The SCO UNIX ASC Universal Driver supports AdvanSys SCSI Adapters for the SCO UNIX 4.2 and OpenServer 5.0.

In order to install the universal driver software on SCO UNIX, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

1. Set up your devices with the following SCSI Target IDs:
 - Hard Disk: 0
 - CD-ROM: 5
 - Tape Drive: 2
2. Boot the system with the installation boot disk you created from the SuperSCSI CD.
3. Type **link** at the **Boot :** prompt. SCO will dynamically link the AdvanSys driver to the install kernel. The AdvanSys driver is a BTLD (Boot Time Loadable Driver).
4. When the install program asks you what package to link, type **asc**, which is the name of the AdvanSys BTLD driver package.
5. Next, place the AdvanSys SCO BTLD Diskette into the floppy drive when the system prompts you to do so. *Do not* insert the diskette until you are asked for it. (The install program may ask for the disk more than once.)
6. At the end of the installation, you may be asked: **Do you want to replace auto with asc Y or N.** Answer yes (Y).
7. After SCO UNIX is installed, label the diskette that you created "AdvanSys SCO BTLD". Be sure to include the version of the driver on the label.
8. Type the command **installpkg** from the SCO UNIX command line.
9. When prompted, insert the AdvanSys SCO BTLD diskette into the floppy drive.

10. After installation, type the following commands to rebuild a new kernel containing the asc driver.

```
cd /etc/conf/cf.d
```

```
./link_UNIX
```

For more information, refer to the SCO documentation on compiling the kernel.

Interactive UNIX Driver Installation

The AdvanSys Interactive UNIX Universal Driver supports all AdvanSys SCSI adapters for the Interactive UNIX releases 4.0 and 4.1.

In order to install the universal driver software on Interactive UNIX, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

1. Insert the ASC Driver diskette that you created from the SuperSCSI CD when the install program asks for it. The driver will be loaded into the live system and installation will proceed.
2. Once the base system is installed, you can add packages to the system. Select the *InstallPkg* option. Install the Kernel Configuration package first, followed by the package on the ASC Universal Driver HPDD Diskette.
3. Select the *kconfig* option.
4. From the Configure sub-menu, select *HPDD*.
5. Select *Reconfigure HPDD* and then choose a controller option.
6. Select the *asc* driver from the list of drivers.
7. Configure the driver and all devices attached to the SCSI bus.
8. Return to the top Kernel Configuration menu and select the *Build* option to build a new kernel.
9. Return to the top Kernel Configuration menu and select the *Install* option to install a new kernel.
10. After Interactive UNIX is installed, type the *sysadm* command from the command line as the root user.

sysadm

11. Select the *Software* option and then *Install a package*. Install the package from the ASC HPDD diskette. After installation, quit the *sysadm* program.
12. Type the *kconfig* command from the command line.

kconfig

13. Select the *Kconfig* option. From the Configure sub-menu, select *HPDD*.
14. Next, select *Reconfigure HPDD*, and choose a controller option.
15. Select the *asc* driver from the drivers listed. Configure the driver and devices attached to the SCSI bus.
16. Return to the top Kernel Configuration menu and select *Build* to build a new kernel.
17. Return to the top Kernel Configuration menu and select *Install* to install a new kernel.
18. Reboot the system to run the new kernel built using the ASC HPDD driver.

Changing ASC Universal Driver Options

LUN scanning is disabled by default. You can enable it by changing the driver variable `asc_lunscan` in the file `/etc/conf/pack.d/asc/space.c`.

```
int asc_lunscan = 0 /* LUN scanning disabled */  
int asc_lunscan = 1 /* LUN scanning enabled */
```

Linux Driver Installation

The AdvanSys Linux Host Driver supports all currently available AdvanSys SCSI Adapters. The source file **advansys.c** lists each adapter. The driver has been tested on Linux v1.2.3, v1.3.57, v2.0.23, and v2.1.0 kernels. Starting with v1.3.58, the AdvanSys driver has been included in the Linux distribution.

