

**3Dlabs, Inc.
Wildcat II 5000**

**Graphics Accelerator Card
User's Guide**



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2. Increase the separation between the equipment and receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult 3Dlabs or an experienced radio/TV technician for assistance.

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Specifications Subject to Change Without Notice

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CHAPTER 1 – INTRODUCTION

Welcome to 3Dlabs!

Thank you for selecting a 3Dlabs® Wildcat® II 5000 Graphics Accelerator Card!

This User Guide is designed to provide information about the Wildcat II 5000 Graphics Accelerator Card. In addition to this guide you are strongly encouraged to use the on line help included in the 3Dlabs driver software Help screens.

System Requirements

You must have Microsoft Windows NT 4.0 with Service Pack 5 (or later) or Windows 2000 installed.

- Pentium II® or greater processor
- Microsoft® Windows® NT 4.0 with Service Pack 5 (or later) or Windows 2000
- AGP or AGP Pro expansion slot
- One open PCI slot adjacent to the AGP slot
- Minimum of 32 MB DRAM (64 MB recommended)
- Industry-standard, multiple-frequency monitor (VGA) or a Digital Video Interface (DVI)-compliant digital display device
- 3 MB of free space on the computer's primary system disk for the video display driver software

Note: If you purchased the Wildcat II 5000 Graphics Accelerator Card as part of a system, it was preconfigured to operate in your system. No other modifications are necessary. Also, your system's video drivers are installed and operative when you receive the system. No further installation or configuration is necessary unless you purchased a customer kit or need to reinstall your video card. Store the driver delivery media that came with your system in a safe place in case you ever need to reinstall the drivers.

For more detailed information on the operating system, refer to the printed and online documentation delivered with the system.

Features

Card Interface	AGP card designed for systems that have a 25-watt AGP slot.
Video Memory	Frame Buffer: 32 MB Texture Buffer: 32 MB DirectBurst: 16 MB
Graphics Controller	High-speed Wildcat II chipset technology with support for either analog or digital displays.
RAMDAC	300 MHz
Plug-and-Play Monitor Support	Yes
Accelerated 3D API	OpenGL
Maximum Resolution; Aspect Ratio; Refresh Rate	2048 x 1152; 16:9; 75 Hz <i>Appendix A, Specifications</i>
Power Management Support	Display Power Management Signaling (DPMS) Advanced Configuration and Power Interface (ACPI)
Geometry Acceleration	<ul style="list-style-type: none"> • Model view matrix transformation of vertex and normal coordinates • Perspective and viewport transformations • Texture matrix transformation of texture coordinates • Local display list storage and processing • Full lighting calculations (up to 24 lights) • View volume clipping • Up to six user clip planes • Image processing

Features, cont.	
Traditional 2D Operations	<ul style="list-style-type: none"> • 16- and 32-bit color depths (565, 8888) • Solid and patterned area fills • Vectors (diamond rule compliant) • Block moves (screen-to-screen) • Block gets (screen-to-system) • Block puts (system-to-screen) • Bilinear scaling
OpenGL (1.2 Compliant) Operations	<ul style="list-style-type: none"> • Image support for multiple formats, zooming, bilinear scaling, color matrix, and color tables • Hardware accumulation operations • Fogging: linear, exponential, exponential², and user-defined • Antialiased points, vectors, and polygons • Points (2D, 3D wide) • Vectors (2D and 3D lines, line strips; wide, stippled) • Polygons (triangles, triangle strips, quads, quad strips, polygons, point/line polygon mode) • Texture mapping: point, bilinear, trilinear, and multiple internal formats • 24- and 32-bit depth buffering • Alpha operations • Scissoring • Dithering • Fast window clears • Window clipping • Fast window-mode double buffering • Masking • Frame-sequential and interlaced stereo support • Matrix transformations • Stencil operations • Rich set of blending operations

Features, cont.	
OpenGL (1.2 Compliant) Extension Support	<ul style="list-style-type: none"> • Imaging Extensions: <ul style="list-style-type: none"> • Pixel buffer • Color table • Color matrix • Convolution • Blend Extensions: <ul style="list-style-type: none"> • Color • Minmax • Function separate • Subtract • Fog Extensions: <ul style="list-style-type: none"> • Fog function • Fog offset • Occlusion culling • Texture Extensions: <ul style="list-style-type: none"> • 3D textures: edge, border, and LOD clamps • Mipmap generation • Video Extensions: <ul style="list-style-type: none"> • Interlace • Interlace read • 422 pixels • Swap Control Extensions: <ul style="list-style-type: none"> • Swap control • Swap frame lock • Swap usage • Texture color table • Pixel texture and 3D texturing • Pbuffer • Image buffer • Gamma • Stencil operation wrap • Separate specular • Post-texturing specular

Features, cont.	
Additional Features	<ul style="list-style-type: none">• SuperScene full-scene multisampled anti-aliasing:<ul style="list-style-type: none">• Point sampled with sixteen samples• Sample location jittering• Dynamic sample allocation• Dynamic sample backoff• Two video look-up tables• Eight stencil planes• Eight double-buffered overlay planes• 32-bit Z buffer• High-performance DACs that directly drive display devices• DDC2B Display Data Channel standard• Head-mounted displays and shutter glasses (frame sequential and interlaced stereo required)• Onboard texture memory with full mipmapped trilinear interpolated texture processing• Digital Video Interface (DVI)-I display support

CHAPTER 2 – SETUP

Preparing for Installation

Note: If you purchased your Wildcat II 5000 Graphics Accelerator Card as part of a system, it is already installed and configured. The following instructions for hardware installation are necessary only if you purchased a customer kit or need to reinstall your video card.

Before you begin your installation

1. Save any work in progress and exit any open applications. Always back up your system before you install any new hardware or software.
2. Have a Phillips-head screwdriver ready.
3. Turn off power to the computer.

Important: Physically remove the power cord from the system and wait 15 to 30 seconds for standby power to dissipate. Damage can occur to add-in components if power is not physically removed from the system during installation procedures.

4. Take every possible precaution against static electricity as you prepare to install the card. Static can damage components. If an anti-static wrist strap was included in your box, please use it during hardware installation. You should also try to work in a static free area (such as on a tile floor rather than carpet).
 - Touch the metal chassis of the computer to drain off any static electricity before touching the card.
 - Do not wear wool or polyester clothing.
 - Work in an area with a relative humidity of at least 50 percent.
 - Keep the card in the anti-static bag until you are ready to install it.
 - Handle the card as little as possible and only by the edges.

