GV-RX80L512V

Radeon X800 XL Graphics Accelerator

User's Manual

Rev. 101
12MD-RX80L512V-101

Table of Contents

1. Introduction

1.1. Features

- Powered by ATI X800 XL Visual Processing Unit (VPU)
- Supports the newest PCI Express x 16
- Integrated with 512MB DDRIII memory
- Supports DirectX 9.0
- Supports TV-Out
- Supports AV/S-Video and HDTV output
- Support AV / S-Video input
- Supports D-Sub (by adapter) and DVI-I connector
- Supports HDTV cable

1.2. Minimum System Requirement

- IBM® or 100% PC compatible with Pentium® III 650MHz or AMD Athlon 650MHz class processor or higher
- One PCI Express x 16 slot
- Operating Systems Win® 2000 / Win® XP
- 64MB system memory
- 50MB of available disk space for full installation
- CD-ROM or DVD-ROM drive

2. Hardware Installation

2.1. Board Layout

DVI-I Connector

VIVO

DVI-I Connector

Analog LCD Monitor

VGA Output

DVI-I to D-Sub Connector

DVI Output

Digital LCD Monitor

DVI-I Connector 1

HDTV

S-Video Output

Y

Pr

NTSC / PAL TV

Pb/AV Output

VIVO

AV Input

Projector

S-Video Input

DVI-I Connector 2

DVI Output

Digital LCD Monitor

Analog LCD Monitor

VGA Output

DVI-I to D-Sub Connector
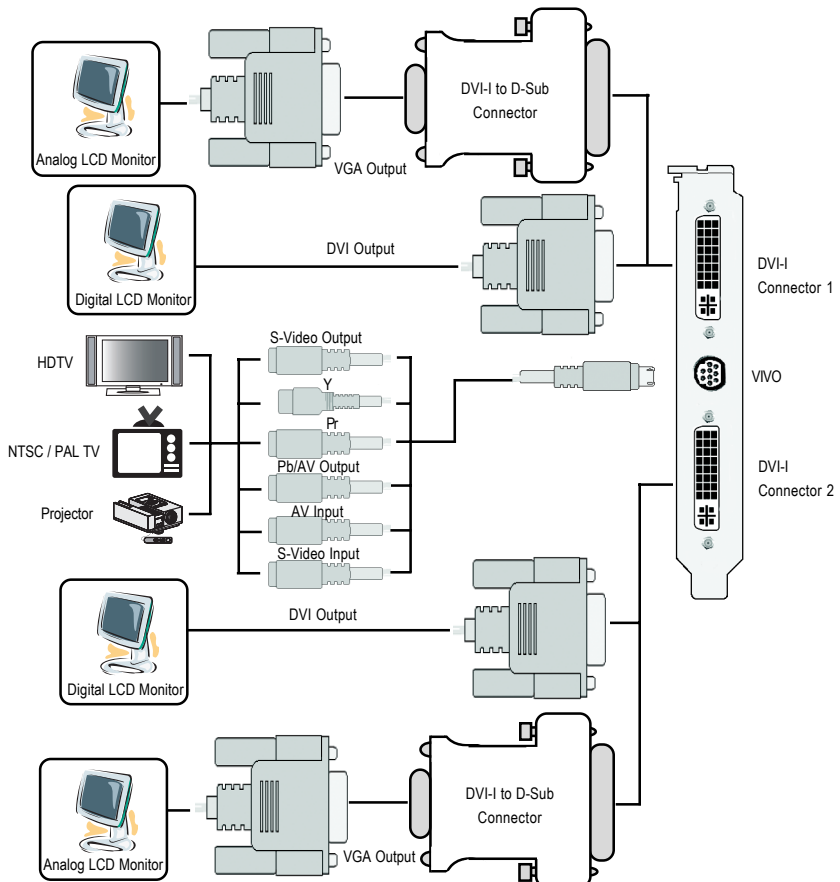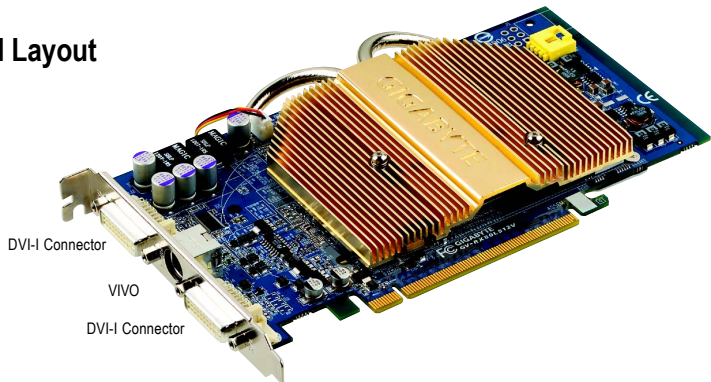
⚠ **CAUTION** Expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Turn off your computer and unplug power supply.
2. 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.
3. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.

The card contains sensitive electric components, which can be easily damaged by static electricity, so the card should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

Inspect the card carton for obvious damage. Shipping and handling may cause damage to your card. Be sure there are no shipping and handling damages on the card before proceeding.

✹ **DO NOT APPLY POWER TO YOUR SYSTEM IF IT HAS BEEN DAMAGED ON THE CARD.**

✹ **In order to ensure your graphics card working correctly, please use official Gigabyte BIOS only. Use none official Gigabyte BIOS might cause problem on the graphics card.**

2.2. Hardware Installation

Installing Your Graphics card.

