ASUS® AGP-V3100 Series

3D Multimedia Accelerator

USER'S MANUAL

Hardware & Video Drivers

AGP-V3100T
AGP-V3100TV

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Product Name:	**ASUS AGP-V3100 Series**
Manual Revision:	**1.00 E287**
Release Date:	**October 1998**

ASUS CONTACT INFORMATION

ASUSTeK COMPUTER INC.
Marketing
Address: 150 Li-Te Road, Peitou, Taipei, Taiwan 112
Telephone: +886-2-2894-3447
Fax: +886-2-2894-3449
Email: info@asus.com.tw

Technical Support
Fax: +886-2-2895-9254
BBS: +886-2-2896-4667
Email: tsd@asus.com.tw
WWW: www.asus.com.tw
FTP: ftp.asus.com.tw/pub/ASUS

ASUS COMPUTER INTERNATIONAL
Marketing
Address: 6737 Mowry Ave, Mowry Business Center, Building 2,
                Newark, CA 94560, USA
Fax: +1-510-608-4555
Email: info-usa@asus.com.tw

Technical Support
Fax: +1-510-608-4555
BBS: +1-510-739-3774
Email: tsd-usa@asus.com.tw
WWW: www.asus.com
FTP: ftp.asus.com.tw/pub/ASUS

ASUS COMPUTER GmbH
Marketing
Address: Harkort Str. 25, 40880 Ratingen, BRD, Germany
Telephone: 49-2102-445011
Fax: 49-2102-442066
Email: info-ger@asus.com.tw

Technical Support
Hotline: 49-2102-499712
BBS: 49-2102-448690
Email: tsd-ger@asus.com.tw
WWW: www.asuscom.de
FTP: ftp.asuscom.de/pub/ASUSCOM

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CONTENTS

FCC & DOC COMPLIANCE

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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 installed and used in accordance with manufacturer's 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 to 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.

> **WARNING!** The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

I. Introduction

Thank you for purchasing the ASUS AGP-V3100 Series Graphics & Video Accelerator. With S3 Inc.'s Savage3D™ accelerator built in, the ASUS AGP-V3100 Series Graphics & Video Accelerator provides you with fast acceleration in both 2D/3D graphics and high quality scalable video playback, which can fully support 3D Gaming and Multimedia Applications.

Item Checklist

The AGP-3100 Series graphics cards can only be installed in motherboards with an AGP slot.

