3Dlabs, Inc.
Wildcat III 6210 and
Wildcat III 6110
Graphics Accelerator Card
User's Guide

CONTENTS

CHAPTER 1– INTRODUCTION

Welcome to 3Dlabs!

Thank you for selecting a 3Dlabs® Wildcat™ III Graphics Accelerator Card!

This User Guide is designed to provide information about Wildcat III 6210 and Wildcat III 6110 Graphics Accelerator Cards. In addition to this guide, you are strongly encouraged to use the online help included in the 3Dlabs driver software Help screens.

System Requirements

- AMD Athlon, Intel® Pentium® II or greater processor
- Microsoft Windows NT (Service Pack 5 or higher), Windows 2000 or Windows XP (32- or 64-bit)
- AGP Pro 50 expansion slot
- One open PCI slot adjacent to the AGP Pro 50 slot
- Minimum of 64 MB DRAM (operating system dependent)
- Industry-standard, multiple-frequency monitor (VGA) or a Digital Video Interface (DVI-I) 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 your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card as part of a system, it was preconfigured to operate in your system prior to shipment. No other modifications are necessary. Also, your system's video drivers were installed prior to shipment and are 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 Microsoft's web site or to the printed documentation delivered with the system.

Features

Card Interface	AGP Pro 50 card designed for systems that have a 50-watt AGP Pro slot. NOTE: THE WILDCAT III 6210 OR WILDCAT III 6110 CANNOT PLUG INTO A STANDARD AGP SLOT.	
Video Memory	**Wildcat III 6210** ▪ Frame Buffer: 128 MB DDR memory ▪ Texture Buffer: 256 MB DDR memory ▪ DirectBurst: 32 MB	**Wildcat III 6110** ▪ Frame Buffer: 64 MB DDR memory ▪ Texture Buffer: 128 MB DDR memory ▪ DirectBurst: 16 MB
Graphics Controller	High-speed Wildcat III chipset technology with dual display support.	
RAMDAC	320 MHz	
Plug-and-Play Monitor Support	Yes	
OpenGL 1.3 Support	Yes	
DirectX 7 Support	Yes	
OpenML 1.0 Support	Yes	
Maximum Resolution; Aspect Ratio; Refresh Rate	2048 x 1152; 16:9; 75 Hz NOTE: SUPPORTED REFRESH RATES, MONITOR RESOLUTIONS, ASPECT RATIOS, AND COLOR DEPTHS DEPEND ON YOUR TYPE OF MONITOR, WHETHER OR NOT YOU HAVE MULTISAMPLING SELECTED AND IF YOU ARE USING SINGLE OR DUAL MONITORS. SEE *Appendix A, Specifications*, FOR A LIST OF SUPPORTED RESOLUTIONS AND REFRESH RATES. TO DISPLAY AT A SPECIFIC RESOLUTION WITH THE DESIRED REFRESH RATE, BOTH THE VIDEO CARD AND MONITOR MUST SUPPORT THAT REFRESH RATE. REFER TO THE DOCUMENTATION THAT CAME WITH YOUR MONITOR FOR A LIST OF SUPPORTED VIDEO RESOLUTIONS.	
Power Management Support	• Display Power Management Signaling (DPMS) • Advanced Configuration and Power Interface (ACPI)	
Geometry Acceleration	• 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 32 lights) • View volume clipping • Up to six user clip planes • Image processing	
Traditional 2D Operations	• 16- and 32-bit color depths (565, 8888) • Solid, patterned, and gradient area fills • Vectors (diamond rule compliant) • Block moves (screen-to-screen) • Block gets (screen-to-system) • Block puts (system-to-screen) • Bilinear scaling	

Features, cont.	
Texture Modes	Global and local

OpenGL (1.3 Compliant) Extension Support	- Imaging Extensions:
	    Pixel buffer
	    Color table
	    Color matrix
	    Convolution - Blend Extensions:
	    Color
	    Minmax
	    Function separate
	    Subtract
	    Transpose Matrix - Fog Extensions:
	    Fog function
	    Fog offset - Occlusion culling - Texture Extensions:
	    3D textures: edge, border, and LOD clamps
	    Mipmap generation
	    Color table
	    Color masking
	    LOD
	    4D - Video Extensions:
	    Interlace
	    Interlace read
	    422 pixels - Swap Control Extensions:
	    Swap control
	    Swap frame lock
	    Swap usage - Pixel texture and 3D texturing - Pbuffer - Image buffer - Gamma - Stencil operation wrap - Separate specular - Post-texturing specular

