GV-RX24P256H

Radeon™ HD 2400 Pro Graphics Accelerator

User's Manual

Rev. 102
12MD-RX24P2H-102R

Table of Contents

1. Introduction

1.1. Features

- Powered by **ATi Radeon™ HD 2400 Pro** Graphics Processing Unit (GPU)
- Supports PCI Express x16
- Integrated with 256 MB GDDR2 memory
- Supports DirectX 10
- Supports AV / S-Video / TV-Out and HDTV output
- Supports 1 Dual-Link DVI-I connector
- Supports 1 D-Sub connector
- Supports HDMI connector (by adapter, optional)

1.2. Minimum System Requirements

- **Hardware**
    - Intel® Pentium® 4 or AMD Athlon™
    - 512 MB of system memory; 1 GB or more for best performance
    - Optical drive for software installation (CD-ROM or DVD-ROM drive)

- **Operating System**
    - Windows® Vista
    - Windows® XP with Service Pack 2 (SP2)
    - Windows® XP Professional x64 Edition

2. Hardware Installation

2.1. Board Layout

D-Sub Connector
(15-pin)

TV-Out

DVI-I Connector

OR

Analog LCD Monitor   Analog CRT Monitor

D-Sub Output

HDTV

Y

Pr

Pb/AV Output

OR

NTSC / PAL TV   Projector

S-Video Output

OR

NTSC / PAL TV   Projector

D-Sub
Connector
(15-pin)

TV-Out

DVI-I
Connector

DVI Output

Digital LCD Monitor

OR

Analog LCD Monitor   Analog CRT Monitor

D-Sub
Output

DVI-I to D-Sub
Adapter

DVI-I to HDMI Adapter

HDMI Monitor

⚠️
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 remove the existing graphics 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.
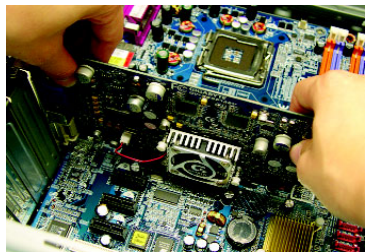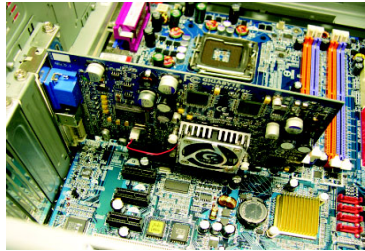
To install your new graphics card:

1. Locate a PCI Express x16 slot. If necessary, remove the metal cover from the slot; then align your graphics card with the PCI Express x16 slot, and press it in firmly until the card is fully seated.

* Please make sure that the gold edge connector of the graphics card is securely inserted.
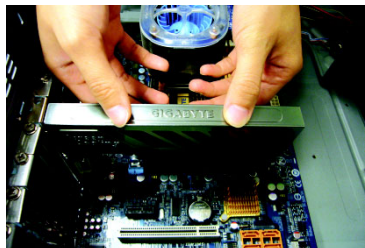
2. Replace the screw to fasten the card in place,
   and replace the computer cover.

3. Plug the display cable into your card; then
   turn on the computer and monitor. If your
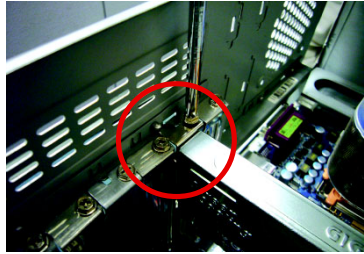   graphics card came with a DVI-I connector,
   you can connect a flat panel display to the
   appropriate connector, as shown below. Or
   use the DVI-I-to-HDMI adapter to connect
   an HDMI monitor.

To D-Sub Monitor   To TV/VCR   To Flat Panel Display
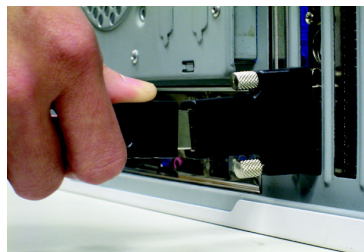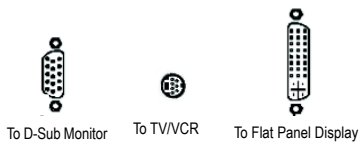
Connect an HDMI monitor via DVI-I to HDMI adapter

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

GIGABYTE Component Video Adapter for ATI Graphics Cards

AV Out

S-Video Out   HDTV Component
(Y+Pr+Pb)

Connect to the TV-
Out port on the
graphics card.
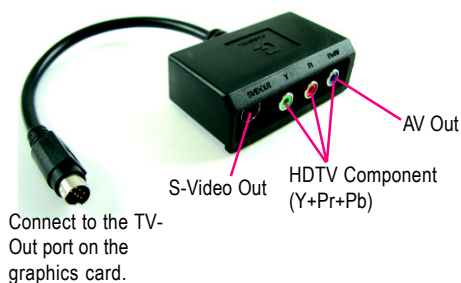
(1) Connecting HDTV

Connect your HDTV cables to the component video
adapter according to the corresponding color. (Y= Green,
Pr= Red, Pb= Blue)

(2) Connecting S-Video

If your TV has a S-Video connection, connect the S-
Video cable from your TV to the S-Video Out port on the
adapter.

