

Appendix D

System Utilities

This appendix discusses the system utilities¹ and how to install them if they were not pre-loaded at the factory. The system utility diskette(s) include installation programs for the following utilities:

- 0V Suspend
- Touchpad
- Enhanced IDE driver (pre-loaded)
- SVGA

Other applications include the following:

- PCMCIA
- Audio

The following sections discuss these utilities and applications, how to install them, and how they work.

¹ System utilities may differ according to system configuration.

D.1 Zero-Volt (Hibernation) Suspend Utility



*The notebook enters suspend mode when you press the standby/suspend button (**Z**²). Press the power switch to return to the status prior to entering suspend mode. If you do not run this program to allocate disk space, this function will not work. Therefore, it is advisable to run this program before using the system.*

D.1.1 ASTDK

ASTDK creates or removes a hidden file that resides in a contiguous hard disk area for zero volt suspend/resume operation.

Why does this program need to allocate disk spaces? When most of the power is removed from the system (e.g., due to suspend button or suspend timer time-out), the system swaps all memory images and saves all system status information into these disk spaces. When you resume the system from suspend mode, the system will return to its previous state. If you do not run this program to allocate the required disk spaces, this function will not work.

D.1.2 Operating Environment

ASTDK can be run under any of the environments described below.

- DOS 6.0 or later version
- Windows 3.0 or later version
- Windows 95

ASTDK is actually two programs but use the same execution file name, ASTDK.EXE:

- Running ASTDK from the DOS prompt (in real mode and not from a Windows 95 DOS window) launches the DOS program.
- Running ASTDK from Windows 95 by clicking on the icon or from the command line in Windows 95 (DOS window) always launches the ASTDK GUI (graphical user interface).

With the auto-load property, only one instance of ASTDK is allowed to run in the Windows environment. You may, however, want to work in real mode from the command line — temporarily change your MS-DOS prompt properties sheet to not launch the Windows program, and instead launch the DOS program.

In whatever environment, ASTDK locates free contiguous disk spaces and allocates them for storing BASE MEMORY, EXTENDED MEMORY, VIDEO MEMORY, and SM RAM. The disk spaces found are reserved for system use and are no longer accessible to the user. If the program cannot find the required disk spaces, a warning message "Not enough disk space for allocation" will be shown. The disk may have enough free spaces but these free spaces exist as small fragments. In this case, you can use tools such as SpeedDisk (Norton Utilities) or Defrag (DOS 6.0 and above) to compact your free disk spaces. Then you can run this program again.

When a suspend event occurs, the BIOS saves all system data to an ASTDK file for the resume operation. Reserved disk space information is saved in CMOS, and, for self-error correction, the file header for the reserved disk space is provided to verify the consistency of the CMOS data and the reserved disk space. With advanced power management (APM), ASTDK automatically detects and adjusts the ASTDK file to meet the requirement to backup data for the suspend and resume operation.

Once executed and the ASTDK file created, the system will have the 'Suspend-to-Disk' feature and you do not need to run ASTDK.EXE again except when data in CMOS is lost or corrupted. (For example, system configuration changed by adding on-board memory, etc.)

ASTDK Command Line Syntax in Real Mode

In real mode, the command line syntax of ASTDK is described below.

```
ASTDK [/[option[=size]]]
```

The following table lists and describes each option.

Table D-1 ASTDK Parameter Descriptions

Parameter	Description
/HELP or /?	Shows a help screen briefly describing how to use the parameters.
/CREATE=size (unit=KB)	<p>Allocates contiguous disk spaces for swapping memory image and saving system registers. We suggest that you allocate the required disk spaces before you start using your PC.</p> <p>You may specify the size of the disk space which you want to allocate. If the size value you assigned is less than the system memory size, the program will use the system memory size instead. The default value is the system memory size. The program will add additional disk spaces for VIDEO MEMORY, SM RAM, and HEADER information whose sizes are described in NOTICE below. If you want to resize the allocated disk spaces, you have two options:</p> <ul style="list-style-type: none">• First execute this program with /DELETE parameter described below and then run this program with this parameter again;• Directly execute ASTDK with this parameter to resize the needed disk spaces automatically. <p>If the data in CMOS is lost or corrupted and you run this program with /CREATE parameter, the program will auto-detect and then allocate the disk spaces. The program will reallocate the disk space based on the new size you specify.</p>
/DELETE	Use this parameter to free the disk space allocated by the program.

