TABLE OF CONTENTS

1. Feature

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

1.1 S3 Trio64V2 (775) Features

The Trio 64 V2 is a pin-compatible and software-backward-compatible upgrade to the Trio 64 V+. It has the same DRAM options as the Trio 64 V+ and is designed primarily to provide improved video performance.

The significant enhancements to the Trio 64 V+ are:

- Vertical filtering is added
- LPB decimation is changed to provide better handling of YUV/YCbCr data in addition to the Trio 64 V+ decimation scheme.
- New Streams FIFO fetching scheme based on separate N values for the primary and secondary Streams and new FIFO fetch start timing.
- Video brightness, contrast and saturation adjustment is provided.
- Color keying can be based on the index or color value for 8 bpp modes.
- Fast page mode operation is supported at 66 MHz and 1-cycle EDO operation is supported at 60 MHz.
- Odd/Even field detection provided for video input
- Blank pedestal RAMDAC support is added.
- 1-cycle linear addressing for CPU accessed to video memory.
- PCI subsystem ID and subsystem vendor ID supported.

1.2 S3 ViRGE DX/GX/GX2 (375/385/357), Trio3D (365), LC2X (362) Features

- S3 ViRGE GX/DX/GX2 based 64-bits 2D/3D Graphics/Video chip, Integrated 170 MHz True-color RAMDAC and Dual-Clock synthesizer.
- High - Performance Memory Interface Support 64BIT SGRAM(385/357) / EDO (375) Memory Including 1MB, 2MB, 4MB Capacity
- Extended Graphics Modes providing 640x480, 800x600, 1024x768, 1152x864, 1280x1024, and 1600x1200 High Resolution.
- Extended text modes providing 132x25, 132x28, 132x44, 100x40, and 80x60 resolutions.
- True Color Graphics modes providing up to 1024x768 resolutions.
- Hi-Color (16 bit/pixel) Graphics modes providing up to 1280x1024 resolutions.
- Up to 85 Hz vertical scan refresh rate.
- DDC (Display Data Channel) monitor communications support.
- Full Hardware and BIOS Support for VESA Display Power Management Signaling (DPMS) monitor power saving modes.
- Multimedia supports S3 Scenic Highway, I2C serial communications bus, and 8-bit bi-directional feature connector.
- Register and BIOS level compatibility with IBM VGA adapter.
- S3d Graphics Engine providing functions such as
    - High - Performance 2D Acceleration.
    - Flat and Gouraud Shading for 3D.
    - High Quality 3D Texture Mapping.

- Perspective Correction.
- Alpha Blending.
- Z-buffering.
- Depth Cueing and Fogging.
- MIP-mapping.
- Bi-linear and Tri-linear Texture Filtering.
- Video Texture Mapping.
- Vertical Interpolation for Video Playback.

- Improved S3® Streams Processor ™ Features
- 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 Hardware-Assisted Video Playback with Horizontal and Vertical Interpolation.
- Support for Indeo, Cinepak, and Software and Hardware-Accelerated MPEG-1 full-motion Video Playback.
- Brightness, Hue, Saturation Controls.

GX2 Enhanced Function
- 66 MHz AGP support.
- SGRAM memory support up to 83/100 MHz.
- TV output Support with
  - 3-line flicker filter.
  - Integrated NTSC/PAL encoder.
  - Underscan compensation.
  - Duo-View simultaneous output of independent images on TV and CRT.

Trio 3D Enhanced Function
- SGRAM/SDRAM memory support up to 83/100 MHz.
- Integrated 230 MHz RAMDAC.
- Enhanced 128-bit graphics engine.

LC2X (Trio3D2X) Enhanced Function
- AGP2X 133MHz

362/365 dos not support TV output function.

