VIPER V770

USER'S GUIDE

Diamond Multimedia Systems, Inc.

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ABOUT VIPER V770

The Viper V770 graphics accelerator is made for the high-performance computer enthusiast who is looking for a compelling graphics experience while using the PC for either entertainment or productivity. The V770 delivers an unparalleled combination of high performance 2D and 3D graphics, providing rich multimedia output under the Windows platform.

The Viper V770's 32MB of high-speed memory delivers powerful gaming at high resolutions, and handles the most robust 3D textures featured in the latest games.

This chapter summarizes some important features of the V770 board.

VIPER V770 KEY FEATURES

The Viper V770 graphics accelerators features include:

♦ Advanced 128-bit Processing Power

⇒ Delivers unprecedented speed and quality for 2D, 3D and video acceleration

⇒ Utilizes nVIDIA's RIVA TNT2™ controller which is fully optimized for DirectX 6 and OpenGL

⇒ TwiN Texel 3D engine, including two rendering pipelines for true single-pass multitexturing, for exquisite rendering of the most intricate environments

♦ Stunning 3D Quality and Performance

⇒ Increased triangle and fill rates for exceptional graphics rendering

⇒ Multitexturing and a dual 32-bit color rendering pipeline for heightened visual quality and faster frame rates

⇒ Advanced 3D feature set and 32-bit Z/stencil buffer ensure dazzling image quality

⇒ 3D resolutions up to 2048 x 1536

⇒ Accelerates popular games and software with support for Direct3D® and OpenGL®

- State-of-the-art 2D graphics
  - ⇒ Next-generation 128-bit acceleration for graphics display at scorching speeds
  - ⇒ 32MB RAM and 300MHz RAMDAC for high resolutions at the highest quality
  - ⇒ Ultra-high resolutions up to 2048 x 1536
  - ⇒ Fully optimized for Windows 98/95 and Windows NT 4.0
  - ⇒ Supports multimonitor display, and the OnNow power management feature of Windows 98
  - ⇒ Accelerates Windows 98/95 and Windows NT 4.0, WHQL certified for compatibility
- Advanced multimedia capabilities:
  - ⇒ Advanced video features include multi-tap X and Y filtering, color space conversion and scaling
  - ⇒ MPEG-1, MPEG-2, Indeo and Cinepak playback
  - ⇒ DVD playback
- AGP configuration with full sideband and pipelining
- AGP 2X or 4X, depending upon your motherboard

2 INSTALLING YOUR VIPER V770 BOARD

To use your Viper V770 board, you need to first install the hardware, software drivers, and utilities provided on the installation CD.

Note— Some systems have an integrated graphics solution on the motherboard. Contact your motherboard manufacturer to determine how to disable your on-board graphics.

HARDWARE INSTALLATION

Your Viper V770 card is an AGP bus type. Follow the instructions below for proper installation. Before you install your card, verify if your motherboard is an AGP 2X, or 4X type, and refer to the instructions in the following section. Consult the documentation that accompanied your motherboard or system if you are not sure whether your system supports AGP 2X or 4X.

Warning! To avoid accidental electric shock, shut your computer down and unplug the power cord before starting the following procedures. Remember which cables go to which connectors. You may want to label your computer's cables before disconnecting them. To protect your Viper V770 board from damage due to static electrical discharge, ground yourself by touching the power supply box inside your computer before starting the procedures below.

Important— To receive the full benefits of the AGP version of your Viper board, you must be running either Windows 98, or Windows 95 OSR2 (version 4.00.950 B, or newer) on a system that has been updated with the **USB OSR2.1** supplement. Check the software disks that were included with your computer equipment to verify that you have the USB supplement, or contact your computer manufacturer for additional details. If you are running Windows NT 4.0, you must be updated with the latest Service Pack. Service Pack 4 is the current version available from Microsoft.

## Setting the Jumpers for Your Card

Your card may be equipped with jumper switches and may require certain jumper settings to operate properly on either AGP 2X or 4X motherboards. You must first determine whether your AGP motherboard supports an AGP

2X or 4X configuration. Consult your computer or motherboard manufacturer's user guide to verify what it supports.

Note: The factory default jumper settings are set to AGP 2X. If you have a 2X motherboard, do not make any changes to the jumpers on the card—you can skip this section and continue with the next. If you have an AGP 4X motherboard, use the following instructions to set the jumpers.

