Fire GL 8800   64/128 MB

User's Guide

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CHAPTER 1

Getting Started

Experience the speed and reliability of the FIRE GL™ 8800 workstation board. Based on the revolutionary next generation geometry and rendering technology from ATI, it delivers affordable high-end workstation 3D/2D graphics acceleration. FIRE GL™ 8800 has an optimized high-powered OpenGL® driver to provide outstanding 2D and 3D performance. Perfect for MCAD, 3D game development and other demanding applications, the FIRE GL™ 8800 will increase your productivity by enhancing your workstation's performance.

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- **Quick Installation** on page 6

Using this Guide

For your convenience, this online User's Guide has been formatted as an Adobe® Acrobat® PDF file. This format gives you great flexibility when using this documentation.

Many hyperlinks provide easy access to any information you may want. To make it useful in a printed format, too, a - hyperlinked - table of contents and page numbers are provided.

Because it was designed to be used online and printed, some of the images may not print clearly or appear very clearly on screen.

The organization of this Guide is as follows:

Installing the Hardware and Software on page 7 provides instructions for installing your Fire GL 8800 card and software and connecting video output devices to your card.

Using Your Fire GL 8800 on page 25 explains how you can take advantage of the advanced software utilities of your Fire GL 8800.

Reference on page 40 provides troubleshooting tips and regulatory compliance information for your card.

HYDRAVISION for Fire GL provides information on installing and using ATI®HYDRAVISION™, a desktop management utility to control multiple display desktops.

Viewing the User's Guide Online

You can also read the User's Guide online—important hypertext links, such as Table of Contents entries, World Wide Web, and email addresses are active.

Place your mouse cursor over Table of Contents entries or main headings. If the hand icon changes to a pointing index finger, simply click and you will move to that place in the document. Some email or World Wide Web addresses inside this manual may be active as well. Go directly to a Web, FTP site, or email program simply by clicking on an active link. Displaying the provided bookmark and thumbnail views may help you with the orientation and navigation in the User's Guide.

This manual might be displayed with slightly-reduced magnification in your Reader. If you experience any difficulty reading certain files online, use the Reader's **Zoom To** feature from the **View** menu and increase the magnification to about 150%. To view some screenshot images perfectly clear you may need a larger magnification.

Do you Need a Printout of the Online User's Guide?

You can easily print this User's Guide to access it off-line. The manual then will look like any standard document with a table of contents and page numbers.

For printing the User's Guide, a print resolution of 600 dpi -or higher - is recommended.

Fire GL 8800 Features

- RADEON™ 8800 GPU and 64 MB or 128 MB DDR memory
- CHARISMA ENGINE™ II supports full Transformation, Clipping and Lighting (T&L) at 75 million triangles/second peak processing capability
- PIXEL TAPESTRY™ II, the 3D rendering engine, powers 2.4 Gigatexels/second for fast fill rates in 32-bit true color resolution
- VIDEO IMMERSION™ II, industry leading video technology
- Full DirectX 8.1 support
- High resolutions up to 2048 x 1536
- DDC1/2b/2b+ monitor support on all operating system platforms
- DualScreen resolutions up to 2x 1600x1200, 32-bit
- Dual monitor support:
- Single screen Analog
- Single screen DVI (Digital)
- DualScreen Analog + Analog
- DualScreen Analog + Digital
- Optimized OpenGL® software drivers
- Simultaneously run in wire-frame and shaded mode, open or close multiple windows and menus without compromising performance
- Customize and tune applications to meet your specific requirements using the display profile utilities

Note:	For more detailed information on features and performance please refer to the section *Technical Details* on page 45.

System Requirements and Tools

Computer system	- Pentium® 4/III/II/Celeron™; AMD® K6/Athlon® or compatible 128 MB of system memory 256 MB for best performance - Motherboard with free AGP 2x/4x slot - CD-ROM drive
Operating system	- Windows® NT 4.0 with Service Pack 5 (or higher) - Windows® 2000 with Service Pack 1 (or higher) - Windows® XP
Service Pack Information for Windows NT 4.0 and Windows 2000	You must be running Windows NT 4.0, updated with Service Pack 5 (or higher) prior to installing the Fire GL 8800 drivers. For some languages you can perform the Windows NT 4.0 Service Pack update from the Fire GL CD when you run the Quick Start utility. You must be running Windows 2000, updated with Service Pack 1 (or higher) prior to installing the Fire GL 8800 drivers. The Service Packs are available from Microsoft's web page, www.microsoft.com.
Tools	- A screwdriver to remove and reinstall the PC cover screws and card mounting screws. See your PC manual for specific requirements. - Fire GL CD-ROM for Fire GL 8800
Monitor	- High-resolution MultiSync or multi-frequency monitors or other VGA monitors. To connect a VGA monitor to the DVI connector you may use the provided VGA-to-DVI adapter. - Digital flat-panel (DFP) TFT LCD displays and digital CRT displays

Quick Installation

- Brief instructions on how to get to work with the Fire GL 8800 in the shortest possible time.

- Recommended for experienced users and system administrators only.

- For more detailed information on installation and operation of your graphics accelerator, please refer to the corresponding sections of the *Fire GL 8800 User's Guide.*

Installation Steps

1   Un-install the drivers and software for your old graphics card.

2   Set the display driver to **Standard VGA** (only for Windows NT 4.0).
Disable any on-board graphics solution on the motherboard.

3   Shut down and disconnect your computer system.

4   Remove the installed (AGP, PCI, or ISA) VGA card.

5   Install the new Fire GL 8800 card.

6   Reassemble and connect your computer system.

7   Install the Fire GL 8800 drivers and configuration software from the Fire GL CD:

- *automatic Quick Start utility or*

- ***Start > Run > X:\START EXE***
*where **X** is the drive letter of your CD-ROM drive*

CHAPTER 2

Installing the Hardware and Software

IN THIS CHAPTER

- **Installing the Hardware** on page 7
- **Installing the Software** on page 20

Installing the Hardware

The hardware installation includes the following steps:

- **Preparing your Computer**
- **Installing the Card**
- **Connecting the Cables and Completing the Installation**

Preparing your Computer

Turn off the power to your system and discharge your body's static electric charge by touching a grounded surface—for example, the metal surface of the power supply—before performing any hardware procedure.

The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel. If you do not feel comfortable performing the installation, consult a qualified computer technician.

Damage to system components, the accelerator card, and injury to yourself may result if power is applied during installation.

Information Before you Start	
What do you need to use your Fire GL 8800?	**System Requirements and Tools** • Motherboard with free AGP 2X/4X slot. • 128 MB of system memory 256 MB for best performance • System interrupt (IRQ) which is free. This may have to be reserved in the computer's BIOS. For help with this subject, refer to the manual for your mainboard • Pentium® 4/III/II/Celeron^{TM}; AMD® K6/Athlon® or compatible • Supported operating system - Windows® NT 4.0 with Service Pack 5 (or higher) - Windows® 2000 with Service Pack 1 (or higher) - Windows® XP • A screwdriver to remove and reinstall the PC cover screws and card mounting screws. See your PC manual for specific requirements. • Fire GL CD-ROM for Fire GL 8800

What type of monitors do you need?	Your Fire GL 8800 is optimally configured to be combined with digital flat-panel (DFP) TFT LCD displays and digital CRT displays. You can also connect the Fire GL 8800 to high-resolution MultiSync or multi-frequency monitors or other VGA monitors. To connect a VGA monitor to the DVI connector you may use the provided VGA-to-DVI adapter. **Notes:** (1) You need a Plug-and-Play monitor that supports VESA's Display Channel specifications (DDC1 or DDC2) to take advantage of the DDC1/DDC2b+ features (2) You can use the full power of the graphics card only if your monitor supports the horizontal (kHz) and vertical (Hz) refresh rates as required by the graphics card. Refer to your monitor's documentation for recommended refresh rates
Where are the drivers?	• Windows NT 4.0, Windows 2000 and Windows XP drivers are provided on the Fire GL CD.