Note: Be sure to register your new card using one of the options described on page 16.

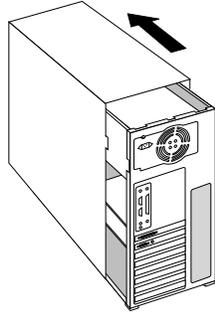
Installing your Wildcat II 5000 Graphics Accelerator Card

1. Refer to your computer's documentation for instructions on opening and closing the computer, identifying the AGP expansion slot and PCI expansion slots, and adding expansion cards.
2. Check your system documentation to locate the appropriate slot in which to install your card. The adjacent PCI slot must be empty for cooling purposes.
3. Turn off power to the computer and to the monitor and disconnect the cables from the computer (follow the instructions under *Before you begin your installation*).

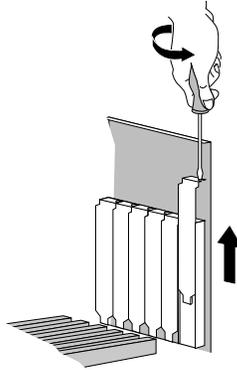
Note: If you are replacing a graphics card, be sure to uninstall your old video driver software before turning off your system and removing your old graphics card. Refer to *Installing the Driver Software* later in this chapter for details on uninstalling drivers.

4. Remove the cover from your system so you can access the slots into which you will be installing your Wildcat II 5000 Graphics Accelerator Card. If you have not already removed any existing graphics card(s) from your system, then do so now.

Setup



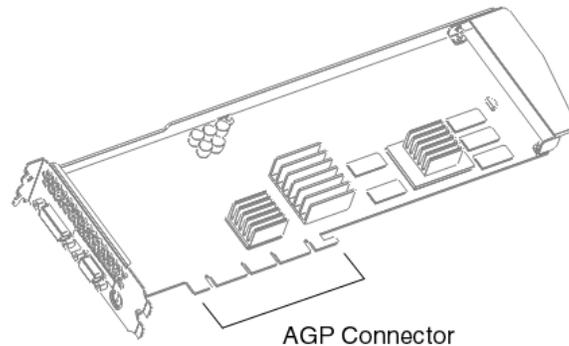
5. If necessary, remove the back panel covers from the slots into which you are installing your Wildcat II 5000 Graphics Accelerator Card, using a Phillips-head screwdriver.



6. If an anti-static wrist strap was included in your box, attach it to your wrist and attach the other end to a bare metal (as opposed to painted or sticker covered) surface on your system's chassis.
7. Remove your Wildcat II 5000 Graphics Accelerator Card from its anti-static packaging.

Setup

8. Place the card into the correct slot and seat firmly. See your system documentation for instructions on securing the card to the chassis. Loose cards and connections can cause grounding and operating problems.



9. Remove the anti-static wrist strap, if used, and replace the cover on your system.
10. Reconnect the power cord.

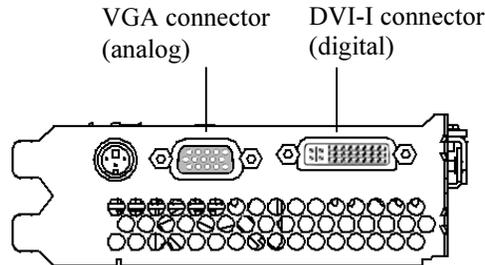
If you are upgrading the graphics card in your system

Note: These instructions may be different than how you normally upgrade your graphics card or other devices, but have been found to be the best method of insuring a successful installation of your new hardware and software.

1. Uninstall the drivers for your old graphics card. Refer to your old graphics card's documentation or Help files for instructions on removing or uninstalling the old graphics card's driver software.
2. Remove the existing graphics card from your system. To install your Wildcat II 5000 Graphics Accelerator Card, see the hardware installation instructions.
3. Install the Wildcat II 5000 Graphics Accelerator Card driver software; see *Installing the Driver Software* later in this chapter.

Connecting the Monitor

The Wildcat II 5000 supports connections for one VGA monitor or one flat panel monitor with a connector for either.



Connecting a VGA monitor

1. Make sure the power to the computer is turned off.
2. Connect the workstation monitor's video cable to the 15-pin D-Sub connector on the Wildcat II 5000 video card.
3. Turn on power to the workstation. If the monitor's Power On LED does not illuminate or the monitor does not display the startup sequence, consult Chapter 4, *Troubleshooting*.

Connecting a Digital Flat-panel monitor

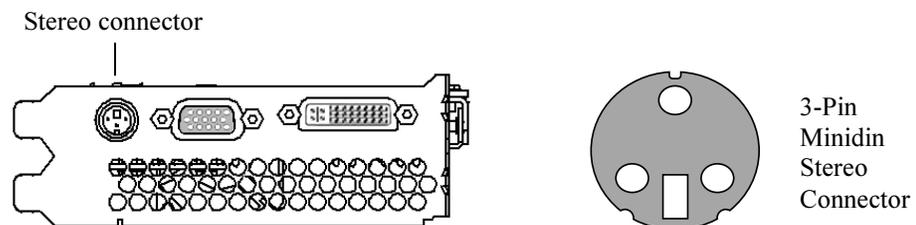
Note: The Wildcat II 5000 features support for one digital flat-panel monitor via a DVI-I connector (with DVI-I functionality).

1. Make sure the power to the computer is turned off.
2. Connect the workstation monitor's video cable to the DVI-I connector on the Wildcat II 5000 video card.
3. Turn on power to the workstation. If the monitor's Power On LED does not illuminate or the monitor does not display the startup sequence, consult Chapter 4, *Troubleshooting*.

Attaching a Stereo Device

Power off your system and connect the stereo hardware to the round, stereo connector on the card. See the documentation that came with your stereo hardware for information on how to use stereoscopic display. Plug in and start up your system, including peripherals, and log on to your operating system.

Note: To configure the display settings for stereo display, see Chapter 3, *Using the Video Card* for step-by-step instructions.



Installing the Driver Software

If you received your Wildcat II 5000 Graphics Accelerator with a system, the graphics drivers were installed prior to shipment. This section only applies if you purchased your Wildcat II 5000 as an upgrade, are reinstalling the driver, or are updating the operating system to Microsoft Windows 2000.

This section describes the two software installation processes for supported Windows operating systems.

