

EUT:VGA CARD

FCC ID:ICUVGA-GW809D

GAINWARD CO., LTD.

USER'S MANUAL

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

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. This equipment generates, uses and can radiate radio frequency energy and, if not installed 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 or relocate 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 an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Congratulations and thank you for selecting this graphics card ... Savage3D™ brings high performance 3D graphics to the mainstream PC by integrating 2D acceleration, MPEG-2 video acceleration, and leading edge 3D performance into a cost effective package. Savage3D provides the solution for the high performance consumer, corporate desktop user and entry level professional.

System Requirements

The minimum system requirements for installing the graphics card are as follows:

- a personal computer with a Pentium, Pentium II or compatible microprocessor and at least 8MB of memory
- a VGA analog monitor supporting a minimum 60Hz vertical refresh rate
- a free 32-bit AGP bus slot
- a CD-ROM drive

Features

High Performance 3D/2D/Video Accelerator

- New Single Cycle 3D Architecture
- 5M triangles/second Triangle Setup Engine
- 128-bit Dual Rendering Pipeline
- 125M pixels/sec Trilinear Fill Rate
- Full AGP 2X Implementation including Sideband Addressing and AGP Execute Mode

3D Rendering Features

- Single Cycle Trilinear Filtering
- S3™ Texture Compression
- True Color Rendering
- Void and Cluster Dithering for 16-bit Modes
- Specular Lighting and Diffuse Shading
- Alpha Blending Modes
- MPEG-2 Video Textures
- Edge Anti-Aliasing, Vertex and Table Fog, 16- or 24-bit Z-buffering
- Sprite Anti-Aliasing, Reflection and Environment Mapping, Texture Morphing, Shadows, Procedural Textures, and Atmospheric Effects

2D Acceleration Features

- Highly Optimized 128 bit Graphics Engine
- Full Featured 2D Engine for acceleration of Bitblt, Rectangle Fill, Line Draw, Polygon Fill, Panning/Scrolling and HW Cursor
- 8, 16, and 32bpp Mode Acceleration

High Speed Memory Interface

- Over 100MHz SDRAM/SGRAM with Block Write
- 64-bit Synchronous Memory Bus
- 2-, 4-, or 8MB Frame Buffer (SGRAM Version)
- SDRAM for cost savings (8MB Frame Buffer)

Motion Video Architecture

- High Quality Up/Down Scalar
- Motion Compensation
- Subpicture Blending and Highlights
- Optimized Software DVD Decoders
- Streams Processor™ for on-the-fly stretching and blending of multiple video streams
- Multiple Video Windows
- Brightness, Hue, and Saturation Controls
- 60MHz V/P Video Port allows HD/TV Resolutions
- Cableless Interface for HW MPEG-2 Decoders and Video Digitizers

High Quality TV Out (Optional)

- Integrated NTSC/PAL Encoder
- Optional Macrovision® 7.1 Support (S3 86C390 Support only)
- Programmable 3-tap Flicker Filter
- Vertical Overscan Compensation
- Simultaneous CRT and TV Display

Additional Features

- Flash ROM and I2 C Serial Communications Bus
- 250MHz RAMDAC with Gamma Correction
- PCI Power Management
- DDC Monitor Communications

Software Support

- Windows 3.1
- Windows® 95 and 98 Display Drivers
- Windows NT 4.0 and NT 3.51 Display Drivers
- OS/2 3.0 and 4.0
- Direct3D™, DirectDraw™, and Direct Video™
- OpenGL™ ICD for Windows 9X and NT

CAUTION!

- Static electricity can severely damage electronic parts. Take these precautions:
 - Before touching any electronic parts, drain the static electricity from your body. You can do this by touching the internal metal frame of your computer while it's unplugged.
 - Don't remove a card from the anti-static container it shipped in until you're ready to install it. When you remove a card from your computer, place it back in its container.
 - Don't let your clothes touch any electronic parts.
 - When handling a card, hold it by its edges, and avoid touching its circuitry.

Before You Begin

Before you process further, make sure your computer system meets the peripheral requirements and switch to the standard VGA display driver.

Prepare Your Computer for Installation

Prior to working on your computer, make sure the power of the computer and any related equipment is turned off.