Features, cont.	
OpenGL Operations	• Points (2D, 3D, wide) • Vectors (2D and 3D lines and line strips; wide, stippled) • Polygons (triangles, triangle strips, quads, quad strips, polygons, point/line polygon mode) • Antialiased points, vectors, and polygons • Image support (multiple formats, zoom, color matrix, color tables) • Alpha Operations • Scissoring • Window clipping • Masking • Fogging (linear, exponential, exponential^2, user-defined) • Texture mapping (point, bilinear, trilinear, 3D, cube-mapped, bump-mapped) • Multiple Internal Texture Formats (RGBA: 8888, 5551, 4444; luminance-alpha) • Multi-texturing (2 sets of texture coordinates) • Extensive texture environments (blend, modulate, decal, replace, add, subtract, interpolate, dot3) • Stencil Operations • Dithering • Rich set of blending operations • Depth buffering (24- and 32-bit)
Additional Features	• SuperScene full-scene multisampled anti-aliasing: • 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 • Stereoscopic Viewing Support—Interlaced or Frame Sequential • Multiview and Genlock support (Wildcat III 6210 only). • Onboard texture memory with full mipmapped trilinear interpolated texture processing • Digital Video Interface (DVI) display support (single or dual DVI-I support) • Big and Little Endian support • Global and local texture modes • Textures per screen

CHAPTER 2 – SETUP

Preparing for Installation

| NOTE: | If you purchased your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card as part of a system, it was installed and configured prior to shipment. 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. |

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 III 6210 or Wildcat III 6110 Graphics Accelerator Card

1. Refer to your computer's documentation for instructions on opening and closing the computer, identifying the AGP Pro expansion slot and PCI expansion slots, and adding expansion cards.
2. Check your system documentation to locate the appropriate slots in which to install your card. Both cards must have an adjacent PCI slot 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 tuning 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 III 6210 or Wildcat III 6110 Graphics Accelerator Card. If you have not already removed any existing graphics card(s) from your system, then do so now.
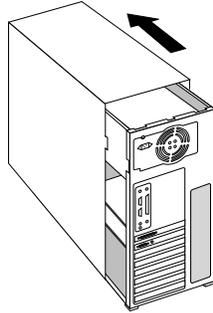
5.   If necessary, remove the back panel covers from the slots into which you are installing your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card, using a Phillips-head screwdriver.

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.
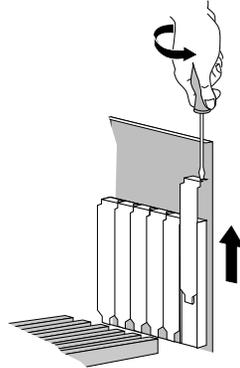
7.   Remove your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card from its anti-static packaging. Write down the serial number for product registration and future use. The serial number is located on a board label and looks like this:

136001B123456 Made in XXX Week XXXX

8. Place the card into the correct slots 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.
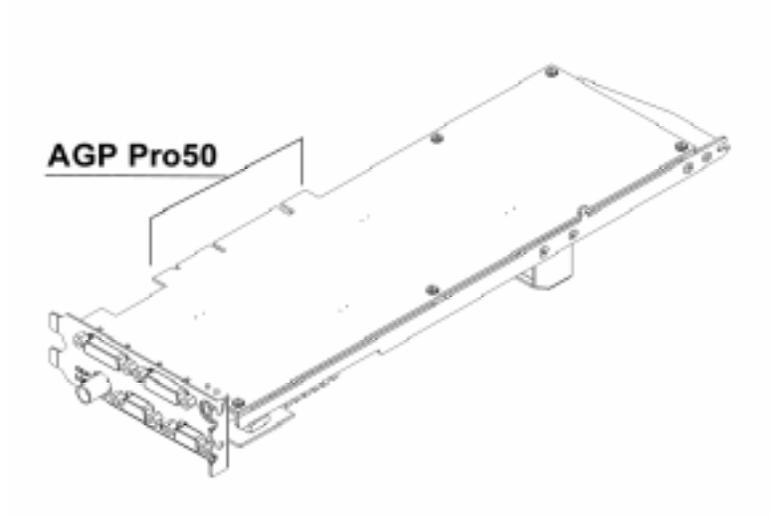
Wildcat III 6210
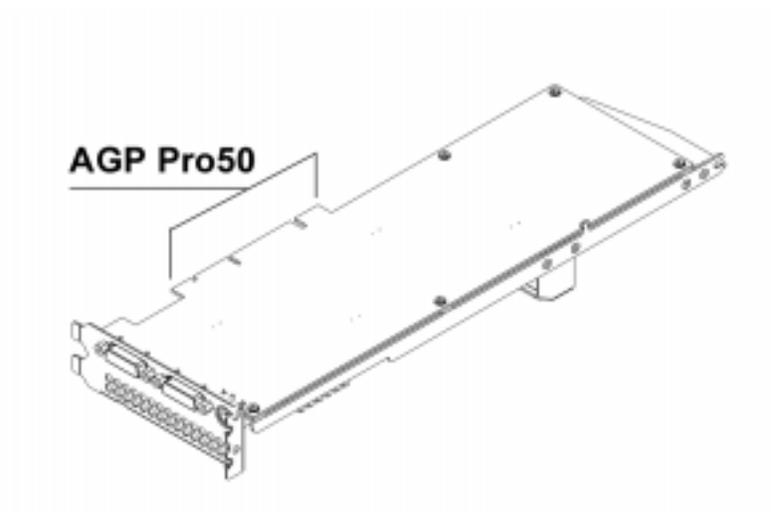
Wildcat III 6110

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 III 6210 or Wildcat III 6110 Graphics Accelerator Card, see the hardware installation instructions.
3. Install the Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card driver software; see "*Installing the Driver Software"* later in this chapter.

Connecting the Monitor

The **Wildcat III 6210** supports six standard external connectors:
1. Primary and Secondary DVI-I output ports (also support analog monitors with additional adapter)
2. One Genlock In connector
3. One 3-Pin, MiniDIN Stereo Sync Output connector
4. Multiview In and Multiview Out ports

The **Wildcat III 6110** supports connections for three standard external connectors:
1. Primary and Secondary DVI-I output ports (also supports analog monitors with additional adapters)
2. One 3-Pin, MiniDIN Stereo Sync Output connector
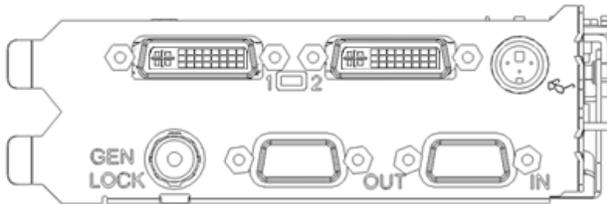
Wildcat III 6210 Input/Output panel   **Wildcat III 6110 Input/Output panel**
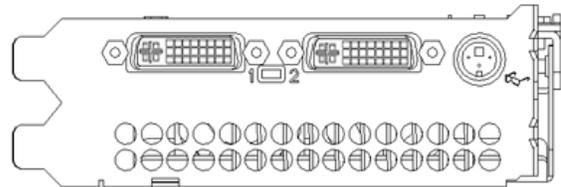
NOTE:	**Dual-monitor support is not available under Windows NT.**

Connecting a DVI monitor

1. Make sure the power to the computer is turned off.
2. See the documentation that came with your monitor for information on the type of connection that is required. Your monitor cable will have either a Digital Video Interface (DVI)-I connector or a 15-pin VGA connector depending on monitor type. If your monitor is a VGA monitor see *"Connecting a VGA monitor"* in this chapter.
3. Connect the workstation monitor's video cable to the primary DVI-I port on the Wildcat III video card. This connector is labeled "1" in the picture above and on the I/O panel of your card.
4. 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."*

CAUTION: If you are connecting only one monitor to the Wildcat III 6210 or Wildcat III 6110, you must plug that monitor into the Primary DVI-I port (labeled "1" on the I/O panel of your card).

NOTE: If you are connecting an additional monitor to the Wildcat III 6210 or Wildcat III 6110, connect the additional workstation monitor's video cable to the secondary DVI-I port. See *"Enabling the Dual Monitor Feature"* later in this document for information on configuring dual displays.