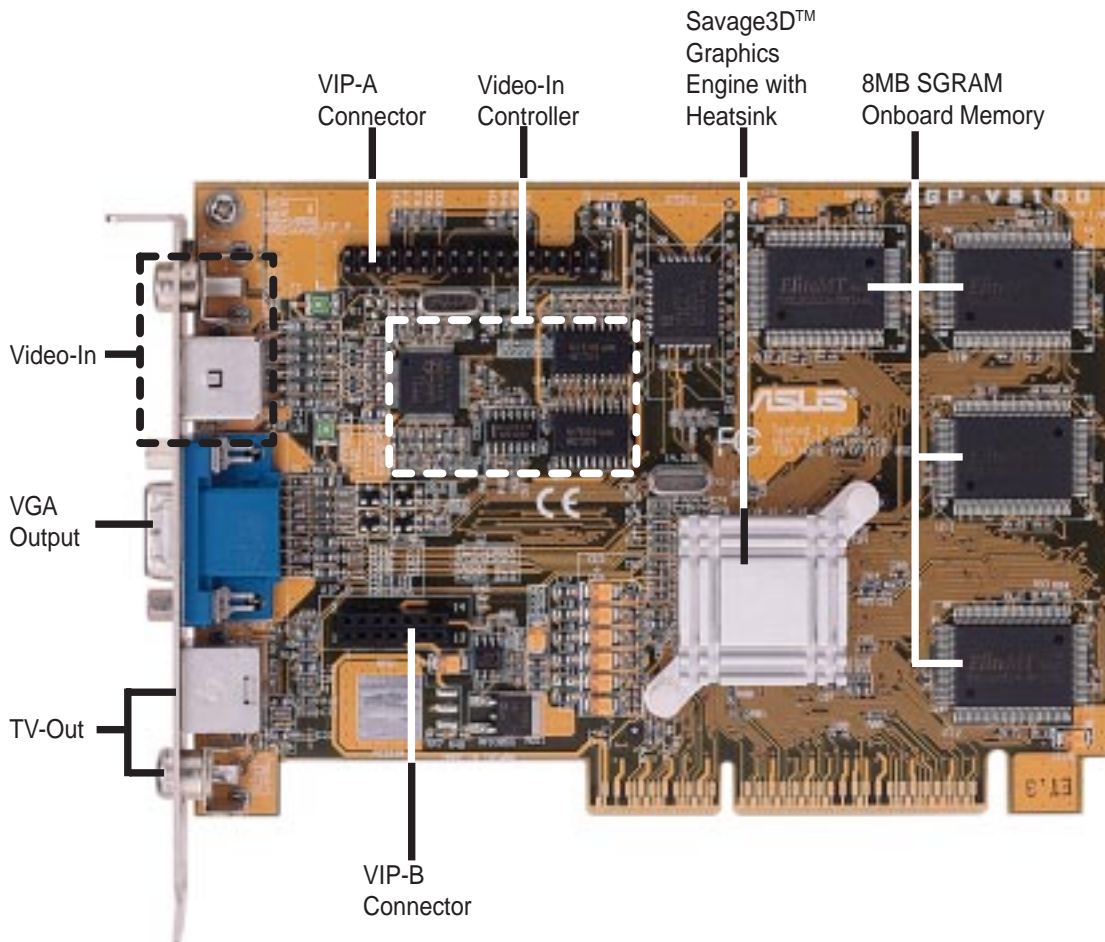| **Basic Model**	**Advanced Model**
☑ ASUS AGP-V3100T	☑ ASUS AGP-V3100TV
☑ This User's Manual	☑ This User's Manual
☑ ASUS Driver & Utility CD	☑ ASUS Driver & Utility CD
☑ (1) S-VHS Cable	☑ (2) S-VHS Cable
☑ (1) Composite Cable	☑ (2) Composite Cable
☐ Software DVD Player (optional)	☐ Software DVD Player (optional)

Features

- Built-in 128-bit Savage3D™ Graphics Engine Accelerator
- 128-bit 2D, GUI, and DirectDraw Acceleration
- 8MB 125MHz SGRAM frame buffer
- X and Y up and down video scaling
- Software VCD Player (MPEG-1)
- Software DVD Player (MPEG-2) with motion compensation
- 250MHz Palette-DAC
- Built-in VIP Bus Connectors for TV Tuner, Video Capture, MPEG-1, and MPEG-2
- Acceleration for Windows 95 APIs, including Direct3D and DirectDraw (+ VPE)
- User-friendly installation for Windows 95 and Windows 98
- Video-In (AGP-V3100TV only)
- Flicker-free TV-Out
- Video Capture Utility for Live Video/Still Image Capture (AGP-V3100TV only)
- Full AGP2X support (sideband addressing and AGP execute mode)
- High quality texture compression for 6 times the amount of texture storage and AGP bandwidth
- Video Texture