(3) Connecting AV Output

If your TV has Composite video connection, you can
connect the RCA cable from your TV to the AV Out port
on the adapter.

GIGABYTE Thermal Solution Guidelines:

1. GIGABYTE established the use of silent pipes on graphics card's thermal solution, and has been the leading company for silent thermal solution. GIGABYTE's passive thermal solution allows system to work perfectly in chassis with 40~50 degrees Celsius through the air flow of the system. Please beware of the other excess component or insufficient system thermal design that may cause high system temperature. Excess high temperature will affect the passive thermal design and thus compromising system stability.

2. GIGABYTE TECHNOLOGY's passive thermal design effectively implemented heat exchange, radiation and convection to improve stability of the system. Please maintain passive thermal sink at a normal and clean environment. Extra dust on heatsink may decrease the effectiveness of the thermal design.
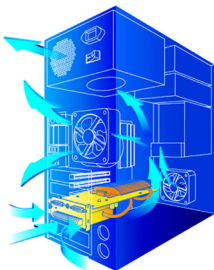
Silent Thermal Technology   Passive Thermal Design
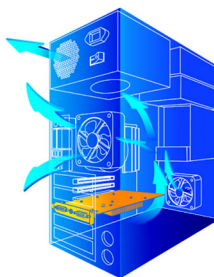
3. <u>Software Installation</u>

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

The installation of 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 9.0c 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® XP to achieve better 3D performance.

💣 Note: For software MPEG support in Windows® XP, you must install DirectX first. Users who run Windows XP with Service Pack 2 or above do not need to install DirectX separately.
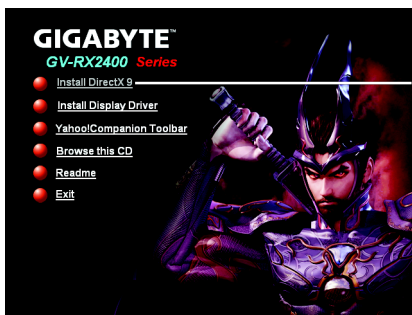
Step 1. When autorun window show up, click the **Install DirectX 9** item.

Click the **Install DirectX 9** item.
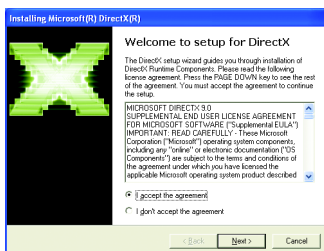
Step 2. Choose **I accept the agreement** and click the **Next** button.

Step 3. Click the **Next** button.

Installing the components.

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

3.1.3. Driver Installation
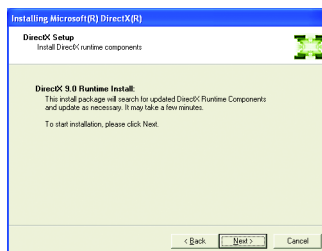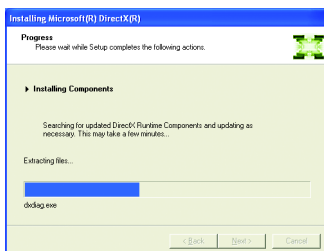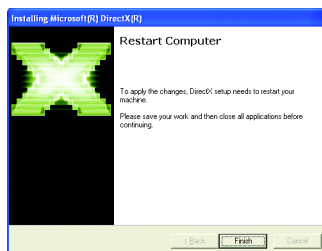
A. New hardware found

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 the **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.
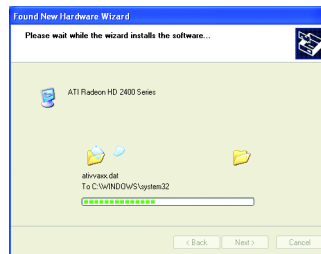
Step 3: Found new hardware wizard: Finish

Click the **Finish** button to finish the installation.

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".
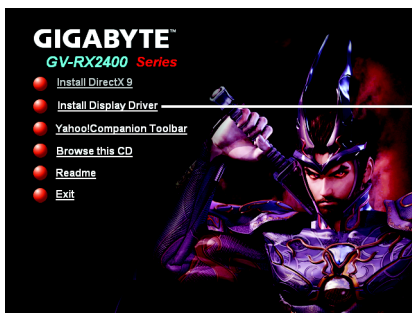
Step 1. When autorun window show up, click the **Install Display Driver** item.