Dual monitor support is not available under Windows NT.

Connecting a VGA monitor

NOTE: **You must use a DVI-to-Analog adapter to connect a VGA monitor to the Wildcat III 6210 or Wildcat III 6110. Contact Molex (1-800-78MOLEX) for a "DVI-Analog to VGA" cable (88741-8300) or a "DVI-Analog Plug to VGA Receptacle" dongle adapter (88741-8700).**

1. Connect the monitor's 15-pin VGA connector to the VGA end (see below) of the DVI-to-Analog adapter.
2. Connect the DVI-I end of the adapter to the primary DVI-I port (label "1") on the 3Dlabs Wildcat III 6210 or Wildcat III 6110 video card.

NOTE: **If you are connecting both a VGA and digital flat panel monitor, you must connect the VGA monitor to the primary DVI-I port (labeled "1").**

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."
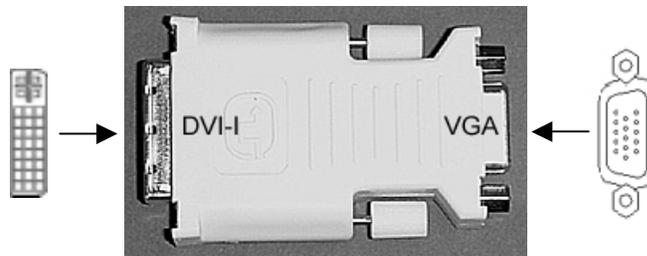
NOTE: **If your monitor does not have a built-in video cable, use a shielded video cable with either a DVI-I receptacle or a 15-pin VGA video connector (with adapter) at one end for the video output port on the card, and the appropriate connectors at the other end for the video input port on the monitor. See the documentation delivered with your monitor for more information.**

If you ordered the Wildcat III 6210 or Wildcat III 6110 video card with a system, it was installed and configured prior to shipment. See Chapter 3, *"Using the Video Card,"* for instructions on adjusting the resolution, color depth, and refresh rate.

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.
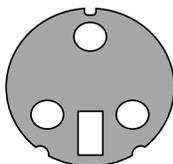
3-Pin Minidin
Stereo Connector

Installing the Driver Software

If you received your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator with a system, the graphics drivers were installed prior to shipment. This section only applies if you purchased your Wildcat III 6210 or Wildcat III 6110 as an upgrade, are reinstalling the driver, or are updating the operating system.

Make sure your computer is ready

Make sure your workstation has the following before installing Wildcat III 6210 or Wildcat III 6110 driver software:

- Microsoft Windows NT (Service Pack 5 or greater), Windows 2000, or Windows XP (32- or 64-bit) operating system software installed

- 3 MB of free space on the computer's primary system disk

IMPORTANT:	You must have the correct Wildcat driver for the Windows operating system you are running. If you are unsure, refer to the README.TXT file located on the driver delivery media for this information. Refer to Microsoft Windows documentation and online Help for more information on installing drivers and software application programs. If you are removing and reinstalling the Wildcat III 6210 or Wildcat III 6110, see "*Chapter 4 Reinstalling the Video Driver.*"

Removing an existing driver under Windows NT

1. Log on to Windows NT using an account with administrative privileges. Please consult your system administrator or Microsoft Windows NT User's Manual for more information on Administrator 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 III 6210 or Wildcat III 6110 driver.

Removing an existing driver under Windows 2000

1. Log on to Windows 2000 using an account that has administrative privileges. Please consult your system administrator or Microsoft Windows 2000 User's Manual for more information on Administrator privileges.
2. From the Start menu, go to Settings/Control Panel and 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 before installing the new Wildcat III 6210 or Wildcat III 6110 driver.

Removing an existing driver under Windows XP

1. Log on to Windows XP using an account that has administrative privileges. Please consult your system administrator or Windows XP User's Manual for more information on Administrator privileges.
2. From the Start menu, go to Control Panel.
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.
5. Click OK when notified you must reboot your system for driver removal to occur and reboot your system before installing the new Wildcat III 6210 or Wildcat III 6110 driver.