1.3 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//c;pcl-synthesizer core
  - Support resolution up to 1280x1024 for CRT,SXGA for TFT and DSTN(LCD)
  - 66MHz Baseline AGP
  - Supports SGRAM up to 83 MHz 4MB display memory configurations@3.3v
- ◆ 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 panels.
- 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™ 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	Panel Type	Resolution	SW[4:1]
A	TFT	640X480	1110
B	TFT	800X600	1100
C	TFT	1024X768	1010
D	TFT	1280X1024	1000

NOTE: 1: ON
0: OFF

1.4 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

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 Family (775/375/357/365)

Resolution & Colors	BPP	Refresh Rate (HZ)	1MB	2MB	4MB
640x480-256c	8	60/72/75/85	✓	✓	✓
640x480-32Kc	15	60/72/75/85	✓	✓	✓
640x480-64Kc	16	60/72/75/85	✓	✓	✓
640x480-16Mc	24	60/72/75/85		✓	✓
800x600-256c	8	56/60/72/75/85	✓	✓	✓
800x600-32Kc	15	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	✓	✓	✓
1024x768-32Kc	15	43(i)/60/70/75/85(357X)		✓	✓
1024x768-64Kc	16	43(i)/60/70/75/85(357X)		✓	✓
1024x768-16Mc	24	43(i)/60/70/75/85(357X)			✓
1152x864-256c	8	60	✓	✓	✓
1280x1024-256c	8	43(i)/60/75		✓	✓
1280x1024-32Kc	15	43(I)/60(357,365)			✓
1280x1024-64Kc	16	43(I)/60(357,365)			✓
1600x1200-256c	8	43(i)(325)		✓	✓
1600x1200-256c	8	49(I)/60(375/385)		✓	✓

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

Table 1

2.3.2 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 2

2.3.3 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 3

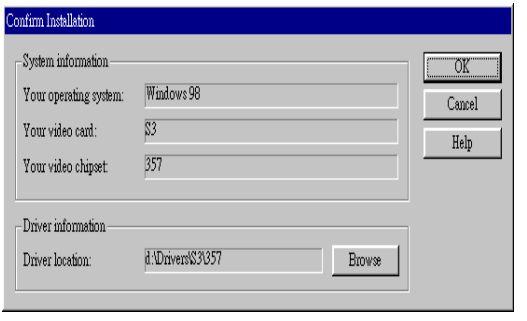
3. Smart Installation

3.1 Put the Smart Installation CD in your CD-ROM

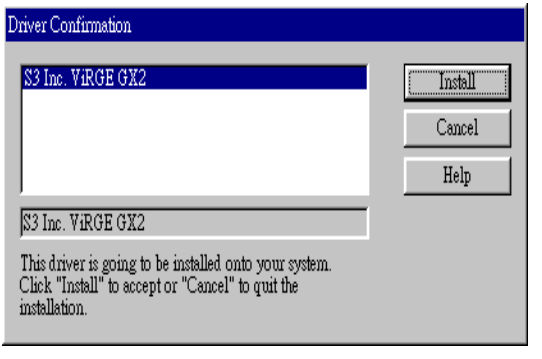
3.2 Select the **language** for you.
Then Select the **Driver installation**

3.3 Click the **Confirm Installation…**button.

Then Select the **OK**



3.4 Click the **Driver Confirmation**
Then Select the **Install**



3.5 Then restart your computer.

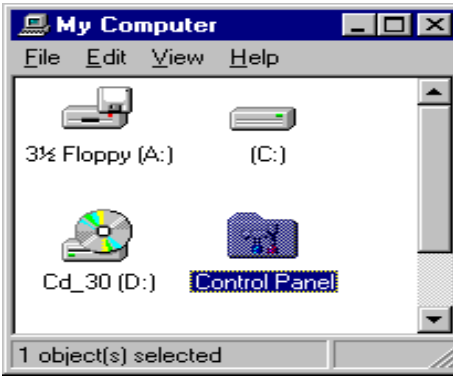
4. Windows 95 & Windows 98 Setup

4.1 Installation and Setup

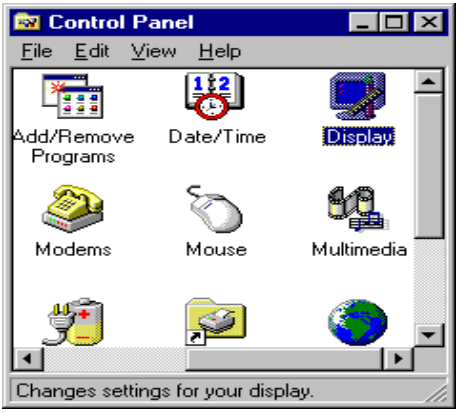
4.1.1 Windows 95

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).
- Select **Control Panel** from **My Computer** group.