— Click the **Install Display Driver** item.
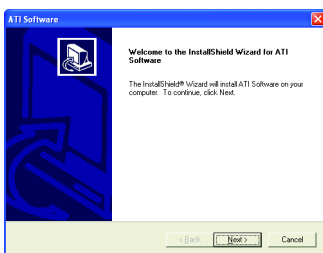
Step 2. Click **Next** button.
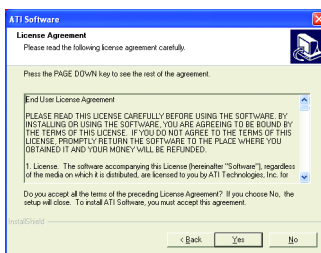
Step 3. Click **Yes** button.
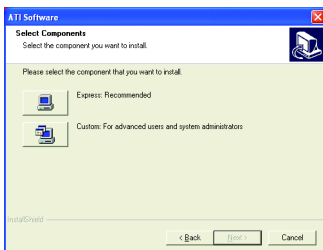
Setp 4. Click **Express** or **Custom** icon.
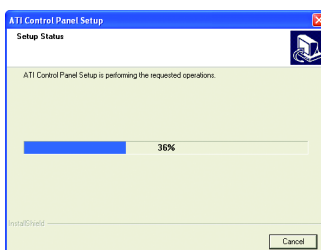
Windows installings the components.
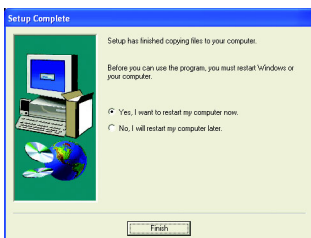
Step 5. Click the **Finish** button to restart computer.

Then the driver installation is completed.

3.1.4. Taskbar Icon

ATI CATALYST™ Control Center:

After installation of the display driver, 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 **CATALYST™ Control Center** (refer to Fig. 1). Or you can right-click on the desktop and select **ATI CATALYST Control Center** (refer to Fig. 2).

Fig. 1
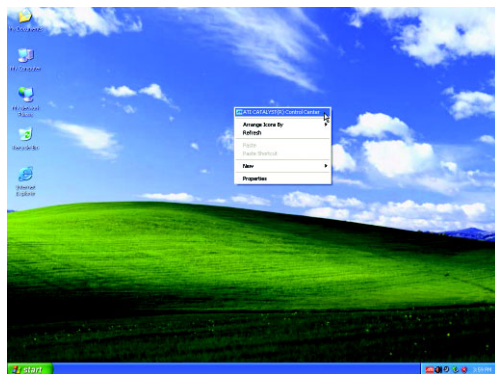
Fig. 2

3.1.5. Display Properties pages

To access Display Properties pages, 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.
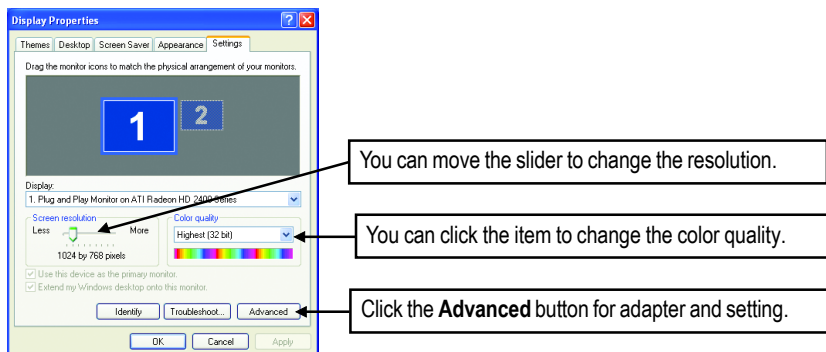
Display	Model	GV-RX24P256H
Matrix	CRT+TV (Note)	Yes
	CRT+DVI	Yes
	DVI+TV	Yes
	DVI+TV+CRT	No
	HDMI+TV	Yes
	HDMI+CRT	Yes

(Note) The CRT+TV configuration requires that you connect your CRT display to the DVI-I connector on the card using the DVI-I to D-Sub adapter to ensure normal operation.

This configuration is not supported if the CRT monitor is directly attached to the D-Sub port on the card.

ATI CATALYST™ Control Center Basic View :

The Basic View is the default view when CATALYST Control Center is launched for the first time. This interface provides access to the basic settings and advanced features of your ATI graphics products. You can switch between Basic View and Advanced View at any time.
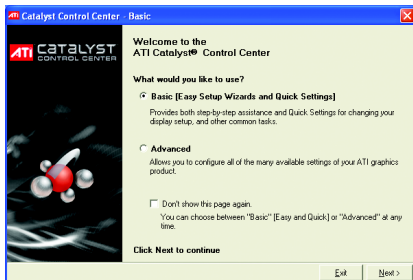
To access more settings in Basic View , click **Basic**, and then click **Next**.