Now that you have prepared your computer, you are ready to install your graphics accelerator card.

To install your graphics accelerator card:

1. Power off the computer and monitor, then disconnect the display cable from the back of your computer.
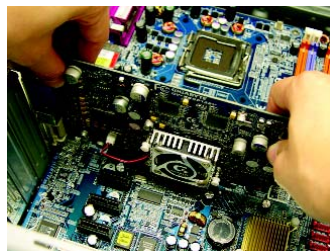

2. Remove the computer cover. If necessary, consult your computer's manual for help in removing the cover.

3. Remove any existing graphics card from your computer.

   Or, if your computer has any on-board graphics capability, you may need to disable it on the motherboard. For more information, see you computer documentation.

4. Locate the PCI Express x 16 slot. If necessary, remove the metal cover from this slot; then align your graphics card with the PCI Express x 16 slot, and press it in firmly until the card is fully seated.

⚠ CAUTION

Warning!
When installing the graphics card, do not push down the heat pipe. This may displace the heat pipe and cause bad contact between the graphics chip and thermal pad as well as affect the heat dissipation. To avoid system instability, do not touch the graphics card when it is runnnig .
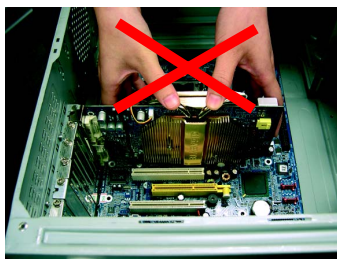
5. Replace the screw to fasten the card in place, and replace the computer cover.
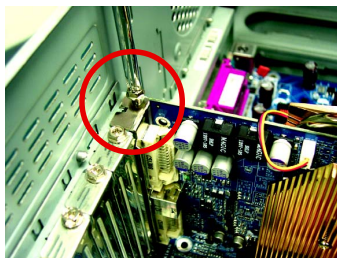
6. Plug the flat panel display cable into your card; then turn on the computer and monitor. If you wish to connect a VGA monitor via the adapter, connect the 15-pin display cable of the VGA monitor to the VGA connector of the adapter.

To Flat Panel Display   9-Pin for VIVO

You are now ready to proceed with the installation of the graphics card drivers. Please refer to next chapter for detailed instructions.

3. <u>Software Installation</u>

In this manual, we assume that your CD-ROM Drive letter to be Drive D:

The installation of Windows® 2000 / Windows® XP drivers is very simple. When you insert the driver CD into your CD-ROM drive, you can see the AUTORUN window (if it does not show up, run "D:\setup.exe"). Then you can follow the guides to setup your graphics card driver. (Please follow the subsection 3.1.3 "Driver installation" to install the driver for your graphics accelerator.)

3.1. Windows® XP Driver and Utilities Installation

### 3.1.1. Operating System Requirement

- When loading the graphics card drivers for the system, please make sure your system has installed DirectX 9 or later version.

- If you install the graphics card drivers for the motherboard, which consist of SIS, or VIA chipsets, please install the appropriate driver program for that motherboard. Or please contact your motherboard nearest dealer for motherboard driver.

3.1.2. DirectX Installation

Install Microsoft DirectX to enable 3D hardware acceleration support for Windows® 2000 or Windows® XP to achieve better 3D performance.

💣 Note: For software MPEG support in Windows® 2000 or Windows® XP, you must install DirectX first. Users who run Windows XP with a service pack later than Service Pack one (SP1) do not need to install DirectX separately.
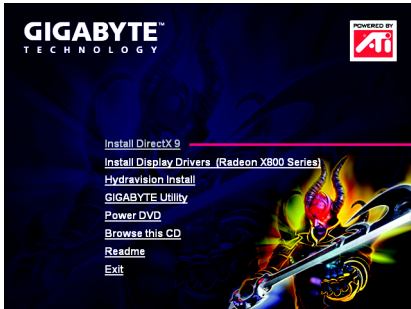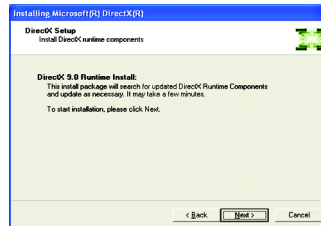

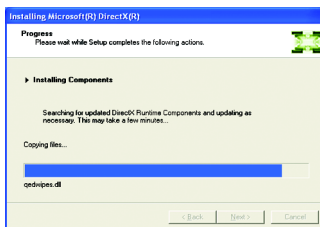Step 1. When autorun window show up, click the **Install DirectX 9** item.

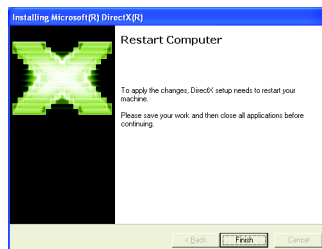Click the **Install DirectX 9** item.

Step 2. Choose **I accept the agreement** and Click "Next" button.

Step 3. Click "Next" button.

Installing the components.

Step 4. Click "Finish" to restart computer. Then the DirectX 9 installation is completed.

3.1.3. Driver Installation

A. New hardware found

After the graphics card is inserted into your computer at the first time, the windows will automatically detect a new hardware in the system and pop out a "New Hardware Found" message. The following is the step-by-step installation guide.