Make sure your computer is ready

Make sure your workstation has the following before installing Wildcat II 5000 driver software:

- Microsoft Windows NT Workstation 4.0 operating system with Service Pack 5 (or later) or Microsoft Windows 2000 operating system software installed
- 3 MB of free space on the computer's primary system disk

Important: You must have the correct driver for the Windows NT 4.0 or Windows 2000 operating system. If you are unsure, refer to the `README.TXT` file located on the driver delivery media for this information. Refer to the Microsoft Windows NT 4.0 or Windows 2000 documentation and online Help for more information on installing drivers and software application programs. If you are removing and reinstalling the Wildcat II 5000 driver, see *Chapter 4 Reinstalling the Video Driver*.

Removing an existing driver under Windows NT

1. Start up Windows NT. Log on using an account with administrative privileges.
2. From the operating system Start menu, go to Settings/Control Panel and double-click Add/Remove Programs.
3. On the Add/Remove Programs Properties Install/Uninstall tab, highlight the Display Driver you are removing and click Add/Remove.
4. Click Yes when prompted to confirm the driver removal, and follow the prompts. Reboot the system before installing the new Wildcat II 5000 driver.

Removing an existing driver under Windows 2000

1. Start up Windows 2000. Log on using an account with administrative privileges.
2. From the operating system Start menu, go to Settings/Control Panel and double-click Add/Remove Programs.
3. Under Change or Remove Programs, highlight the current Display Driver and click Change/Remove.
4. Click Yes when prompted to confirm the driver removal, and follow the prompts to complete the driver removal.
5. Click OK when notified that the driver removal is complete and reboot your system.

Installing the Wildcat II 5000 Windows NT or Windows 2000 driver

1. Start up Windows and log onto an account with administrative privileges.
2. Place the 3Dlabs driver CD in the appropriate drive. The 3Dlabs driver installation program menu will appear.

Note: If the installation program menu does not appear, you can access the installation program through My Computer. Click the drive where the driver CD is located to run the installation program. If the installation program still doesn't run, right click Start and choose Explore to locate the drive. In the 3Dlabs driver CD root directory, double click WILDCAT.EXE to launch the installation program.

3. Click Install Driver, then choose your operating system from the list.
4. After the driver files are copied, click Quit to exit the installation program.
5. Remove the driver media from the disk drive and restart the workstation.
6. After the system restarts and you log on, a message displays stating that a new display driver has been installed, and that you should use the Display option in the Control Panel to select the preferred display resolution. Click OK.

Heidi Drivers for AutoDesk Applications

The Wildcat II 5000 Heidi[®] device driver allows full screen multisampling of and compatibility with AutoDesk applications as well as hardware acceleration of the Wildcat II 5000 through the use of OpenGL. To install the Heidi driver and to activate full screen multisampling, click either the Nt4 or W2k folder (which ever is appropriate for your system) in the 3Dlabs driver CD. Then, open the Heidi directory and double click `SETUP.EXE` to launch the setup program.

3dsmax Driver

To install the 3dsmax[®] driver, click either the Nt4 or W2k folder (which ever is appropriate for your system) in the 3Dlabs driver CD. Then, open the 3dsmax directory and double click `SETUP.EXE` to launch the setup program.

Verify the Default Video Display Driver

This section describes how to verify the correct display driver is loaded on your workstation.

Verifying the default video display driver in Windows NT

1. From the operating system Start menu, go to Settings/Control Panel/Display, and click the Settings tab on the Display Properties dialog box.
2. Click Display Type, then verify that Wildcat II 5000 is listed under Display. This indicates that the appropriate driver is installed.
3. Click Cancel to close the Display Properties dialog box.

Verifying the default video display driver in Windows 2000

1. From the operating system Start menu, go to Settings/Control Panel/Display, and click the Settings tab on the Display Properties dialog box.
2. Verify that the Wildcat II 5000 device is listed under Display. This indicates that the appropriate driver is installed.
3. Click Cancel to close the Display Properties dialog box.

Verify the System Startup Version

This section describes how to verify the correct system startup version is active on your workstation.

Verifying the system startup version in Windows NT

1. From the operating system Start menu, go to Settings/Control Panel/System.
2. Click the Startup/Shutdown tab.
3. Verify that Windows NT Workstation Version 4.0 is selected in the Startup list. If it is not, select it from the list and click Apply.

Note: Do not select the VGA version of the operating system. The video display runs in VGA mode when the Wildcat II 5000 graphics driver is not running.

4. Click OK to close the System dialog box.
5. Reboot your system for the change to take place.

Verifying the system startup version in Windows 2000

1. From the operating system Start menu, go to Settings/Control Panel/System/Advanced.
2. Click Startup and Recovery.
3. On the Startup and Recover dialog box, verify that "Microsoft Windows 2000 Professional" is listed as the Default operating system, then click OK.
4. Click OK to close the System Properties dialog box.

Checking the Video Image

1. If the Display Properties dialog box is not already displayed, go to the operating system Start menu, select Settings/Control Panel/Display, and click the Settings tab.
2. Click Test to test the display resolution.
3. Click OK to dismiss the Display Properties dialog box.

Note: See *Chapter 3, Using the Video Card*, for instructions on defining the display properties.

Registering Your 3Dlabs Graphics Accelerator Card

When you register your 3Dlabs Graphics Accelerator Card you:

- Activate your warranty
- Receive notification of software updates
- Qualify for technical support

You can complete the registration card and return it to us in the mail, or register on-line once your hardware and software installations are complete. (You must have Internet access to register on-line.)

1. Open your Internet browser.
2. Go to <http://www.3dlabs.com/products/register.asp>
3. Fill out the registration form that appears on your screen, and click Submit when you are finished.

CHAPTER 3 – SOFTWARE CONFIGURATION

The 3DLabs Wildcat II 5000 Graphics Accelerator Card Driver

The 3DLabs Wildcat II 5000 driver software lets you optimize the working relationship between your card, your system and your applications.