If you do not specify any option when you run ASTDK in real mode, ASTDK will show the file creation status and correct the CMOS value, if needed.

ASTDK in Windows 95

Inherited with all functions of the real-mode ASTDK program, the graphical ASTDK designed for Windows 95 provides the alternatives for users to custom the ASTDK file size and the drive that holds the ASTDK file.

ASTDK is loaded during the Windows boot section and, hereafter, captures the APM events. For effective power saving, the ASTDK program should not be unloaded, otherwise, lose the capability of automatically validating the ASTDK file, when not exists. With the ASTDK window, user may reference the on-line help document. The detailed description for ASTDK is described in the following sections.

ASTDK Functions

ASTDK provides six explicit functions: *create*, *delete*, *minimize*, *help*, *about* and *exit*. The utility also provides one implicit function that adjusts the ASTDK file size upon suspend. In addition, tray icons are shown to indicate the status of save-to-file feature. The ASTDK user interface is shown below.

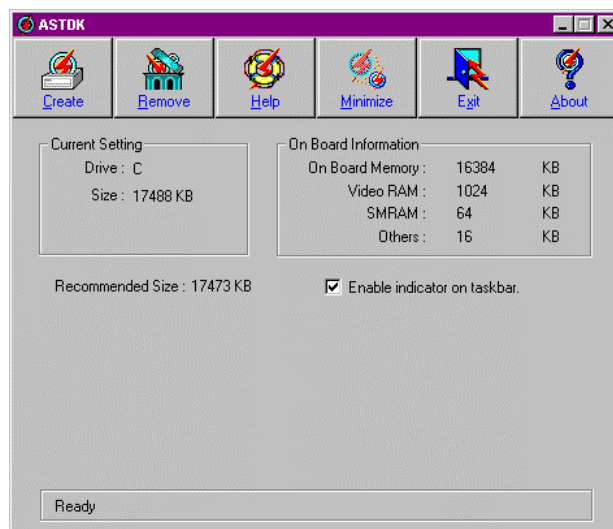






Table D-2 ASTDK Functions

Function	Description
Create	Select this function to create the ASTDK file, which is created as a system, hidden and read-only file with a formatted file header. This function is further classified into basic and advanced. Basic creation automatically creates the ASTDK file. Advanced creation allows customization of the ASTDK file setting before the program creates it.
Remove	Select this function to not only delete the ASTDK file but also to reset the related CMOS content. You cannot delete the ASTDK file using only the DOS Delete command. Doing so causes inconsistencies in the CMOS values.
Help	Select this function to access on-line help. The user can reference desired topics easily and quickly with the hypertext feature.
Minimize	Select this function to minimize ASTDK.
Exit	Select this function to terminate ASTDK.
About	Select this function to browse the system information about ASTDK.

Tray Icons

The main screen includes a check box that determines the presence of the tray icon in the task bar. The tray icon indicates the status of 0-volt suspend/resume feature, and is updated via polling of the APM status or via explicitly creating or removing an ASTDK file.

Table D-3 Tray Icons and Indicated Status

Tray Icon	ASTDK file	APM	0-Volt Feature
 Normal Icon	Valid	Advanced	Okay
 Exclaimed Icon	Valid	Not Advanced	May not work
 Exclaimed Icon	Invalid	Advanced	May not work
 Stop Icon	Invalid	Not Advanced	Inoperable

File Size Auto-Adjust upon Suspend Function

In cases where APM is enabled: when a suspend event occurs, APM sends a suspend request to ASTDK via the operating system. ASTDK checks if the ASTDK file exists.