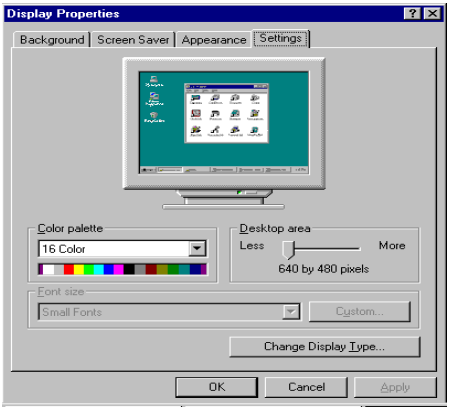
- Select the **Display** icon



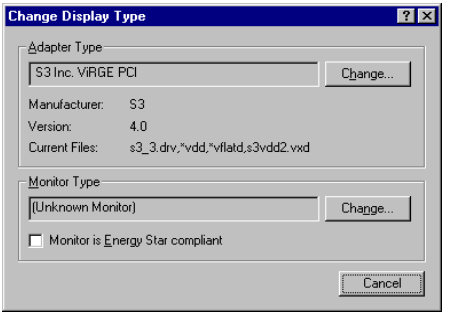
.

- Double-click on the **Display** icon in the Setting -> **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.

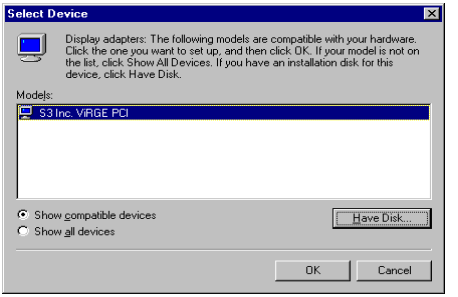
- Click the **Settings** tab.



- Click the **Change** Display Type... button.

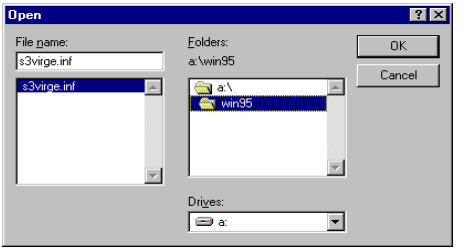


- Click the **Have Disk** button.



- Change directories and Select **S3 ViRGE.INF**.

Diskette is **A: or B:\ WIN95 , Disc** (CD Title) is **E:\drivers\S3\357\WIN95 ("A:" or "B:"→** Diskette Drive **"E:"→**CD Drive **"357"→**VGA type**)**

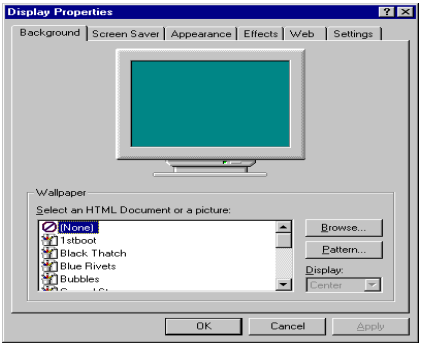


- Select **S3 Trio64 V2** PCI or S**3 ViRGE** PCI driver form the list and click the **OK** button. If a message stating that one or more driver files is older than the files on the system respond **YES** to overwrite the files.
- Click the Close button and Apply button, and restart your computer.