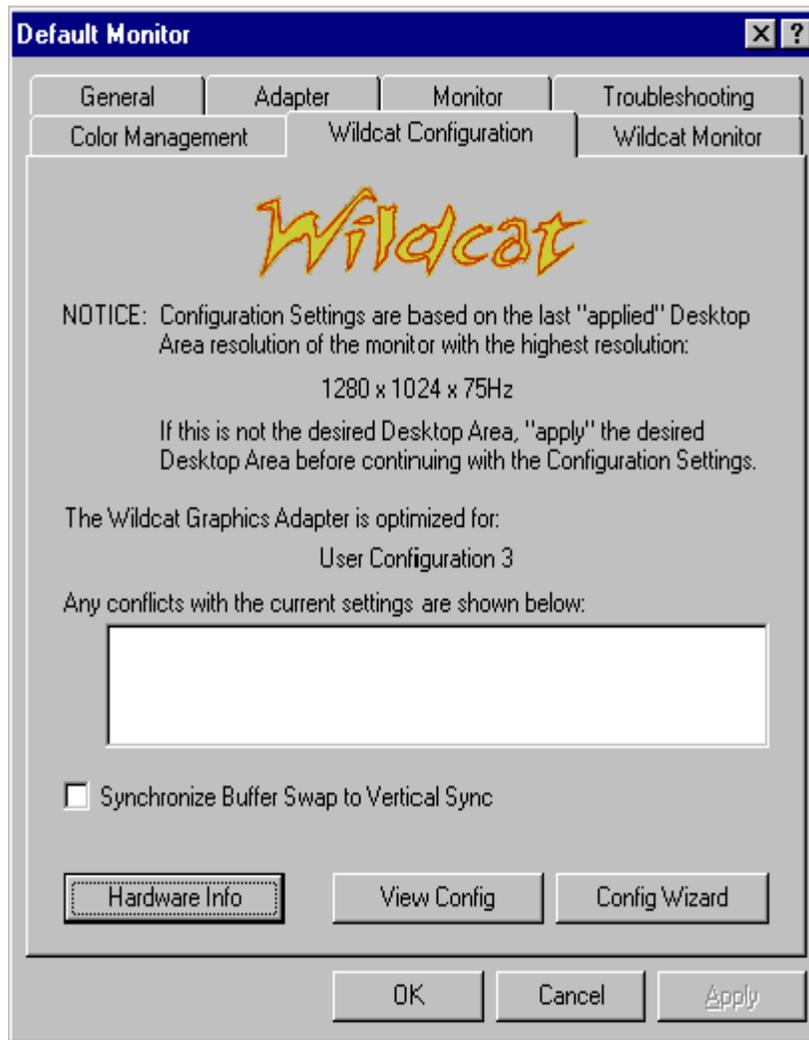
This chapter contains instructions for configuring the video display, stereo display, and dual monitors.

Configuring the Video Display

Once the drivers are installed properly in Windows NT 4.0 or Windows 2000, the Display Properties dialog box will have two additional tabs: Wildcat Configuration and Wildcat Monitor.

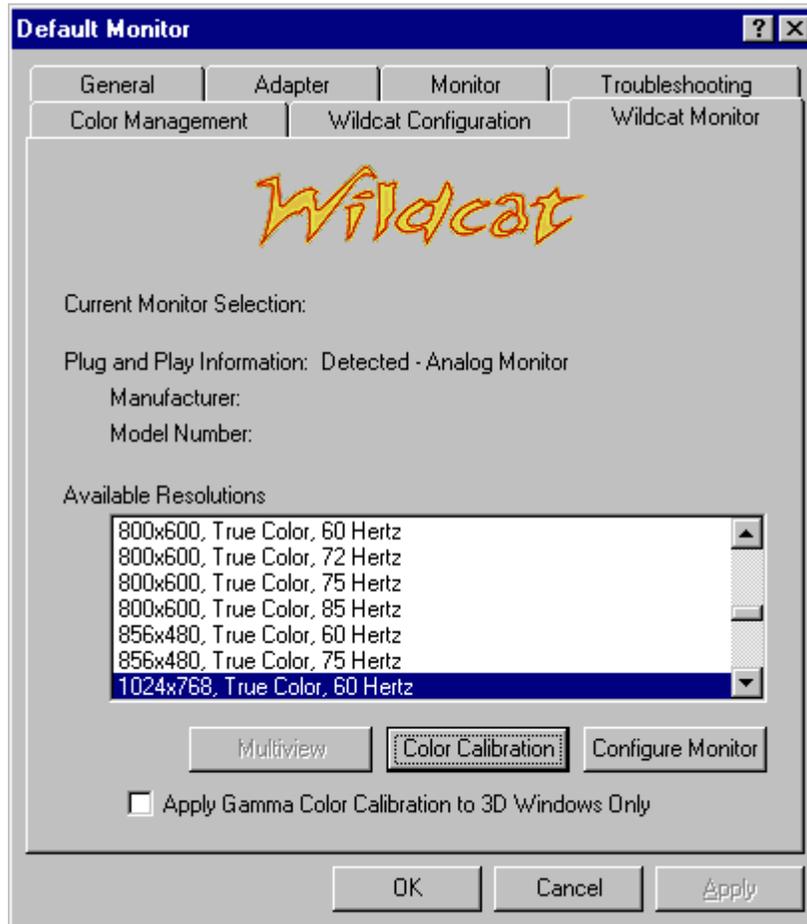
Using the Wildcat Configuration tab

1. Make sure you are logged into the non-VGA version of Windows NT 4.0 or Windows 2000. Refer to Windows NT 4.0 or Windows 2000 documentation or online Help for instructions, if necessary.
2. Close any open applications.
3. From the operating system Start menu, go to Settings/Control Panel/Display. In Windows NT 4.0, click the Wildcat Configuration tab if it is not already displayed. In Windows 2000 follow the same path. Click the Settings tab and then Advanced.
4. Click the Wildcat Configuration tab if it is not already displayed. On the Wildcat Configuration tab:
 - Click Hardware Info to view the current hardware settings.
 - Click View Config to view your current display configuration.
 - Click Config Wizard to activate a step-by-step interface that will help you modify your current display configuration or create a new one. On the Wildcat Configuration Wizard, click Next and follow the prompts to create a new configuration, or modify or delete an existing one. See *Enabling application-specific optimizations* and *Creating a custom configuration* later in this chapter for more information.