Select a Vacant Expansion PCI (AGP) Slot

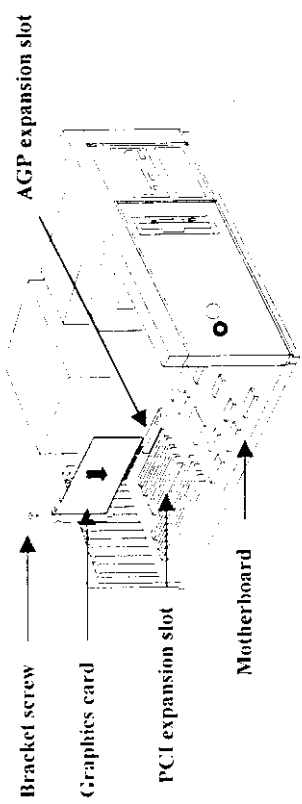
Most AGP (PCI) bus computers have a combination of AGP (PCI) and ISA expansion slots. AGP (PCI) are usually made with plastic of a contrasting brown color (beige color), and are shorter than other slots in your computer. Your system manual should identify the AGP (PCI) slots. Plugging your Graphic card into a non-AGP (PCI) slot could damage the card, your computer, or both.



AGP vs. PCI vs. ISA expansion slots

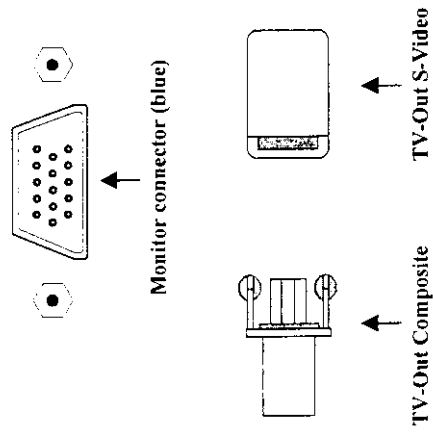
Insert your Graphic Card

Remove the cover for the slot you intend to use and save the screw for the mounting bracket. Then, pick up the Graphic card and position it over the expansion slot you've chosen. Push the card with firmly and evenly until it's fully seated in the slot. Replace the screw to secure the bracket of the Graphic card to the computer chassis.



Connect the monitor

Plug your monitor cable into the monitor connector on your Graphic card. Make sure the other end of the monitor cable is properly connected to your monitor.



Microsoft Windows 3.1 Drivers

If you are performing a driver and utility upgrade, first configure Windows for a standard Windows display driver and ensure that the Display Control Panel is not running before continuing.

SETUP DRIVER

1. Insert the Driver CD into your CD-ROM drive.
2. Change directory to Windows 3.1 at DOS prompt and type "SETUP".
3. Select "DISPLAY" [ENTER]
4. Change to "Other" [ENTER]
5. Type D:\win31 [ENTER]. (D is the letter of your CD-ROM drive)
6. Select the resolution and color which you need then click ENTER button to save the result.

Microsoft Windows 95/98 Drivers

- Before installing the Display driver, make sure your Windows 95 is installed in VGA mode and work fine.
- Please install the DirectX before you want to play the MPEG Movie Player.
- The pictures as below are only for reference under Windows 95.

SETUP VGA MODE

Click the right mouse button anywhere on the Windows 95/98 desktop and select Properties from the pop-up menu that appears on screen. Select Settings | Change Display Type (If you use the OSR2, please select Settings | Advanced Properties. If you use the Windows 98, please select Settings | Advanced) and then click the [Change] button for Adapter Type. When the Select Device dialog box appears on the screen, please select [Standard display types] from the manufactures and select Standard Display Adapter (VGA) from the Models then click OK button. (Figure 1)

SETUP DRIVER

1. Turn on your computer and start Windows 95/98.
2. Insert the Driver CD into your CD-ROM drive.
3. Click the Start button on the task bar. Select Run and type D:\Cdsetup.exe [Enter] in the Run dialog box. (D is the letter of your CD-ROM drive)
4. The PowerStrip Setup Wizard dialog box will appear on the screen, please click Next button to begin the installation. (Figure 2)