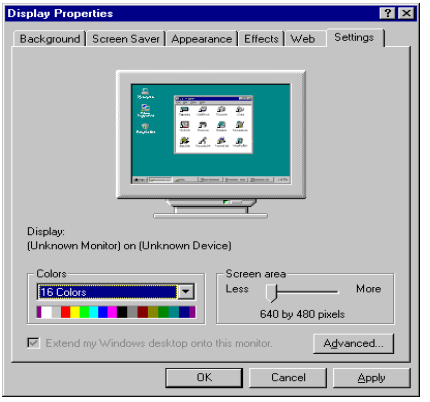
4.1.2 Windows 98

- Select **Control Panel** from **My Computer** group.

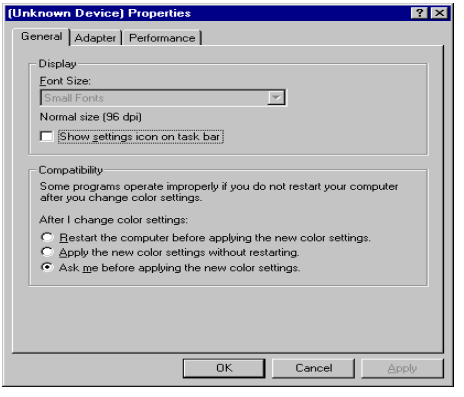
- Select the **Display** icon



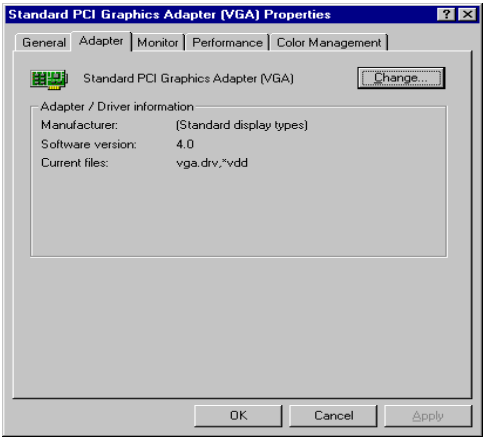
- Double-click on the **Display** icon in the Setting -> **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option form the pop-out menu.
- Click the **Settings** tab.



- Then show **[Unknown Device.] Properties** tab
  Select **Adapter**



- Then show **Standard PCI Graphics….** tab
  Select **Change**



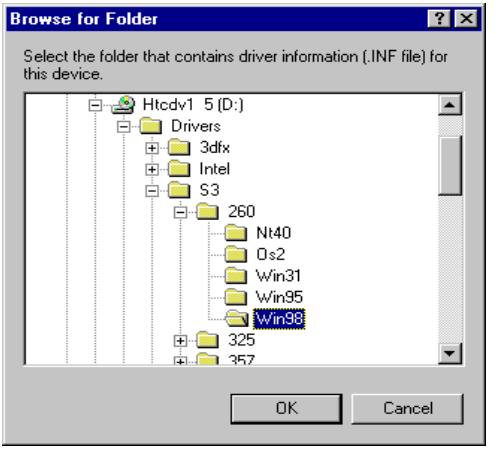
- Then show **Update Device ….** tab
  Select **Next**

- Then show **Update Device ….** tab
  Select **Search for a better……**
  Then select **Next.**

- Then show **Update Device ….** tab
  If the **Specify a location** is wrong

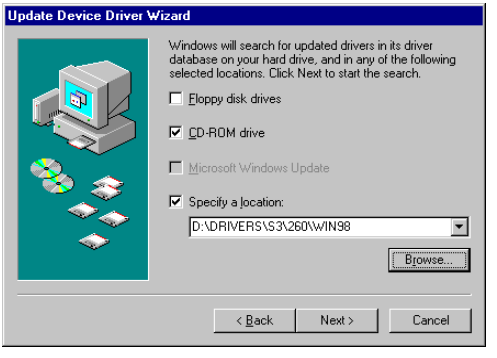
Please select **Brows**

- Then show **Browse for Folder** tab
  Select **D:\Drivers\S3\260\Win98**
  Then select **OK**

