

3092S/SL/E

PCI-to-SCSI Host Adapter

User's Manual

Revision 1.0E

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

CE

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The following information is needed to assist in problem resolution.

- Model type, serial number, and product description
- Type and version number of Operating System you are using. E.g. MS-Windows95
- Software driver product type and version number.
- Motherboard BIOS version.
- Location of purchase.

The README.TXT File

The README.TXT file on the 3092S/SL/3191E DRIVER DISK 1 contains important updated information and corrections to this *User's Manual*. README is a standard ASCII text file that may be read with any word processor or text editor.

To view the README file from the MS-DOS prompt:

Type the following command from the MS-DOS prompt:

```
C:\> type readme.txt | more
```

This will permit you to page down the file, one screen at a time to read the file.

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Host Adapter Specifications

This chapter describes the 3092S/SL/3191E PCI to Ultra SCSI host adapter card in detail. The 3092S/SL/3191E card is a high performance PCI bus master host adapter that provides a highly integrated solution for attaching SCSI devices to your PC.

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 Fast SCSI, 10 MB/sec synchronous data transfer rate across the SCSI Bus
- Single-ended SCSI interface
- 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

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:

- 5 MB/sec asynchronous burst on the SCSI bus
- 10 MB/sec synchronous burst on the Fast SCSI bus

Electrical Terminations: Single-ended

Environmental Specifications

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

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.

3092 Host Adapter Kit Contents

Before you install and configure the 3092 host adapter, make sure that your package includes all of the following items:

- 3092 PCI to SCSI host adapter card
- User manual

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)

Cable Considerations

Please use a SCSI cable to attach SCSI peripherals to your 3092 PCI SCSI Host Adapter Card. A 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 FAST SCSI (10 MB/sec SCSI data transfer) is 6.0 meters. If you plan to attach from five to eight devices, the maximum cumulative length for cabling is 1.5 meters.

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.

3092 Host Adapter Card Overview

The 3092S has one internal 50-pin connector and one 50-pin High-density external connector.

Figures-1, 2 and 3 identify the major components of the 3092 PCI SCSI host adapter respectively. Table 1 and 2 describe each component. You may find it helpful to refer to these illustrations while installing the host adapter and attaching the cables.

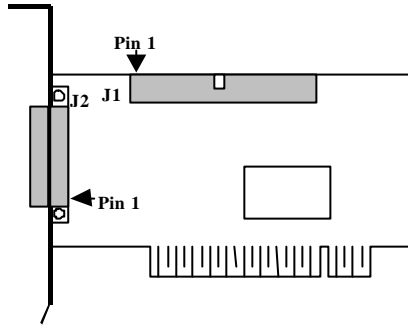


Figure 1 - 3092S Board Layout

3092S	Description
J1	50-pin Internal SCSI Connector
J2	50-pin External high-density SCSI Connector

Table 1 - 3092S Component Description

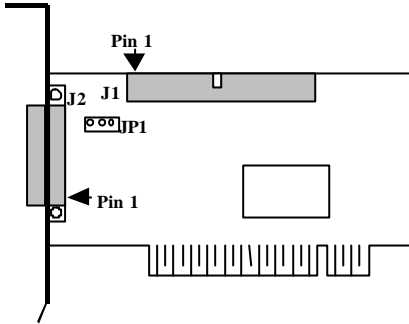


Figure 2 - 3092SL Board Layout

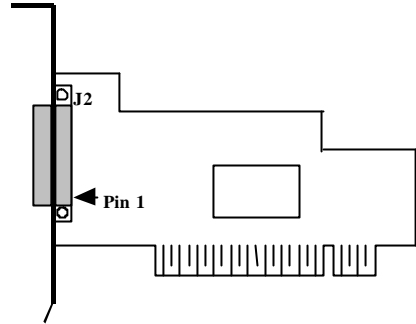


Figure 3 - 3092E Board Layout

3092SL	3092E	Description	
J1		50-pin Internal SCSI Connector	
J2	J2	25-pin External D-Sub SCSI Connector	
JP1		External Device Detector	
		2-3: ON	Auto detect and termination for the external device
		1-2: ON	Assume external device always on. For IOMEGA Zip device connector only

Table 2 - 3092SL/E Component Description

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 3092 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 4 shows a properly seated 3092 host adapter card.

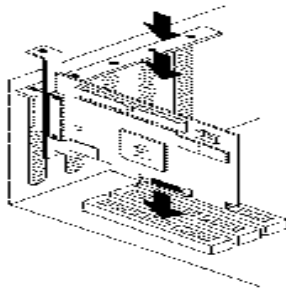


Figure 4 - Inserting the SCSI Adapter into a PCI slot

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 3092 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 3092 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.