I. Introduction

ASUS AGP-V3100 Series
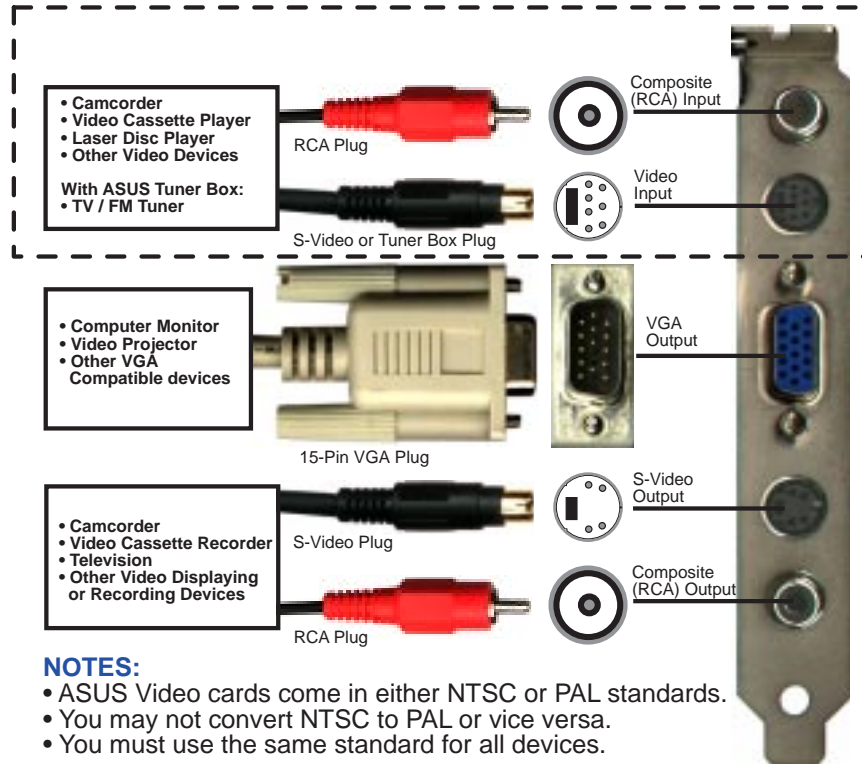
NOTE: Components enclosed in dotted boxes are available only in the AGP-V3100TV models

VIP-A Connector

Video-In Controller

Savage3D™ Graphics Engine with Heatsink

8MB SGRAM Onboard Memory

Video-In

VGA Output

TV-Out

VIP-B Connector

II. Hardware Installation

AGP-V3100 Series Connection Examples

NOTE: Components enclosed in dotted boxes can only be used or are available only in the AGP-V3100TV models

- Camcorder
- Video Cassette Player
- Laser Disc Player
- Other Video Devices

With ASUS Tuner Box:
- TV / FM Tuner

RCA Plug

S-Video or Tuner Box Plug

Composite (RCA) Input

Video Input

- Computer Monitor
- Video Projector
- Other VGA Compatible devices

15-Pin VGA Plug

VGA Output

- Camcorder
- Video Cassette Recorder
- Television
- Other Video Displaying or Recording Devices

S-Video Plug

RCA Plug

S-Video Output

Composite (RCA) Output

NOTES:
- ASUS Video cards come in either NTSC or PAL standards.
- You may not convert NTSC to PAL or vice versa.
- You must use the same standard for all devices.

CATV → ASUS TV Box
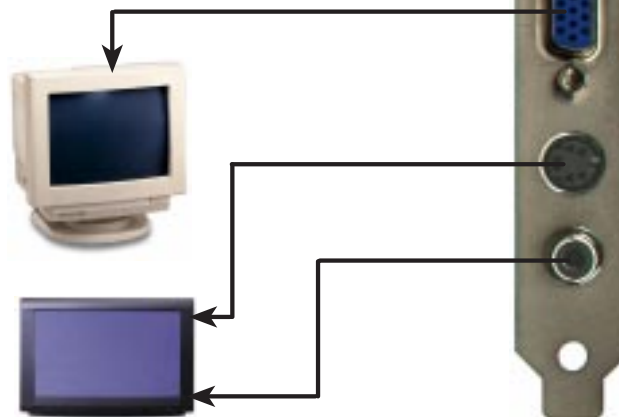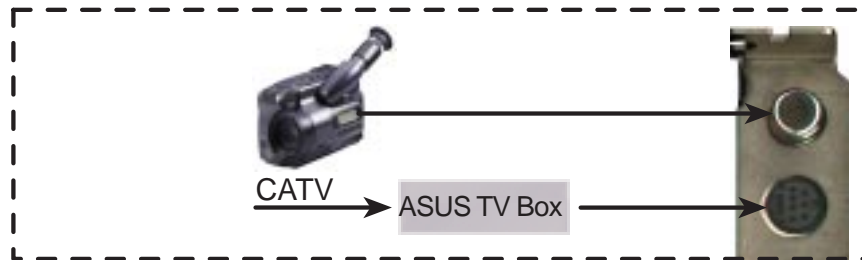
II. Hardware Installation

NOTE: Your graphics card can only be installed in motherboards with an AGP slot.

