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1. Features

This manual is for S3 best quality AGP bus VGA card. The functions and specifications describe as below.

1.1 S3 Trio3D2X (362) and Trio3D2X+(368) Features

High Performance Integrated 2D/3D Graphics and Video Accelerator

  64-bit 2D/3D graphics engine

  4MB SGRAM or **8M SDRAM (368 only)** on board

  Integrated 230MHz RAMDAC with gamma correction

  Integrated clock synthesizers

  66MHz AGP pipelined DMA mode

  133 MHz AGP support

S3d Graphics Engine

  High performance 2D acceleration

  Flat and Gouraud shading for 3D

  High quality 3D texture mapping

Perspective correction	Panel Type	Resolution	SW[4:1]
Bi-linear and tri-linear texture filtering.			
MIP-Mapping.			
Depth cueing, fogging, alpha blending.			
Video texture mapping.			
Z-buffering.			
Glueless 133MHz AGP			
Support AGP DMA mode for highest performance 3D rendering			
Bus mastering for high performance video capture and display list processing			
PCI Power Management			
Glueless Video Digitizer Interface			
Support industry standard video digitizers decoders			
Odd/even field detection			
S3 Streams processor Technology			
Supports on-the-fly stretching and blending of primary			

RGB stream and RGB or YUV(video) secondary stream. Each stream can have different color depths. High-quality video playback with horizontal and vertical interpolation. **Green PC/Monitor Plug and Play Support** DPMS monitor power savings modes support DDC monitor communications **1.2 S3 MX (260) Features:** S3 MX 2D/3D Accelerator with LCD Panel controller and PanelLink Sil150 Digital interface using MDR20 Standard Connector **High performance Integrated 2D/3D Graphics and Multimedia Accelerator** Integrated 64-bit graphics accelerator/24-bit RAMDAC 135MHz-synthesizer core Support resolution up to 1280x1024 for CRT, SXGA for TFT LCD Monitor 66MHz Baseline AGP Supports SGRAM up to 4MB display memory configurations **3rd Generation of**			

S3d™Graphics Engine			
Flat and Gouraud shading for 3D			
High quality 3D texture mapping			
Perspective correction			
Bi-linear and Tri-linear texture filtering			
MIP-Mapping			
Depth cueing, fogging, alpha blending			
Video texture mapping			
16-bit hardware Z-buffering			
Improved Multimedia Acceleration			
Integrated S3 Streams Processor supports arbitrary stretching with horizontal and vertical interpolation			
Brightness, hue, saturation controls			
Color key/ Chroma key control of graphics/video overlay placement			
Low Cost, High Quality, Low Power TV-Out Solution			
Integrated 3.3V NTSC/PAL Compatible TV Encoder			
Composite or S-Video output			
3-Tap Adaptive Flicker Filtering or TV output for high quality			
Direct Interface to Broad Range of LCD			
VESA P&D™ and VESA FPDI-2™			

standard compliant Adjustable TMDS™ low-voltage swing signaling for long distance support. Support for VGA, SVGA, XGA and SXGA TFT color panel Monitor.			
Advanced frame rate control and dithering algorithms provide up to 16.7million colors			
Panel data polarity switching for EMI reduction			
Auto-expansion and centering for VGA text and graphics modes on SVGA and XGA panels			
Universal transmitter, operates with SiI151, SiI141, SiI101, SiI201 receivers MDR20 PanelLink™ Digital standard connector.			
Comprehensive Power Management			
DPMS and DDC Monitor communication for Green PC and CRT Plug and Play support S3 Dynamic Power Management			
SP260AL SWITCH SETTING Panel ID			