Easy Setup Wizards:

Choose a wizard from the central list and click **Go** for step-by-step assistance.
■ Avivo Video Converter
This wizard assists you to convert videos from one file format to another.
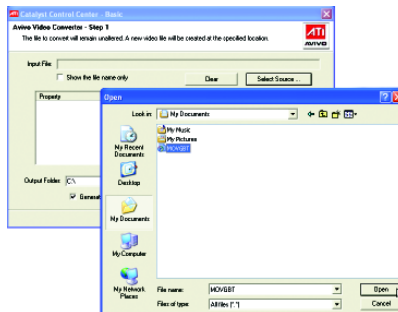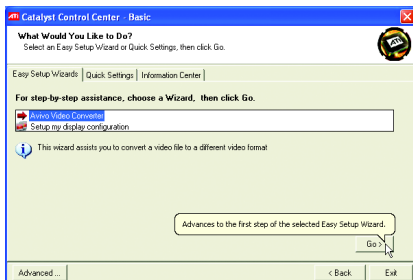
Step 1: Select **Avivo Video Converter**, then click **Go**.

Step 2: Select the video file to be converted.
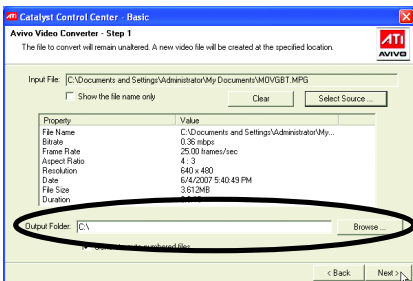
Step 3: In the **Output Folder** area, select the destination folder where the new file will be located. Click **Next**.
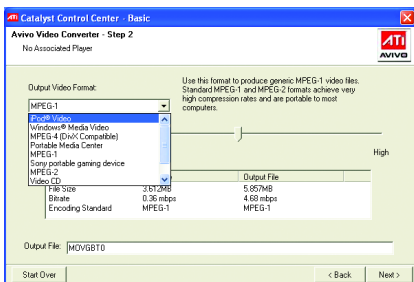
Step 4: In the **Output Video Format** list, select a file format for the new file. If you wish to change the name of the new file, enter the new name in the **Output File** area. Finally, click **Next** to start file conversion.
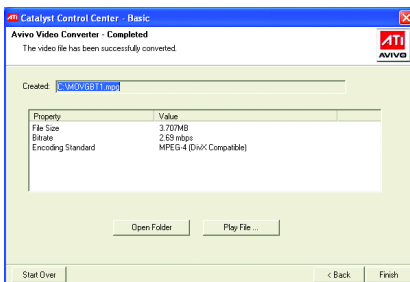
The video file has been successfully converted.
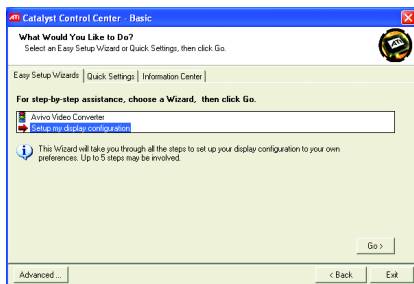
■ Setup my display configuration
This wizard allows you to configure display setting for desktop viewing.

Quick Settings:

The Quick Settings page provide access to three main settings.
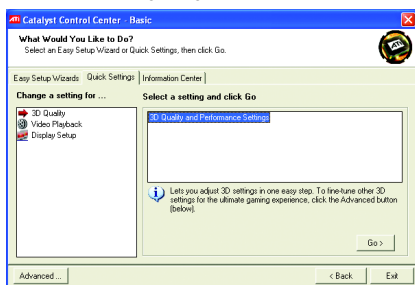
■ 3D Quality

3D Performance and Quality settings allows your 3D games and applications to get faster performance and better quality with a more balanced setting.

■ Video Playback

Use this option to optimize video playback in different room environment or to select how video playback appears on the second display.

■ Display Setup

This option allows you to configure your desktop, including changing desktop resolution and desktop mode, setting up extended desktop (requires more than one display), and rotating desktop image to match new display orientation.

Information Center:

The Information Center page in Basic and Advanced View provides hardware and software information about the installed graphics card.
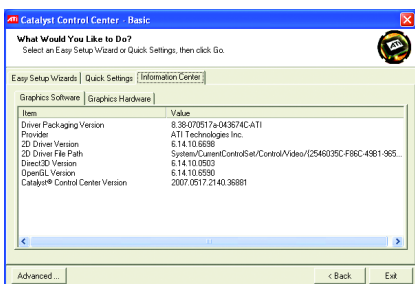
■ Graphics Software

Provides software information including driver version, CATALYST version, Direct 3D version and so on.

■ Graphics Hardware

Provides hardware information incluing graphics chipset, BIOS version, memory size, core clock and so on.