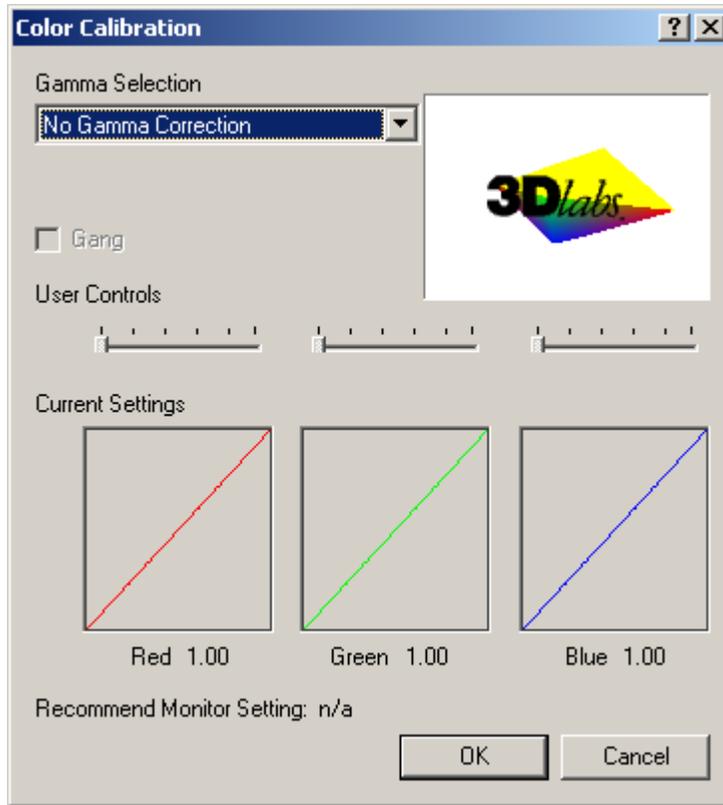
Using the Wildcat Monitor tab

1. On the Display Properties dialog box, click the Wildcat Monitor tab. This tab contains commands for adjusting the resolution, color depth, and refresh rate. See the steps under *Using the Wildcat Configuration tab* if you need instructions on opening the Display Properties dialog box.



2. Click Color Calibration to modify the color settings. Make your modifications to the Color Calibration dialog box, then click OK to accept the changes and dismiss the Color Calibration dialog box, or click Cancel to close the Color Calibration dialog box without making any changes. You are returned to the Wildcat Monitor Display Properties dialog box.

Note: The option "Apply Gamma Color Calibration for 3D Windows Only" is available only under Windows 2000. Windows NT allows you to apply Gamma Color Calibration, but applies calibration to all windows (not just 3D windows).



3. On the Wildcat Monitor Display Properties dialog box, click Configure Monitor to change the display mode, select a monitor type, and change the resolution/refresh rate. Once you have made the changes you require, click OK to accept the new configuration and dismiss the Configure Monitor dialog box. You are returned to the Wildcat Monitor Display Properties dialog box.
4. In Windows 2000, click OK on the Display Properties dialog box to accept the changes. In Windows NT, you must return to the Settings page, then click OK to accept the changes.
5. Reboot the workstation if you are prompted to do so. Most changes will take effect without rebooting.

Note: See *Appendix A, Specifications*, for a list of available monitor resolutions.

See *Enabling Stereo Display* in this chapter for instructions on changing the Display Mode.

Enabling stereo display

If you connect a device to the stereo port on the Wildcat II 5000, you must change the display mode to view in stereo. See *Chapter 2, Setup*, for an illustration of the stereo output port.

1. Make sure your stereo display device is properly connected to the stereo output port on the Wildcat II 5000. See *Chapter 2, Connecting a Stereo Display Device* for more information.
2. On the Wildcat Monitor tab under Display Properties, click Configure Monitor. The Configure Monitor dialog box displays.
3. Select one of the Stereoscopic Display modes from the Display Mode pulldown, then click OK. You are returned to the Display Properties dialog box.
4. If you are prompted with the following message: “The selected monitor cannot display the current desktop area. Select a new resolution before applying these changes,” click OK then select a resolution from the list of available resolutions.
5. Click OK if the display is correct and you wish to keep the new settings. The Display Properties dialog box is dismissed.
6. Click OK to accept the new display mode and dismiss the Display Properties dialog box.

Note: You must disable stereo mode when you no longer wish to view in stereo. Follow the steps above, and select Monoscopic Display under Display Mode to disable stereo mode.

Optimizing the Wildcat II 5000 driver

Refer to the documentation that came with your application for information on optimization support. If your application supports optimized configurations, you can choose to enable the application manufacturer’s pre-set configurations or create your own.

Enabling application-specific optimizations

1. From the operating system Start menu, go to Settings/Control Panel/Display. In Windows NT 4.0, click the Wildcat Configuration tab if it is not already displayed. In Windows 2000 follow the same path; then click the Settings tab and then Advanced.
2. Under the Wildcat Configuration tab, select Configuration Wizard. Click Next to continue.
3. If your application supports optimized configurations, select the configuration for your application from the Configuration pulldown menu and click Next to view a summary of the application-specific configuration.
4. Click Finish to save your configuration and dismiss the Wizard, or click Cancel to close the Wizard without accepting any changes.

Note: You cannot alter the application manufacturer’s pre-set configuration. If you want some (but not all) features of the application manufacturer’s configuration, you must create a customized configuration. See *Creating a custom optimization* for instructions.

Creating a custom optimization

1. From the operating system Start menu, go to Settings/Control Panel/Display. In Windows NT 4.0, click the Wildcat Configuration tab if it is not already displayed. In Windows 2000 follow the same path; then click the Settings tab and then Advanced.
2. Under the Wildcat Configuration tab, select Configuration Wizard. Click Next to continue.
3. Select New Configuration on the pulldown menu, then click Next.
4. Enter a name for the new configuration, then select the configuration you want to use as a model for your customized configuration.
5. The Wizard will step you through driver optimization. When you are finished, click Finish to view the Configuration Summary.
6. Click Finish to save your configuration or Cancel to dismiss the Wizard.



CHAPTER 4 – TROUBLESHOOTING

Troubleshooting

If you have trouble using your 3Dlabs Wildcat II 5000 Graphics Accelerator Card or a 3D application, you may find the answer to your problem in the following sections. Always start your problem-solving efforts with the simplest solution and work up to the more complex ones.

Monitors and Display Resolutions

Problem: My monitor is either blank, or the displayed image is distorted, scrambled or smaller than I expected.