A	TFT	640X480	1110
B	TFT	800X600	1100
C	TFT	1024X768	1010
D	TFT	1280X1024	1000

NOTE: 1: ON
    0: OFF

1.3 S3 Savage 3D(391) Features:

BUS TYPE: 64bit AGP 2X Side bands 133MHz BUS
CHIP SET: S3 Savage 3D
Memory Size: 8MB SGRAM / SDRAM
2D / 3D Graphics Accelerator
Enhanced 128 bit Graphics Engine.
Integrated 250MHZ RAMDAC , supports resolutions and refresh rates up to
        1600 x 1200 (85HZ)
Leading 3D Performance with the highest image quality.
        Triangle setup engine delivers 5M triangles / sec
        Peak performance rates of 125M pixels / sec with all features enabled
Complete 3D feature set

Triangle Setup Engine.	Palletized Textures
Single pass Tri-linear Filtering	8KB Texture Cache
S3 Texture Compression	Edge Anti-Alisaing
True Color Rendering	Perspective Correction
Void & Cluster Dithering	Alpha Test
Spectlar & Diffuse Shading	Multiple Textures
Alpha Blending	Procedural Morphing
16/24 bit Z buffering	Texture Morphing
Vertex and Table Fog	Reflection Mapping
MPEG-2 Video Textures	Shadows

Optimized SW DVD Solution(Optional)
        Mpeg-2 acceleration features reduce CPU utilization and provide high frame
        rates.
        Motion Compensation
        Sub-picture blending and highlights
        Planar to Packed Conversion
        Support image quality
        Filtered down scaling of host data
Complete Video Feature Set
        YUV Planar to Packed Format Conversion
        HW Sub-picture Blending and Highlights
        Motion Compensation
        Front-end Scalar with high quality Downscaling
        Advanced Pixel Formatter for Multiple Video Windows
        Advanced Streams Processor with Enhanced Scaling Algorithm
        Bus Mastering of IDCT Data for SW DVD Playback
        De-Interlacing Filter for Bob & Weave.
        Independent Color Adjustment
        3-tap Programmable Flicker Filter & Vertical Overscan Compensation
        Integrated NTSC/PAL Encoder with S-Video, AV connector Support
S3 391 TV OUT SELECT

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If you want to select TV OUT, you must set the resolution at 640X480 mode. (NTSC/PAL are same)

2. Hardware Installation

2.1 Package Contents

1. S3 Accelerator card.
2. CD title or Software diskettes
3. This manual (optional).

2.2 Installing the Card

1. Turn off your computer.
2. Remove the cover of the computer per the owner's manual.
3. Install the card in one of the PCI bus slots.
4. Replace the cover.

2.3 Resolutions and colors supported:

All S3 Family PCI/AGP bus VGA cards are fully compatible VGA with the addition of Hi-Color and True Color modes depending on the amount of video memory stalled. The amount of memory needed to display various resolutions is shown below (Table 1,2,3)

2.3.1 S3 MX (260)

Resolution & Colors	BPP	Refresh Rate (HZ)	1MB	2MB	4MB
640x480-256c	8	60/72/75/85	✓	✓	✓
640x480-32Kc	15	60/75/85	✓	✓	✓
640x480-64Kc	16	60/75/85	✓	✓	✓
640x480-16Mc	24	60/75/85		✓	✓
800x600-256c	8	56/60/72/75/85	✓	✓	✓
800x600-32Kc	15	60/75/85	✓	✓	✓
800x600-64Kc	16	60/75/85	✓	✓	✓
800x600-16Mc	24	60//75/85		✓	✓
1024x768-256c	8	43(I)/60/70/75/85	✓	✓	✓
1024x768-32Kc	15	43(i)/60/75		✓	✓
1024x768-64Kc	16	43(i)/60/75		✓	✓
1024x768-16Mc	24	43(i)60/75			✓
1152x864-256c	8	60	✓	✓	✓
1280x1024-256c	8	43(i)/60/75		✓	✓
1280x1024-32Kc	15	43(i)/60			✓
1280x1024-64Kc	16	43(i)/60			✓

((I):interlaced ✓:Support x: Not Support)