In order to install the universal driver software on Linux, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

NOTE: If you have a kernel version other than the ones for which current patches exist, you may need to modify **advansys.c** or **advansys.h** so that your kernel will compile. There is support for releases v1.2.13 and v1.3.57, but not for intermediate releases. Refer to the installation comments in *advansys.c* for more information.

v1_2_13.gz This is the patch for the Linux v1.2.13 kernel. If you have a v1.2.13 kernel, execute the following command to add the AdvanSys driver to your kernel source:

```
cd /usr/src; zcat v1_2_13.gz | patch -p0
```

v1_3_57.gz This is the patch for the Linux v1.3.57 kernel. If you have a v1.3.57 kernel, execute the following command to add the AdvanSys driver to your kernel source:

```
cd /usr/src; zcat v1_3_57.gz | patch -p0
```

slakwar2.exe DOS self-extracting archive used to create a boot diskette for installing Slackware Linux 2.x. The kernel on the boot diskette is configured with the AdvanSys driver. You will also need to create a root diskette from the Slackware CD.

slakwar3.exe DOS self-extracting archive used to create a boot diskette for installing Slackware Linux 3.X. The kernel on the boot diskette is configured with the AdvanSys driver. You will also need to create a root diskette from the Slackware CD.

redhat2.exe	DOS self-extracting archive you can use to create a boot diskette for installing Red Hat 2.x. The kernel on the diskette was built from v1.2.13 kernel tree which Caldera modified and distributes with CND 1.0. You will also need to create the two ramdisk floppy diskettes from the Red Hat or Caldera CD. For Caldera, these files are on the CD at /images/ramdisk1.img and /images/ramdisk2.img .
redhat3.exe	DOS self-extracting archive used to create a boot diskette for installing Red Hat 3.X. The kernel on the diskette was built from the v1.2.13 kernel tree which Caldera modified and distributes with CND 1.0. You will also need to create the two ramdisk floppy diskettes from the Red Hat CD.
redhat4.exe	DOS self-extracting archive used to create a boot diskette for installing Red Hat 4.X.
caldera.exe	DOS self-extracting archive that can be used to create a boot diskette for installing CND 1.0. This image was built by Caldera.

NOTE: With the Caldera CND 1.0 CD, you can install either CDN 1.0 or Red Hat 2.X.

In addition to a list of supported adapters, the **advansys.c** file contains instructions for installing the driver, comments on the source, compile-time options, driver options, and other documentation.

UnixWare Driver Installation

The AdvanSys UNIXWare ASC Universal Driver supports all AdvanSys SCSI adapters for UnixWare 2.0 and 2.1.

In order to install the universal driver software on UnixWare, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

1. Insert the driver installation diskette when the install program prompts you to do so. The driver will be loaded into the live system and installation will proceed.
2. After UnixWare is installed, insert the driver installation diskette into the system floppy drive.
3. Type the **pkgadd** command from the command line as the root user.

pkgadd -d diskette1

4. Install the AdvanSys HBA driver. The kernel will automatically be rebuilt to include the driver when the system is next shutdown.

Solaris UNIX Driver Installation

The AdvanSys Solaris Universal Driver (ASC) supports all AdvanSys SCSI adapters for Solaris 2.5. Earlier versions of Solaris are not supported. The AdvanSys driver is included in Solaris 2.5 Driver Update 5. If you are using Driver Update 5, you can ignore the instructions outlined below and follow those included with Driver Update 5 instead.

In order to install the universal driver software on Solaris UNIX, you will first need to create the installation diskettes from the AdvanSys SuperSCSI CD. If you haven't already done this, please return to "Creating Installation Diskettes" on page 6 - 2.

You must install Solaris 2.5 x86 Edition in combination with the AdvanSys driver.

1. Insert the Solaris 2.5 x86 Edition Installation CD into your CD-ROM drive and insert the ASC BOOT1 diskette into the first floppy drive.
2. The system will boot from the floppy. The AdvanSys Realmode driver **ASC.BEF** driver will recognize the installed AdvanSys adapter and the boot procedure will indicate that **ASC.BEF** has been loaded.
3. Later, during installation, you will be prompted to install the second boot diskette (ASC BOOT2) and then the Driver Update diskette (ASC Driver Update).
4. The install program will automatically add the AdvanSys driver to the installed system. There is no need to add it again after installation.
5. With Solaris 2.5 x86 Edition installed, boot the Solaris system and log in as root.
6. Place the ASC Driver Update disk into the floppy drive.
7. Run the commands below to extract the Driver Update image to the directory **/tmp/drivers**. If this directory already exists, use a different name.


```
mkdir /tmp/drivers; cd /tmp/drivers;cpio -idumv < /dev/diskette0
```
8. Run the driver update shell script. This command will apply the latest driver update and **./installdu.sh**
9. Reboot your Solaris system and use the boot command **b -r** at the boot prompt to reconfigure the system. The **-r** option will ensure that the **/devices** and the **/dev** directories are rebuilt.

NOTE: For troubleshooting tips, application and release notes, and for answers to FAQs (Frequently Asked Questions), please visit the AdvanSys Web Site at <http://www.advansys.com>.

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