Step 1: Found new hardware wizard: Video controller (VGA Compatible)
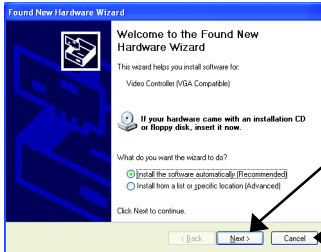
Click "Next" button to install the driver. (There is a driver CD disk that came with your graphics accelerator, please insert it now.)

Or click the "Cancel" button to install the driver from AUTORUN window.

Step 2: Found new hardware wizard: Searching and installing

The wizard will search for the driver and install it automatically.
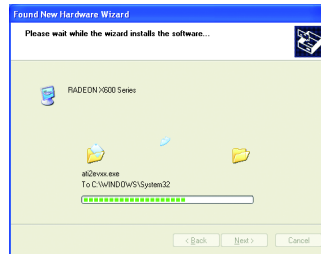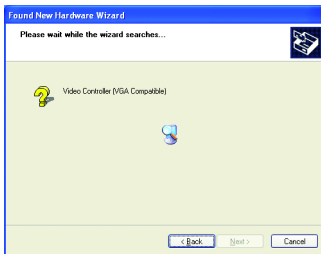
Step 3: Found new hardware wizard: Finish

Click the "Finish" button to finish the installation.

English

B. Driver installation (Autorun Window)

Insert the driver CD disk into your CD-ROM, and then you can see the AUTORUN window.
If it does not show up, please run "D:\setup.exe".

GIGABYTE TECHNOLOGY

Install DirectX 9
Install Display Drivers (Radeon X800 Series)
Hydravision Install
GIGABYTE Utility
Power DVD
Browse this CD
Readme
Exit

Step 1. When autorun window show up, click the **Install Display Drivers (Radeon X800 Series)** item.

Click the **Install Display Drivers (Radeon X800 Series)** item.

Step 2. Click "Next" button.

Step 3. Click "Yes" button.
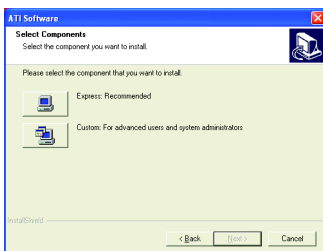
Setp 4. Click "Express" or "Custom" icon.

Windows installings the components.

Step 5. Click "Finish" button to restart computer.
Then the driver installation is completed.

- 11 -   Software Installation

3.1.4. Utilities on Driver CD
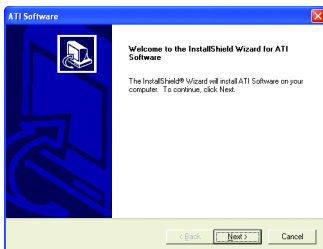
Insert the driver CD disk into your CD-ROM, and then you can see the AUTORUN window.
If it does not show up, please run "D:\setup.exe".

● Install GIGABYTE Utility (V-Tuner2):

GIGABYTE
T E C H N O L O G Y
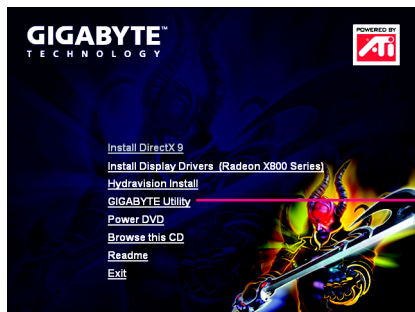
Install DirectX 9
Install Display Drivers (Radeon X800 Series)
Hydravision Install
GIGABYTE Utility ─────── Click the **GIGABYTE Utility** item.
Power DVD
Browse this CD
Readme
Exit

⤵

Step 2. Click the **Next** button.

⤵

Step 3. Enter your name and company.

⤵

Step 4. Click the **Finish** button to restart computer.
Then the V-Tuner2 installation is completed.

● Install Hydravision :
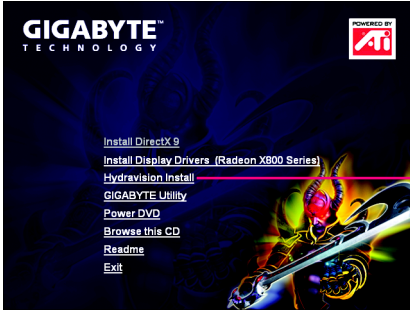
Click the **Hydravision Install** item.
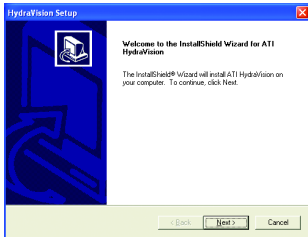
Step 2. Click "Next" button.
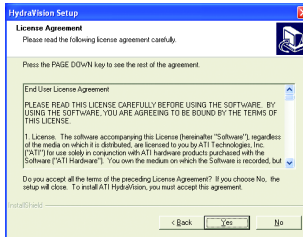
Step 3. Click "Yes" button.
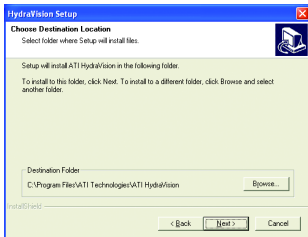
Step 4. Click "Next" button.
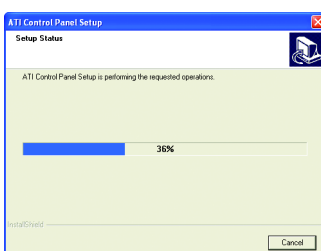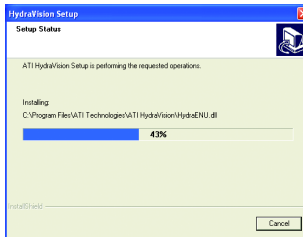

Windows installings the components.
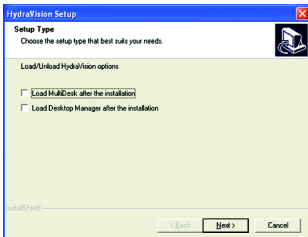
Step 5. Click "Next" button.
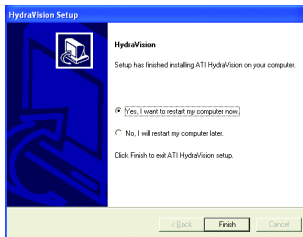
Step 6. Click "Finish" button to restart computer.