The Viper V770 has 4 jumpers located on the card. They are visible on the illustration below as **J1, J2, J3, J4**. The **J4** pins are marked **A B C** for reference.
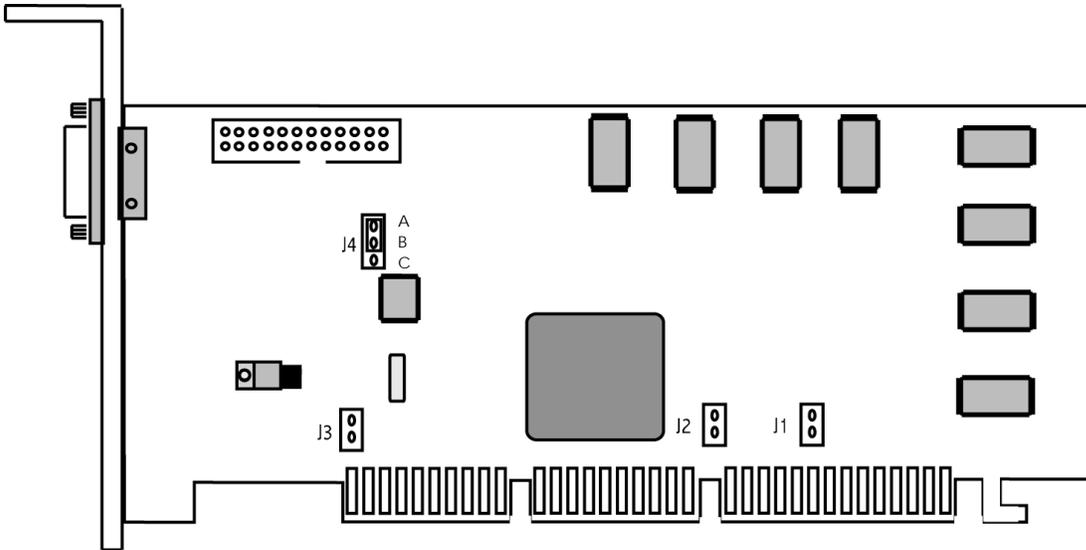
To change the jumpers to the AGP 4X configuration:

1. Move jumper J4 from the (factory default) **A-B** position to the **B-C** position:

Jumper J4, A-B   Jumper J4, B-C
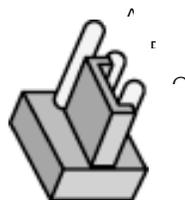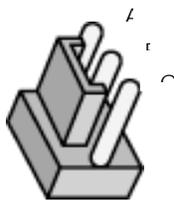
2. Move ju J3 to ition:

Jumper J1-3, open   Jumper J1-3, closed

Your card is now set to the AGP 4X configuration.

Before You Install Your Card…

Before you install your Viper card, it is recommended that you set your display driver to Standard VGA before you shut down your computer and remove your legacy (AGP, PCI, or ISA) VGA card.

Setting the Standard VGA Under Windows 95

To set your display to Standard VGA under Windows 95:

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

2. Click on the **Settings** tab, then press the **Advanced Properties** button.

3. Click on the **Adapter** tab, the press the **Chang**e button. The **Select Device** window appears.

4. Click on the **Show All Devices** bullet. Under **Manufacturers** select **(Standard Display Types)**. Under **Model**s, select **Standard Display Adapter (VGA)**.

5. Click on **Apply**, then click on **OK** in all windows to close and accept the changes.

6. Shut down your computer. You are now ready to remove your old graphics card and install your new Viper V770 board.

Setting the Standard VGA Under Windows 98

To set your display to Standard VGA under Windows 98:

1. Select **Start > Settings > Control Panel > Display.** The **Display Properties** dialog appears.

2. Choose the **Settings** tab and click on the **Advanced** button**.**

3. Click on the **Adapter** tab and click on the **Change** button. The **Update Device Wizard** appears.

4. Click **Next** and select **Display a list…**

5. Click **Next** and select **Show All Hardware**. Click on **Standard Display Adapter Types** and select **Standard Display Adapter (VGA)**.

6. Click **Next**.

7. If a warning dialog appears, asking whether you want to use this driver, click **Yes**. Then click **Next**.

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

9. Shut down your computer. You are now ready to remove your old graphics card and install your new Viper V770 board.

Setting the Standard VGA Under Windows NT 4.0

To set your display to Standard VGA under 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 on the **Settings** tab, then click the **Display Type** button.

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

4. Under **Manufacturers**, select **Standard Display Types**. Under **Display**, choose **VGA Compatible Display Adapter**.