- If the monitor is blank, be sure that your system and monitor are plugged in and turned on. Is the monitor's power cord attached securely? Check each component's documentation for the location and use of power connectors and switches.
- Make sure that your video cable is connected securely to the monitor *and* to the monitor connector on your Wildcat II 5000 Graphics Accelerator Card. See your monitor documentation and *Chapter 1 - Installation*, in this document.
- Your card might not be seated properly in the AGP or AGP Pro slot. Remove and reinstall your card as described in *Chapter 1 - Installation*. Remember to use the anti-static wrist strap when opening your system and handling the card.
- Use the Last Known Good option in Windows NT, or restart Windows 2000 in Safe Mode and select a supported resolution and refresh rate. See *Obtaining a Usable Video Resolution* later in this chapter for instructions.
- Reboot into VGA/Safe Mode to verify the display properties are configured correctly for the monitor type. If the software setup is correct, use a similar type monitor (if available and functioning properly) to determine if the workstation is defective. See *Obtaining a Usable Video Resolution* in this chapter for instructions on determining if you have a defective unit.

Problem: The performance of and/or the available resolutions for my Wildcat II 5000 Graphics Accelerator Card are not what I expected.

- The Wildcat II 5000 Graphics Accelerator Card driver may not have installed fully, or a file may have been corrupted. Try installing the driver again.
- You may have selected a display setting that is incompatible with accelerated 3D graphics applications. See the Wildcat Monitor tab in your 3Dlabs display control panel for a list of compatible resolutions.
- You may have not selected the correct monitor for your monitor vendor and type. Go to the Wildcat Monitor tab and select your monitor vendor and type from the list. If your vendor and/or monitor is not listed, consult your monitor documentation for alternatives..
- Use the Last Known Good option in Windows NT, or restart Windows 2000 in Safe Mode and select a supported resolution and refresh rate. See *Obtaining a Usable Video Resolution* later in this chapter for instructions.

Diagnostics

Diagnostics utilities for checking the video card and instructions for using these utilities may be available from your computer vendor.

Obtaining a Usable Video Resolution

The system operates in VGA mode when the video display driver is not running to accommodate all monitor types. VGA mode is used during initial installation of the video display driver and when experiencing video problems. If you select a resolution that causes the monitor to display incorrectly, try the following procedures to obtain a usable video resolution.

Using the Last Known Good option in Windows NT

Press CTRL+ALT+DEL but do not log on to the Windows NT operating system. Instead, shut down then use the Last Known Good option to return to the last known good configuration recorded by Windows NT.

1. Restart the system.
2. Press the SPACE BAR at the following prompt: Press space bar NOW to invoke the **Last Known Good Menu**.

Note: If this option fails to correct the video display problem, restart the system in VGA mode and reconfigure your display to 640 x 480 resolution, 60Hz refresh rate. Then restart Windows NT again in non-VGA mode.

Booting into Safe Mode in Windows 2000

Press CTRL+ALT+DEL but do not log on to the Windows 2000 operating system. Instead, shut down then boot into Safe Mode to choose another resolution or reinstall the video driver.

1. Restart the system.
2. At the boot screen, hit F8 to enter the Windows 2000 advanced options menu.
3. Choose Safe Mode, then hit ENTER to return to the boot screen.

Note: If this option fails to correct the video display problem, restart the system in VGA mode and reconfigure your display to 640 x 480 resolution, 60Hz refresh rate. Then restart Windows NT again in non-VGA mode.

Determining a defective unit

1. Save and exit from all files, if possible, then shut down the operating system.
2. Turn off the power to the monitor and to the workstation.

Important: Always turn off the power to the workstation before connecting or disconnecting the cables.

3. Check and reseal all card and cable connections as needed.
4. Turn on the monitor power. If the Power On LED does not illuminate, see Getting Help in this section.
5. Turn on the power to the system base unit. If the Power On LED on the base unit does not illuminate, or if the BIOS beep codes indicate a failure, see Getting Help in this section.

Reinstalling the Video Driver

Note: You must have the correct driver for the Windows NT 4.0 or Windows 2000 operating system. If you are unsure, refer to the README.TXT file located on the driver delivery media for this information. Refer to the Microsoft Windows NT 4.0 or Windows 2000 documentation and online Help for more information on installing drivers and software application programs. If you are installing the Wildcat II 5000 driver, you must remove the current driver prior to installing the update.

Removing the existing Wildcat II 5000 driver under Windows NT

1. Log on using an account that has administrative privileges.
2. From the operating system Start menu, go to Settings/Control Panel and double-click Add/Remove Programs.
3. On the Add/Remove Programs Properties Install/Uninstall tab, highlight the Wildcat II 5000 Display Driver and click Add/Remove.
4. Click Yes when prompted to confirm the driver removal, and follow the prompts.

Removing an existing Wildcat II 5000 driver under Windows 2000

1. Log on using an account that has administrative privileges.
2. From the operating system Start menu, go to Settings/Control Panel and double-click Add/Remove Programs.
3. Under Change or Remove Programs, highlight the Wildcat II 5000 Display Driver and click Change/Remove.
4. Click Yes when prompted to confirm the driver removal, and follow the prompts to complete the driver removal.
5. Click OK when notified that the driver removal is complete, and reboot your system if you are prompted to do so.

Reinstalling the video driver under Windows NT or Windows 2000

See “Installing your Wildcat II 5000 Windows NT or Windows 2000 driver” in *Chapter 2 – Setup*.

Online Information

If you cannot find the problem you are experiencing, or the solution to a problem, listed in this chapter, check the Troubleshooting FAQ list at <http://www.3dlabs.com/support>, or contact your vendor for additional help.

APPENDIX A – SPECIFICATIONS

A Specifications

General		
Manufacturer	3Dlabs	
Model number	Wildcat II 5000	
Functional		
System	.	
Interface	AGP	
Graphic controller	High-speed Wildcat II chipset technology	
DAC speed	300 MHz	
Data width	<ul style="list-style-type: none"> • Frame buffer: 128 bits • Texture buffer: 64 bits • DirectBurst: 32 bits 	
Connectors	<ul style="list-style-type: none"> • 3-Pin, MiniDIN stereo sync output • 15-pin D-sub analog connector • DVI-I compatible (DVI-I functional) Digital Video Output Port 	
Interrupts	<ul style="list-style-type: none"> • PCI-assigned • Interrupt A for Wildcat II 5000 	
Video memory	<ul style="list-style-type: none"> • Frame Buffer: 32 MB • Texture Buffer: 32 MB • DirectBurst: 16 MB 	
3D Performance	<ul style="list-style-type: none"> • 3D Gouraud-shaded triangles, Z-buffered: 8.5 M Tri/Sec • Trilinear-textured, Gouraud-shaded, 32-bit (RGBA) textel: 166.0 M pixels/sec • 3D Vectors, solid-color, 10-pixel: 11.1 M Vec/Sec 	
Dimensions	Height	1.52"
	Length	13.34"
	Width	4.28"
	Slots Required	<ul style="list-style-type: none"> • One AGP or AGP Pro slot • One PCI slot (for cooling purposes)