- If the ASTDK file exists, ASTDK notifies APM that the system is ready to enter suspend mode. APM then tells the BIOS to tell the system to enter suspend mode. No extra work is needed for ASTDK.
- If the ASTDK file does not exist or if the ASTDK file size is not enough for the suspend/resume operation, ASTDK automatically creates a new ASTDK file for the user.

D.1.3 Installation Process

DOS and Windows 3.x

To install ASTDK for DOS and Windows 3.x:

Run ASTDK.EXE found in the ASTDK subdirectory from system utilities disk 2, supplied with command parameters previously discussed (e.g., `astdk /c`). Refer to the README.TXT file in the same subdirectory for details or Table D-1 for a list of the parameters.

You may also choose to copy the ASTDK files to your hard disk drive.

Windows 95

To install ASTDK for Windows 95, execute SETUP.EXE found in the ASTDK subdirectory of system utilities disk 2 and following the screen instructions.

D.1.4 Important ASTDK Notes

1. If you do not specify any parameter when you run ASTDK under the DOS prompt and you have already generated the reserved area in your hard disk, this utility will prompt you with the current size of the reserved area.
2. Reserved areas are stored in the format: a system/hidden/read-only file in the hard disk.
3. When using the /CREATE parameter for creating reserved disk spaces, this program adds more values, including VIDEO MEMORY, SM RAM, HEADER information as well as space for cluster alignment, to the size value that you assign. Default values for these items are:

VIDEO MEMORY : 1024KB

SM RAM : 64KB

HEADER : 1 sector of the hard disk used
4. This utility runs under DOS, Windows 3.1 DOS prompt, and Windows 95 DOS prompt environment only. (OS/2 is not supported)
5. If your hard disk with the reserved area is switched for use on another machine, you can use the ASTDK command directly on that machine to make the new system aware of the entry point for the reserved area.

6. If the onboard memory size is changed since the last time you executed this program, please resize the allocated disk spaces by using either one of the following two methods:
 - Using the /C parameter to release all allocated disk spaces and then reallocate the appropriate disk spaces automatically
 - Using the /D parameter to reclaim the allocated disk spaces and then using the /C parameter to create the appropriate disk spaces
7. Take care when you use ASTDK in a "DBLSPACEd" environment. If you find that your host drive does not contain contiguous memory for the reserved area in the hard disk, you can use the following command to enlarge or reduce the size of the host drive.

```
DBLSPACE /SIZE[size1 | /RESERVE=size2] drive:
```

D.2 Touchpad Utility

The touchpad works with most mouse drivers, but the bundled touchpad driver supports special functions that work uniquely with the touchpad.

D.2.1 Installing the Touchpad Driver

DOS and Windows 3.x

Follow these steps to install the touchpad driver:

1. Insert system utilities disk 2 in the diskette drive.
2. At the DOS prompt, type the following:

```
C:\> a:\touchpad\inst31 e
```
3. Follow the screen instructions to complete the installation.

Windows 95

Follow these steps to install the touchpad driver:

1. Click on the Start button and select Settings, Control Panel, then Mouse to display the Mouse Properties dialog box.
2. Click the General tab, then click the Change button.
3. Click on Have Disk and insert system utilities disk 2 in your floppy drive. Confirm or correct the file path (e.g., "a:\touchpad"), then click on OK.
4. Select Synaptics TouchPad and click on OK to copy the driver files.
5. After the files are copied, the Mouse Properties sheet will show the new device name. Click on Close.
6. The System Settings Change dialog box offers to restart your computer so the new settings can take effect. Select Yes.

Refer to the readme file in the touchpad driver disk for instructions.

D.2.2 Configuring the Touchpad

You can configure the touchpad through DOS or by using the Touchpad utility in Windows.