Table 1

2.3.2 S3 Savage 3D (391)

Resolution & Colors	BPP	Refresh Rate (HZ)	1MB	2MB	4MB	8MB
640x480-256c	8	60/72/75/85	✓	✓	✓	✓
640x480-64Kc	16	60/72/75/85	✓	✓	✓	✓
640x480- True	32	60/72/75/85		✓	✓	✓
720x576-256c	8	60/72/75		✓	✓	✓
720x576-64Kc	16	60/72/75		✓	✓	✓
720x576- True	32	60/72/75			✓	✓
800x600-256c	8	56/60/72/75/85	✓	✓	✓	✓
800x600-64Kc	16	56/60/72/75/85	✓	✓	✓	✓
800x600- True	32	56/60//72/75/85		✓	✓	✓
1024x768-256c	8	60/70/75/85	✓	✓	✓	✓
1024x768-64Kc	16	60/70/75/85		✓	✓	✓
1024x768- True	32	60/70/75/85			✓	✓
1280x1024-256c	8	60		✓	✓	✓
1280x1024-64Kc	16	60				✓
1280x1024-True	32	60				✓

((I):interlaced ✓:Support x: Not Support)

Table 2

2.3.3 S3 Trio3D/2X (362/368)

Resolution & Colors	BPP	Refresh Rate (HZ)	4MB	8MB
640x480-256c	8	60/72/75/85	✓	✓
640x480-64Kc	16	60/75/75/85	✓	✓
640x480-16Mc	24	60/72/75/85	✓	✓
800x600-256c	8	56/60/72/75/85	✓	✓
800x600-64Kc	16	56/60/72/75/85	✓	✓
800x600-16Mc	24	56/60//72/75/85	✓	✓
1024x768-256c	8	43(I)/60/70/75/85	✓	✓
1024x768-64Kc	16	43(i)/60/70/75/85	✓	✓
1024x768-16Mc	24	43(i)60/70/75/85	✓	✓
1152x864-256c	8	60/70/75/85	✓	✓
1152x864-64Kc	16	60/70/75/85	✓	✓
1152x864-16Mc	24	60/70/75/85	✓	✓
1280x1024-256c	8	43(i)/60/75/85	✓	✓
1280x1024-64Kc	16	43(i)/60/75/85	✓	✓
1280x1024-16Mc	24	43(i)/60/75/85	✓	✓
1600x1200-256c	8	48(i)/60/75/85	✓	✓

((I):interlaced ✓:Support x: Not Support)

Table 3

3. Smart Installation

3.1 Put the Smart Installation CD in your CD-ROM
   If your CDROM drive do not support Auto-insertion
   Please run "D:\Sinstall\Sinstall.exe"
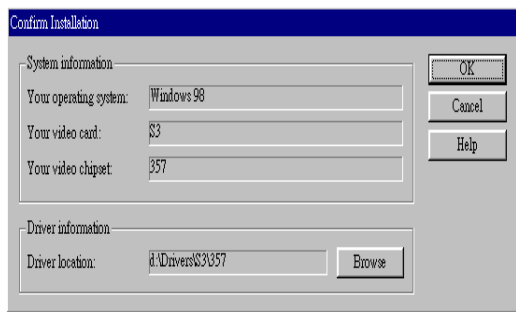   (D means the letter of your CDROM drive)

3.2 Click the **FLAG or the country name** to choose the language you preferred.
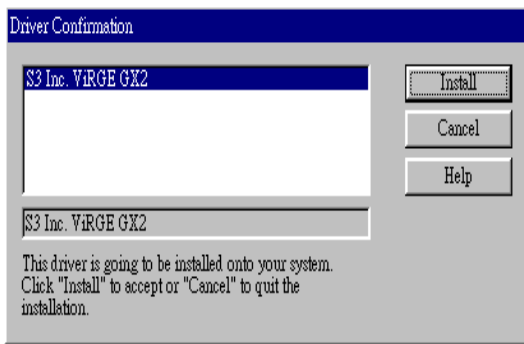   Then Click the **Driver installation** button

3.3 Comes up the **Confirm Installation** window.
  If the information and drivers location is correct
  Then Click **OK**, If you want to change drivers location,
  Click **Browse** and give the new drivers location now
  Then Click **OK**.