> **WARNING!** Computer boards and components contain very delicate Integrated Circuit (IC) chips. To protect the computer board and other components against damage from static electricity, you must follow some precautions.
> 1. Make sure that you unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.
> 2. Keep all components such as the host adapter in its antistatic bag until you are ready to install it.
> 3. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case. Hold components by the edges and try not to touch the IC chips, leads, or circuitry.
> 4. Place components on a grounded antistatic pad or on the bag that came with the component whenever the components are separated from the system.

Installation Procedures

New Systems

1. Unplug all electrical cords on your computer.
2. Remove the system unit cover.
3. Locate the AGP bus expansion slot. Make sure this slot is unobstructed.
4. Remove the corresponding expansion slot cover from the computer chassis.
5. Ground yourself to an antistatic mat or other grounded source .
6. Pick up the board (still in its sleeve) by grasping the edge bracket with one hand and then remove the plastic sleeve.
7. Position the card directly over the AGP slot and insert one end of the board in the slot first. Firmly but gently press the bus connector on the bottom of the card down into the slot. Be sure the metal contacts on the bottom of the host adapter are securely seated in the slot.
8. Anchor the board's mounting bracket to the computer chassis using the screw from the slot cover that you set aside previously.
9. Replace the cover on the system unit.
10. Connect your analog monitor's 15-pin VGA connector to the card and fasten the retaining screws (if any).
11. Connect other cables and devices if available - You are now ready to install the software drivers and utilities.

Systems with Existing VGA Card

1. Change your display driver to Standard VGA.
2. Shut down your computer and unplug all electrical cords.
3. Replace the existing VGA card with the ASUS AGP-V3100 series graphics card.
4. Restart your computer.
5. Install the ASUS AGP-V3100 series display driver.

III. Windows 95/98

Operating System Requirements

> **IMPORTANT!** The ASUS AGP-V3100 series requires its own IRQ to work normally. If you have problems during installation, please check your BIOS setting or motherboard jumpers to make sure that "VGA INT/IRQ" has been enabled.

NOTE: The AGP-V3100 Series graphics cards require a motherboard with an AGP slot.

Windows 95 OSR2.0

Windows 95 OSR2.0 support AGP cards, but to take advantage of all the AGP features, you must use Windows 95 OSR2.0 and install the USB upgrade and then install the VGARTD driver for the corresponding chipset on your motherboard. (see **III. Windows 95/98 Install VGARTD**).

To install Win95 OSR2.0 with USB, you must have OSR2.0 installed already. Otherwise, first install OSR2.0 and then use the USB support update (you must use the same update language of your Windows language). On the April 1997 MSDN Disc-1 "Windows 95, SDKs, and Tools", OSR2.0 is found in "\OSR2" while the USB support update is found in "\OSR2\USBSUPP". To determine the installed version of the operating system, look in the registry at:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Version
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\VersionNumber

OSR2.0 with USB has:
Version "Windows 95" and VersionNumber "4.03.1212" or "4.03.1214".

Windows 98

Only Windows 98 supports full Direct3D and AGP features. If you are not using Windows 98 and you want to fully take advantage the Direct3D and AGP features, you must upgrade your current Windows to Windows 98 before installing the AGP display driver.

Windows 98 includes VGARTD for the major chipsets but it is recommended that you install VGARTD from the AGP-V3100 Series CD to make sure that you have the latest version of VGARTD.