Are you planning a multi-monitor system?	• You may connect two monitors to the Fire GL 8800. • If DDC support is available, the respective resolution and refresh rate for each monitor is automatically detected. • Desktop Management utilities HYDRAVISION^{TM} DualScreen
Are you installing your Fire GL 8800 in place of a card from another manufacturer?	Before you install your Fire GL 8800 card, we recommend that you first uninstall the the driver for your current graphics card. Windows NT 4.0: Reconfigure your operating system to use the standard display driver (VGA). For more information about changing to the VGA driver, see your operating system documentation.
Do you have an integrated graphics solution on the motherboard?	Please refer to the manual or contact your motherboard manufacturer to determine how to disable your on-board graphics.
Plug-n-Play?	The card has been designed to take advantage of 'plug–n-play' without requiring additional hardware installation or configuration.
The illustrations do not show your card?	The illustrations provided in this section are for instructional use only; the card shown may look different than the one you purchased.

Setting the Display Driver to Standard VGA

To avoid possible driver conflicts between your old and new graphics card, install the standard VGA driver for your operating system. Install the standard VGA driver before you shut down your computer and remove the installed (AGP, PCI, or ISA) VGA card.
Note: Installing the standard VGA driver is not required for Windows 2000 and Windows XP.

Installing the Standard VGA Driver for Windows NT 4.0

1   From the Start menu, go to **Start > Settings > Control Panel**, then double-click on **Display**. The **Display Properties** sheet appears.

2   Click the **Settings** tab; then click the **Display Type** button.

3   Under **Adapter Type**, click the **Change** button. The **Change Display** window appears.

4   Under Manufacturers, select (Standard display types). Under Display, choose VGA compatible display adapter.

5   Click **OK**. You may need to insert your Windows NT 4.0 CD-ROM.

6   Click **Close** and **OK** as often as necessary to accept the changes.

7   Windows asks you if you want to restart your computer. Click **No**.

8   Shut down your computer. You are now ready to remove your old graphics card and install your new Fire GL 8800 card.

Installing the Card

To install your graphics accelerator card, follow these steps:

1   **Switch off your computer and all external options (monitor, printer, and others).** Then disconnect all cables from the back of your computer. Unplug all power cables from the electrical source.
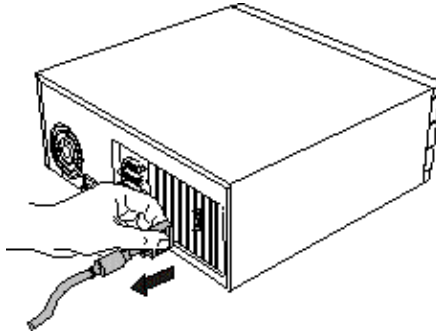
Note: If you are disconnecting a peripheral from the computer or are removing a component from the system board, wait 10 - 20 seconds after disconnecting the computer from the electrical outlet before disconnecting the peripheral or removing the component to avoid possible damage to the system board. To verify that all power has been removed from the system, make sure that the standby power light-emitting diode (LED) on the system board has gone out.

2   **Remove the computer cover.** If necessary, consult your computer system manual about removing the cover.
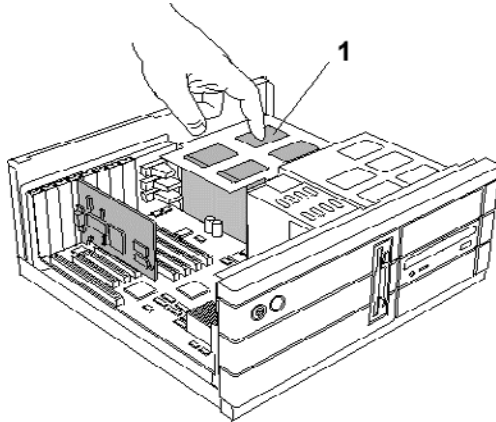
1   Power Supply

Remember to discharge your body's static electricity by touching the metal surface of the computer chassis

3   **Remove any existing graphics card from your computer.**
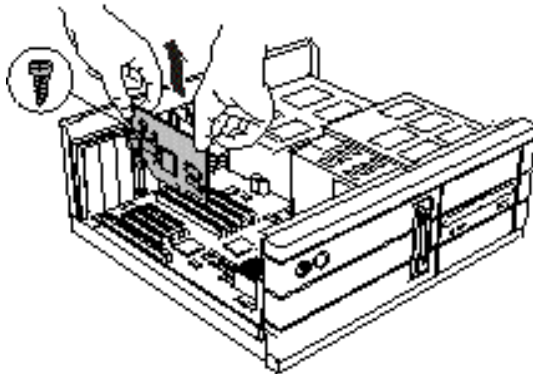
If the old graphics card sticks rock it gently from end to end. Remember to save the screw.

If your computer has any **on-board graphics capability**, you may need to **disable** it on the motherboard. Refer to your computer's manual for more information.

4   **Insert the card into the AGP slot.**
Note: You can use the Fire GL 8800 in either AGP 2x/4x or AGP 2x slots.

- Locate the AGP 2x/4x slot. Compare the expansion slots in your computer with the following illustration:
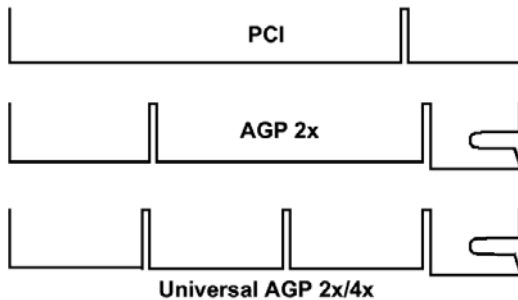
- If necessary, remove the metal slot cover from the AGP slot. Save the screw to secure the graphics card later.
- **Align the Fire GL 8800 with the AGP slot, and press it in firmly until fully seated.**
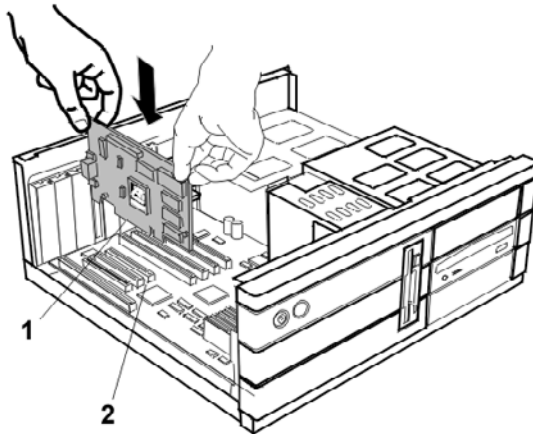
1   Fire GL 8800 card
2   AGP expansion slot

AGP cards are designed to fit one way only. Be sure your card is properly aligned
Grasp the card by the top edge and carefully seat it into the AGP slot. Be sure the metal contacts are completely pushed into the seat

5   **Replace the screws to fasten the card in place.**
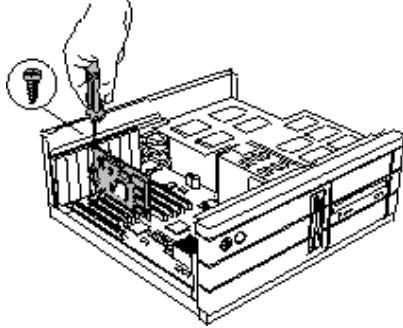
- Align the slot in the mounting bracket of the card with the screw hole in the rear panel of the computer case.

- Use the screws you removed from the expansion slot cover or a previously installed graphics card to secure the card in place.

6   **Reassemble your computer.**

- Secure ribbon cables and gently push them down and out of the way before you replace the system cover.

- Replace the computer cover.

- Reconnect any peripheral equipment cables you may have disconnected.