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

6. Click on **Close** and **OK** to accept the changes.

7. Shut down your computer. You are now ready to remove your old graphics card and install your new Viper V770 board.

Note— You should have the latest Service Pack for NT 4.0 (Service Pack 4) loaded for the Viper V770 to operate properly. Service Pack 4 is available from Microsoft's web page, www.microsoft.com.

After you have completed the steps above and removed your old graphics card, you can continue with the procedures below to install your Viper V770 board.

Installing Your Viper V770 AGP Board

Installing your card should take just a few minutes. Please note that the illustrations provided in this section are for instructional use only; the card shown may look different than the one you purchased. To install your AGP card, follow these steps:

1. With the power off, remove your computer cover and locate the AGP slot.

2. Remove the screw attached to the bracket cover and remove the bracket plate.
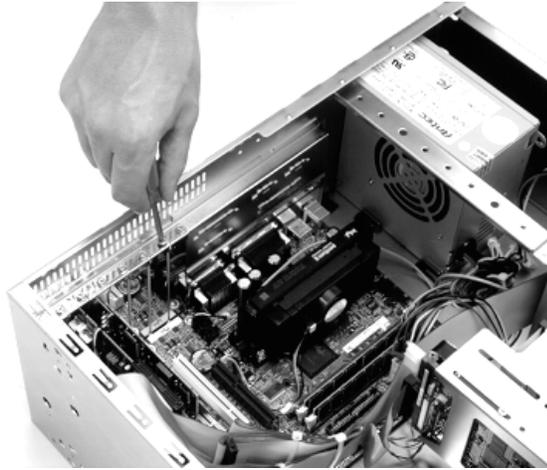
3. Before handling the card, ground yourself by touching the power supply box inside your computer.

4. Position your card directly above the AGP slot as illustrated below.

Note— AGP cards are designed to fit one way only. Be sure your card is properly aligned.

5. Insert your card firmly into the AGP slot. Care should be taken to press it evenly and snugly into its slot. **Do not forc**e.
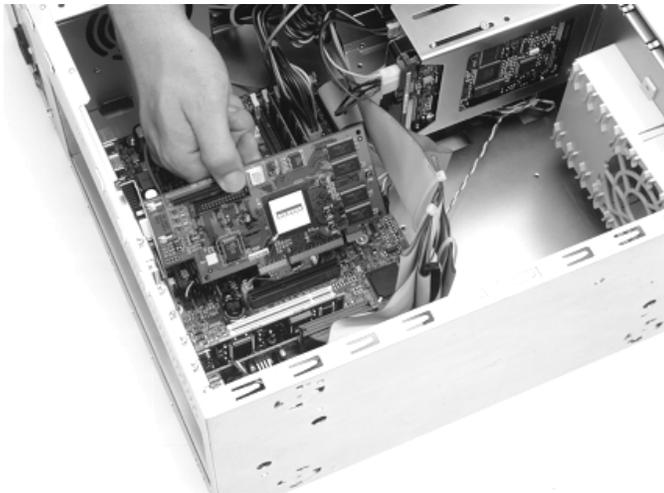
6. Once you are certain that the card is installed properly in its slot, secure it to the computer frame with the screw you removed in step 2. Make sure the card does not lift out of the AGP slot while tightening the bracket screw.

7. Connect your VGA monitor cable to the 15-pin connector on your card.

8. Secure your computer cover and reboot your computer.

9. Continue with the software installation for your operating system in the following sections.

SOFTWARE INSTALLATION

Now that you have installed your new Diamond graphics card and rebooted your computer, complete your installation using the following directions.

Windows 98/95 and Windows NT 4.0

There are two ways to install the software for your Diamond graphics card:

♦ Take advantage of Diamond's installation utility and make installing your drivers and Diamond software quick and easy. See Quick Installation of Diamond Drivers and Utilities.

♦ Install the drivers for your card manually from the Windows **Display Properties** dialog. See Manual Installation of Diamond Drivers.

Quick Installation of Diamond Drivers and Utilities

This section covers the installation of your Diamond drivers and Diamond utilities under Windows 98/95 and NT 4.0.