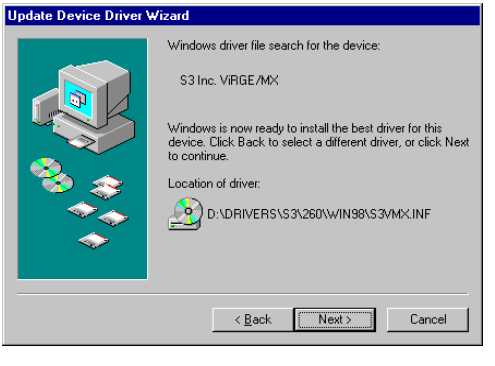


- Then show **Update Device Driver Wizard** tab
  Select **CD-ROM driver**
  Click the **Specify a locator,** if right

Then select **Next**



- Then show **Update Device Driver Wizard** tab
  Select **Next**

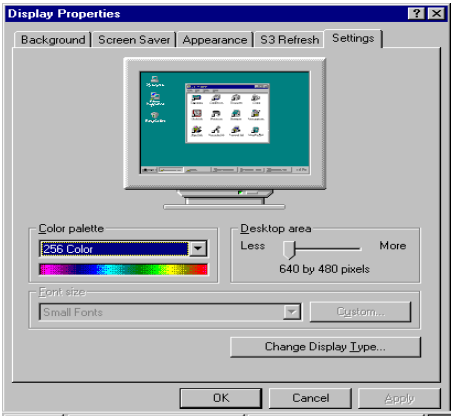


- Then show **Update Device Driver Wizard** tab
  Select **Finish**

- Then show **System Settings Change** tab
  Select **OK**

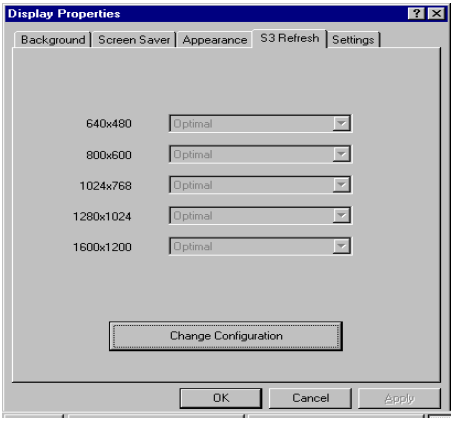
4.2 How to Change Color Depth and Resolution

1 Make sure that you have installed the **WINDOWS95** 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 **WINDOWS95** 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 WINDOWS 95**

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

32-bit PCI bus.(S3-775/375)
64-bit AGP bus (S3-357/365/260/391/362)

A.2 Video Connector (ALL MODEL)
VGA standard 15 pin analog RGB
S-Video or AV connector for output to TV (S3-357/260 optional)
MDR20 for LCD PANNEL Monitor connector (S3-260)

A.3 Graphics Accelerator

- S3 Trio 64V2 or name as s3-775
- S3 ViRGE DX or name as S3-375
- S3 ViRGE GX2 or name asS3-357
- S3 MX or name as S3-260
- S3 Trio3D or name as S3-365
- S3 Trio3D 2X or name as S3-362
- S3 Savage 3D or name as S3-391

A.4 Display Memory

- S3 Trio 64 V2 : 1 M byte (Standard), upgrade to 2 Mbytes(DRAM)
- S3 ViRGE DX : 2 M byte (Standard), upgrade to 4 Mbytes(DRAM)
- S3 ViRGE GX2 : 4 M byte SGRAM (Standard)
- S3 M5 : 4 M byte SGRAM (Standard)
- S3 Trio3D : 4 M byte SGRAM (Standard)
- S3 Trio3D 2X : 4 M byte SGRAM (Standard)
- S3 Savage 3D : 8 M byte SGRAM/SDRAM (Standard)

A.5 Monitor Compatibility

All VGA, Super VGA and Multisync.1280x1024 and 1024x768 resolution require a multi-sync monitor with, respectively, a 48 and 24x 57Khz maximum horizontal sweep rate.

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.