DOS

To see a list of the parameter settings and their descriptions, type the following at the DOS prompt:

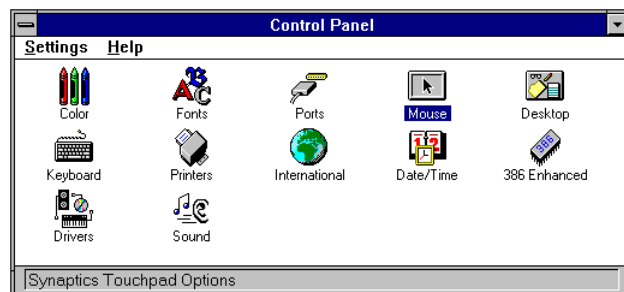
```
C:\> syntouch\syntaxtouch /? e
```

You may run the touchpad driver with these parameters.

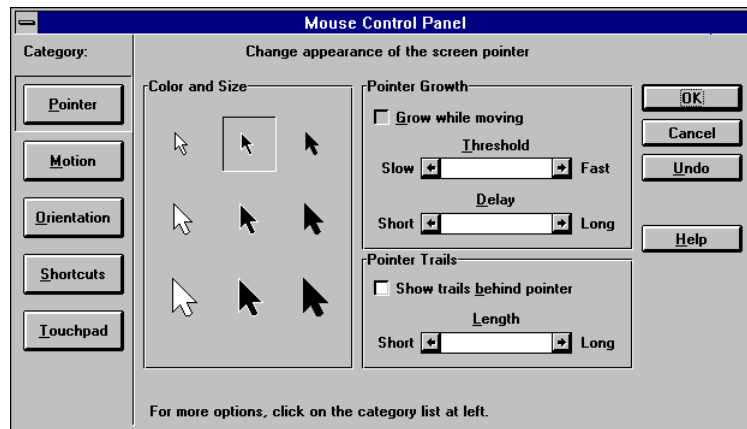
Windows 3.x

Follow these steps to configure the touchpad under Windows:

1. In Windows, double-click on the Control Panel indicator of the Main program group. The Control Panel window appears.



2. Double-click on the Mouse utility indicator to configure the touchpad. The Mouse Control Panel dialog box shows.

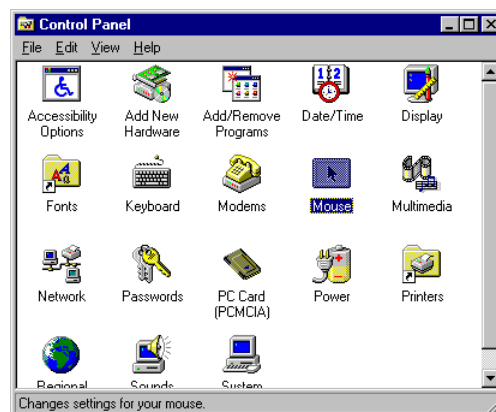


You can configure different aspects of the touchpad including the pointer, motion and orientation as well as touchpad shortcuts. Refer to the online help for details.

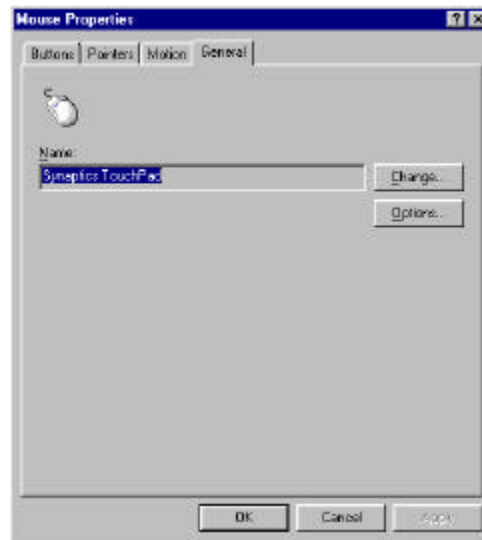
Windows 95

Follow these steps to configure the touchpad:

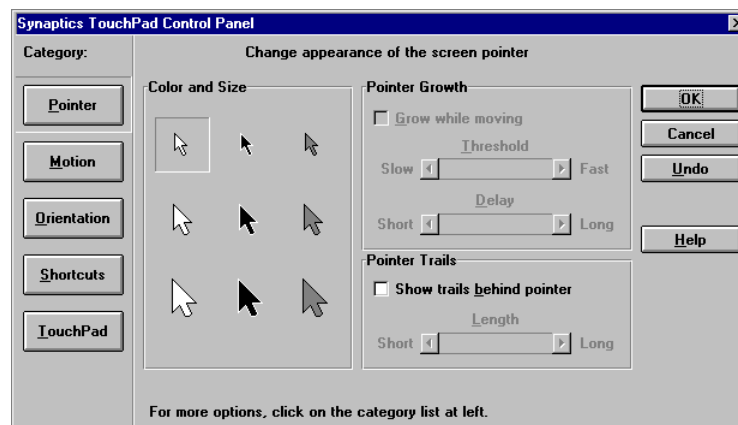
1. Click on the Start button, then select Settings...
2. Select Control Panel to display the Control Panel Window.



3. Double-click on the Mouse icon and select General.



4. Select the Options... button to display the Synaptics Touchpad Control Panel dialog box.



You can configure different aspects of the touchpad including the pointer, motion and orientation as well as touchpad shortcuts. Refer to the online help for details.

Left-handed users may choose to swap left and right buttons. Swapping the two buttons, however, causes the touchpad to behave differently. Tapping now brings up the menu instead of selecting or executing the desired icon or button. In this case, enable the Cornerzone function found in the Touchpad category setting in the Synaptics Touchpad Control Panel dialog box. When enabled, tapping on the top right corner of the touchpad selects or executes the desired icon or button.

D.3 Enhanced IDE Driver

The notebook's hard disk drive uses a PCI interface. This enhanced IDE driver improves your hard disk overall performance.

DOS and Windows 3.x

Follow these steps:

1. Insert system utilities disk 2 into the diskette drive.
2. Type the following at the DOS prompt:

```
C:\>a:\ide\install e
```

The installation program copies the necessary files to your hard disk drive and displays the IDE setup main screen.

3. Select Setup DOS driver and press e. The DOS driver setup screen displays.




If you want to install the Windows driver, you need to setup the DOS driver first.

4. In the DOS driver setup screen, you need to specify the correct VESA/PCI local bus speed; otherwise, it may result in abnormal hard drive operation.

Select the VESA/PCI Local Bus Speed option and press e. Based on the table below, select the correct VESA/PCI local bus speed.

CPU Speed	75	100	120	133	(MHz)
PCI Speed	25	33	30	33	(MHz)

You can verify your notebook's CPU speed through the Advanced Configuration screen of the BIOS Setup utility. To enter Setup, press the no-reboot Setup button (). Then, press } twice to reach page three.

The CPU/CLK parameter displays the correct CPU speed. For example, if the parameter shows Pentium/ 75 MHz, then your PCI speed is 25 MHz (based on the previous table).

Leave the BIOS Setup utility and make the correct selection.



Do not change any other settings in the IDE DOS driver setup screen. Refer to the README.TXT file for more details on each parameter in the DOS driver setup screen.

5. Press | to save the changes and return to the main screen.
6. If you want to install the Windows 3.x IDE driver, select the Setup Windows 3.X Driver option and press e. The program automatically installs the Windows 3.x driver and returns to the main screen.

Refer to the READWIN.TXT for more details.

7. Press | to save the changes and exit the setup program.

Windows 95

Refer to the readme file found in the IDEWIN95 subdirectory of system utilities disk 2.

D.4 SVGA Drivers and Utilities

The SVGA display driver setup program installs the drivers and utility programs that allow you to take advantage of the onboard VGA chip's capabilities.