Confirm Installation	
System information	
Your operating system:	Windows 98
Your video card:	S3
Your video chipset:	357
Driver information	
Driver location:	d:\Drivers\S3\357 Browse

OK Cancel Help

3.4 Now comes up the **Driver Confirmation** window
  Click **Install** for installation

Driver Confirmation

S3 Inc. ViRGE GX2

Install Cancel Help

S3 Inc. ViRGE GX2

This driver is going to be installed onto your system.
Click "Install" to accept or "Cancel" to quit the
installation.

3.5 Installation already done, the default resolution has been set. you can change resolution under "display property" after system restarted.

4. Windows 95 & Windows 98 Setup
4.1 Installation and Setup
4.1.1 Windows 95
The Windows setup program installs and modifies all of the necessary files. Follow these steps to install the Windows 95 driver.
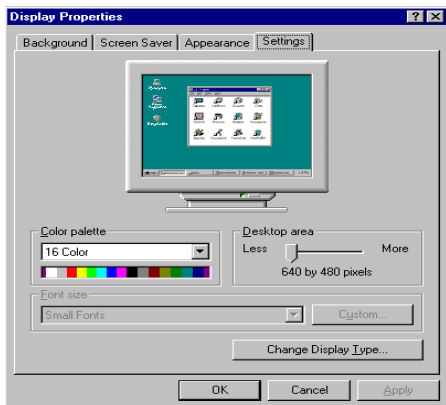- Insert the "Window 95 Driver" Installation Diskette or DISC (CD Title Driver).
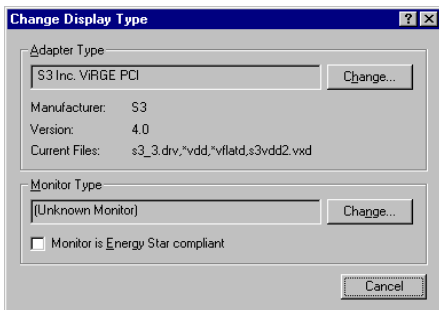- Double click **Control Panel** icon under **My Computer** group.
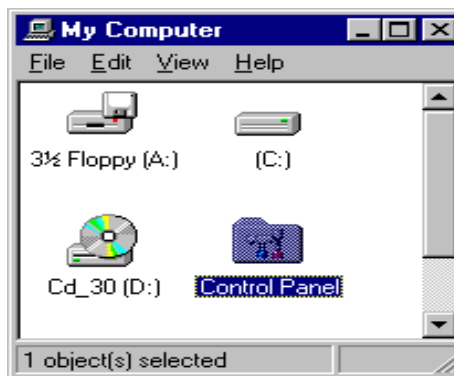
- Double-click **Display** icon under **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option form the pop-out menu.

● Choose **Settings** and Click **Change Display Type** button.

● Click **Change** Adapter Type button.