Connecting the Cables and Completing the Installation

Connecting the Monitor Cables

You may connect one or two monitors, either analog VGA or DFP/digital CRT to the Fire GL 8800.

The Fire GL 8800 supports the following monitor combinations:

- single monitor – VGA

- single monitor - DFP/digital CRT

- dual monitor - VGA + VGA (you need the provided DVI-to-VGA adapter)

- dual monitor - VGA + DFP/digital CRT

Note	The Fire GL 8800 does not support the dual monitor combination DFP/digital CRT + DFP/digital CRT

Connecting analog VGA Monitors

Securely attach the monitor's data cable to the 15-pin VGA output connector (1) on the card. Attach the cable to the monitor according to the monitor's instructions.
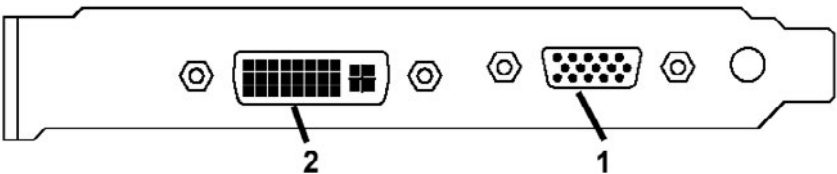
Note	Please use the DVI-to-VGA adapter provided with your card to connect a second VGA monitor to the DVI connector (2).
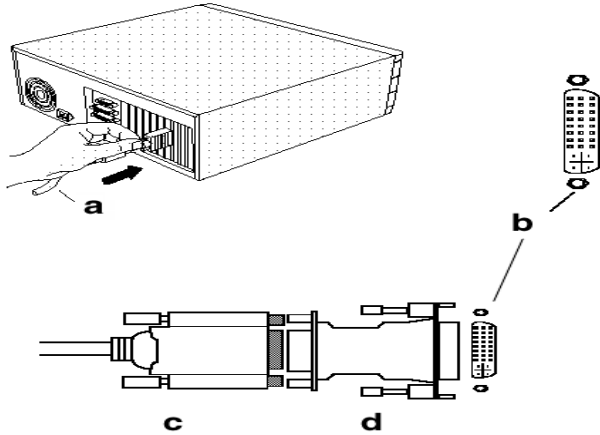
a	Display cable	c	VGA connector from monitor
b	DVI-I connector on card	d	VGA to DVI- I adapter

Connecting a Digital Flat-Panel (DFP) Monitor or Digital CRT Monitor

Securely attach the monitor's data cable to the DVI output connector (2) on the card. Attach the cable to the monitor according to the monitor's instructions. Please refer to the documentation that came with your monitor if you need additional installation information.
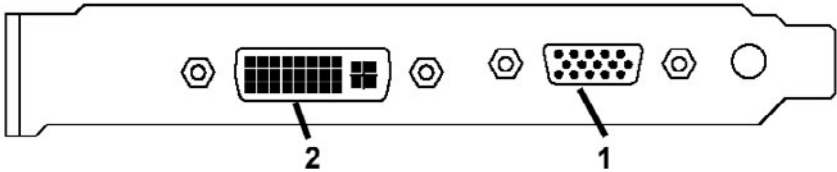
Setting the Monitor Impedance

If you can switch the impedance values on your monitor, use the following recommended settings:

- RGB video input: 75 Ohm
- Synch: 2.2 kOhm

Try other 'Synch' settings if you cannot achieve a stable video image.

If the impedance setting options are 'High' and 'Low' only, try the setting that provides the most satisfactory monitor display.

Start your System

Switch on your monitor before you switch on your computer. Failing to do so could damage your monitor.
If you have correctly installed the card, operating system messages will appear on your monitor when the boot procedure is finished.

Note	Your monitor is running in standard VGA mode. Higher refresh rates etc. are not available at this stage of the installation. After you have successfully installed the Fire GL 8800 drivers you can use the dialogs in the **Display Properties** menu to adjust the video settings and set up a multi-monitor configuration.

Your System Does Not Start as it Should?

- Check again to verify that the installation instructions were properly followed.

- Check that the card is properly installed in your system and connected to your monitor.

- Refer to the documentation that came with your monitor:
  Check your connections to the video and power cables.
  Try adjusting the brightness, sharpness, and contrast controls of your monitor.

- If you have problems during start-up, restart your computer in **SAFE MODE.**
  In Windows® 2000 and Windows® XP, press and hold **F8** until you see the Windows® Advanced Options Menu. Use the arrow keys to select **Safe Mode**, and press **Enter**.

- Check the system configuration utility of your operating system for the interrupt assignments.

- Please refer to the *Troubleshooting* section for more information, if it appears that the card is not performing optimally.

- Contact the Technical Support.

Installing the Software

- **Before you Start: Information, Tips and Hints**
- **Software Installation for Windows NT 4.0**
- **Software Installation for Windows 2000 and Windows XP**

You will need to install the Fire GL 8800 drivers and software in the following cases:

- After you have installed the card to your system.

- After you have re-installed or upgraded your operating system.

Notes	(1) To install or remove the Fire GL 8800 drivers, you need administrator rights or you must be logged on as a user with administrator rights under Windows NT, Windows 2000 and Windows XP. (2) Information for Windows NT 4.0: You must have Microsoft Windows Service Pack 5 (or higher) installed prior to installing the Fire GL 8800 drivers. The Service Pack is available from Microsoft's web page, www.microsoft.com. For some languages you can also perform the Service Pack update from the Fire GL CD when you run the Quick Start utility. (3) Information for Windows 2000: You must have Microsoft Windows Service Pack 1 (or higher) installed prior to installing the Fire GL 8800 drivers. The Service Pack is available from Microsoft's web page, www.microsoft.com.

Before you Start: Information, Tips, and Hints

Before you install the drivers for your Fire GL 8800 accelerator, make sure your monitor cable is properly attached to the card.

Do you need a special driver installation?

The software installation procedure later in this chapter describes how to install the drivers for your graphics card after you have installed the new card for the first time and have rebooted your computer.

This section offers some additional tips if you want or need to install the graphics card drivers in a special working scenario, for example, if you have re-installed your operating system, or if you want to perform a manual installation.

- You can always install the drivers using the *Quick Start* utility on the Fire GL CD.
  The Quick Start utility will start automatically, if you insert the Fire GL CD into your CD-ROM drive after the operating system has started. If your CD-ROM auto-run is not enabled and/or the Quick Start program does not start automatically:
  Click the **Start** button in the task bar, click **Run**, and then select START.EXE from the root directory of the Fire GL CD.

- Select **Readme** from the **Fire GL CD** start menu to display a readme file. Refer to this file for additional and 'last minute' information. Information in this file may not appear in printed documentation or online help.

- Where are the drivers? When prompted for a driver installation CD, insert the **Fire GL CD** and enter or browse to the path corresponding to your operating system**.**
  \NT4 - for Windows NT 4.0
  \NT5 - for Windows 2000
  \XP - for Windows XP

- You must be running Windows XP, Windows 2000 - updated with Service Pack 1 (or newer), or Windows NT 4.0 - updated with Service Pack 5 (or newer), before installing the Fire GL 8800 drivers.

HYDRAVISION[TM] Desktop Management

The HYDRAVISION[TM] desktop management software will install automatically with the standard driver installation of the Quick Start program. If you do not want to install HYDRAVISION[TM] select the **Custom** driver installation and deselect HYDRAVISION[TM].

ReadMe file

Select **Readme** from the **Fire GL CD** start menu to display a readme file. Refer to this file for additional and 'last minute' information. Information in this file may not appear in printed documentation or online help.

Driver installation dialog

The installation dialog will display in English if your operating system's language is not supported.

Software Installation for Windows NT4.0

1   Run the Quick Start utility. The Quick Start utility will start automatically, if you insert the Fire GL CD into your CD-ROM drive after the operating system has started. If your CD-ROM auto-run is not enabled and/or the Quick Start program does not start automatically:
Click the **Start** button in the task bar, click **Run**, and then select START.EXE from the root directory of the Fire GL CD.