ATI CATALYST™ Control Center Advanced View

The Advanced page allows you to configure all of the many available settings of your ATI graphics card.

View Properties:

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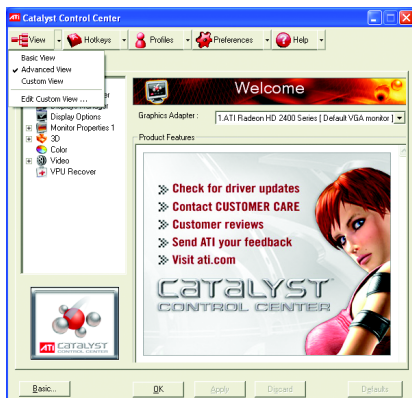
■ Basic View

The Basic view is the default view when CATALYST Control Center is launched for the first time. Refer to the previous pages for details.

■ 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.
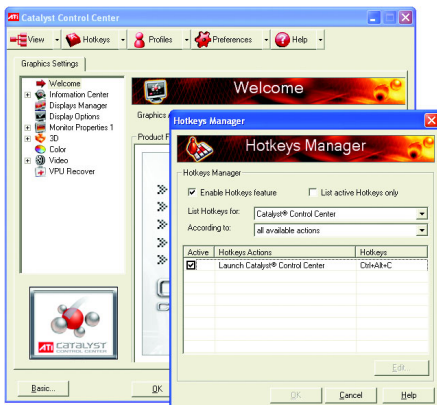
Profiles Properties:

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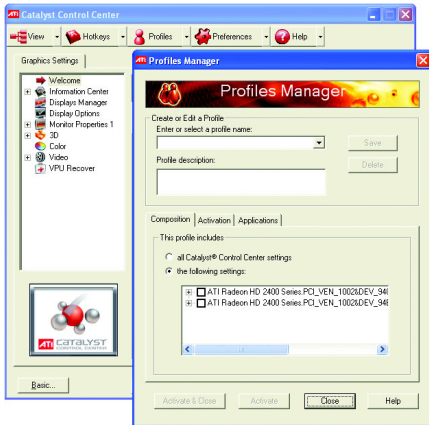
Note: A profile applies to a specific graphics card. If there is more than one graphics card installed in your computer, you need to select the appropriate card before creating, loading, or activating a Profile.

Preferences Properties:

The Preferences page helps to restore defaults, change skins, and update the CATALYST Control Center. The CATALYST Control Center Preferences page contains the following options:
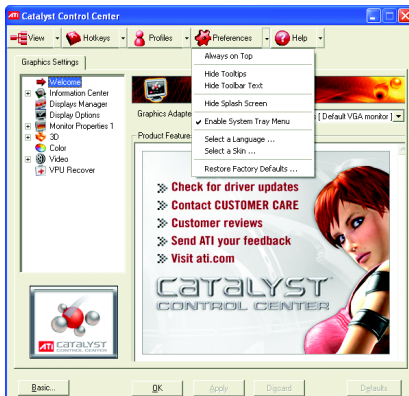
■ Always on Top

■ Hide Tooltips

■ Hide Toolbar Text

■ Hide Splash Screen

■ Enable System Tray Menu

■ Select a Language ...

■ Select a Skin ...

■ Restore Factory 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:
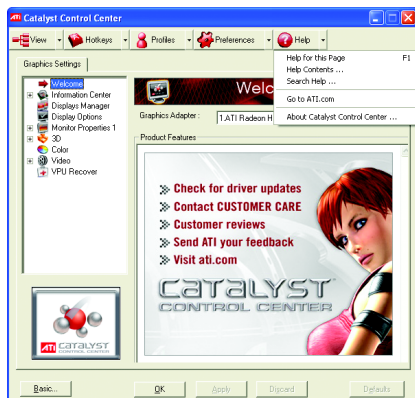
- Help for this Page
- Help Contents ...
- Search Help ...
- Go to ATI.com
- About Catalyst Control Center ...

English

Displays Manager :

Displays Manager is the central location for configuring your display devices and arranging your desktop. Use Displays Manager to quickly change your display setup, arrange your desktop in a multi-monitor environment, and enable TV Out.
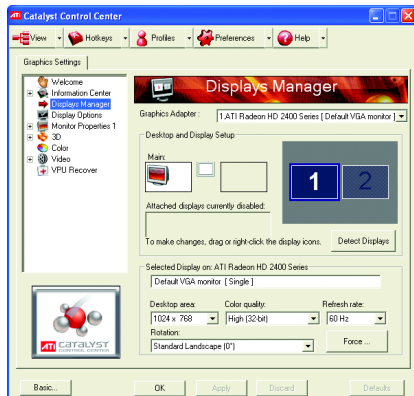
Note: The stretch vertically and horizontally op-
tions are not supported on systems
running Windows Vista™ .