● Click the **Have Disk** button.
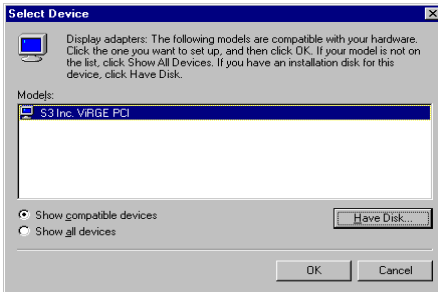
● Change directories and Select ********.INF**. Then click **OK**.
Diskette is **A: or B:\ WIN95 , Disc** (CD Title) is **D:\drivers\S3\362\WIN95**
("A:" or "B:" → Diskette Drive **"D:"** → CD Drive **"362"** → VGA type**)**
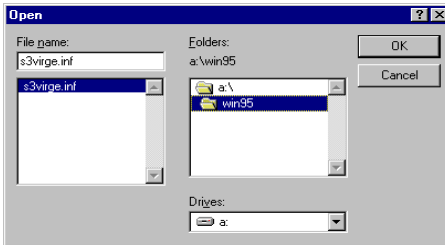
● Select **S3 Inc. Trio3D/2X** (for SP362/SP368)
    or **S3 Inc. ViRGE/MX** (for SP260)
    or **S3 Inc. Savage3D** (for SP391)
driver form the models list and click **OK** button. If a message stating that one or more driver
files is older than the files on the system respond **YES** to overwrite the files.
● Click the Close button and Apply button, and restart your computer.
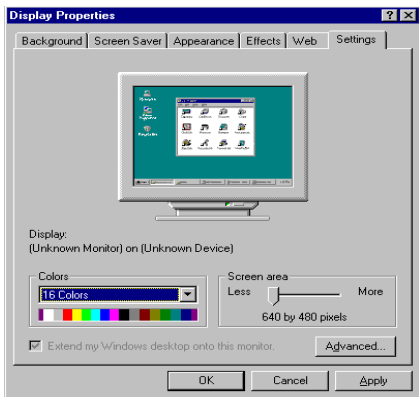
4.1.2 Windows 98

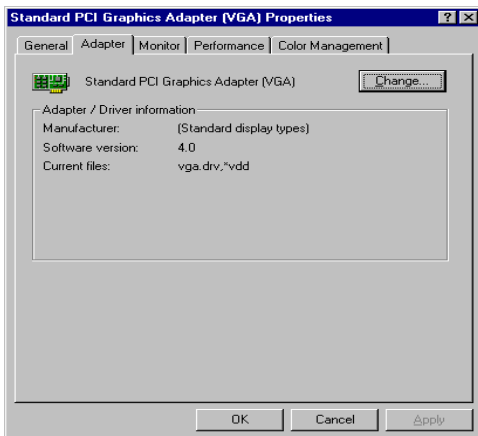- Double Click **Control Panel** icon under **My Computer** group.

- Double-click **Display** icon under **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option form the pop-out menu.
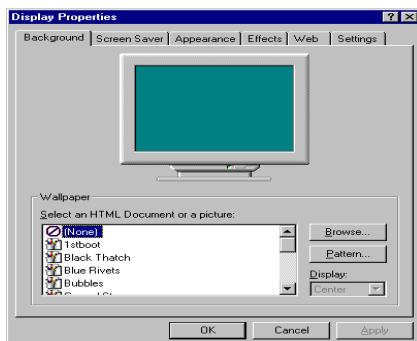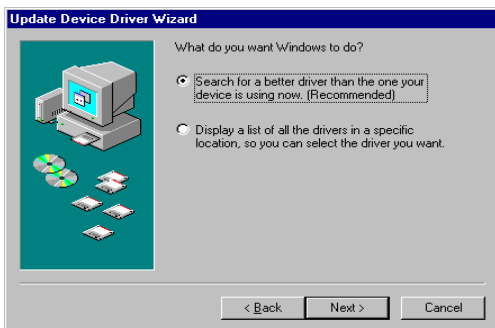
- Choose **Settings** and Click **Advanced…**.

- Select **Adapter** from Properties window and click **Change**

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- Then show **Update Device ….** window
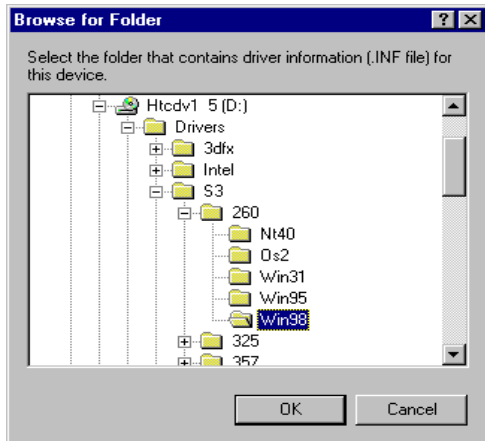 Click **Next**

- Then show another **Update Device ….** window
  Check **Search for a better……**
  Then click **Next.**