This Manual assumes that your CD-ROM disc drive is drive **D:** *and that MS Windows resides in* **C:\WINDOWS**. *Replace either with the actual location, if necessary.*
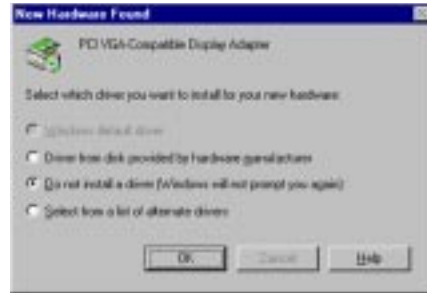
III. Windows 95/98

Installation Procedures

"New hardware found" refers to the prompt for drivers when installing Windows 95 with the ASUS AGP-V3100 series VGA card already installed.

When installing Windows 95, a **New Hardware Found** window will appear:

Select **Do not install a driver** and follow the steps on the next page.

When installing Windows 95 OSR2.0, the **Update Device Driver Wizard** window will appear:

This wizard will complete the installation of the Standard PCI Graphics Adapter (VGA). Click **Next >** to let Windows search for an updated driver.

WARNING! Only click **Next >**. The system will hang if you click **Cancel**.

Click **F**inish to install the VGA driver. You will then be asked for your Windows95 CD in order to complete the VGA driver installation. If you do not have your CD handy, direct the installation path to your **\Windows\System** directory. Windows will prompt you to restart your windows. Choose "**No**" and follow the steps on the next page.

Install All Drivers and Utilities

Insert the installation CD disc. The **ASUS AGP-V3100 Install Shell** appears. If it does not appear, run **D:\setup.exe**. You will be presented with a list of install options.

Click **Install All Drivers and Utilities** to install all the drivers and utilities into your computer. Setup will install the drivers and utilities in the following sequence: Display Driver, DirectX 6 runtime libraries, Video Player, and VGARTD driver.

If you prefer to install the drivers and utilities individually, follow the steps on the following pages.

III. Windows 95/98

Install VGARTD

Insert the installation CD disc. The **ASUS AGP-V3100 Install Shell** appears. If it does not appear, run **D:\setup.exe**. You will be presented with a list of install options.

Click **Install VGARTD**.
A message appears that the VGARTD driver is only required for AGP boards. Click <u>**Yes**</u> to proceed to install the VGARTD driver.
The **AGP VGARTD Driver Detection** dialog box appears displaying the chipset on your motherboard that the program detected.

Click **OK** to install the driver for your chipset.

Installation dialogs are slightly different for each chipset. Follow the onscreen instructions to complete the VGARTD installation. The following steps are for Intel chipsets.

In you opted to select other drivers, you will be presented with a drop-down list of other drivers. In the driver selection list, click the VGARTD driver for your chipset and then click <u>**Install**</u>.

The VGARTD driver setup program **Welcome** dialog box appears. Click <u>**Next**</u> to continue.

When the setup program is finished installing the VGARTD driver for your chipset, the **Setup Complete** dialog box appears. Click **Finish** to complete the setup.

III. Windows 95/98

Install DirectX 6

Install Microsoft DirectX 6 with this feature. DirectX allows 3D hardware acceleration support in Windows 95. For Software MPEG support in Windows 95, you must first install the **Microsoft DirectX 6** libraries, then you may install the Video Player.

Insert the installation CD disc or double click the CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD. Click **Install DirectX 6.**

Click **Yes** to install Microsoft DirectX 6.

Click **Yes** after reading the agreement.

Click **OK** after installing DirectX 6.
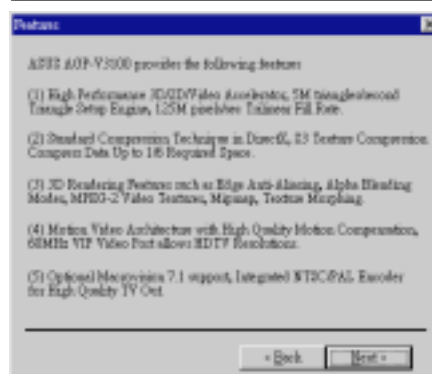
III. Windows 95/98

Install AGP-V3100 Display Driver

Insert the installation CD disc or double click the CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD. Click **Install AGP-V3100 Display Driver** to install the display driver.
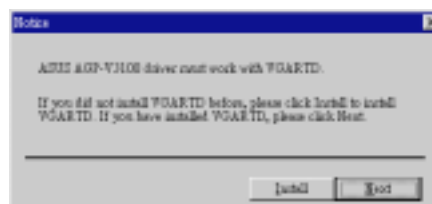
The welcome screen appears. Click **Next**.