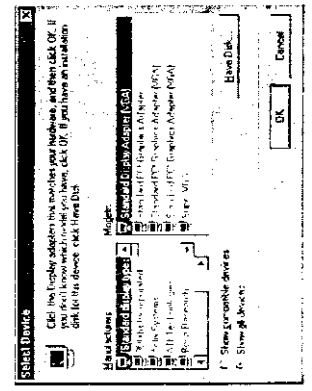


Figure 1

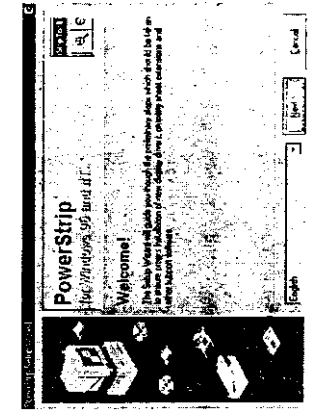


Figure 2

5. Choose the Select all for removal (files will not be deleted) check box as Figure 3 and then click Next button to continue the installation.
6. Finally, click Finish button as Figure 4 to complete the PowerStrip Setup.

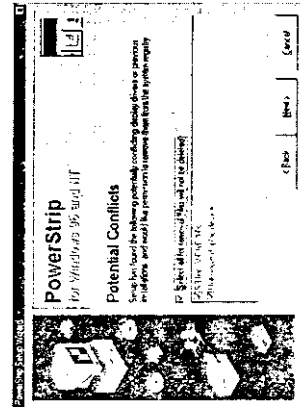


Figure 3

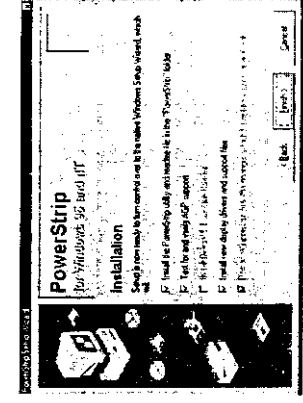


Figure 4

7. At the same time during the installation, the driver will also choose the correct path and VGA card automatically so that you can easy to finish the installation. Click OK button. (Figure 5) In Advanced Display Properties dialog box, click Close button.
8. If the driver doesn't choose the correct path and VGA card automatically, please click the right mouse button anywhere on the Windows 95/98 desktop and select Properties from the pop-up menu that appears on screen. In Display Properties, select Settings | Change Display Type (If you use the OSR2 please select Settings | Advanced Properties) and then click the Change | Have Disk button and enter the path to the driver installation diskette (e.g., D:\win95). Click OK button and follow the instructions on screen to install.

9. When the **Display Properties** dialog box appears on the screen, please click **OK** button to restart your computer so that the settings you choose can take effect. (Figure 6)

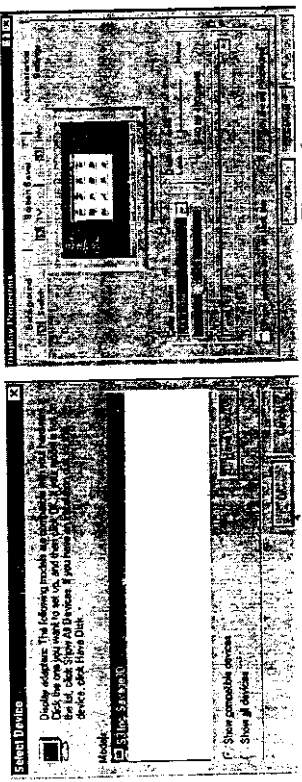


Figure 5

If you use the Win98 please select **Settings | Advanced | Adapter**. Click the **Change | Next** button. In **Update Device Driver Wizard** dialog box, choose the second checkbox: Display a list of all the drivers in a specific location, so you can select the driver you want. Then click "next" and click "Have Disk" button and follow the instructions on screen to finish the installation.

Microsoft Windows NT4.0 Drivers

If you are running Windows NT, please note that drivers for NT are not compatible with earlier releases of NT, and vice versa. Consult your dealer, local user support groups or on-line services from time to time to ensure you have the latest release for the version of NT you are running.

To use an **AGP graphics card with NT4.0**, you may need to **pre-install NT** with **Service Pack 3 (SP3)** before installing the **AGP card**.