DOS and Windows 3.x

Follow these steps to install the display drivers:

1. Insert system utilities disk 1 into the diskette drive.
2. At the DOS prompt, type:

```
C:\> a:\setup e
```

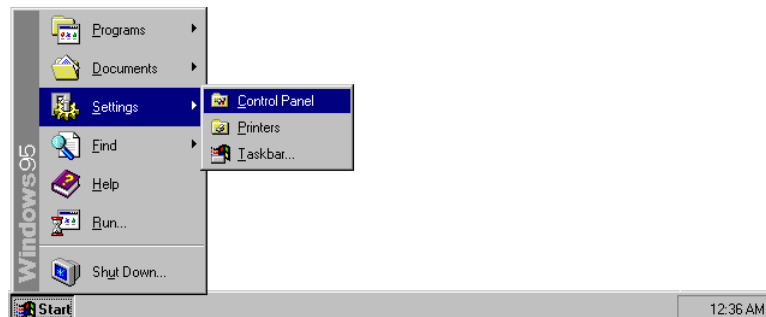
3. Follow the screen instructions to complete the installation.

This driver setup program allows you to install display drivers for Windows applications and a number of DOS-based applications.

Windows 95

Follow these steps to install the display drivers under Windows 95:

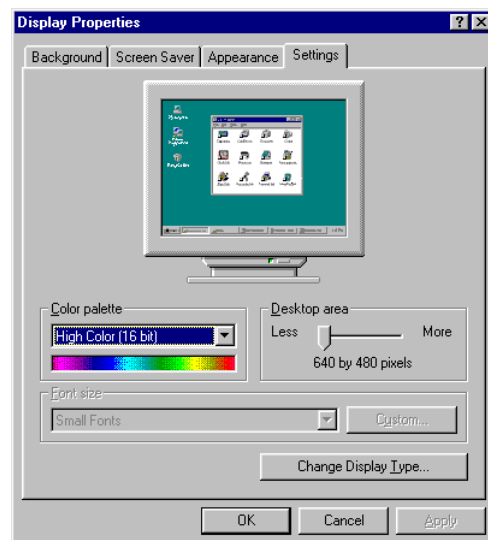
1. Click on the Start button and select Settings....



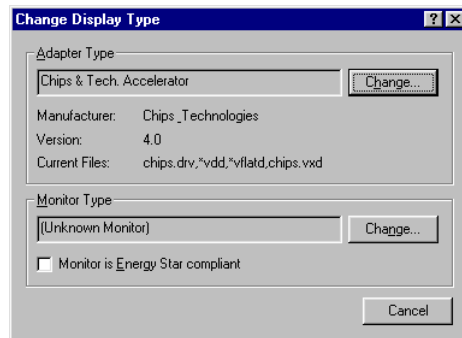
2. Select the Control Panel icon. The Control Panel window appears.



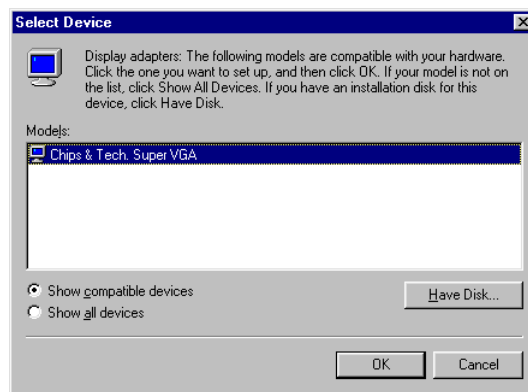
3. Double-click on the Display icon. The Display Properties dialog box appears.
4. Click on the Settings tab.



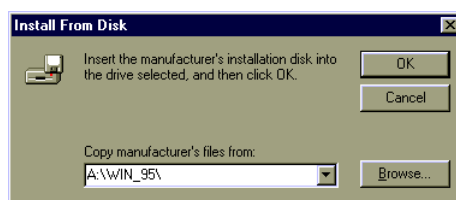
5. Click on Change Display Type.... The Change Display Type dialog box appears.