2   Click **Start Installation**.

Note	If your Windows NT 4.0 is not correctly updated with Service Pack 5, you are prompted if you want to install the drivers and Service Pack at this time – if the appropriate language version is available on the Fire GL CD. If the Fire GL CD cannot install the Service Pack to your system, the driver installation stops. Obtain Windows NT Service Pack 5 (or higher) from Microsoft, update your Windows NT 4.0, and run the Quick Start utility again

3   Click the button corresponding to the type of installation you want. If you select **Custom**, a list of software components will be displayed. Select the check boxes to specify the components you want to install.

4   Click **Next** to continue the installation.

5   When the **ATI FGL Install** dialog displays the components to be installed click on **Next**. (Depending on which components you chose different windows might appear. Click on the corresponding buttons to continue the installation.)

6   When the **Installation complete** message appears click **Next** again. This will restart your computer.

7   Click **Start > Settings > Control Panel > Display > Settings**, or right-click on the Windows desktop, select **Properties** and **Settings**.

8   Set the resolution, color depth, and refresh rate that best suit your requirements and your monitor's performance.
Note: Use the *ATI Monitor* and *DualScreen* dialogs to adapt each monitor's settings in a dual-monitor configuration.

9   Click **OK**.

Software Installation for Windows 2000 and Windows XP

1   Start your system. When the **Found New Hardware Wizard** comes up, click **Cancel**. When the **System Settings Change** window asks you to restart your computer, click **No**.

2   Run the Quick Start utility. The Quick Start utility will start automatically, if you insert the Fire GL CD into your CD-ROM drive after the operating system has started. If your CD-ROM auto-run is not enabled and/or the Quick Start program does not start automatically:
Click the **Start** button in the task bar, click **Run**, and then select START.EXE from the root directory of the Fire GL CD.

3   Click **Start Installation**.

Note	Windows 2000: If your Windows 2000 is not correctly updated with Service Pack 1, the driver installation stops. Obtain Windows 2000 Service Pack 1 from Microsoft, update your Windows 2000, and run the Quick Start utility again

4   Click the button corresponding to the type of installation you want. If you select **Custom**, a list of software components will be displayed. Select the check boxes to specify the components you want to install.

5   Click **Next** to continue the installation.

6   When the **ATI FGL Install** dialog displays the components to be installed click on **Next**. (Depending on which components you chose different windows might appear. Click on the corresponding buttons to continue the installation.)

7   When the **Installation complete** message appears click **Next** again. This will restart your computer.

8   After Windows 2000/Windows XP reboots, the **Found New Hardware** message displays the **Digital Signature Not Found** dialog and prompts you **Do you want to continue the installation?** Click **Yes** to install and start the drivers.

9   Click **Start > Settings > Control Panel > Display > Settings**, or right-click on the Windows desktop, select **Properties** and **Settings**.

10 Set the resolution (**Screen area**), and color depth that best suit your requirements and your monitor's performance.

11 Click the **Advanced** button and select the **Monitor** tab.

12 Set the refresh rate for the monitor connected to the Fire GL 8800 graphics accelerator in your system.
      Note: If you have two monitors connected this setting applies to the monitor connected to the VGA connector. Use the *ATI Monitor* and *DualScreen* dialogs to adapt each monitor's settings in a dual-monitor configuration.

13 Click **OK** until you are on the Windows desktop.

Note	Refer to your Windows online help and documentation for further information on using the **Monitor** and **Settings** dialogs.

CHAPTER 3

Using Your Fire GL 8800

IN THIS CHAPTER

- **Changing the Video Settings** on page 26
- **Configuring Application Profiles** on page 37

SEE ALSO

- **HYDRAVISION for Fire GL**

As part of its Windows drivers, Fire GL 8800 installs additional property pages to your **Display Properties** control panel. They are named as follows.

Information
DualScreen
ATI Monitor
Adjustment
Configuration

The **Information** dialog displays some card-specific hardware and driver information. This information may be helpful when contacting Tech Support.

Use the *DualScreen* dialog to set up a dual-monitor desktop configuration.

Use the *ATI Monitor* and *Adjustment* dialogs, together with the **Settings** and **Windows Monitor** dialogs, to select your monitor(s) and adjust the screen display, resolution, and refresh rate.

Use the *Configuration* dialog to customize application profiles for individual application settings.

Changing the Video Settings

The dialogs in the **Display Properties** menu allow setting and adjusting the video settings to best suit your specific requirements.

How to Switch to the Display Properties?

1   Start Windows.

2   After Windows has finished booting, click **Start > Settings > Control Panel**.

3   Double-click the **Display** icon. The **Display Properties** window appears.

Notes	(1) You can also display the **Display Properties** window by right-clicking the Windows Desktop background and then selecting the **Properties** option from the pop-up menu. (2) Windows 2000 / Windows XP: Click the **Advanced** button in the **Settings** dialog to gain access to the **Monitor**, **ATI Monitor**, **Adjustment**, and **DualScreen** dialogs

Setting Resolution, Color Depth and Refresh Rate

Windows NT 4.0

1   Select the **Settings** dialog in the **Display Properties** window.

2   Set the resolution (**Desktop Area**), **Color Palette** and **Refresh Frequency** that best suit your requirements and your monitors' performance.
Note: The resolution setting applies to both monitors, if you have two monitors connected to the Fire GL 8800.

Windows 2000 / Windows XP

1   Select the **Settings** dialog in the **Display Properties** window.

2   Set the resolution (**Screen area**) and **Colors** that best suit your
      requirements and your monitors' performance.
      Note: The resolution setting applies to both monitors, if you
      have two monitors connected to the Fire GL 8800.

3   Select the **Windows Monitor** dialog via **Display Properties**
      > **Settings** > **Advanced** > **Monitor**.

4   Select the refresh rate from the **Refresh Frequency** box. If
      you have two monitors connected, the refresh rate setting applies
      to the monitor connected to the VGA connector. Use the *ATI
      Monitor* dialog to set the refresh rate of the second monitor
      Note: Refer to your Windows online help and documentation
      for further information on using the **Monitor** dialog.

Notes	(1) Check the documentation of your monitor(s) and make sure that each monitor supports the planned resolution and refresh rate setting.
	(2) Use the *DualScreen* dialog (in Windows 2000 / Windows XP: **Settings\Advanced\DualScreen**) to set up your two-monitor desktop.
	(3) Use the *ATI Monitor* dialog (in Windows 2000 / Windows XP: **Settings\Advanced\ATI Monitor**) to select and set your specific monitor(s). Use the *Adjustment* dialog (in Windows 2000 / Windows XP: **Settings\Advanced\Adjustment**) to adapt the display of the monitors connected to the Fire GL 8800.