Display Options :

The Display Options aspect gives you additional control to optimize performance of OpenGL® and Direct 3D® applications. Use **3D Refresh Rate Override** to set a refresh rate of your choice when a full-screen application or game has a default refresh rate that is lower than optimal. Choose one of the **Display Detection Options** to prevent screen flicker when detecting a display. If you are using an older TV or one that has non-standard inputs that may not be automatically detected, use **Force TV Detection**.
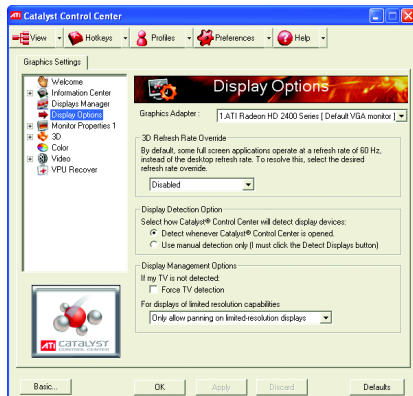
Note: On systems running Windows Vista™ the
3D Refresh Rate Override and the Display
Detection Option to configure panning on
displays with limited resolution capabilities
are not supported since refresh rate is
better controlled by Windows Vista™ and
Windows Vista™ does not support panning.

Monitor Properties1 :

- **Attributes**

  Monitor Attributes provides information about the attached monitor. You can also enable Extended Display Identification Data. Extended Display Identification Data (EDID) uses the information provided by the attached monitor to determine the limits for the resolution and refresh rate.

- **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.

- **HDTV Support**

  Use HDTV Support when your CRT, DFP, or DTV display device supports one or more HDTV modes that are not initially listed in the Displays Manager due to an incomplete EDID (Extended Display Identification Data). Selecting one or both of the HDTV modes adds them to the Force button located in the Displays Manager when the associated display is selected. If you have both CRT and DFP or DTV display devices and want both to support HDTV, select the Add 720... and Add 1080... check boxes in the HDTV Support pages for those devices. (continued...)

The following formats are fully supported:
NTSC, PAL, SECAM.

Warning! Forcing a display mode that exceeds its EDID limits may result in permanent damage to your display!
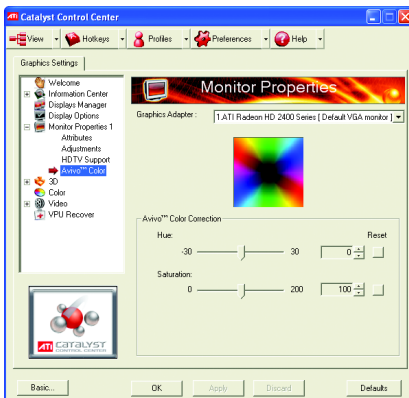
■ Avivo™ Color
Use Avivo™ Color for ATI graphics cards that supports per-display color settings. Independently set the hue, saturation, and temperature for each attached and enabled display.

3D :

■ 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.
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.
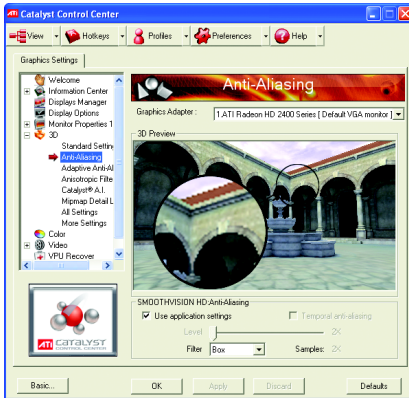
■ Anti-Aliasing

Anti-Aliasing (AA) is a rendering technique de-signed to remove jagged edges, shimmering, and pixelation problems that are common in rendered 3D images. Rather than determining the color to display for each pixel by sampling a single location at the pixel's center, anti-aliasing samples multiple locations within each pixel and blends the results together to produce the final color.

Anti-Aliasing can be set to favor either system processing performance or image quality, or the application can decide:

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

Setting for quality is best used when highly detailed and realistic 3D objects is the most important consideration.

If you are unsure of how to configure anti-aliasing, use the Use application settings option. Your display will automatically adjust to the application's requirements.
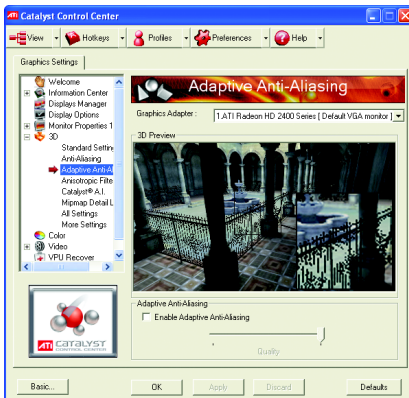
■ Adaptive Anti-Aliasing