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.

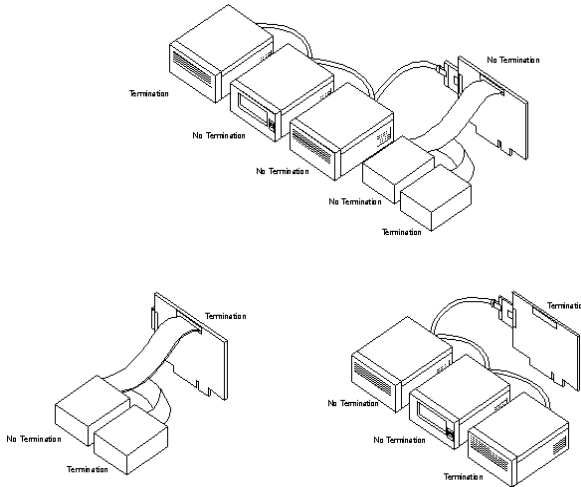


Figure 5 - Examples of SCSI bus termination

SCSI ID Assignment

Each and every SCSI peripheral device connecting to the same 3092 host adapter, including the host adapter itself, must be assigned its own unique SCSI ID. SCSI IDs is numbered from 0 to 7. The default setting for the 3092 host adapter is SCSI ID 7.

- Figure 6 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 J1 of the 3092 -S/SL 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 J1 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.

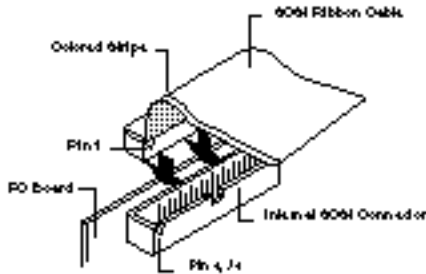


Figure 6 - Connecting the 50-pin internal flat ribbon cable

Note: 3092E does not have internal SCSI connector.

7. Installation of external SCSI cables can be performed after the cover has been closed. The cable is limited in length to a total of six meters including any internal cabling. The external cable can be daisy chained to include up to seven devices with the 3092 in combination with internal devices. The external cable is designed to be inserted only one way requiring termination at the end peripheral device on the bus (see figure 7).

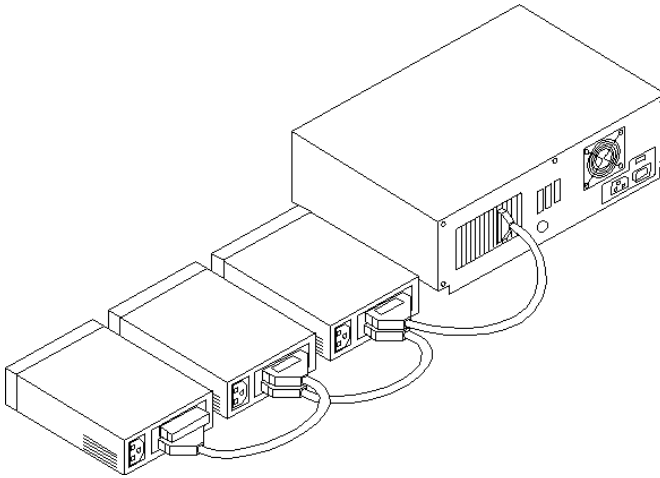


Figure 7 - External cable connection

DOS/Windows 3.1 Driver Installation

DOS Driver Installation

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 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.

ADVASPLSYS is the 3092 Universal ASPI Manager for DOS and Windows. It is designed to support 3092 host adapters 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 3092 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.SYS**.

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 PCI bus, respectively, for 3092 SCSI cards. Because the host adapters won't be controlled by **ASPI**, they will not be available for use by other drivers or applications.

Installing the Windows 3.1 Driver

1. Shut down Windows 3.1, and turn OFF your computer.
2. Plug in the 3092 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 ASPI and CD-ROM Driver

The 3092 SCSI 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 3092 SCSI software and utilities. The installer creates an ADVSCSI directory on the C or D drive and copies the following contents to it:

- 3092 SCSI ASPI Manager
- 3092 SCSI CD-ROM driver and utility
- 3092 SCSI Hard Drive / Removable Media Manager
- 3092 SCSI 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.**

From 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.