Then the Hydravision Install is completed.

V-Tuner 2

V-Tuner 2 lets you adjust the working frequency of the graphic engine and video memory (Core Clock and Memory Clock).

Displays core clock status   Displays memory clock status

Adjust   Adjust
Core speed   Memory speed

Open Help page   Select choice of skin
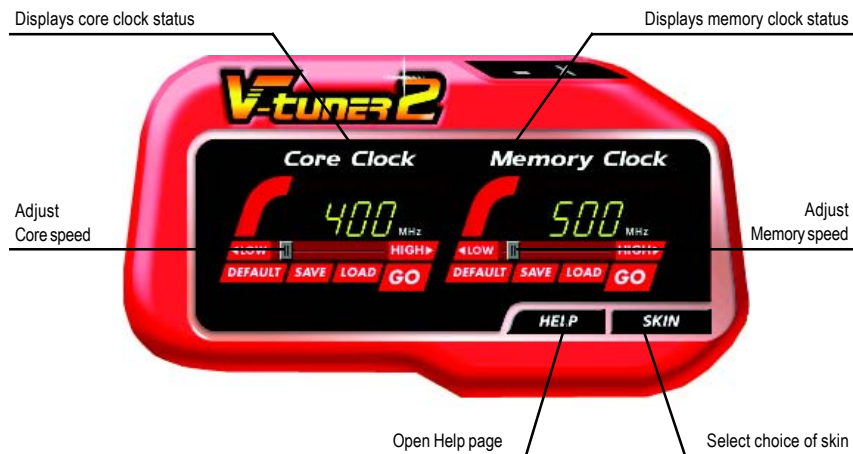
3.1.5. Taskbar Icon

After installation of the display drivers, you will find a GIGABYTE icon on the taskbar's status area. Right-clicking this icon opens the GIGABYTE control panel, showing a menu composed of shortcut of the graphics card's enhanced and other functions.

You may click the "Display Properties" item, and then click Settings. Click "Advanced" after clicking Settings. Click the appropriate tab to change your display settings.

Right click the icon.
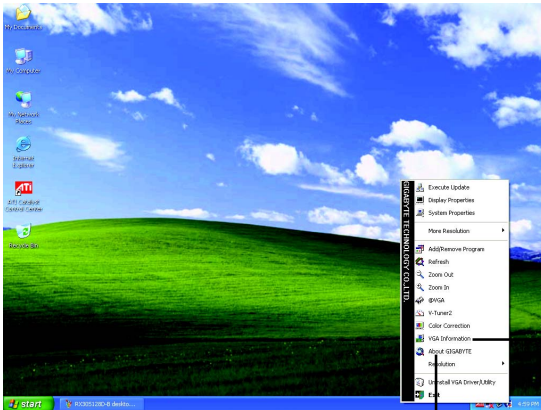
Click "VGA Information" item into the "VGA Info" and "Color Adjust"tabs.

You can link to GBT website for updated information about the graphics accelerator, latest drivers, and other information.

VGA Information

VGA Info lists the relevant information about your card.
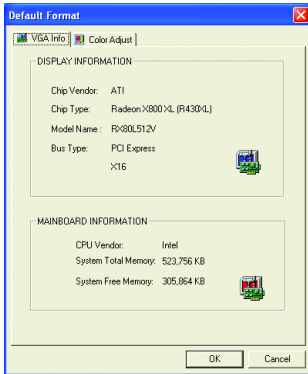
Color Adjust

Color Adjust allows you to make color adjustments, such as brightness, contrast and gamma values for each or all of RGB colors.

ATI CATALYST™ Control Center:

After installation of the display drivers, you will find an **ATI CATALYST™ Control Center** icon on the taskbar's status area. The **ATI CATALYST™ Control Center** is used to configure all your graphics card settings. Right-click the icon to enter the **ATI CATALYST™ Control Center** (refer to Fig. 1). Or you can right-click on the desktop to select Properties\ Settings\ Advanced\ ATI CATALYST Control Center tab and press **ATI CATALYST(tm) Control Center** button (refer to Fig. 2).
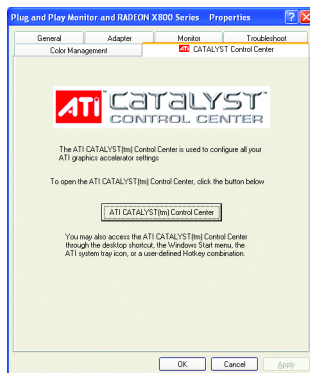
Fig. 1   Fig. 2

HYDRAVISION™ :

HYDRAVISION has everything you need to manage increased amounts of information across your computer desktop. It allows you to quickly and easily tailor your computer desktop to the way you work. You can:

• arrange and rearrange monitors.   • assign Hot Key shortcuts.