After Windows 98/95 reboots, the plug-n-play feature detects your new card and gives the message that new hardware was found. Windows 98/95 may then compile a driver database. The **Add New Hardware** Wizard appears under Windows 98, and the **Update Device Driver Wizard** appears under Windows 95. When you see the Wizard, under Windows 98/95, begin with step 1 below. Windows NT 4.0 users should go to step 2 below:

1. Click **Cancel**. Your computer will finish booting up.

2. After your computer boots, insert the Diamond installation CD disk into your CD- or DVD-ROM drive. If your computer is set to "auto play," the Diamond installation program starts; go to step 5. If not, go to step 3.

3. Double click on **My Computer**, then double-click on the letter of your CD- or DVD-ROM drive. The Diamond installation CD opens.

4. After the Diamond installation CD opens, double-click on **Start.exe**. The Diamond installation program is launched.

5. You should now see the Diamond installation screen for your Diamond product. Click **Installation**.

6. Select the **Drivers** option for your Diamond product. The **Diamond Install** screen appears. Please review the Release Notes that appear onscreen—they contain important last-minute information.

7. Click **Next**.

8. You are given a choice of installation options. Select one of the following (the Standard option is recommended):

Minimal:	Installs only the Diamond Display Driver for your card.
Standard:	Installs the Diamond Display Driver for your card and other Diamond utilities.
Custom:	Allows you to choose installation Diamond Drivers, or any of the Diamond utilities that may ship with your product. At the minimum, the Diamond Viper Display Driver must be installed during a first-time installation.

Note— Diamond Drivers must be installed the first-time you install a Diamond product.

9. Click the button of the installation option you want. We recommend that you use the default installation directories.

10. Click **Next** to continue installation.

Note— If you are prompted to keep or replace existing files, keep the **newer** files.

11. After the installation is complete, click **Next** to restart your computer.

Congratulations, you have successfully installed your new Diamond graphics accelerator!

Manual Installation of Diamond Drivers

If, for some reason, you need to install the drivers for your Diamond product "manually," follow the procedures below for your operating system. If you need to update your drivers, please see the chapter on Diamond Software Tools later in this user guide.

Windows 98/95 Manual Driver Installation

To install the driver for your Diamond graphics accelerator, go to **Start > Settings > Control Panel > Display**. The **Display Properties** page appears. Continue with the following procedure:

1. Click the **Settings** tab, then click the **Advanced** button.

2. Click the **Adapter** tab, and then click the **Change** button. The **Update Device Wizard** appears.

3. Click **Next** and choose **Display a list of all the drivers ...**

4. Click **Next** and then click **Have Disk...**

5. Insert the installation CD. If your system is set to "auto-play," the Diamond installation program opens. Click **Quit** to exit the program.

6. From the **Install From Disk** dialog, type **X:\Win9x\English\Drivers** (where "X" is the letter of your CD- or DVD-ROM drive). Click **OK.** The .inf file for your Diamond product should appear in the **Select Device** window.

7. Choose the driver that applies to your operating system and click **OK.**

8. Click **OK** again, and then click **Next**. The driver file(s) should be copied to your system.

Note— If you are prompted to keep or replace existing files, keep the **newer** files.

9. Click **Finish**, then click Close**.**

10. Click **Close** to exit the **Display Properties** dialog.

11. Reboot your computer.

Windows NT 4.0 Manual Driver Installation

To install the NT 4.0 driver for your Diamond graphics accelerator, go to **Start** > **Settings** > **Control Panel** > **Display**. The **Display Properties** page appears. Continue with the following procedure:

1. Click the **Settings** tab, then click the **Display Type...** button.

2. Click the **Change** button. The **Change Display** dialog appears.

3. Click **Have Disk...** The **Install From Disk** dialog appears.

4. Insert the installation CD. If your system is set to "auto-play," the Diamond installation program opens. Click **Quit** to exit the program.

5. Type **X:\NT4\English\Drivers** (where "X" is the letter of your CD- or DVD-ROM drive). Click **OK.** The **Change Display** dialog appears.

6. Select the driver for your Diamond product and click **OK**.

7. If the **Third-party Drivers** window appears, click **Yes** to proceed. The driver files will now be copied to your system.

8. After you receive a message that the drivers were successfully installed, click **OK**.

9. Click **Close** in the **Display Type** dialog. You are now placed back into the **Display Properties** page.

10. **Click the Test button to check your settings, or,** click the close window box in the upper-right corner of the **Display Properties** page to exit.

11. Reboot your computer.

After you reboot, you may be requested by the system to check the display driver. Make any changes you want to your display settings at this time.

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DIAMOND SOFTWARE TOOLS

Diamond Multimedia is committed to keeping your new product running at peak performance and providing tools to fully optimize your system for your personal applications.