The features screen appears. Click **Next**.

A notice will appear depending on whether you have installed Windows OSR2.0 or not. If your system is not OSR2.0 or later, you will be asked to upgrade. Otherwise, you will be asked to install VGARTD if you have not yet.

If your Windows is OSR2.0, the installation program will start copying files to your hard disk once you click **Next**.

When the driver installation is completed, you will be prompted to restart Windows. Click **Finish** to restart your computer.

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III. Windows 95/98

Install Video Player

Install "PowerPlayer" video player with this feature. A video player allows you to view Video CD (*.DAT) or MPEG (*.MPG) CD titles.

Insert the installation CD disc or double click the CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD.
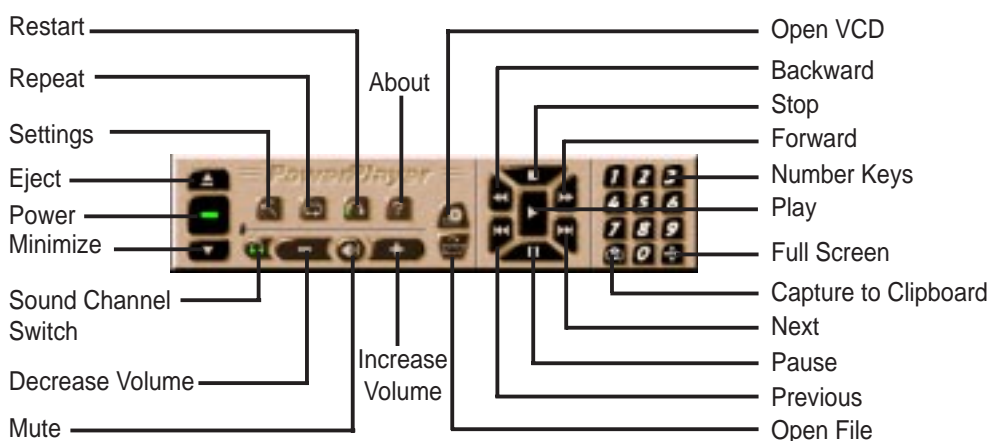

Follow the self-explanatory instructions to complete the installation.

Using the Video Player

Moving your cursor over the buttons will give the button name as shown.

NOTE: It is strongly recommended that you run PowerPlayer at low resolutions (1024x768 or lower) and refresh rates (below 85Hz). Higher resolutions or refresh rates result in poor quality and may cause problems.

III. Windows 95/98

Change Resolution and Color

You can change your display settings with this feature.

TV Setting

NOTE: 1) This tab appears only if a TV is connected to either S-Video or Composite out connector (S-Video provides better quality) and turned on; 2) TV mode is only available in 640x480 mode.

TV Setting allows you to set different TV options, such as **TV Type** and **TV Output Signal**. For advanced features, click **Advance Setting**.

Advance Setting

This allows you to see **Information** about your card, **Adjust TV Position**, and make **TV Enhancements**.

Information
This allows you to see relevant information about your display card, such as **VGA Chipset**, and **BIOS Version**.