• create up to 9 virtual desktops.   • add special effects to windows and menus.

You can right-click on **ATI CATALYST™ Control Center** icon to select HYDRAVISION™. HYDRAVISION™ Properties to set the HYDRAVISION (refer to Fig. 3).

Fig. 3

3.1.6. Display Properties pages

To access Display Properties pages, right-click the GIGABYTE icon on the taskbar and select **Display Properties** or right-click on Desktop and then select **Properties**. The **Display Properties** dialog box shows the information of display adapter, color, the range of display area, and the refresh rate.

Settings (Resolutions and Color depth for Windows)

You may adjust the screen resolution and color quality settings in this dialog box.

You can move the slider to change the resolution.

You can click the item to change the color quality.

Click the **Advanced** button for adapter and setting.
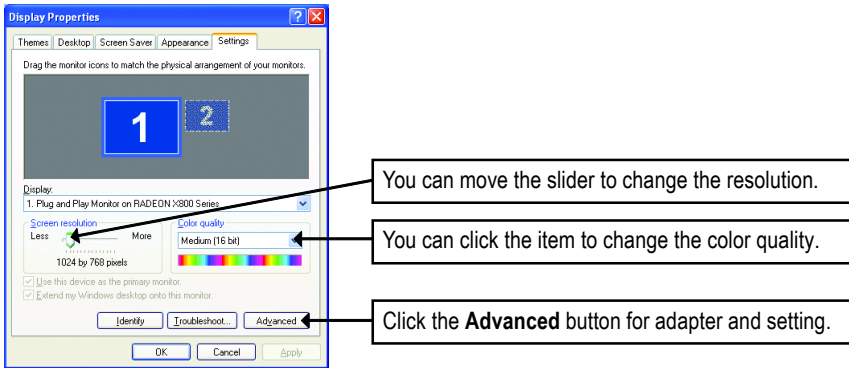
Display	Model	GV-RX80L512V
Matrix	CRT+TV	Yes
	CRT+DVI	Yes
	DVI+TV	Yes
	DVI+TV+CRT	Yes

View Properties:

The CATALYST Control Center dashboard supports three types of views: Standard View/ Advanced View/ Custom View.

■ Standard View

The Standard view is the default view when CATALYST Control Center is launched for the first time. It provides a single button in the left navigation pane for each main page. The Standard view is recommended for novice users.

■ Advanced View

The Advanced view provides access to the advanced features on each page. The left navigation pane displays a tree view that lists all the advanced features. The Advanced view is recommended for experienced users.

■ Custom View

The Custom view allows you to display only the features you choose in the left navigation pane. The Custom view is recommended for experienced users who want to expose only the features they adjust most often or that their 3D application supports.

Hotkeys Properties:

The Hotkeys Manager allows you to create shortcut key combinations to quickly perform tasks such as changing a graphics setting or opening an application. A Hotkey is a combination of a modifier key or keys, such as Ctrl, Alt, or Shift, and any letter from the alphabet.
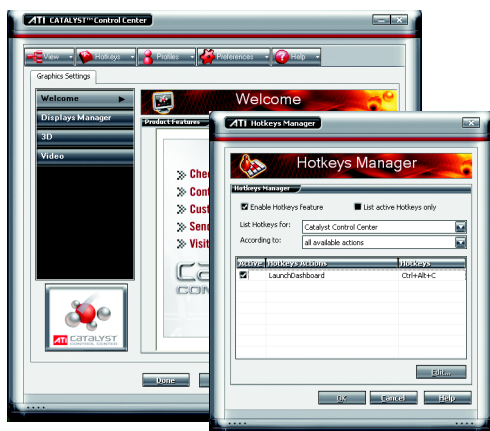
Profiles Properties:

You can use profiles to create customized environments for your desktop, video, and 3D applications. Define and save your own personal video settings that can be quickly activated manually, through a Hotkey, or by file association.
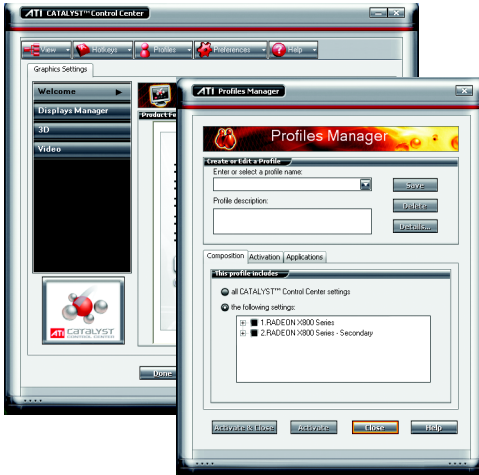
Note:

A profile applies to a specific graphics card. If there is more than one graphics card installed in your computer, you need to select the appropriate card before creating, loading, or activating a Profile.

Preferences Properties:

Use the Preferences page to restore defaults, change skins, and update the CATALYST Control Center. The CATALYST Control Center Preferences page contains the following options:

- ■ Always on Top
- ■ Hide Tooltips
- ■ Hide Toolbar Text
- ■ Hide Splash Screen
- ■ Enable System Tray menu
- ■ Select a Language ...
- ■ Select a Skin ...
- ■ Restore facotry defaults ...