INCONTROL TOOLS 99 UTILITY

Diamond's InControl Tools 99 allows you to take charge of your Windows desktop and make Windows easier to use and control. InControl Tools 99 brings more functionality to the Windows desktop by delivering the most comprehensive set of easy-to-use 3D desktop features, enabling you to make on-the-fly display adjustments, setup keyboard shortcuts, select between Direct3D and OpenGL hardware settings and more.

InControl Tools 99 includes a unique import and export feature, which allows you to determine your own settings for your favorite PC titles and share them with other InControl Tools 99 users. A full-screen desktop preview enables you to view graphics quality and check performance from within a 3D application as you make setting adjustments. A frame counter measures the performance and displays the frames per second. In addition, the Shortcut to URL Favorites feature provides instant access to your favorite Internet sites.

More than a set of desktop configuration features, InControl Tools 99 allows your Diamond video card to be the complete graphics solution for your PC.

Key Features

♦ Keyboard Shortcuts

♦ Custom Desktop Menu with…
⇒ Resolution Switching on-the-Fly
⇒ Color Depth Switching on-the-Fly

♦ Diamond 3D Settings

♦ Custom Game Setting Profiles

♦ Shortcuts to URL Favorites

♦ Support for Windows 98/95

ⓘ Note—Your ICT99 3D desktop features may be different depending your graphics card.

How is InControl Tools 99 Installed?

When you installed the drivers for your Diamond card and selected "Standard" installation, ICT99 was automatically installed. If you selected "Custom" installation and did not install ICT99 or desire to reinstall, run the "Custom" installation from the product installation CD, and choose ICT99 from the list of available options. See the Software Installation section of this user guide for information on using the product installation CD for your operating system.

For the latest updated information, please visit Diamond Multimedia's web site at www.diamondmm.com.

Using InControl Tools 99

ICT99 can be launched the following ways:

1. From the **Start** menu, go to **Programs** > Diamond > **InControl Tools 99.**

2. Click the right mouse button on the Windows 98/95 desktop.
   ⇒ You can click anywhere on the desktop to open the Diamond control panel

3. Click the Taskbar icon in the lower right corner on the Windows 98/95 desktop.

4. Click the left mouse button on the Diamond icon to open the control panel

There are two configuration managers for ICT99 that will help you to easily configure your display and desktop features:
   ♦ InControl Desktop Properties
   ♦ InControl Desktop Manager

For more information while using ICT99, online Help is available. From any ICT window, use the right mouse button to click the feature or button you want Help on, and then click the **What's This?** command.

UPDATING YOUR DRIVERS

Check with your system vendor for the latest drivers for your Diamond product.

4

REMOVING YOUR DIAMOND PRODUCT

This section describes how to properly remove your Viper software and hardware from your system should you need to do so.

REMOVING VIPER V770 UNDER WINDOWS 98/95

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

2. Click on the **Settings** tab, then press the **Advanced Properties** button.

3. Click on the **Adapter** tab, the press the **Chang**e button. The **Select Device** window appears.

4. Click on the **Show All Devices** bullet. Under **Manufacturers** select **Standard Display Types**. Under **Model**s, select **Standard Display Adapter (VGA)**.

5. Click on **Apply**, then click on **OK** in all windows to close and accept the changes.

To remove the hardware:

1. Shut down your computer.

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

3. Ground yourself by touching the power supply box.

To remove the hardware, simply reverse the hardware installation procedures from Chapter 3.

REMOVING VIPER V770 UNDER WINDOWS NT 4.0

1. Select **Start** > **Settings** > **Control Panel** > **Add/Remove Programs.**

2. Click on the **Remove the Product** button.

3. Click **Next**.

4. When the uninstall is complete, Windows NT will automatically reboot.

To remove the hardware:

1. Shut down your computer.

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

3. Ground yourself by touching the power supply box.

4. To remove the hardware, simply reverse the hardware installation procedures from Chapter 3.

REMOVING DIAMOND SOFTWARE TOOLS

To remove InControl Tools 99 or the Diamond Update Wizard software, follow the instructions for your operating system below.

Windows 98/95

1. From the **Start** menu, click **Start > Programs > Diamond > InControl Tools 99 > Uninstall InControl Tools 99**. The Diamond Install window appears. Click **Next**.

2. Click the **Remove the product** button. A list is displayed with the software components that will be removed. Click **Next** to remove all software in the list.