SETUP DRIVER

1. Turn on your computer and start Windows NT.
2. Insert the **Driver CD** into your **CD-ROM** drive.
3. Click the **Start** button on the task bar. Type **D:\Cissetup.exe [Enter]** in the **Run** dialog box. (D is the letter of your **CD-ROM** drive)
4. The **PowerStrip Setup Wizard** dialog box will appear on the screen, please click the **Next** button to begin the installation.
5. Finally, click **Finish** button to complete the **PowerStrip Setup**.
6. At the same time during the installation, the driver will also choose the correct path and **VGA** card automatically so that you can easy to finish the installation.

7. If the driver doesn't choose the correct path and **VGA** card automatically, please click the right mouse button anywhere on the **Windows NT** desktop and select **Properties** from the pop-up menu that appears on screen. In **Display Properties**, select **Settings | Display Type** and then click the **Change | Have Disk** button and enter the path to the driver installation diskette (e.g., **D:\winNT4**). Click **OK** button and follow the instructions on screen to install.
8. When the **Display Properties** dialog box appears on the screen, please click **Close** button to restart your computer so that the settings you choose can take effect.

Windows 95/98/NT Display Properties

Windows 95/98/NT allows you to select resolution, color depth, refresh frequency and font size using the standard **Windows 95/98/NT Display Properties** sheet, which can be accessed by right clicking anywhere on the **Windows 95/98/NT** desktop, and then selecting **Properties** from the pop-up menu that appears on screen.

Flash ROM Upgrade

1. Copy the utility from your **CD** directory "**DOS\FLASH1**" to your harddisk.
2. Type **s3flash.exe <Rom file>** to update your **ROM** file (**Rom** file can be downloaded from the web site).

You can switch your Monitor and TV in the Display Properties dialog box. The path is Display Properties | Switch. (Figure 10)
 The pictures as below are only for reference under Windows 95.
 If you want to use the TV function please select the TV Check box.

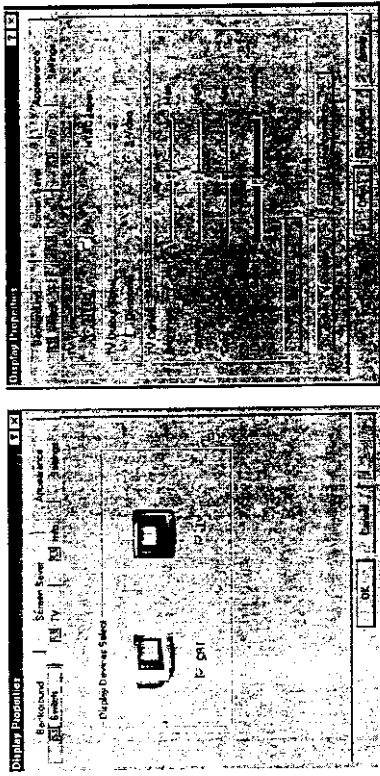


Figure 10

If you want to use TV function with the Video RCA CONNECTOR, please select the Composite Check box. On the other hand, if you want to use TV function with the S-Video CONNECTOR, please select the S-Video Check box. (Composite and S-Video can not be selected simultaneously).

TV Control: Allows you to adjust the TV Brightness, Contrast, Color and Tint. Default Button: Allows you to set the TV Brightness, Contrast, Color and Tint to BIOS default value.

Adjust TV Position Button: Click this button to invoke the Adjust TV Position controls to shift the position of images displayed on TV Screen horizontally and/or vertically.

TV Enhancements Button: Allows you to invoke a dialog box to set the TV Flicker Filter, Horizontal Size and/or Vertical Size.

TV-TYPE reference table

NTSC	ASIA: JAPAN, SOUTH KOREA, TAIWAN AMERICA: USA, CANADA
PAL	ASIA: SINGAPORE, INDONESIA, THAILAND, HONGKONG, CHINA, NORTH KOREA EUROPE: GERMANY, DENMARK, ITALY, ENGLAND, IRELAND AUSTRALIA: NEW ZEALAND, AUSTRALIA AFRICA: SOUTH AFRICA

Figure 11

The PowerStrip is a display control and desktop enhancement utility for Windows 95/98/NT, specially designed and optimized for use with your graphics accelerator or monitor. You should think of the PowerStrip as a kind of supplementary "device driver" which works in conjunction with your accelerator's display driver, and allows you to get the most from your monitor.