Setting a DualScreen Configuration

Note	For settings in the **DualScreen** dialog you need the following: - Two monitors connected to the card - Both monitors switched on when you start your computer

1   **Windows NT 4.0**: Select the **DualScreen** dialog in the **Display Properties** window.
Windows 2000 / Windows XP: Select the **DualScreen** dialog via **Display Properties** > **Settings** > **Advanced** > **DualScreen**.
Refer to the context sensitive online help for more information on setting up your DualScreen configuration.
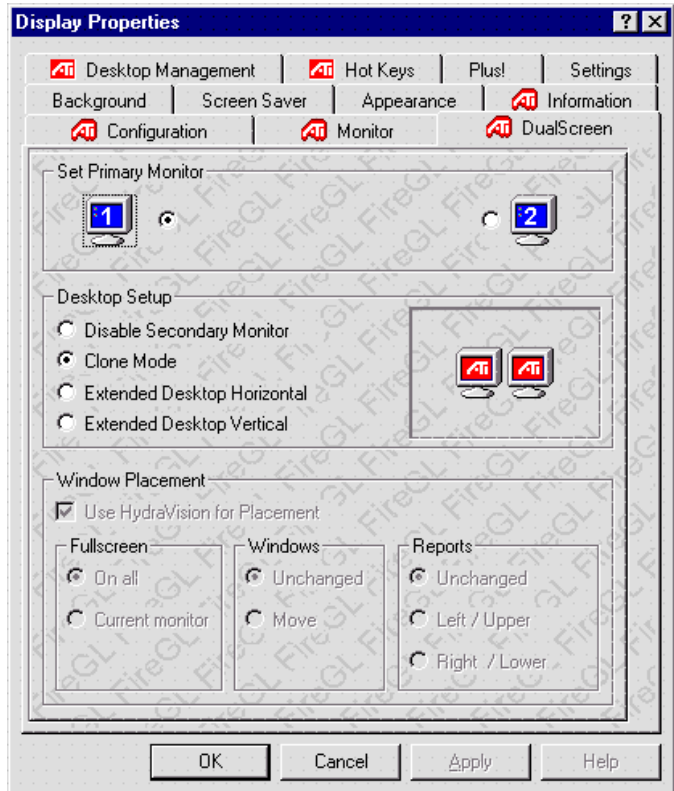
2   Select your **Primary Monitor**. The primary monitor is the left monitor or top monitor, respectively, of a multiple-monitor desktop. Monitor icon **1** is for the monitor connected to the VGA connector, monitor icon **2** is for the monitor connected to the DVI connector.

3   Select your **Desktop Setup**
Select **Disable Secondary Monitor** if you want to work in single-monitor mode with the primary monitor.
Select **Clone Mode** if you want the display of the primary monitor duplicated on the second monitor.
Select **Extended Desktop Horizontal** if you want to see the left section of your display on the primary monitor and the right section on the second monitor.
Select **Extended Desktop Vertical** if you want to see the upper section of your display on the primary monitor and the lower section on the second monitor.

Note	The **Extended Desktop** settings will deselect the *hiding modes that the computer cannot display* option in the **Monitor** panel. Do not reset this option manually if you have an **Extended Desktop** enabled.

4   Select the **Window Placement** settings
Check **Use HydraVision for Placement** to define your window placement with the HYDRAVISION™ desktop management software.

Note	HYDRAVISION™ installation is an option of the video driver installation and may not be automatically installed on your system.

Fullscreen
Select if you want a full screen window displayed **On all** monitors, or only on the **Current monitor** - that is the monitor where your mouse cursor currently is.

Windows

Select how you want to display sizeable windows that normally appear in the middle of the screen:

- **Unchanged**, or

- **Move**d fully to that monitor where the top left corner of the window is.

Reports

Select a monitor where you want to display Windows messages that normally display in the middle of the screen. This keeps the screen area of the other monitor free for your work. You may alternatively opt for displaying the reports Unchanged.

5   Click the **Apply** or **OK** button to enable your **DualScreen** settings.

Notes	(1) Both monitors will operate with the same resolution. Check the documentation of your monitors and make sure that each monitor supports your resolution and refresh rate setting.
	(2) The **Settings** dialog will display the corresponding **DualScreen** resolution. For example, 1024x768 is a single-screen resolution, using only one monitor. 2048x768 indicates the same resolution for **Extended Desktop Horizontal** using both monitors, and 1024x1536 indicates the same resolution for **Extended Desktop Vertical** using both monitors
	(3) Refer to your Windows online help and documentation for further information on using the **Settings** dialog.
	(4) Use the *ATI Monitor* dialog (in Windows 2000: **Settings\Advanced\ATI Monitor**) to select and set your specific monitor(s). Use the *Adjustment* dialog (in Windows 2000 / Windows XP: **Settings\Advanced\Adjustment**) to adapt the display of the monitors connected to the Fire GL 8800.

Selecting your Monitor

1   **Windows NT 4.0**: Select the **ATI Monitor** dialog in the
      Display Properties window.
      Windows 2000 / Windows XP: Select the **ATI Monitor** dialog
      via **Display Properties** > **Settings** > **Advanced** > **ATI
      Monitor**.

	In Windows 2000 / Windows XP the **ATI Monitor** dialog is not active - if you have only one monitor connected to the card - if you have disabled the secondary monitor in the *DualScreen* dialog.
Note	Use the **Windows Monitor** dialog (**Display Properties** > **Settings** > **Advanced** > **(Windows) Monitor**) to select your specific monitor.
	Use the *Adjustment* dialog (in Windows 2000 / Windows XP: **Settings\Advanced\Adjustment**) to adapt the display of the monitors connected to the Fire GL 8800.

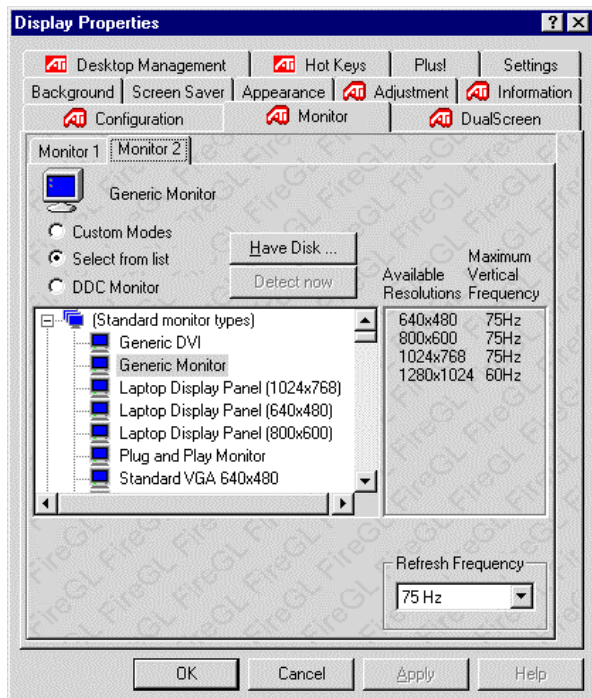You can customize the settings of the connected monitors. For more information on setting up the monitors refer to the context sensitive online help.

2   Click the tab for the monitor you want to set up. **Monitor 1** is the monitor connected to the VGA connector, **Monitor 2** is the monitor connected to the DVI connector.

3   Set the desired operation mode for your monitor.

Custom Modes

Use resolution and refresh rates for this monitor as specified in the **Settings** dialog and menus in **Display Properties**. This option allows you to take full advantage of the resolution/refresh rate capabilities of the video chip.

> **Warning!** Selecting a resolution or refresh rate that your monitor does not support can permanently damage the monitor.
> Check the monitor's documentation and verify that it supports the selected resolution and refresh.

Select from list

Use resolution/refresh rate settings optimized for your specific monitor.

- Select your monitor from the displayed monitor list. To select your monitor, scroll to the manufacturer of your monitor and highlight the manufacturer in the list. Click on the **+** sign and select your monitor.
  A list on the right menu pane displays resolutions and - for each resolution - the maximum refresh rate, as supported by the selected monitor.
  If the current video mode (specified in the **Settings** dialog) is not supported by the selected monitor, the resolution/refresh rate setting will be automatically reduced.

- Click the **Apply** or **OK** button to enable your monitor selection.

Select from list (continued)

If the list does not display your monitor type and you have a disk from the monitor manufacturer, use the **Have Disk** button to import the monitor information to the internal monitor list.

- Click the **Have Disk** button, insert the disk, and select the directory or file containing information about your monitor.
- Then select your monitor and click the **Apply** or **OK** button.
- Click the **Display FireGL Monitor List** button to switch the displayed monitor list back from the manufacturer's disk to the internal monitor list..

DDC Monitor

Select this option and click the **Apply** or **OK** button if you want the driver to automatically decode the monitor's DDC (Display Data Channel) information on each reboot or Windows start.

To detect a new DDC monitor immediately, click the **Detect now** button. An error message will be displayed if the connected monitor does not support DDC

Refresh Frequency

for **Monitor 2** - the monitor connected to the DVI connector - only.