Specifications

Power Requirements	<ul style="list-style-type: none"> • 25 W maximum • 12.0V 100 mA maximum • 5.0V 700 mA maximum • 3.3V 8.1A maximum 																																			
Maximum Resolutions	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Max Resolution</th> <th style="text-align: left;">Hz</th> <th style="text-align: left;">Stereo Available</th> </tr> </thead> <tbody> <tr><td>1920 x 1440</td><td>75</td><td>-</td></tr> <tr><td>1600 x 1280</td><td>76</td><td>-</td></tr> <tr><td>2048 x 1152</td><td>75</td><td>-</td></tr> <tr><td>1920 x 1200</td><td>75</td><td>-</td></tr> <tr><td>1280 x 1024</td><td>60</td><td>Yes</td></tr> <tr><td>1280 x 960</td><td>60</td><td>Yes</td></tr> <tr><td>1152 x 870</td><td>75</td><td>-</td></tr> <tr><td>1376 x 768</td><td>60</td><td>-</td></tr> <tr><td>1280 x 800</td><td>90</td><td>-</td></tr> <tr><td>1024 x 768</td><td>60</td><td>Yes</td></tr> </tbody> </table>			Max Resolution	Hz	Stereo Available	1920 x 1440	75	-	1600 x 1280	76	-	2048 x 1152	75	-	1920 x 1200	75	-	1280 x 1024	60	Yes	1280 x 960	60	Yes	1152 x 870	75	-	1376 x 768	60	-	1280 x 800	90	-	1024 x 768	60	Yes
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1920 x 1440	75	-																																		
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Specifications

APPENDIX B – SOFTWARE LICENSE

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APPENDIX C – REGULATORY STATEMENTS

Regulatory Statements

	DOC. NUMBER 61-000052	REVISION A
	ORIGINATOR NALIN PATEL	DATE 24-05-2001

DECLARATION OF CONFORMITY

Manufacturer's Name: 3Dlabs Ltd
Manufacturer's Address: Huntsville, Alabama, USA. 35824-6937

declares that the product

Product Name: Wildcat II 5000 Graphics Accelerator Card

conforms to the following product specifications:

EMC

Following provisions of the 89/336/EEC Directive

<i>Specification</i>	<i>Class / Level</i>
EN 55022:1998	Class B Radiated Electric Field Emissions
EN 55022:1998	Class B Power Line Conducted Emissions
EN 55024:1998 (IEC 61000-4-3)	3V/m 80% 1kHz AM 80MHz to 1GHz
EN 55024:1998 (IEC 61000-4-2)	+8kV air discharges and +4kV contact discharges
EN 55024:1998 (IEC 61000-4-4)	+1kV AC power ports, +0.5kV signal ports
EN 55024:1998 (IEC 61000-4-6)	emf: 3V rms 80% 1 kHz AM 150kHz to 80MHz
EN 55024:1998 (IEC 61000-4-11)	dips of >95% (duration 10ms), 30% (duration 0.5s) and >95% (duration 5s) reductions
EN55024:1998 (IEC 61000-4-5)	+1kV (live to neutral) & +2kV (live to earth & neutral to earth) Combination wave.
47 CFR 15 : 1999 (ANSI C63.4:1992)	Class B Radiated Electric Field Emissions
47 CFR 15 : 1999 (ANSI C63.4:1992)	Class B Power Line Conducted Emissions
CISPR 22:1997	Class B Radiated Electric Field Emissions
CISPR 22:1997	Class B Power Line Conducted Emissions
AS/NZS 3548:1995	Class B Radiated Electric Field Emissions
AS/NZS 3548:1995	Class B Power Line Conducted Emissions

Date of Declaration: 24-05-01

Issued by:  Principal Production Engineer, 3Dlabs Ltd. +44 (0)1784 476646

This product complies with Part 15 of FCC Rules. 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 interferences that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003

Regulatory Statements

	DOC. NUMBER 61-000053	REVISION A
	ORIGINATOR NALIN PATEL	DATE 24-05-2001

EC Declaration of Conformity

We:

3Dlabs Ltd , Huntsville, Alabama, USA. 35824-6937

declare under our sole legal responsibility that the following product:

Model: Wildcat II 5000 Graphics Accelerator Card

is in conformance with the following relevant harmonised standards:

EN 55022:1998 (Class B Radiated Electric Field Emissions)
EN 55022:1998 (Class B Power Line Conducted Emissions)
EN 55024:1998 (IEC 61000-4-2)
EN 55024:1998 (IEC 61000-4-3)
EN 55024:1998 (IEC 61000-4-4)
EN 55024:1998 (IEC 61000-4-5)
EN 55024:1998 (IEC 61000-4-6)
EN 55024:1998 (IEC 61000-4-11)

for the light industrial, office and home environments following the provisions of Council Directive 89/336/EEC on the approximation of the laws of member states relating to electromagnetic compatibility, as amended by Council Directive 92/31/EEC.

Name: Nalin Patel

Position: Principal Production Engineer
3Dlabs Engineering Division

Signature:



Date: 24-05-2001

Regulatory Statements

UL 1950 PAG 1.7-003: This graphics card is for use with UL Listed personal computers that have installation instructions detailing user installation of card cage accessories.

WARNING: Any use of, installation practices, modifications or maintenance procedures carried out which are not in accordance with the issued “instructions for use” or approved by 3Dlabs Inc. will nullify the CE certification of this product and could lead to prosecution.

APPENDIX D – TERMS AND DEFINITIONS

Terms and Definitions

AGP

Advanced Graphics Port. A dedicated graphics bus that transfers data at significantly higher speeds than the PCI bus.

Alpha Blending

This means to create transparent objects by allowing for the blending of pixels to simulate the transparency characteristics of an object. With alpha information, an object can be designed from being totally transparent to opaque.

Alpha Buffer

A portion of the frame buffer used to define the transparency value of a pixel in the frame buffer. This data can be used to blend the frame buffer pixel with the pixel to be drawn to create a composite pixel.