Help Properties:

The CATALYST Control Center Help feature allows you to access the comprehensive online help, register your product, or generate a problem report should you require technical support.
The CATALYST Control Center Help feature offers the following options:

- ■ Help Contents ...
- ■ Search Help ...
- ■ Go to ATI.com
- ■ Information Center ...
- ■ About CATALYST Control Center ...

Information Center

The Information Center provides detailed information in one location about the installed graphics hardware, graphics software, system hardware, and system software.

- ■ The System Software tab includes information such as the installed versions of Windows and Microsoft DirectX.
- ■ The System Hardware tab includes information such as the installed CPU type and speed, the installed BIOS and version, and the installed motherboard chipset.
- ■ The Graphics Software tab includes information such as installed 2D and 3D driver versions and OpenGL version.
- ■ The Graphics Hardware tab includes information such as the installed graphics ID, bus type, and BIOS version.
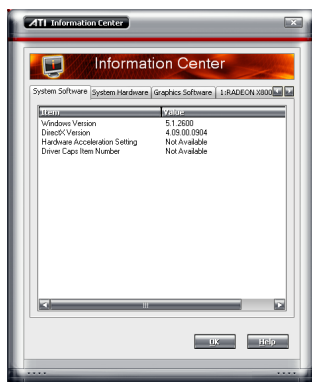
Display Manager :

■ Display Manager Standard View
Use Display Manager Standard View to set your desktop resolution, arrange your displays, enable secondary devices such as a TV, or use the Wizard to help you configure your display(s).

■ Displays Manager Advanced View
Use Display Manager Advanced View to set your desktop resolution, the display refresh rate, and arrange your displays.

Display Options:

■ Use Display Options to configure a number of features, including 3D Refresh Rate Override, Display Detection, and Force TV detection.

Monitor Properties 0:

■ Monitor Attributes
Monitor Attributes provides information about the attached monitor. You can also enable Extended Identification Data.

■ Monitor Adjustments
Use Monitor Adjustments to resize and reposition the computer desktop on your monitor's display screen. You can also adjust the horizontal and vertical sync or enable composite sync.

■ Monitor Troubleshoot
The Monitor Troubleshoot helps to add HDTV modes in the Display Manager.
Note: 720p or 1080i are disabled in certain situations, such as display rotation.

3D :
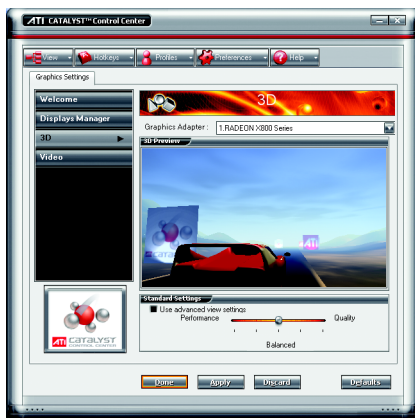
■ 3D Standard View
You can use 3D settings to adjust features found in such 3D applications as graphic-design and CAD programs and games.
This page is useful when you are not aware of which type of 3D settings your application uses, or when you want to use an overall adjustment control that rapidly configures your application.

■ Standard Settings
The Standard settings page provides access to a universal slider control where you can simultaneously adjust all of the standard 3D settings for any type of 3D application. The slider enables you to adjust for overall system performance, overall 3D image quality, or a balance between the two.

■ Anti-aliasing

Anti-aliasing is a technique used to smooth out the jagged edges of three-dimensional curved objects or objects with diagonal edges.

Anti-aliasing can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used when the 3D image is animated and smoothness of motion is the most important consideration.

Setting for quality is best used when having highly detailed and realistic 3D objects is the primary concern.

If you are unsure of how to configure anti-aliasing, use the Let the Application Decide option. Your display will automatically adjust to the application's requirements.

■ Anisotropic Filtering

Anisotropic filtering is a technique that preserves detail on surfaces that have three-dimensional perspective and fade away into the background. It works best when used in conjunction with Mipmapping.

Anisotropic filtering can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used with applications that display objects with smooth, simple surfaces, like those seen in CAD applications.

Setting for quality is best used with applications that display highly detailed scenes, backgrounds, and textured objects, like those seen in 3D games. If you are unsure how to configure anisotropic filtering, use the Let the Application Decide option. Your display will automatically adjust to the application's requirements.

■ CATALYST™A.I.

Use this feature to enable or disable application specific optimization of the video driver. You can set the level of optimization by moving the slider from low to high.
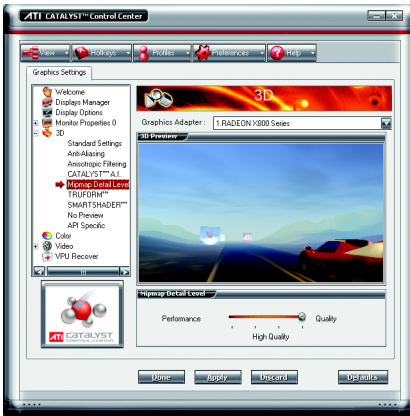
■ Mipmap Detail Level

Mipmapping is a texturing technique that preserves the detail on a 3D object's surface as it moves into the background. A series of low- and high-resolution texture maps are stored in memory and selectively used to create the object's surface, depending on what level of detail is needed.

Mipmap detail level can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used when the 3D image is animated and smoothness of motion is the most important consideration.

Setting for quality is best used when high surface detail is required, especially if the animated object rotates or moves into the background.