   Note— If you only want to remove one product from the list, click **Back** and click the **Add/Remove components** button. Select the item(s) you want to remove from the checklist. Click **Next** to continue.

3. After the software has been removed, restart your computer.

Windows NT 4.0

1. From the Start menu, click Start > Programs > Diamond > DIAMOND Display Component Uninstall. The Diamond Install window appears. Click Next.

2. Click the **Remove the product** button. A list is displayed with the software components that will be removed. Click **Next** to remove all software in the list.

   Note— If you only want to remove one product from the list, click **Back** and click the **Add/Remove components** button. Select the item(s) you want to remove from the checklist. Click **Next** to continue.

3. After the software has been removed, restart your computer.

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If you experience a problem using a Viper V770 board under Windows 98, there are three possible causes of your problem:

♦ Your application is incompatible with the Viper V770 or is not compatible with Direct3D or OpenGL.

♦ The Viper card not properly installed (seated incorrectly).

♦ Viper drivers are not correctly installed.

Try the following:

⇒ Check your game manufacturer's specifications to verify its compatibility with Direct3D, OpenGL and Viper V770.

⇒ Shut down your computer and double-check the cable connections. Make sure that the Viper card is properly seated in its AGP slot.

⇒ Re-install the Viper drivers using the Viper Installation CD.

Viper V770 Requires An IRQ

The nVIDIA TNT2 chip requires an IRQ to function correctly. If no IRQ has been assigned to the card by the motherboard BIOS you may experience symptoms such as Windows not booting, or extremely poor performance. The symptoms mostly involve error messages such as **While initializing device, VDD. Windows Protection Error. You must restart your computer**, and, **While initializing device, NVRM. Windows Protection Error. You must restart your computer.** Some motherboard BIOS's allow for an option to "Assign IRQ for VGA." Often, the latest BIOS will also resolve this problem. Check with your motherboard manufacturer for information on updating your BIOS.

Your 3D Game or Business Application is Incompatible with Viper V770

The Viper V770 supports the following API's on the platforms indicated:

Windows 98/95

- Direct3D
- OpenGL (ICD)

Windows NT 4.0

- OpenGL (ICD)

If the software application you are running does not support one of these 3D APIs, it will not be able to recognize your Viper card, and will not take advantage of it. Check with the application or game publisher in question about obtaining a version that will support these 3D APIs.

Viper V770 is not Properly Installed

Check to make sure that Viper V770 is properly seated in the AGP slot and that the VGA monitor cable is firmly and correctly connected to your graphics card. For more information, please see Chapter 3, **Installing Your Viper V770 Board.**

Viper V770 Drivers are not Correctly Installed

Check your Windows Device Manager (**Start** > **Settings** > **Control Panel** > **System** > **Device Manager**) to determine if all the drivers are installed properly. The properties dialog for the Display Adapter will show if the driver is functioning properly. If not, a yellow icon with an exclamation point appears next to the device driver in question.

Recheck the AGP Jumper Settings

Your card has jumpers used to configure AGP 2X or 4X motherboards. The factory preset is 2X AGP. Moving any one jumper without properly setting all the jumpers may result in poor performance with AGP 4X motherboards. See Chapter 3, Hardware Installation, for details.

WINDOWS 98 Q & A

Q: What 3D API's are supported by the Viper V770?

The Viper V770 supports and accelerates OpenGL and Microsoft's DirectX, which includes Direct3D. The Viper V770 also accelerates OpenGL in Windows NT 4.0.

Q: User receives a Windows Protection Error in "IFSMGR" when starting Windows 98.

Check to see if the user has a compressed hard drive, this seems to be the common factor with this problem. Currently, it is recommended to use uncompressed hard drives. Contact technical support to report any problems.

FAQs

The most up-to-date **F**requently **A**sked **Q**uestions and their answers may be found at the Diamond Multimedia Web site (www.diamondmm.com).