Select the desired refresh rate. All refresh rates supported by the monitor for the currently selected resolution are displayed.

NOTE: Use the **Settings** or (Windows) **Monitor** dialogs of the **Display Properties** to set the refresh rate for **Monitor 1** - the monitor connected to the VGA connector

4   Click the **Apply** or **OK** button to enable your monitor settings.

Adjusting the Monitor Display

Using this dialog you can adjust the display of the connected monitor(s). For more information on adjusting the monitor's display refer to the context sensitive online help.

1   **Windows NT 4.**0: Select the **Adjustment** dialog in the
   Display Properties window.
   Windows 2000 / Windows XP: Select the **Adjustment** dialog
   via **Display Properties > Settings > Advanced >**
   Adjustment.
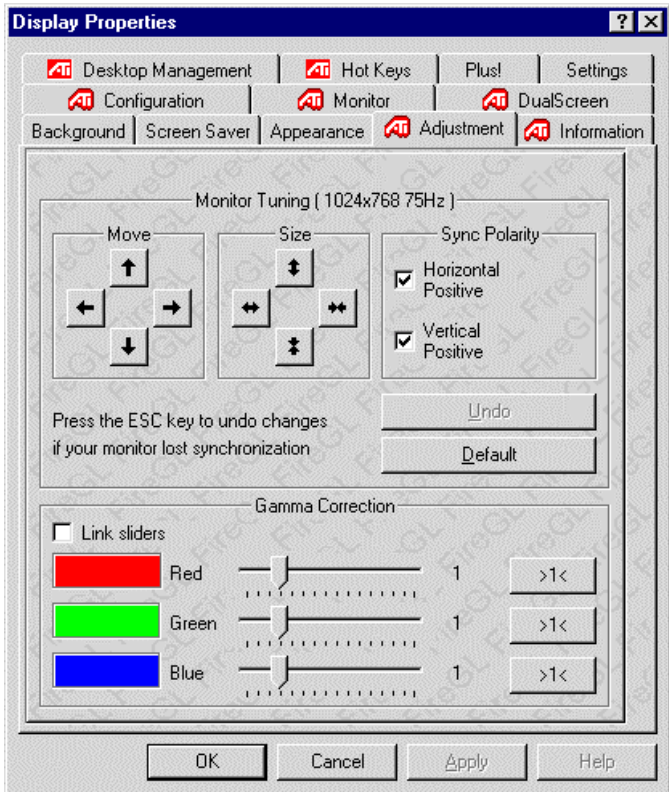
2   **Monitor Tuning**:

Note	**Monitor Tuning** is available only for VGA monitors. If you have two monitors connected to the Fire GL 8800: **Monitor 1** is the monitor connected to the VGA connector, **Monitor 2** is the VGA monitor connected to the DVI connector.

- With the buttons in the **Move** and **Size** sections you can tune the position and size of the monitor's display for the indicated resolution and refresh rate

Notes	(1) Use the hardware setting controls on your monitor, if available, to adjust your display size or position - instead of the software controls in **'Adjustment - Monitor Tuning**.' Check the documentation of your monitor for information on your monitor's hardware controls (2) Resizing the display slightly changes the actual refresh rate. If you operate a fixed-frequency monitor check the documentation of your monitor for information on refresh rate tolerances.

- **Sync Polarity**: If you do not get a satisfactory display with the default sync polarity setting for the current resolution, you may try and change the settings.

- **Undo**: Click this button to undo the last change you made (when you clicked **Apply**). If you have made a modification that causes your screen to go blank or to be unreadable, the keyboard shortcut for 'Undo' is **Alt-U**.

- **Default**: Click this button to set the **Monitor Tuning** to the manufacturer's default settings.

| **Notes** | (1) Press the **ESC** key on your keyboard to undo the changes if your monitor has lost synchronization. You may also use the keyboard shortcut for 'Undo' - **Alt-U**. |
| | (2) If you change the resolution (in **Settings**) and/or the refresh rate (in **Monitor**), you may need to re-adjust the monitor's display. |

3   **Gamma Correction Adjustment**: Adjust the monitor's gamma correction for optimal brightness with the red, green and blue slider bars.
When these sliders are changed the gamma correction table modifies each pixel's color value.

| **Note** | The **Gamma Correction Adjustment** settings apply to both monitors, if you have two monitors connected to the Fire GL 8800. |

The brightness produced at the face of the display is proportional to the input voltage raised to the power gamma. This nonlinearity must be compensated to achieve correct reproduction of the image's brightness. The effect of display gamma is to darken the midtones relative to the dark and light regions. The gamma correction adjustment affects the entire screen display. The possible setting range is 0.3 - 4.0. The default setting is 1.0.

With **Link sliders** selected, the three sliders move together as you drag any individual slider. With the check box unchecked, you can adjust colors individually by dragging the applicable slider.

Click the **>1<** button - for each color - to set the gamma correction to the default value of 1.0.

4   Click the **Apply** or **OK** button to enable your **Adjustment** settings.

Configuring Application Profiles

Use the *Configuration* dialog to customize application profiles for individual application settings.

How to switch to the Configuration dialog?

Windows NT 4.0: Select **Display Properties > Configuration**.
Windows 2000 Windows XP: Select **Display Properties > Settings > Advanced > Configuration**.

Activating a configuration profile:

For some of the most popular applications the optimal configuration profile is factory-set by default. Select the application from the list in the **Configuration Profiles** section. This will add necessary Windows registry settings. Click **Apply** and, if prompted, restart Windows.

If you experience problems with your application, or if you want to try to optimize the performance of your system on specific applications, you may modify the configuration settings.
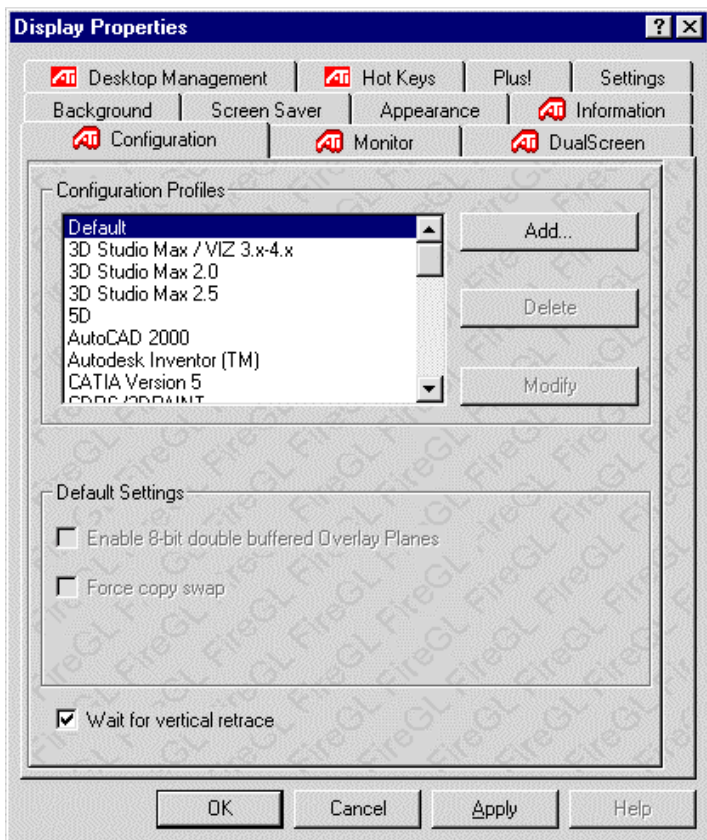
Notes	(1) The configuration default settings typically require modification only for the following:
	• diagnostic purposes
	• fine-tuning a specific application/system configuration
	• specific settings recommended by your hardware or software documentation
	• tuning your application/system environment for best performance and memory usage
	(2) Only experienced users should modify the configuration settings

Adding a new application profile:
Click the **Add** button in the **Configuration Profiles** section and enter the new application for which you want to set the configuration parameters.