Adaptive anti-aliasing is a technique that ap-plies a combination of multi-sampling (MSAA) and super-sampling (SSAA) on 3D objects to improve edge smoothness and fine detail. This feature renders 3D objects containing transpar-encies more realistic, providing exceptional levels of image quality while maintaining performance.
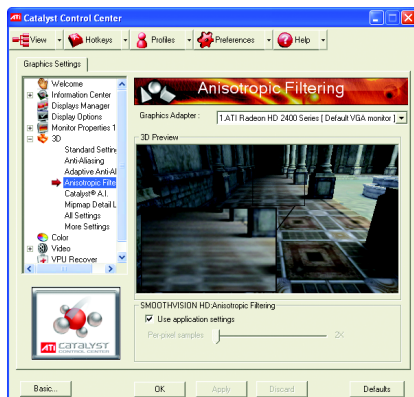
■ Anisotropic Filtering

Anisotropic Filtering is a technique that pre-serves detail on surfaces that have three-di-mensional perspective and fade away into the background. It works best when used in con-junction 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 Use application settings option. Your display will automatically adjust to the application's requirements.
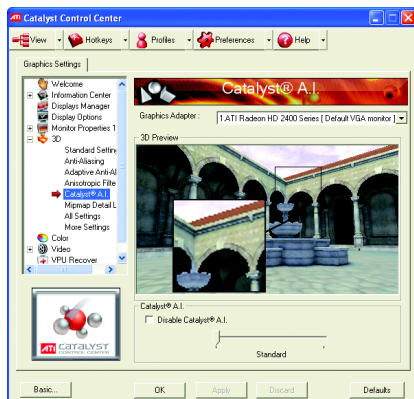
■ CATALYST® A.I.

Catalyst® A.I. makes use of ATI's new texture analyzer technology to optimize performance in 3D applications while maintaining or even improving image quality. It analyzes individual textures as they are loaded to determine the best and fastest way to display them.

■ 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.
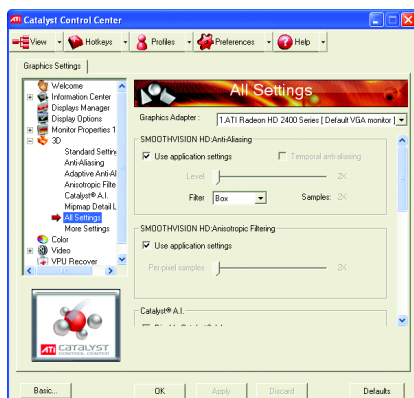
■ All Settings

The All Settings page combines all of the principal 3D features onto a single page, without any preview window, allowing for quick access and adjustment. This page is useful when it is not necessary to preview the adjusted settings because the effect is already known or understood.
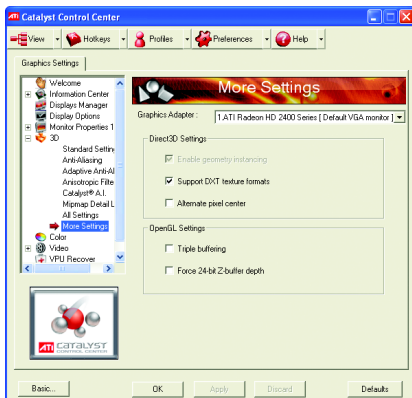
■ More Settings

Use the More Settings dialog to select settings for the Direct 3D® and OpenGL® Application Pro-grammable 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 (Direct 3D® 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 applica-tion uses, consult the documentation of your 3D application.

Note: The Alternate Pixel center Direct 3D® setting is not supported on systems running Windows Vista™. This setting corrected a corruption problem that occurred with some older games that should not occur with modern games.

Color :

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.
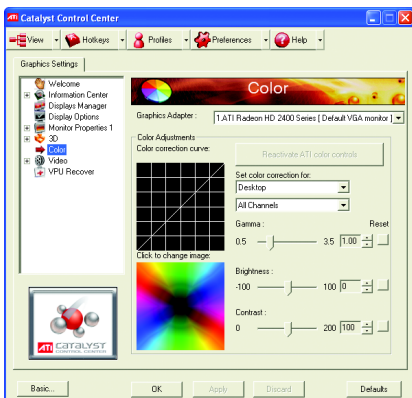
Video :
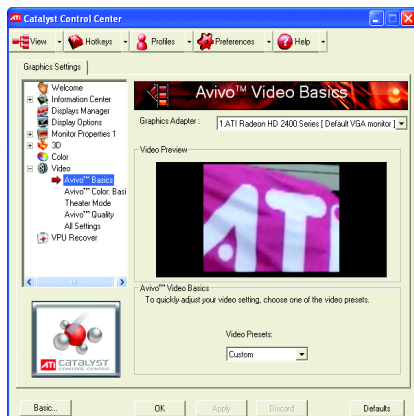
■ Avivo™ Basics

To quickly adjust your video settings choose one of the video presets.