- Then comes up another **Update Device ….** window
  Check **Specify a location** and click **Browse**

- Then comes up the **Browse for Folder** window
  Select **D:\Drivers\S3\362\Win98**
  Then select **OK**
  ("D:"→CD Drive **"362"→**VGA type**)**

- Then come back the previous **Update Device Driver Wizard** window
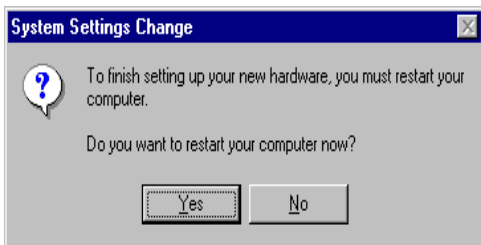 Click **Next**

- Then comes up another **Update Device Driver Wizard** window
  Select **Next**

- Then comes up the last **Update Device Driver Wizard** window
 Select **Finish**

- Now comes up **System Settings Change** window
 Click **YES** to restart the system.

4.2 How to Change Color Depth and Resolution

1   Make sure that you have installed the **Windows95/98** Driver.
2.   Click on the **Start** box in the lower left corner and proceed to **Control Panel**.
3.   Inside the **Control panel** group , click on **Display** icon to open the **Display Properties** folder and select the **Setting table**
4.   Click on the pull-down arrow from the **Color** palette area to select color depth or adjust the sliding bar to either **Less** or **More** from the **Desktop area**
5.   Select **OK** to restart **system** and new color depth or the new resolution takes effect.
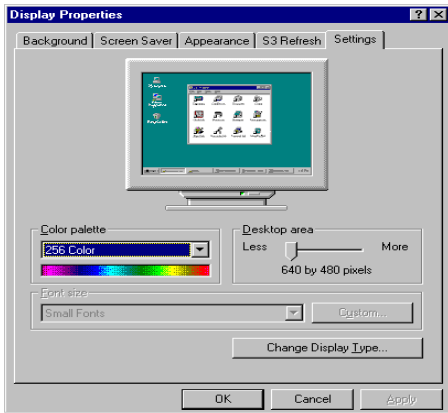
4.3 Change Refresh Rate

1. Make sure that you have installed the **Windows95** Driver. Click on the **Start** box in the lower left corner and proceed to Setting, **Control Panel**
2. Inside the **Control panel** group , click on **Display** icon to open the **Display Properties** folder and select the **S3 Refresh table**
3. Click on the **Change Configuration** to change refresh rate
4. Select **OK** and new refresh rate takes effect
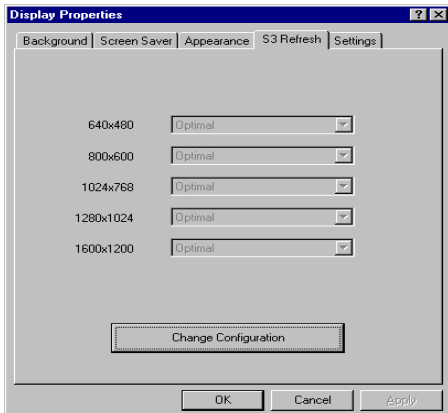
- ● **Refresh Rate default is Optimal .**
- ● **If you change Refresh Rate from Optimal to another , you must be to restart Windows95**

5. Windows NT 3.51, 4.0

The following steps describe how to install WIN NT 3.51 and 4.0 display drivers

1. Select **Control Panel** from the **Main** group.
2. Select the **Display** icon.
3. Select C**hange Display Type**.
4. Select Change from the **Adapter Type** area.
5. Select **Other**.
6. Place the **Windows NT** Installation Disk or Disc (CD Title) into Driver. Click **OK**.
7. Select I**nstall** and click "**YES**" when the Installing Driver dialog box appears.
8. When the WINDOWS NT **Setup** dialog box appears select driver A or CD- ROM, and click "**Continue**".