Antialiasing

A technique employed to remove any jagged edges from an object to appear smooth. This is accomplished by gradually modifying the hue and saturation of pixels. (See also: SuperScene Antialiasing)

API

Application Programming Interface. The API translates the instructions from the application program into device commands that are specific to the screen's display controller, the graphics board.

Atmospheric Effects

The effect derived from adding one or more layers around an object.

Bilinear Sampling

The process whereby texture mapping is done through filtering.

Bit Depth

Bit depth is another way of expressing the numbers of colors available. A color bit depth of 8 is equivalent to 256 colors, a bit depth of 16 (15 bit of color plus a 1 bit overlay) yields 32768 colors, and a bit depth of 32 (24 bit RGB plus 8 bit of overlays) equals 16.7 million colors. The latter is often referred to as true color.

Clipping

Removal of elements or sections not contained within the active viewing area.

CPU (Central Processing Unit)

The part within a PC that executes programs in main memory.

DAC

Digital to Analog Converter.

Depth Cueing

A technique used to give the illusion of depth. With depth cueing, the part of an object that is farther away is displayed with a lower intensity to give the effect of depth.

Digital Flat Panel Display

A digital, flat-panel display uses a digital (instead of analog) cable connection to transfer data to the display screen. This can eliminate some display artifacts. Flat panel displays occupy less desk space than conventional monitors.

DirectX

Microsoft's APIs developed to access various system hardware.

Direct 3D

Microsoft's API dedicated to 3D graphics, and a component of DirectX.

Dithering

The process of converting an image with a certain bit depth to one with a lower bit depth. Dithering enables the application to convert an image's colors that it cannot display into two or more colors that closely resemble the original. Dithering works because the mind is tricked by the pattern of colors into thinking it's a different color.

Double Buffering

With double-buffering, images are rendered in the back buffer and then displayed on the screen once the drawing is completed. This results in the smooth, flicker-free rotation and animation of 3D models and scenes.

Driver

A driver is a special interface program that is developed to perform the communication between the application program, the device (i.e., graphics peripheral) and the operating system.

EVGA

Extended Video Graphics Array. EVGA runs at 1024 x 768.

Flat Shading

The simplest method of shading. Each triangle is assigned one single color, resulting in a faceted appearance of the surface.

Frame Buffer

A 24-bit, true-color frame buffer provides 8 bits for each red, green and blue primary display color. This results in 16.8 million color combinations. A second, or double, buffer enables system to calculate pixels one step ahead of the screen display for smooth, distortion free images.

Gamma

A curve representing both the contrast and brightness of an image. Changing the shape of the curve changes the RGB color output. (Not to be confused with GLINT Gamma, the 3Dlabs geometry processing device.)

Geometry

The intermediate stage of the 3D pipeline, geometry determines the location of the object and the frame of reference of the viewer in relation to the object.

Gouraud Shading

This method of shading, more complex than flat shading, shows subtle color changes across an object. Gouraud Shading is accomplished by adding pixels in a graduated scale of colors.

Graphics Accelerator Card

A graphics accelerator performs 3D functions in the hardware, thereby relieving the CPU of repetitive, complex and intensive calls. This results in enhanced performance and speed.

Heldl

The API developed by Autodesk to work with its products, such as 3D Studio MAX and AutoCAD.

MIP-Mapping (for texture processing)

A feature that delivers photo-realistic images by wrapping 2D bitmaps around 3D objects closely matching the texture to the object. MIP-Mapping allows different versions of a texture to be used for objects of different sizes. It also enables faster performance as textures do not need to be scaled in real time.

Multiple Resolution Support

The ability to support multiple resolutions on the screen.

OpenGL

The industry standard library of advanced 3D graphics functions developed by Silicon Graphics, Inc.

Perspective Correction

A function that allows an object to maintain its 3D textural features as it moves away from the viewer, into the background.

Pipelining

A basic hardware tool for accelerating processes.

Pixel

The smallest addressable element of a cathode ray tube display. More simply put, the individual dots that make up the screen image.

Point Sampling

The basic method of adding texture to an object. Point sampling does not include any filtering of textures.

RAMDAC

The final component in the graphics subsystem that translates a digital image into an analog representation.

Rasterization

A method to fill in colors for all pixels bound by vertices.

Rendering

The final and most rigorous stage in the 3D pipeline where an object undergoes shading, texturing, etc.

RISC

Reduced Instruction Set Computing.

SDRAM

Synchronous Dynamic Random Access Memory (SDRAM) is a cost-effective solution to improve bandwidth to and from memory, resulting in increased graphics performance.

SGRAM

Synchronous Graphics Random Access Memory allows data to be written in a single operation, rather than a (slower) sequence of operations. It also handles background and foreground image fills effectively.

SDTP

Super Desktop Publishing. SDTP runs at 1600 x 1200.

Stencil Buffer

Similar to stipple masking, the stencil buffer assists with the creation of transparent effects.

Stipple masking

A technique that spatially creates transparent effects by rendering an object through various patterns.

Streaming SIMD

An instruction set developed by Intel for Pentium III-processor based systems. Streaming SIMD can improve 3D vertex transformation and lighting, among other operations.

SuperScene Antialiasing

SuperScene antialiasing (*see Antialiasing*) is an enhanced version of multisampling and offers true, multisampled scene-based antialiasing of *all OpenGL* primitives in a scene. SuperScene Antialiasing is a feature found only on Wildcat II 5000 graphics accelerators.

SVGA

Super Video Graphics Array. SVGA runs at 800 x 600.

Tessellation

The initial part of the 3D pipeline where the object is described by a set of triangles.

Texture Mapping

A technique that enables 2D graphic images to be “wrapped” around or “pasted” on to a 3D primitive. Perspective correction and lighting calculations allow for added realism.

Transformation

The change in rotation, size, position, and perspective of an object in 3D space.

Transparency

A function that refers to the rendering of transparent (non-opaque) objects. Transparency is generally accomplished on a polygon rendering system using either screen-door transparency or alpha blending.

Vectors/second

Lines drawn per second.

VGA

Video Graphics Array. VGA runs at 640 x 480.

VHR

Very High Resolution. VHR runs at 1280 x 1024.

VRAM

Video Random Access Memory is an expensive, fast type of RAM that is used as display memory on high-end graphics boards.

VRML

Virtual Reality Modeling Language.

Z-Buffer

Also known as the Depth Buffer, the Z-Buffer is a region of memory containing the depth component of a pixel. Used, for example, to eliminate hidden surfaces from the image.

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