Modifying the configuration parameters:
To change the configuration settings of a specific application, for example, CATIA, select the application from the list in the **Configuration Profiles** section and click the **Modify** button. To remove the selected configuration profile completely, click **Delete**. **Note:** You cannot delete the factory-set configuration profiles.

If you add or modify a configuration profile, select or clear the checkboxes in the **Settings** section according to your requirements.

Default Settings

Enable 8-Bit double-buffered Overlay Planes
Use 8 bits of each 32-bit frame buffer pixel as double-buffered overlay planes.

Force copy swap
Force blit copy during double-buffer swap from back to front buffer.

Wait for vertical retrace
Buffer swap 'synched' to vertical retrace. Enable this function for best picture quality. If you disable 'Wait for vertical retrace' you may experience visual artifacts such as tearing. However, this function may be disabled for performance benchmarking.

Click the **Apply** or **OK** button to enable your **Configuration** settings.

CHAPTER 4

Reference

Removing the Fire GL 8800 Drivers

This section describes how to properly remove your graphics card software from your system should you need to do so.

Notes	(1) Before removing the Fire GL 8800 video driver, please close all open application programs and disable any anti-virus software that is running on your computer until the driver is removed. (2) To install or uninstall the Fire GL 8800 drivers, you need administrator rights or you must be logged on as a user with administrator rights under Windows.

1 From the Start menu, click **Start > Programs > ATI FGL**,

2 Click **ATI FGL Install/Uninstall**. The **ATI FGL Install** dialog appears.

3   Click **Add/Remove component**.
Select **ATI Fire GL 8800 Video Accelerator** and uncheck the checkbox
Note: Make sure that only those components are unchecked that you want to remove now. (Click **Back** and **Add/Remove component** to select specific software components for removal.)

4   Click **Next**. to remove the Fire GL 8800 driver

5   Follow further instructions displayed on your screen.

After you have removed the software according to the instructions, you may remove the hardware.

1   Shut down your computer.

2   Remove the computer case as outlined in the hardware installation instructions.

3   Ground yourself by touching the power supply box.

4   To remove the hardware, simply reverse the hardware installation procedures.

Troubleshooting

Your board is a complex electronic device and can only be repaired by authorized technical personnel with special equipment. Do not attempt to change or repair any parts of this product. Doing so will render your warranty invalid.

If you experience a problem using the Fire GL 8800, check the following sections for advice on how to solve your problem.

Technical Support and FAQs

You may find information on Technical Support, as well as **F**requently **A**sked **Q**uestions and their answers at the web sites of ATI Inc. Go to www.ati.com and select *Tech. Support*.

No image appears on monitor when computer system is turned on

- Make sure that the Fire GL 8800 is firmly seated and lined up properly in its AGP slot, and that the monitor cable is firmly and correctly connected to the card. For more information, please refer to *Installing the Hardware*.

- Make sure that your computer and monitor are plugged into electrical outlets and receiving power.

- Is the monitor turned on and receiving power?

Screen image defects appear

Check if your monitor supports the resolution, horizontal (kHz) and vertical (Hz) refresh rates as required by the graphics card.

Check for your current resolution, refresh rate, and color depth settings in the **Settings** and **Monitor** dialogs of the **Display Properties.**

Warning! Be sure that both video card and monitor support resolution and refresh rates you select. Incompatible resolution/refresh rate selection may result in monitor damage. Refer to your monitor's documentation for recommended resolutions and refresh rates.

Screen image is off-center, color balance is wrong, or there is no picture

- Try adjusting the brightness, sharpness, contrast, and color balance controls of your monitor.

- Try adjusting the centering and positioning controls of your monitor to position the picture on the screen.
  Note: The **Monitor Tuning** settings in **Display Properties** > **Adjustment** tune the position of the picture on the screen via the video signal.

- Set the monitor's RGB inputs (and sync switches, if this option is available) to 75 Ohms, with the sync set to external.

Operating system warns that the video card is not configured properly

- Check the driver installation and make sure that all software is correctly loaded corresponding to your operating system and applications. For more information, please see *Installing the Software*.

- Set Windows back to 'Standard VGA' and re-install the Fire GL 8800 drivers.

How to enable a two-monitor desktop?

1   You need two monitors connected to the card.
     Both monitors must be switched on when you start your computer.

2   Check the **DualScreen** page of the **Display Properties**. Make sure that **Disable Secondary Monitor** is not checked.

Checking for address and interrupt conflicts

- It is necessary to ensure that the I/O and memory addresses reserved for the graphics board are not used by other hardware devices.

- The integrated on-board VGA controller of your Fire GL 8800 uses the following addresses (hex):

  I/O Address:
  Standard VGA I/O: 3B0-3DF

  Memory Addresses:
  Video RAM: A000-BFFF
  Video ROM: C000-C7FF

  Note: You cannot change the addresses of your Fire GL 8800. In case of an address conflict, try to modify the I/O address of the add-on card that causes the conflict.

Resolving Interrupt Conflicts

To support the special graphics processor on the Fire GL 8800 the system BIOS should automatically assign a system interrupt to the AGP slot where the card is installed. However, there may be problems if your graphics card does not receive an interrupt or a system interrupt is used for more than one device. In case of problems check the system configuration utility of your operating system for the interrupt assignments.

Technical Details

Features and Performance

General

Operating environment	Windows® NT 4.0, Windows® 2000, Windows® XP
System requirements	Pentium® 4/III/II/Celeron™; AMD® K6/Athlon® or compatible
Certifications	FCC/DOC, ICES-003, CE/DOC, SMA C-Tick, MIC, BSMI, VCCI
Dimensions	Length: 174.6 mm (6.9 inches) Width: 108.0 mm (4.25 inches)
Power requirements	+ 3.3 Volts DC: 15 Watts maximum + 5 Volts DC: 5 Watts maximum + 12 Volts DC: 4 Watts maximum

Functional

System	Windows® NT 4.0, Windows® 2000, Windows® XP
Bus System	AGP 2x or AGP 4x/2x
Graphic controller	RADEONTM 8800 GPU
Video memory	Fire GL 8800 /64 MB: 64 MB SDRAM Fire GL 8800 /128 MB: 128 MB SDRAM
BIOS	128 Kbyte BIOS FlashROM, reprogrammable by software, 3.3 V
Digital/analog converter	30-bit Palette DAC DAC speed : 400 MHz
Data width	256 bit – graphics core 128 bit – memory interface
Connectors	VGA output connector: 15-pin D-shell, female DVI-I output connector: analog and digital output, female
H/V Sync output signals	Separate horizontal and vertical sync at TTL levels
Fire GL 8800 card addresses	The Fire GL 8800 graphics accelerator is 100% IBM VGA compatible and occupies the same memory area and specific addresses in the I/O range. The memory range above 1 MB is automatically assigned through the PCI BIOS interface I/O addresses: 3B0 – 3DF (Standard VGA i/o) Video RAM: A000-BFFF Video ROM: C000-C7FF

3D Performance
Test system: Intel P4 1.5 GHz, single processor, 512 MB Rambus

- 12.5 Million antialiased 3D 10-pixel vectors per second
- 29.1 Million 3D 10-pixel vectors per second, non-antialiased
- 45.1 Million 1-pixel triangles per second
- 12.3 Million 25-pixel triangles per second, Gouraud-shaded, Z-buffered, non-textured
- 12.3 Million 25-pixel triangles per second, Trilinear Texture, Mip-mapped
- 1.06 Giga Pixels/second fill rate, Gouraud shaded, Z-buffered, non-textured
- 1.06 Giga Pixels/second Trilinear Texture fill rate (Mip mapped)