A message appears stating that drivers were successfully installed. Click **OK**. Another message appears stating that the driver could not be restarted dynamically. Restart **Windows NT** to run the new driver. Click **OK.**

6. OS/2 Driver Setup

6.1 Installation Instructions

1. Open an OS/2 command prompt (windowed or full screen).
2. Insert the OS/2 Installation Diskette into the floppy drive or Disc into to CD- ROM.
3. Change to the floppy drive (**A:** or **B:**) or Disc (**CD- ROM**) into which you have inserted the driver diskette or CD ROM. Verify that the diskette (Disc) is labeled "**S3 DRVS**". If it is not so labeled , then type label "**S3 DRVS**".
4. Type "**S3INST A: C:**" or "**S3INST E: C:**" and press "**Enter**"("**A**" is the floppy driver, "**E**" is the CD ROM Driver, "**C**" is the HDD driver on which OS/2. 2.1 or OS/2 3.0 WARP is installed).
5. When prompted, exit the OS/2 command prompt, remove the floppy disk, and shut down and reboot the system.
6. Make sure you have all open data files saved before continuing the **S3 driver** installation.
7. Make sure Win-OS/2 session and all Seamless Windows applications are closed (Seamless applications as Windows applications that run on top of the **PM Desktop**).
8. Double click on the "**OS/2 System**" icon.
9. Double click on the "**System Setup**" icon.
10. Double click on the "**Display Driver Install**" icon.
11. When prompted by the Display Driver install dialog, select Primary Display and then click the **OK** button.
12. Select the "**32 Bit S3 Display Driver**" option form the Primary Display and then click the OK button.
13. Select the appropriate option form the Monitor Configuration/Selection Utility dialing, and click the **OK** button.
14. The Source Directory dialog will be displayed. Make sure the source directory is set to the location form which you are installing and select install.
15. The installation Program may pause and display prompts to overwrite certain files. Please answer **YES** for each file.
16. You will be given a message stating that you Must shut down and restart your system

for the changes to take effect "**Click**" the **OK** button.

17. Remove the driver diskette form the floppy drive and Shut down and reboot.

6.2 To Change Refresh Rate

1. Load and start OS/2 and Insert the "**OS/2 drive Installation**" diskette (Disc) into your diskette (CD- ROM) drive.
2. Go to DOS full screen.
3. Copy the "**Refresh.exe**" program in the **util** directory on the "**OS/2 drive installation**" diskette to your hard disk.
4. Start the refresh program and, using the mouse, specify the refresh rate desired for each resolution you may want to run. Note that you must have your mouse driver loaded.
5. Changes are not saved when OS/2 is restarted. Therefore, you will have to return the refresh for each new OS/2 session.

APPENDIX A - Specifications

A.1 Bus Type

64-bit AGP 1X bus SP260
64-bit AGP 2X bus SP391/SP362/SP368

A.2 Video Connector
VGA standard 15 pin analog RGB
S-Video or AV connector for output to TV (SP260/SP391 only)
MDR20 for LCD PANNEL Monitor connector (SP260 only)

A.3 Graphics Accelerator

- S3 MX or name as SP260
- S3 Trio3D 2X or name as SP362
- S3 Trio3D 2X+ or name as SP368
- S3 Savage 3D or name as SP391

A.4 Display Memory

- S3 M5   : 4 M byte SGRAM (Standard)
- S3 Trio3D 2X   : 4 M byte SGRAM (Standard)
- S3 Trio3D 2X+   : 8 M byte SDRAM (Standard)
- S3 Savage 3D: 8 M byte SGRAM/SDRAM (Standard)

APPENDIX B - FCC Statement

Federal Communications Commission (FCC) Statement

RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not install and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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:

- Reorient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or and experienced Radio/TV technician for help.

Any special accessories needed for compliance must be specified in the instruction manual.

Warning: A wielded-Type power cord in required in order to meet FCC emission limits and also to prevent interference to the nearby Radio and Television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void you authority to operate the equipment.

Trademark Acknowledgments

All brand names and trademarks are the property of their owners.