■ TRUFORM™

TRUFORM is a technology developed by ATI that overcomes the bandwidth and memory constraints of traditional 3D rendering software to produce the smoothest and most natural 3D images. TRUFORM not only enhances the smoothness, but also provides highly detailed lighting effects. This greatly enhances the realistic quality of 3D scenes by providing highlights on the surface of curved objects.

TRUFORM can be set to favor either an increase in system processing performance or improved image quality.

Setting for performance is best used for 3D images that do not require a high level of smoothness and lighting detail.

Setting for performance is best used for situations where a high level of realism is required for the object's shape and reflective properties.

■ SMARTSHADER™

SMARTSHADER technology incorporates major advances in the area of Pixel Shaders, which are small programs that execute on every pixel rendered to the display device. With support for up to six textures in a single rendering pass, the memory bandwidth constraints associated with multi-pass rendering can be greatly reduced, which translates into better rendering performance. By doubling the maximum allowable length of the shader programs, more complex effects can be created to accurately model the visual properties of materials and surfaces, including hair, skin, wood, and water.

Software Installation

■ No Preview

The No Preview page combines all of the principal 3D features onto a single page, without any preview window, allowing for quick access and adjustement. You can change the settings for the following 3D features as you normally would on each feature own page:

• Anti-aliasing

• Anisotropic filtering

• CATALYST A.I.

• Mipmap detail level

• TRUFORM™

• Wait for display refresh

• SMARTSHADER™ effects

This page is useful when it is not necessary to preview the adjusted settings because the effect is already known or understood.
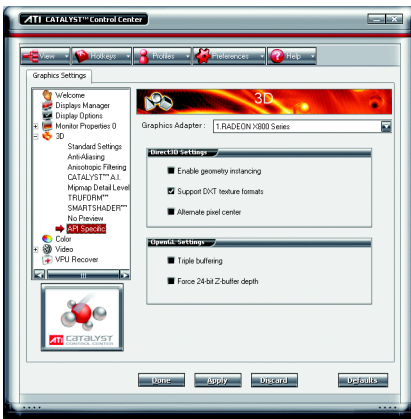
■ API-Specific

Use the 3D API-Specific dialog to select settings that are exclusively for the Direct3D® and OpenGL® Application Programmable Interfaces (API). These settings are provided for resolving certain incompatibilities within 3D applications that use one of these APIs.

Use this dialog when you are know which type of API (Direct3D® or OpenGL®) your 3D application uses, and you want to select a particular API-specific feature.

If you are not sure which API your 3D application uses, consult the documention of your 3D application.

Color :

Use the Color page to adjust the color properties of your Desktop and Full Screen 3D applications and games. Use the Color Correction Images to e preview the changes before applying them.
The Color curve is a graphical representation of all the values of gamma, brightness, or contrast. The color curve line will reflect any changes made to these elements.
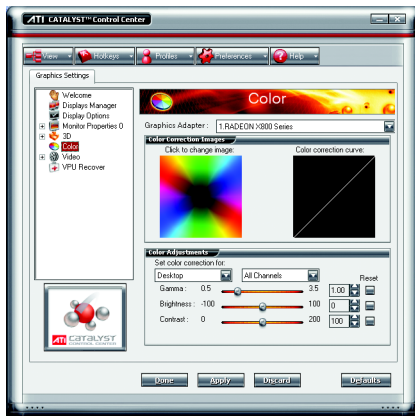
■ Color Desktop

Adjust the overall richness of color by using the Gamma control. To adjust the overall brightness use the Brightness control, and the overall contrast use the Contrast control.

■ Color - Full-screen 3D

Adjusting the Gamma control alters the overall richness of color. Adjusting the Brightness control alters the overall brightness. Adjusting the Contrast control alters the overall contrast.

Adjusting the Gamma can be useful for CAD applications that rely heavily on color coding or applications that require realistic color.

Adjusting the Brightness and Contrast can be useful for 3D games that display dimly lit scenes.

Video :

With Video setting you can set for viewing video files:

■ Standard Settings

Video Overlay Standard Settings offers video presets that are comprised of Home, Work, Theater, and Custom. Select a preset from the Video Presets drop dpwn menu.

■ Overlay/VIDEOVISION

Use this page to manually set Gamma, Brightness, Contrast, Saturation, and Hue.

■ Theater Mode

VPU Recover :

VPU Recover enables the ATI display driver to detect when the graphics processor stops responding to display-driver instructions. When this happens, the display driver attempts to reset the graphics hardware. In most cases, VPU Recover will be able to reset the graphics processor without requiring a system restart.

Should the computer be unable to recover from a crash, VPU Recover will switch the computer to software rendering mode, allowing you to save any work in progress before restarting the computer.

■ Enable VPU Recover

■ Prepare an error report if VPU Recover is activated, for submission to ATI Technologies. Allows the VPU Recover, once it is actived, to genrate an error report that you can send to ATI via e-mail.

3.2. Windows® 2000 Driver Installation

With Windows running on your computer, you need to install the graphics card driver to take advantage of the higher performance, resolutions, and special graphics features of the graphics card. To ensure you install the latest driver, insert the Installation CD that shipped with your graphics card.

To install the graphics card driver for Windows® 2000, please insert the Installation CD. Then the AUTORUN window will show up. Click **Install Display Driver** item, and follow the wizard to install the driver.

If Windows® does not show the CD automatically, please run following steps:

1. Click the **Start** button on the control bar.
2. Select **Run**.
3. Type the following: D:\SETUP.exe
   (If D is not your CD-ROM drive, substitute D with the correct drive letter.)
4. Click **OK**.
5. Click on **Install Display Drivers** to begin the Installation Wizard.
6. Click **Next**.
7. Click **Yes** to the license agreement.
8. Follow the Wizard's on-screen instructions to complete the installation.