Adjust TV Position
This allows you to adjust the horizontal/vertical screen size and screen display position of your TV.
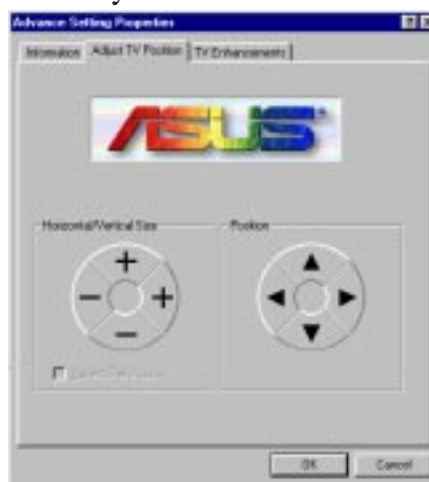
TV Enhancements
This allows you to adjust TV output signals, such as **Flicker Filter** (adjusts the anti-flicker effect and picture sharpness) and **TV Control** (*Brightness* adjusts the brightness of the dark portions of the picture; *Contrast*, the overall brightness and contrast of the picture; *Color*, the amount of color in the picture; and *Tint*, the color of flesh tones) of your TV display.

III. Windows 95/98

Refresh Rate

Refresh Rate allows you to change the refresh rates of your monitor.

To Adjust the Refresh Rates

1. Click the **Change Configuration** button. The refresh rate dialog box appears.
2. Select the desired refresh rate in the combo boxes shown, that is, **640x480**, **800x600**, **1024x768**, **1152x864**, **and 1280x1024**, **1600x1200**.
3. Click **OK** when finished.

III. Windows 95/98

Remove Display Driver

If you want to install other graphics cards or if you no longer need the AGP-V3100 display drivers, you can use one of the following procedures to completely uninstall the drivers from Windows 95 to save disk space.

Using the Autorun Screen

Insert the installation CD disc or double click the CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD. Select **Remove Display Driver** and follow the directions.
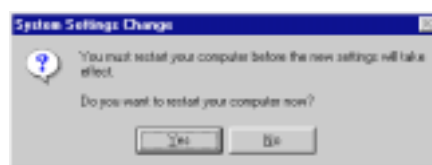
Using Control Panel

1. Click **Start**, and then point to **Settings**.
2. Click **Control Panel**.
3. Double-click the **Add/Remove Programs** icon.
4. Click the **Install/Uninstall** tab.
5. Select ASUS VGA driver from the list**.**
6. Click **Add/Remove**.

You will be warned that files will be deleted. Click **Yes** to continue.

III. Windows 95/98
Remove Driver

IV. Windows NT 4.0

Install NT4.0 Display Driver

> **WARNING!** Before installing the ASUS AGP-V3100 series display driver in Windows NT 4.0, make sure that you have installed **Windows NT 4.0 Service Pack3** (You must use the same update language of your Windows language available on the Internet at http://www.microsoft.com/isapi/support/bldqpage.idc?ProductPage=q_servpk)**.** Otherwise, the system will hang and will not be able to start up!

NOTE: The following procedures assume that your CD-ROM drive letter is D. To have all the AGP features, you must be using Windows NT 5.0.

1. Insert the installation CD disc or double click the CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD disc.
2. Click the **Settings** tab.
3. In the refreshed **Display Properties** dialog box, click **Chnage Display Type**.
4. In **Adapter Type** under **Display Type**, click **Change.**
5. In **Change Display**, click **Have Disk...** and then select the path to the NT 4.0 driver, that is, D:\NT40\.
6. In the newly created **Select Device** item, **AGP-V3100 Vx.xx.xx Enhanced Driver** appears. Click **OK** to start copying files.
7. After completing the installation, NT 4.0 will go back to the **Change Display Type** box.
8. Click **Close** or **Apply**.
9. In **System Settings Change**, select **Yes** to restart your computer.
10. After restarting, NT 4.0 will run on 640x480x256 color, 60Hz vertical refresh rate, NI (non-interlaced)

IV. Windows NT 4.0

Remove NT4.0 Display Driver

If you want to install other graphics cards or if you no longer need the AGP-V3100 display drivers, you can use the following procedures to completely uninstall the drivers from Windows NT 4.0 to save disk space.

Insert the installation CD disc or double click on your CD drive icon in My Computer to bring up the autorun screen or run Setup.exe in the root directory of the CD. Select **Remove NT 4.0 Display Driver** and follow the directions.