A
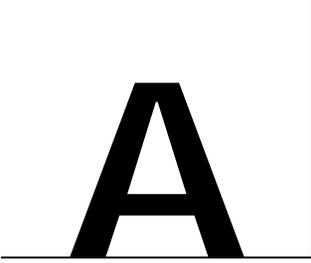
2D Windows 98/95 and NT Display Modes

Resolution	Depth	60Hz	72Hz	75Hz	85Hz	100Hz	120Hz	170Hz	200Hz
640x480	256	◆	◆	◆	◆	◆	◆	◆	◆
	65K	◆	◆	◆	◆	◆	◆	◆	◆
	16M	◆	◆	◆	◆	◆	◆	◆	◆
800x600	256	◆	◆	◆	◆	◆	◆		
	65K	◆	◆	◆	◆	◆	◆		
	16M	◆	◆	◆	◆	◆	◆		
1024x768	256	◆	◆	◆	◆	◆	◆		
	65K	◆	◆	◆	◆	◆	◆		
	16M	◆	◆	◆	◆	◆	◆		
1152x864	256	◆	◆	◆	◆	◆	◆		
	65K	◆	◆	◆	◆	◆	◆		
	16M	◆	◆	◆	◆	◆	◆		
1280x1024	256	◆	◆	◆	◆	◆	◆		
	65K	◆	◆	◆	◆	◆	◆		
	16M	◆	◆	◆	◆	◆			
1600x1200	256	◆	◆	◆	◆				
	65K	◆	◆	◆	◆				
	16M	◆	◆	◆					
1920x1080	256	◆	◆	◆	◆				
	65K	◆	◆	◆	◆				
	16M	◆	◆						
1920x1200	256	◆	◆	◆					
	65K	◆	◆	◆					
	16M	◆							
1920x1440	256	◆							
	65K	◆							
	16M	◆							
2048x1536	256	◆							
	65K	◆							

3D Windows 98/95 and NT Display Modes

Resolution	Depth	Double - Buffer	Double - Buffer + Z-Buffer
640x480	16	◆	◆
	32	◆	◆
800x600	16	◆	◆
	32	◆	◆
1024x768	16	◆	◆
	32	◆	◆
1152x864	16	◆	◆
	32	◆	◆
1280x1024	16	◆	◆
	32	◆	◆
1600x1200	16	◆	◆
	32	◆	◆
1920x1080	16	◆	◆
	32	◆	◆
1920x1200	16	◆	◆
	32	◆	◆
1920x1440	16	◆	◆
	32	◆	
2048x1536	16	◆	◆
	32	◆	

Note— 2D and 3Dmodes listed may vary based upon operating system. Modes are subject to change without notice.

B | Viper V770 Specifications

Controller:

- **nVIDIA RIVA TNT2**
- **True 128-bit**

Bus Type:

- **AGP 1.0/2.0 compliant**

Memory:

- **32MB**

Horizontal Sync Signals:

- **31.5KHz-108.5KHz**

Vertical Refresh:

- **60Hz-200Hz**

Maximum Dot (Pixel) Rate:

- **300MHz RAMDAC**

Complete 3D Feature Set:

- **Anisotropic Filtering**
- **Anti-Aliasing**
- **Alpha-Blending**
- **Bi- and Tri-linear filtering**
- **Bump Mapping**
- **Environment mapping**
- **Fogging**
- **Gouraud Shading**

- ◆ Hardware Triangle Setup
- ◆ Mip Mapping
- ◆ Perspective Correction
- ◆ Specular highlights
- ◆ Subpixel precision
- ◆ Texture Mapping
- ◆ Transparency (color key and alpha),
- ◆ Twin Texture Engine, Z-Buffering.

Video Playback:

- ◆ MPEG-1, MPEG-2, Indeo and Cinepak
- ◆ Multi-tap X and Y scaling and filtering
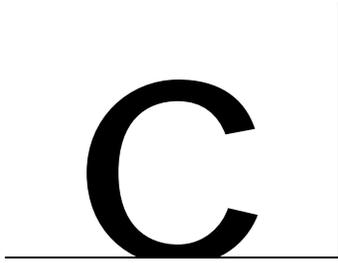- ◆ Color space conversion

Connectors:

- ◆ DB-15 analog connector (VESA DDC2B)
- ◆ Video port connector

Power Requirements:

- ◆ 14.26 W at +3.3 VDC

Minimum AGP System Configuration:

- ◆ Intel Pentium® II 233MHz or compatible CPU
- ◆ Windows 98/95 with OSR 2.1
- ◆ Windows NT 4.0 with Service Pack 4
- ◆ AGP 1.0/2.0 compliant motherboard
- ◆ CD-ROM Drive

C WINDOWS 98 MULTIPLE MONITOR SUPPORT

Windows 98 lets a single machine connect to multiple display adapters and monitors. You can significantly expand the total viewing area of your desktop—increasing the amount of applications or windows you can view simultaneously.