For maximum compatibility and flexibility, the PowerStrip program and drivers are loaded and unloaded *dynamically*, but note that many of the features the program provides are only available while the PowerStrip is running.

Starting the Power Strip

1. When you install the PowerStrip, the program and on-line documentation is added to the PowerStrip folder under the Windows Start menu.
2. To start the PowerStrip, click Start | Programs | PowerStrip | PowerStrip.
3. Change the PowerStrip interface to the language of your choice at any time, by clicking the PowerStrip | Advanced options | About the PowerStrip | Appearance.

Removing the PowerStrip from your system

1. To subsequently remove the PowerStrip, click the Start | Settings | Control Panel | Add-Remove Programs.
 2. The Add/Remove Programs Properties dialog box will appear on screen, select PowerStrip (remove only) from the list of programs on the Install/Uninstall page.
 3. Then click the Add/Remove button.
- Before removing the PowerStrip from your system, it is a good idea to first switch to PowerStrip "safe mode". When you uninstall the PowerStrip, you remove all program files related to the program.

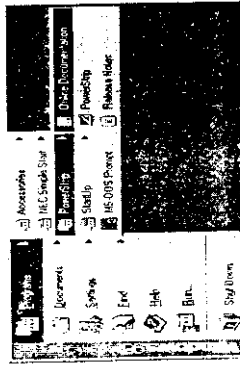


Figure 7

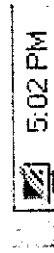


Figure 8



Figure 9

Problem: After installation and restarting, Windows 95 informs me that display setting is still incorrect. What can I do?
There may be conflict between previous and current display drivers. This is caused by not complete removal of previous display driver. Try the following steps to remove it:

Solution:

- (1) Use right button of mouse to click on "My Computer" icon on desktop.
- (2) Select "Properties" and "System Properties" box appears
- (3) Click on "Device Manager" tab
- (4) You will see a list of devices on your computer.
- (5) Open "Display adapters" in the list (double click it).
- (6) You will find two (or more) conflicted adapters listed here.
- (7) Remove all previous adapters by selecting them and press "Remove"
- (8) Close Device Manager and restart Windows 95.
- (9) Now display driver will work correctly.

Problem: After installing the driver, Windows 95 doesn't prompt me for restarting and the driver still doesn't work after I reboot it by myself.
You may have installed similar drivers before. Try the following steps to install:

Solution:

- (1) Use right button of mouse to click on "My Computer" icon on desktop.
- (2) Select "Properties" and "System Properties" box appears
- (3) Click on "Device Manager" tab
- (4) You will see a list of devices on your computer.
- (5) If "Display adapters" appears in the list, click it.
If "Display adapters" doesn't appear, jump to step 9 and continue.
- (6) The name of your card will be listed in the box. Double click it.
- (7) The properties box of your card appears. Select "Driver" tab.
- (8) Click "Change Driver..." and follow the installation steps.
- (9) Click "Other devices" you will see your card is listed.
- (10) Click on the name of card, the properties box appears.
Select "Driver" tab.
- (11) Click "Change Driver..." and follow the installation steps.

Problem: When using VIA MVP3 Main Board, the system will hang up under the 37 item (Texture swapping) of 3Dwinbech's Quality. (But it is normal with 440LX/BX)

Solution: This question will be fixed in the future driver.

When you need advanced technique service, please Complete this form and FAX to your dealer.

Your name: _____ Phone : _____

Product S/N: _____ PCB NO.: _____

HARDWARE CONFIGURATION

Mainboard Chipset:	CPU Clock:	MHz
Mainboard CPU:	VGA Memory Type:	MB
Mainboard Memory:	VGA Memory	MB
Mainboard Brand:	VGA Memory Brand:	
Cache Memory:	FDD/HDC Card:	
Monitor:	Horizontal Freq.:	KHz to KHz
	Vertical Freq.:	Hz to Hz

Other Cards on Mainboard:

Note:

6 Trouble Shooting

SOFTWARE CONDITION
CONFIG.SYS:
AUTOEXEC.BAT:
Operation System or Test Program:
Application Software or Test Program:
Problem Description:
Note:

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