6. Select Change... from the Adapter Type.



7. Click on Have Disk... and insert system utilities disk 1 into the 3.5-inch diskette drive and set the path A : \WIN_95\.



8. Follow the screen instructions to complete the installation.

D.5 PCMCIA Utility

PCMCIA cards give you the expansion capabilities that add-on cards provide for desktop PCs. Such cards include network cards, fax/data modem cards, audio cards, memory cards, SCSI cards, etc.

The PCMCIA utility initializes the PCMCIA slot (or slots if a PCMCIA slot module is installed) on your notebook.

D.5.1 CardWizard for DOS and Windows 3.x

If any PC card is currently installed in the PC card slots, remove them. Then follow these steps to install CardWizard:

1. Insert the CardWizard disk into the diskette drive.
2. At the DOS prompt, type:

```
C:\> a:\setup    e
```
3. Follow the screen instructions to complete the installation.

This installation program checks your PCMCIA slots and copies the DOS-based card manager and if needed, the Windows card manager. If the Windows option was selected, a program group and applications for the card manager are created in Windows.



*To format a flash card, use the MCFORMAT program found in the CardWorks directory. At the DOS prompt, type `mcformat /f n:`, where *n* is the drive letter of the flash card.*

D.5.2 CardWorks for Windows 95

If any PC card is currently installed in the PC card slots, remove them. Then follow these steps to install CardWorks:

1. Insert the CardWorks disk into the diskette drive.
2. From Windows 95, select the Start button and click on Run. Then type:

```
a:\setup    e
```

3. Follow the screen instructions to complete the installation.

D.6 Audio Driver and Audio Rack Setup (Option)

The optional onboard 16-bit stereo audio is the Ess1688 AudioDrive.

Windows 3.x

Follow these steps to install the audio drivers and utilities:

1. Insert the audio driver installation disk (1 of 3) into the diskette drive.
2. From the Program Manager, select Run from the File menu pull-down and type the following:

```
a:\setup e
```

3. Follow the screen instructions to complete the installation.

To install Audio Rack for Windows 3.11, run `SETUP.EXE` from the `ARACK.W31` directory in disk 3 of the audio driver installation disks.

Windows 95

Follow these steps to install the audio driver and utilities:

1. Select the Start button, then select Settings...
2. Click on Control Panel to display the Control Panel window.



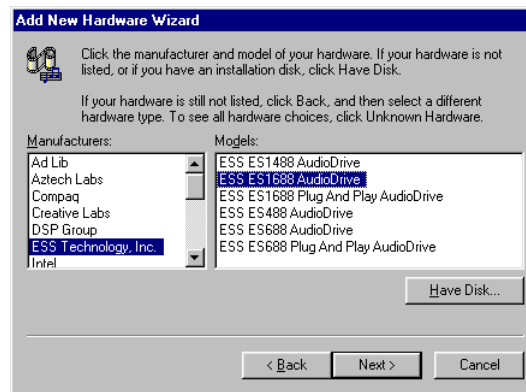
3. Double-click on the Add New Hardware icon to run the Add New Hardware Wizard program. Click on Next>, the following dialog box appears.



4. Select No and click on Next>. The following dialog box appears.



5. Select Sound, video and game controllers and click on Next>. The following dialog box appears.



6. Select ESS Technology, Inc. from the Manufacturer list and select ESS ES1688 Plug And Play AudioDrive from the Model list. Then click on Have Disk.... The following dialog box appears.



7. Insert the audio driver installation disk (disk 3). Then set the path to A : \WIN95 . DRV and click on OK.

The installation program copies the necessary files to your hard disk drive and makes the necessary changes to your system settings. The system then reboots to enable the drivers.

To install Audio Rack for Windows 95, run SETUP.EXE from the ARACK.W95 directory in disk 3 of the audio driver installation disks.