IV. Windows NT
Remove Driver

V. Display Information

Resolution Table: 2D Video Modes

Resolution	Vertical Frequency	Horizontal Frequency	Supported Color Depth		
			8bpp = 256 colors Standard	16bpp = 65K colors High Color	24bpp = 16.7M colors True Color
640 x 480	60Hz	31.5KHz	yes	yes	yes
	72Hz	38.0KHz	yes	yes	yes
	75Hz	37.5KHz	yes	yes	yes
	85Hz	43.4KHz	yes	yes	yes
	160Hz	84.5KHz	yes	yes	yes
800 x 600	60Hz	37.9KHz	yes	yes	yes
	72Hz	45.2KHz	yes	yes	yes
	75Hz	46.1KHz	yes	yes	yes
	85Hz	53.7KHz	yes	yes	yes
	100Hz	63.5KHz	yes	yes	yes
1024 x 768	60Hz	48.1KHz	yes	yes	yes
	70Hz	60.0KHz	yes	yes	yes
	75Hz	60.0KHz	yes	yes	yes
	85Hz	68.6KHz	yes	yes	yes
1152 x 864	60Hz	54.3KHz	yes	yes	yes
	70Hz	64.0KHz	yes	yes	yes
	75Hz	69.0KHz	yes	yes	yes
	85Hz	77.7KHz	yes	yes	yes
1280 x 1024	60Hz	64.0KHz	yes	yes	yes
	75Hz	80.0KHz	yes	yes	----
	85Hz	91.1KHz	yes	yes	----
1600 x 1200	60Hz	72.5KHz	yes	yes	----
	75Hz	94.0KHz	yes	yes	----
	85Hz	106.5KHz	yes	----	----

V. Display Information

Resolution Table: Maximum 3D Video Modes

		Single Buffer With Below Z-buffer				Double Buffer With Below Z-buffer			
Resolution	Color Depth	0bit	8bits	16bits	24bits	0bit	8bits	16bits	24bits
640x480	16bits	yes	yes	yes	yes	yes	yes	yes	yes
640x480	32bits	yes	yes	yes	yes	yes	yes	yes	yes
800x600	16bits	yes	yes	yes	yes	yes	yes	yes	yes
800x600	32bits	yes	yes	yes	yes	yes	yes	yes	yes
1024x768	16bits	yes	yes	yes	yes	yes	yes	yes	yes
1024x768	32bits	yes	yes	yes	yes	yes	yes	yes	yes
1280x1024	16bits	yes	yes	yes	yes	yes	yes	yes	—
1280x1024	32bits	yes	yes	yes	—	—	—	—	—
1600x1200	16bits	yes	yes	yes	—	yes	—	—	—
1600x1200	32bits	yes	—	—	—	—	—	—	—

VI. Troubleshooting

Description	Recommended Action
After installation and re-starting, Windows 95 informs me that the display setting is still incorrect.	There may be a conflict between a previous and the current display drivers. This is caused by the incomplete removal of the previous display driver. Try the following steps to remove it: 1. Right-click **My Computer** on the desktop. 2. Select **Properties**. The **System Properties** dialog box appears. 3. Click the **Device Manager** tab. Be sure that **View devices by type** is selected. 4. Double-click **Display adapters**. 5. You will find two (or more) conflicting adapters. 6. Disable all previous adapters by selecting them and clicking **Remove**. 7. Close Device Manager and restart Windows 95. 8. Your display driver should work correctly this time.
My monitor is not capable of high resolution or refresh rate.	It depends on the display characteristics of your monitor. Consult your monitor documentation for the proper configuration.
DirectX or the other applications report no AGP memory available.	There may be several possible reasons: 1. Windows 95 is not OSR2.0 or later. 2. DirectX version is not 6.0 or later. 3. You have not installed appropriate drivers for AGP chipset. (e.g. VGARTD.VXD for Intel 440LX which ASUS installation automatically installs) 4. Incorrect BIOS setting. BIOS must support at least 32MB for AGP aperture size.