Pin Assignments

VGA Output Connector

Pin	Function	Pin	Function
1	Red	9	+ 5V (fused 750 mA)
2	Green	10	ground (sync return)
3	Blue	11	not connected
4	not connected	12	SDA (DDC Data)
5	ground (analog)	13	Horizontal Sync (+)
6	Red Return (ground)	14	Vertical Sync (-)
7	Green Return (ground)	15	SCL (DDC Clock)
8	Blue Return (ground)		

DVI-I Output Connector	Pin	Function
	1	T.M.D.S. Data2-
	2	T.M.D.S. Data2+
	3	T.M.D.S. Data2/4 Shield
	4	T.M.D.S. Data4-
	5	T.M.D.S. Data4+
	6	DDC Clock
	7	DDC Data
	8	Analog Vertical Sync
	9	T.M.D.S. Data1-
	10	T.M.D.S. Data1+
	11	T.M.D.S. Data1/3 Shield
	12	T.M.D.S. Data3-
	13	T.M.D.S. Data3+
	14	+ 5V Power
DVI: Digital Visual Interface	15	ground (for + 5V)
DDC: Display Data Channel	16	Hot Plug Detect
T.M.D.S: Transition Minimized Differential Signal	17	T.M.D.S. Data0-
	18	T.M.D.S. Data0+
	19	T.M.D.S. Data0/5 Shield
MicroCross Pins:	20	T.M.D.S. Data5-
C1 Analog Red Video Out	21	T.M.D.S. Data5+
C2 Analog Green Video Out	22	T.M.D.S. Clock Shield
C3 Analog Blue Video Out	23	T.M.D.S. Clock+
C4 Analog Horizontal Sync	24	T.M.D.S. Clock-
C5 Analog Common Ground Return (Red, Green, Blue Video Out)		

Video Modes

All video modes comply with VESA DMT (Discrete Monitor Timing) or VESA GTF (General Timing Format) standards. The Fire GL 8800 supports HiColor, 16-bit modes and TrueColor, 32-bit (24 color, 8 α) modes. There is no support for 8-bit modes.

Analog and digital monitors with 15-pin VGA connector – single monitor

Resolution	Line Frequency (kHz)	Refresh Rate (Hz)	Color Depth (Bits)
640 x 480	31.5, 37.5, 43.3, 50.9	60, 75, 85, 100,	16 / 32
800 x 600	37.7, 46.9, 54.1, 63.9	60, 75, 85, 100	16 / 32
1024 x 768	48.4, 60.0, 68.7, 80.8	60, 75, 85, 100	16 / 32
1152 x 864	53.7, 67.5, 77.1, 91.5	60, 75, 85, 100	16 / 32
1280 x 960	60.0, 75.1, 85.7, 101.7	60, 75, 85, 100	16 / 32
1280 x 1024	64.0, 80.0, 91.1, 107.0	60, 75, 85, 100	16 / 32
1600 x 1000	62.1, 78.3, 89.2, 105.9	60, 75, 85, 100	16 / 32
1600 x 1024*	63.6, 80.2, 81.3, 91.4, 107.5	60, 75, 76, 85, 100	16 / 32
1600 x 1200	75.0, 93.8, 106.3	60, 75, 85, 100	16 / 32
1792 x 1344	83.6, 106.3, 119.9	60, 75, 85	16 / 32
1920x1080**	67.1, 84.6, 96.4, 114.4	60, 75, 85, 100	16 / 32
1920 x 1200*	74.5, 94.0, 95.0, 107.1, 127.1	60, 75, 76, 85, 100	16 / 32
2048 x 1536	95.3, 120.2, 137.0	60, 75, 85	16 / 32

*: Wide Screen Aspect Ratio Mode (16:10)

**: Wide Screen Aspect Ratio Mode (16:9)

Digital Monitors with DVI connector – single monitor

Resolution	Refresh Rate (Hz)	Color Depth (Bits)
640 x 480	60, 75	16 / 32
800 x 600	60, 75	16 / 32
1024 x 768	60, 75	16 / 32
1152 x 864	60, 75	16 / 32
1280 x 960	60, 75	16 / 32
1280 x 1024	60, 75	16 / 32
1600 x 1000	60	16 / 32
1600 x 1024*	60	16 / 32
1600 x 1200	60	16 / 32

Dual Screen - 2 Monitors with VGA connector

Resolution	Refresh Rates (Hz)		Color Depth (Bits)
Dual	**Monitor 1**	**Monitor 2**	
640 x 480	60, 75, 85, 100	60, 75, 85, 100	16 / 32
800 x 600	60, 75, 85, 100	60, 75, 85, 100	16 / 32
1024 x 768	60, 75, 85, 100	60, 75, 85, 100	16 / 32
1280 x 1024	60, 75, 85, 100	60, 75, 85	16 / 32
1600 x 1200	60, 75, 85, 100	60	16 / 32

Monitor 1 is the monitor connected to the VGA connector
Monitor 2 is the monitor connected to the DVI connector

Dual Screen -	1 Monitor with VGA connector and 1 Monitor with DVI connector		
Resolution	**Refresh Rates (Hz)**		**Color Depth (Bits)**
Dual	**Monitor 1**	**Monitor 2**	
640 x 480	60, 75, 85, 100	60, 75	16 / 32
800 x 600	60, 75, 85, 100	60, 75	16 / 32
1024 x 768	60, 75, 85, 100	60, 75	16 / 32
1280 x 1024	60, 75, 85, 100	60, 75	16 / 32
1600 x 1200	60, 75, 85, 100	60	16 / 32

Monitor 1 is the monitor connected to the VGA connector
Monitor 2 is the monitor connected to the DVI connector

Compliance Information

FCC Compliance Information

FCC - DECLARATION OF CONFORMITY
FOR A CLASS B DIGITAL DEVICE

We, the Responsible Party

ATI Research Inc.- Fire GL Graphics
4 Mount Royal Avenue, Marlborough, MA
01752-1978 USA; Phone*:* (508) 303-3900

declare that the product **Fire GL 8800 AGP**

complies with Part 15 of the FCC Rules. The compliance with those standards is confirmed in an accreditation certificate.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

- The use of shielded cables for connection of the monitor to the graphics card is required to ensure 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

Industry Canada Compliance Statement

ICES-003

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE Compliance Information

EMC Directive 89/336/EEC and amendments 91/263/EEC,
92/31/EEC and 93/68/EEC, Class B Digital Device

EN 55022:1998/CISPR 22 Class B, Limits and Methods of
Measurement of Radio Interference Characteristics Information
Technology Equipment.

EN 55024:1998, Immunity of Information Technology Equipment
(ITE), including
EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,
EN 61000-4-6, EN 61000-4-11
EN 60950:92 + A1:93 + A2:93 +A3:95 + A4:97

Directive EMC 89/336/CEE et amendements 91/263/CEE,
92/31/CEE et 93/68/CEE, dispositif numérique de Classe B

EN 55022 :1998/CISPR 22 Classe B, Limites et méthodes de mesure
des caractéristiques d'interférences radiophoniques, Matériel des
technologies de l'information.

EN 55024:1998, Norme sur l'immunité de matériel des technologies
de l'information, et comprenant
EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,
EN 61000-4-6, EN 61000-4-11
EN 60950:92 + A1:93 + A2:93 +A3:95 + A4:97

EMC Richtlinie 89/336/EEC und Änderungen 91/263/EEC,
92/31/EEC und 93/68/EEC, Digitales Gerät der Klasse B

EN 55022:1998/CISPR 22 Klasse B, Beschränkungen und Verfahren
der Messung von informationstechnischen Ausrüstungen mit
Funkstörmerkmalen

EN 55024:1998, Unempfindlichkeits-Standard für
informationstechnische Ausrüstungen, einschliesslich
EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5,
EN 61000-4-6, EN 61000-4-11
EN 60950:92 + A1:93 + A2:93 +A3:95 + A4:97

VCCI Class B ITE Compliance Information

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準
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使用されると、受信障害を引き起こすことがあります。
　取扱説明書に従って正しい取り扱いをして下さい。