⚠ CAUTION Please make sure the Windows® 2000 have installed Windows® 2000 Service Pack (or later) before installing the graphics accelerator driver.

4. Troubleshooting Tips

The following troubleshooting tips may help if you experience problems. Contact your dealer or Gigabyte for more advanced troubleshooting information.

■ Check that the card is seated properly in the PCI Express x 16 slot.

■ Ensure that the display cable is securely fastened to the card's display connector.

■ Make sure that the monitor and computer are plugged in and receiving power.

■ If necessary, disable any built-in graphics capabilities on your motherboard. For more information, consult your computer's manual or manufacturer.

   (NOTE: Some manufacturers do not allow the built-in graphics to be disabled or to become the secondary display.)

■ Make sure you selected the appropriate display device and graphics card when you installed the graphics driver.

■ Restart your computer. Press the **F8** key on your keyboard after system starts up. When the Windows Advanced Options Menu appears, select Safe Mode and press Enter. After getting into Safe Mode, in Device Manager check whether the driver for the graphics card is correct.

■ For more assistance, use the Troubleshooting Guide located in the Windows® Help or contact your computer manufacturer.

⚠ If necessary, adjust your monitor's setting by monitor's adjust panel to make the screen looks focused, crisp, and sharp. (Please refer to the monitor's manual.)

5. Appendix

5.1. How to Reflash the BIOS

5.1.1. Reflash BIOS in MS-DOS mode

1. Extract the downloaded Zip file to your hard disk or floppy disk. This procedure assumes drive A.
2. Restart the computer in MS-DOS mode. (For Windows 2000/XP, you need a startup disk to restart the computer in MS-DOS mode.)
3. Change the command prompt to A:\>.
4. To back up the current BIOS, at the A:\> prompt, type `[BIOS flash utility name] -s [BIOS file name]` (**example: gvf13 -s rx80256d.e2**) and press **Enter**.
5. To flash BIOS, at the A:\> prompt, type `[BIOS flash utility name] -p [BIOS file name]` (**example: gvf13 -p rx80256d.f1**) and press **Enter**.
6. Wait until it's done, then restart your computer.

5.1.2. Reflash BIOS in Windows mode

1. After installing the display drivers, you will find a GIGABYTE icon in the lower-right corner of the Taskbar. Right-click to select the @VGA utility.
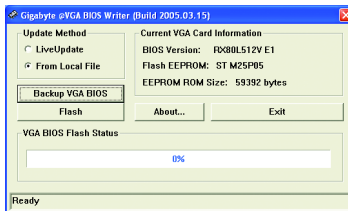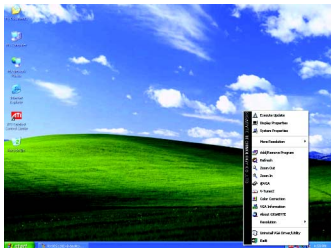
@VGA flash BIOS utility.

2. Update BIOS through the Internet
   a. Select the **Live Update** check box and click **Flash**. Then @VGA will automatically download the BIOS for your card from GIGABYTE @VGA server and do the update for you. (@VGA will not download/update the BIOS if it detects the current BIOS on your card is the latest one.)

3. Update BIOS NOT through the Internet
   a. Download the BIOS ZIP file for your card from GIGABYTE website and extract it to your hard disk (or floppy disk).
   b. Select the **From Local File** check box and then click **Flash**.
   c. Select the BIOS file from your hard disk (or floppy disk).
   d. Complete the update procedure following the on-screen instructions.

5.2. Resolutions and Color Depth Table (In Windows® XP)

Radeon X800 XL 2D Single Display Modes

Display Screen Resolution	Maximum Refresh Rate (Hz)	8bpp(256 color) Standard mode	16bpp(65K color) High mode	32bpp(16.7M) True mode
640 x 480	200	✓	✓	✓
800 x 600	200	✓	✓	✓
1024 x 768	200	✓	✓	✓
1152 x 864	100	✓	✓	✓
1280 x 768	85	✓	✓	✓
1280 x 960	160	✓	✓	✓
1280 x 1024	120	✓	✓	✓
1600 x 1200	100	✓	✓	✓
1792 x 1344	85	✓	✓	✓
1800 x 1440	70	✓	✓	✓
1856 x 1392	75	✓	✓	✓
1920 x 1080	75	✓	✓	✓
1920 x 1200	85	✓	✓	✓
1920 x 1440	75	✓	✓	✓
2048 x 1536	66	✓	✓	✓

Radeon X800 XL HDTV Display Modes

Display Screen Resolution	Maximum Refresh Rate (Hz)	8bpp(256 color) Standard mode	16bpp(65K color) High mode	32bpp(16.7M) True mode
640 x 480	240	✓	✓	✓
800 x 600	240	✓	✓	✓
1024 x 768	240	✓	✓	X
1152 x 864	200	✓	✓	X
1280 x 960	170	✓	✓	X
1280 x 1024	170	✓	✓	X
1600 x 900	150	✓	✓	X
1920 x 1080	100	✓	✓	X
1920 x 1200	100	✓	✓	X
1920 x 1440	85	✓	✓	X
2048 x 1536	75	✓	X	X

* The table is for reference only. The actual resolutions supported depend on the monitor you use.