Microsoft Windows 95 Driver Installation

Overview

The 3092 PCI SCSI host adapter will support Microsoft Windows 95 with the addition of a software driver. The installation procedure described here requires some experience in Windows 95 system setup and administration. The device driver is transferred from the 3092 SCSI Host Adapter Driver Disk 1 to the hard drive where it is automatically initialized during the system boot routine.

The following files are used for installation and will be found on the 3092 SCSI Host Adapter Driver Disk 1:

ASC.MPD	3092 SCSI Host Adapter Windows 95 miniport driver.
ADVANSYS.INF	Windows 95 installation information file.

Installation

The 3092 driver developed for Windows 95 is loaded during the system boot routine and will remain resident on the drive. This is accomplished by following one of the three installation procedures listed:

- New Windows 95 installation.
- Adding the device driver to an existing Windows 95 system.
- Updating the device driver to an existing Windows 95 system

The procedures described to make changes to the system have distinct differences. It is strongly suggested that the selected procedure be read and understood before proceeding with the system configuration changes. Please read the instructions carefully.

New Windows 95 installation

These instructions will guide you through the installation of the 3092 host adapter driver while installing Windows 95. Windows 95 will be installed from either a CD-ROM or floppy diskettes. It is important that the hardware and DOS 4.01 or higher have been installed successfully before proceeding further. If installing from a SCSI CD-ROM drive, it is important that the 3092 ASPI driver, and CD-ROM driver be installed before proceeding further.

1. Access the Windows 95 CD-ROM either from the DOS prompt or from Microsoft Windows 3.x File Manager. Execute the SETUP.EXE program and follow the instructions on your screen. If you are installing from floppy diskette, insert the

Windows 95 Setup Disk 1 in your floppy disk drive and boot your system.

2. Once a Windows 95 session is established, use your installed mouse or the appropriate key strokes to select **MY COMPUTER** from the MAIN DESKTOP. Execute the following steps:
 - Select **CONTROL PANEL** from within the MY COMPUTER group.
3. Select **SYSTEM** from within the CONTROL PANEL group,
 - Select **DEVICE MANAGER** tab from within the SYSTEM group
 - Select the **OTHER DEVICES** category from within the DEVICE MANAGER listing.
 - Select the **PCI-SCSI Bus Controller** sub-category from within the OTHER DEVICES listing.
 - In the 3092 , PCI-SCSI Bus Controller Properties window, select the **DRIVER** tab, then select “**CHANGE DRIVER...**”.
 - In the SELECT HARDWARE TYPE window, select **SCSI CONTROLLERS**.
 - In the SELECT DEVICE window, select “**HAVE DISK...**”.
4. In the INSTALL FROM DISK window that is displayed, enter the 3092 Driver path name:
 - Insert 3092 SCSI Host Adapter Driver Disk 1 into drive A:
 - Type: **A:\WIN95**, select “**OK**”
5. Select “**AdvanSys PCI SCSI Host Adapter**”, select “**OK**”, then “**OK**” again to install the ASC.MPD driver onto your hard disk drive.
6. This completes loading the Host Adapter Driver, follow the on-screen directions to complete the Windows 95 installation. Exit and reboot the system to activate the device driver.

7. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:
 - Select **SYSTEM** from within the CONTROL PANEL group,
 - Select **DEVICE MANAGER** from within the SYSTEM group,
 - Select **SCSI CONTROLLER** from within the DEVICE MANAGER listing, and
 - Select **AdvanSys PCI SCSI Host Adapter** from within the SCSI CONTROLLER listing. If “This device is working properly” is displayed on your screen, the driver has been correctly installed.

Adding the Device Driver to an existing Windows 95 system

These instructions will guide you through the installation of the 3092 host adapter to an existing Windows 95 system. Windows 95 will automatically detect the presence of new hardware in Plug and Play compliant systems. It is important that the 3092 hardware has been properly installed before proceeding further.

1. Microsoft Windows 95 will detect the presence of new hardware upon boot-up and will display a dialog window titled NEW HARDWARE FOUND and PCI SCSI BUS CONTROLLERS will be highlighted.
 - Select: **DRIVER FROM DISK PROVIDED BY HARDWARE MANUFACTURER**, then “**OK**”.
 - Select **SCSI CONTROLLER** from the list of available devices, then select “**HAVE DISK...**”
2. In the INSTALL FROM DISK window that is displayed, enter the 3092 Driver path name:
 - Insert 3092 SCSI Host Adapter Driver Disk 1 into drive A:
 - Type: **A:\WIN95**, select “**OK**”
 - Windows 95 will ask you the pathname again.
 - Type: **A:\WIN95**, and select “**OK**”

3. Windows 95 will now transfer the ASC.MPD driver on to your hard disk drive.
4. This completes loading the Host Adapter Driver, follow the on-screen directions to complete the Windows 95 installation. Exit and reboot the system to activate the device driver
5. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:
 - Select **SYSTEM** from within the CONTROL PANEL group,
 - Select **DEVICE MANAGER** from within the SYSTEM group,
 - Select **SCSI CONTROLLER** from within the DEVICE MANAGER listing, and
 - Select **AdvanSys PCI SCSI Host Adapter** from within the SCSI CONTROLLER listing. If “This device is working properly” is displayed on your screen, the driver has been correctly installed.