Note: These settings will only affect applications with video overlay support.
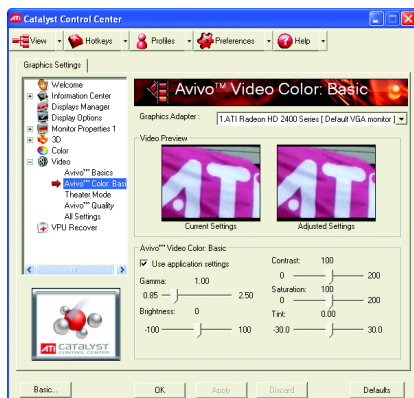
■ Avivo™ Color: Basic

Use the Avivo™ Color: Basic option to manually set Gamma, Brightness, Contrast, Saturation, and Tint for video playback.
Note: Certain video formats do not support these adjustments.

Note: Certain video formats do not support these adjustments. These settings will only affect applications with video overlay support.
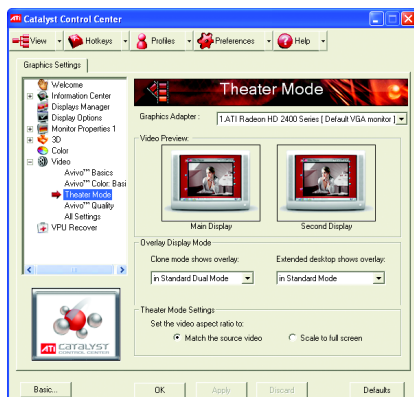
■ Theater Mode

Use Theater Mode to change the way you view streaming video.

Note: These settings will only affect applications with video overlay support. Extended Desktop Mode is not supported on systems running Windows Vista™.
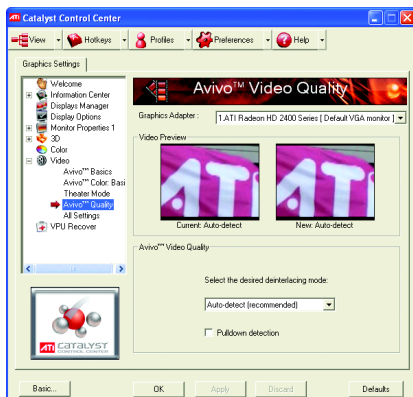
■ Avivo™ Quality

You can enhance the video quality by choosing one of six options for deinterlacing video. Deinterlacing creates a sharp image from the two video fields of interlaced video.

Note: These settings will only affect applications with video overlay support.
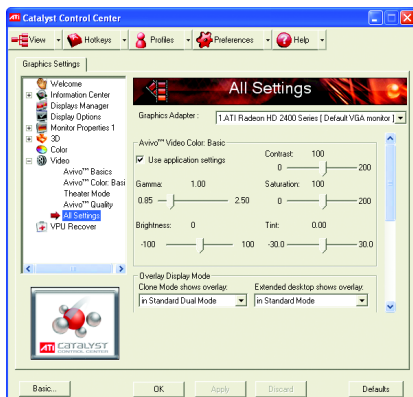
■ All Settings

The All Settings page combines all of the principal Video features onto a single page, without any preview window, allowing quick access and adjustment. This page is useful when it is not necessary to preview the adjusted settings because the effect is already known or understood.

Note: These settings will only affect applications with video overlay support.

VPU Recover :

VPU Recover is a tool capable of detecting the rare situation when the graphics processor is no longer able to respond to display driver commands. When this occurs, VPU Recover attempts to reset the graphics processor so that you are able to continue using your computer without interruption or loss of data. In most cases, VPU Recover will be able to reset the graphics processor without requiring a system restart. If the computer cannot 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 activated, to generate an error report that you can send to ATI via e-mail.

Note: Because Windows Vista™ provides the same functionality as this option, VPU Recover is not available on systems running Windows Vista™.

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 x16 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 in MS-DOS mode

1. Extract the downloaded Zip file to your hard disk(s) or floppy disk. This procedure assumes drive A.
2. Restart the computer in MS-DOS mode. (For Windows 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: gvf19 -s rx24p8h.f1)** and press **Enter**.
5. To flash BIOS, at the A:\> prompt, type [BIOS flash utility name] -p [BIOS file name] **(example: gvf19 -p rx24p8h.f2)** and press **Enter**.
6. Wait until it's done, then restart your computer.

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

Radeon™ HD 2400 Pro Series 2D Single Display Modes

Display Screen Resolution	Maximum Refresh Rate (Hz)	Color Depth (bpp) 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	✓	✓	✓
1440 x 900	60	✓	✓	✓
1600 x 1200	100	✓	✓	✓
1680 x 1050	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™ HD 2400 Pro Series HDTV Display Modes

	Display Screen Resolution	Maximum Refresh Rate (Hz)
480i	640 x 480	30
	704 x 480	30
	720 x 480	30
480p	640 x 480	60
	704 x 480	60
	720 x 480	60
	856 x 480	60
720p	960 x 720	60
	1280 x 720	60
1080i	1920 x 1080	30

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