The multiple monitor feature of Windows 98 requires a display driver that supports the multimonitor environment. It can be used for the following purposes:

♦ Desktop publishing

♦ Presentations: Multimonitor display can be used to prepare and deliver presentations

♦ Games: Navigator and status can be displayed on separate monitors

♦ Business: Several applications can be displayed by tasks on different monitors.

♦ Monitor matrix display: Up to nine monitors (3x3) can be used to create a mammoth display.

MULTIMONITOR SYSTEM REQUIREMENTS

Following are requirements for the multimonitor feature:

♦ The main requirement for multiple monitor support are drivers that support it. Some video drivers included in the operating system will have this support. The secondary card requires theses drivers. The primary driver can use any driver that is compatible with the chipset of the card.

♦ You must have enough slots free in the system

SETTING UP MULTIPLE MONITOR SUPPORT

Follow the steps below to set up the multimonitor feature.

1. Set up the first display adapter in slot 1 and install the display adapter drivers. Your primary card must have the highest priority. (which ever

card displays POST [Power On Self test] and DOS is the primary display adapter.)

2. Once the first card is set up, shut down the system, install the second card and boot up. The system will find the second display adapter and install the drivers.

3. Reboot the system. On bootup, while the Splash screen is showing, the second monitor will initialize. It will show you the information about the card BIOS and tell you**...Windows has successfully initialized this display adapter.** To extend the desktop to this monitor, go to your **Display Properties** and then to the **Settings** tab...

4. Once booted up to Windows, go to the Display Properties and then the **Settings** tab. You will see a picture of two monitors (the primary is labeled 1 and the secondary is labeled 2).

5. Click the second monitor and check the box at the bottom that says**... "Extend my Windows desktop onto this monitor."**

6. Click **Apply**.

7. You should now have both monitors working. You can now set the resolution, colorpallette, refresh rate, and acceleration of each card independently. Please refer to the **Tips and Troubleshooting for Multimonitor Support** below.

TIPS AND TROUBLESHOOTING

Q: Why did my second monitor fail to come up after I configured and rebooted my computer?

The likely cause of this is a conflict with the **emm386.exe** program. Comment out **emm386.exe** from **config.sys** and reboot your computer.

Q: Why won't the second display adapter initialize as described in step 3 of setup?

Check the Device Manager. Make sure that both adapters are listed and conflict free. If you see a problem with the secondary display adapter, check its properties. On the general tab, under Device Status, it will most likely tell you that the display drivers do not support multiple display adapters. If it does, try getting updated drivers for the device that are multimonitor compliant. If you are using Windows 98 drivers for the device, then it may be a limitation of the hardware and the card may require that it be the primary display adapter.

Q: Why won't my screen saver display between both monitors?

The screen saver you are using does not support multiple monitors. Try using built-in screen savers, such as the Flying Windows or any of the 3D screen savers.

Q: Why won't the task bar extend over both screens?

The task bar is only displayed on one monitor. This is the correct operation.

Q: Why is D3D not accelerated on the second display adapter?

This is a known issue and is a limitation of either Windows 98 or the motherboard.

Q: AGP is not the primary adapter. Why not?

That is a limitation of the motherboard. Your primary adapter is whatever card has the highest bus priority, if you get POST out of the PCI card and not the AGP card. Contact the motherboard manufacturer for possible solutions.

Q: How many adapters can you have in one system?

Diamond has tested up to four adapters. According to Microsoft, you can have as many adapters installed as you want if you adhere to the following: use Windows 98 drivers, verify that all the hardware is compatible, and have the resources and slots needed.

Q: How can I get OpenGL to work?

All secondary display adapters must be disabled in order for hardware OpenGL acceleration to be enabled.
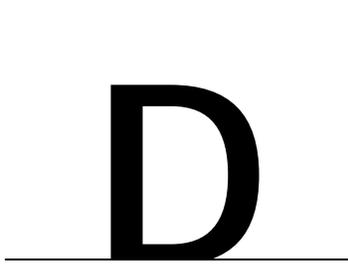
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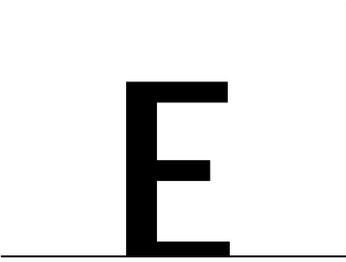
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This device complies with Part 15 of the FCC Rules.

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2. This device must accept any interference received, including interference that may cause undesired operation.

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We, the Responsible Party

Diamond Multimedia Systems, Inc.

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San Jose, CA 95134

declare that the product

Viper V770

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