Updating the device driver to an existing Windows 95 system

1. Once a Windows 95 session is established, use your installed mouse or the appropriate key strokes to select **MY COMPUTER** from the Main Desktop. Execute the following steps:
 - Select **CONTROL PANEL** from within the MY COMPUTER group.
 - Select **SYSTEM** from within the CONTROL PANEL group.
2. Select the **DEVICE MANAGER** tab from within the SYSTEM group.
 - Select the **SCSI CONTROLLERS** category from within the DEVICE MANAGER listing.
 - Select the “**AdvanSys PCI SCSI Host Adapter**” sub-category from within the SCSI CONTROLLERS listing
3. In the AdvanSys PCI SCSI Host Adapter PROPERTIES window, select the **DRIVER** tab, then select “**CHANGE DRIVER...**”.
4. In the SELECT DEVICE window, select “**HAVE DISK...**”.
5. In the INSTALL FROM DISK window that is displayed, enter the 3092 Driver path name:

- Insert the 3092 SCSI Host Adapter Driver Disk 1 into drive A:
 - Type: **A:\WIN95**, select “**OK**”
6. Select **AdvanSys PCI SCSI Host Adapter**, select “**OK**” to install the . 3092 MPD driver onto your hard disk drive.
 7. This completes updating the Host Adapter Driver. Follow the on-screen directions to restart you computer and activate the new driver.
 8. It is highly recommended that you verify your Windows 95 device driver has been properly installed by selecting **MY COMPUTER** from the desktop. Then select **CONTROL PANEL**:
 - Select **SYSTEM** from within the CONTROL PANEL group,
 - Select **DEVICE MANAGER** from within the SYSTEM group,
 - Select SCSI CONTROLLER from within the DEVICE MANAGER listing, and
 - Select “AdvanSys PCI SCSI Host Adapter” from within the SCSI CONTROLLER listing. If “This device is working properly” is displayed on your screen, the driver has been correctly installed.

Microsoft Windows NT Driver Installation

Overview

The 3092 PCI SCSI host adapter will support Windows-NT v3.5x/4.0 with the addition of a software driver. A software driver allows the host computer the ability to transfer data over the SCSI bus. The device driver for Windows-NT is copied from the 3092 driver installation diskette to your hard drive where it is loaded onto the computing system during installation.

Installation

The 3092 driver developed for Windows-NT will be installed on the hard drive used for system initialization. The driver is loaded during the system boot routine and will remain resident on the drive.

Installing the Windows-NT Driver

The ASPI for Windows-NT driver is found on the 3092 SCSI Host Adapter Driver Disk 1. It is important that the SCSI bus hardware, and Operating System are installed correctly before proceeding further. If you need help installing Windows-NT, please refer to the Microsoft Windows manual before proceeding.

1. Turn on host system and boot into Windows-NT Operating System.
2. Insert the 3092 **SCSI Host Adapter Driver Disk 1** into your floppy drive.
3. Use your installed mouse or the appropriate key strokes to select **RUN ..** from the Windows PROGRAM MANAGER. Execute the program.
 - Type **A:\WINNT\SETUP <ENTER>**. A series of screens will guide you through the installation of the ASPI for Windows device drivers.

Product Warranty

We warrant to the original purchaser that this product shall be free from defects in material and workmanship for a period of 1 years from the date of purchase. Should this product, in the judgment of us, prove to be defective, We will at its option repair or replace the product once it has been returned to us free of charge. Any replaced parts or products become the property of us. You may obtain warranty service by first getting authorization from us then returning this product with proof of delivery date, shipping charges prepaid, to us. This warranty does not apply to the software component of the product nor to any product which has been subjected to misuse, accident, abuse or use in a manner inconsistent with normal host adapter operations. The original purchaser must be registered with us (by mailing the Product Registration Card) to qualify for warranty coverage. This remedy is your exclusive remedy for breach of this warranty.

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