Installing the Wildcat III 6210 or Wildcat III 6110 driver

1. This driver must be installed by a user with Windows Administrator privileges. Please consult your system administrator or Microsoft operating systems User's Manual for more information on Administrator privileges.
2. Start Windows. If the Found New Hardware Wizard appears, click Cancel to dismiss the dialog box. In Windows XP, dismiss the balloon asking if you want Windows XP to set your resolution.
3. Locate the driver delivery media which contains the 3Dlabs Wildcat III 6210 or Wildcat III 6110 driver. Insert the media in the appropriate drive or change directories to locate the driver.
4. Double click on the setup.exe file located under the wcgdrv direcoty in the driver package.
5. In the Wildcat III Driver Installation Message dialog box, click OK to begin the driver install procedure.
6. The workstation must be restarted for the new settings to take effect. Remove the delivery media from the disk drive (if applicable). Click Yes to restart the workstation. In Windows XP, choose Log off, then choose Turn off computer, then Restart.

Heidi Driver for AutoDesk Applications

The Wildcat III Heidi® device driver allows full-screen multisampling of and compatibility with AutoDesk® applications as well as hardware acceleration of the Wildcat III 6210 or Wildcat III 6110 through the use of OpenGL. To install the Heidi driver and to activate full screen multisampling, consult the README.TXT located under the Heidi directory of the Wildcat III 6210 or Wildcat III 6110 delivery media. The SETUP.EXE file under the same directory will initiate the install program.

NOTE:	**If setup is not able to find your AutoDesk application in the system registry, you will be asked to enter an installation path. This will be the directory where the AutoDesk application is installed on your system.**
	You must configure the properties settings in your AutoDesk application to use the Heidi driver. Consult your application documentation for configuring your application to use the Heidi driver.

3ds max Driver

To install the Wildcat III custom driver for 3ds maxTM, consult the readme.txt located under the 3dsmax directory of the Wildcat III 6210 or Wildcat III 6110 delivery media. The setup.exe file under the same directory will initiate the install program. To use the driver, you must configure the properties settings in 3ds max. Consult your application documentation for configuring the application to use a custom driver.

NOTE:	**If setup is not able to find 3ds max in the system registry, it will not install the driver and will exit. Consult your 3ds max application's documentation to verify that the application is installed correctly. The driver setup program will only install for a registered application.**

Verify the Default Video Display Driver

Verifying under 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 two Wildcat devices are listed under Display. This indicates that the appropriate driver is installed.
3. Click Cancel to close the Display Properties dialog box.

Verifying under Windows 2000

1. From the Windows Start menu, go to Settings/Control Panel/Device Manager.
2. Under Display Adapters, verify that two Wildcat devices are listed. This indicates that the appropriate driver is installed.

NOTE:	**If only one Wildcat III 6210 device is listed, you may not have completed installation. Refer to "*Installing the Driver Software*" for instructions.**

3. Click Cancel to close the Display Properties dialog box.

Verifying under Windows XP

1. From the Windows Start menu, go to Control Panel/Performance and Maintenance/ System Hardware/ Device Manager.
2. Under Display Adapters, verify that two Wildcat devices are listed. This indicates that the appropriate driver is installed.

NOTE:	**If only one Wildcat III 6210 device is listed, you may not have completed installation. Refer to "*Installing the Driver Software*" for instructions.**

3. Click Cancel to close the Display Properties dialog box.

Verify the System Startup Version

Verifying under 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 III 6210 or Wildcat III 6110 graphics driver is not running.**

4. Click OK to close the System dialog box.

Verifying under 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 Recovery dialog box, verify that "Microsoft Windows 2000 Professional" is the listed as the Default operating system. It is IMPORTANT that your operating system matches the driver you installed. Click OK.
4. Click OK again to close the System Properties dialog box.

Verifying under Windows XP

1. From the operating system Start menu, go to Control Panel/Performance and Maintenance/System/Advanced.
2. Click the Settings button under Startup and Recovery.
3. On the Startup and Recovery dialog box, verify that "Microsoft Windows XP Professional" is the listed as the Default operating system. It is IMPORTANT that your operating system matches the driver you installed. Click OK.
4. Click OK again to close the System Properties dialog box.

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/support/product_registration.htm
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 III 6210 or Wildcat III 6110 Driver

The 3Dlabs Wildcat III 6210 or Wildcat III 6110 driver software allows you to 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 Wildcat driver is installed properly, 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. Refer to Windows documentation or online Help for instructions, if necessary.
2. Close any open applications.
3. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click 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.
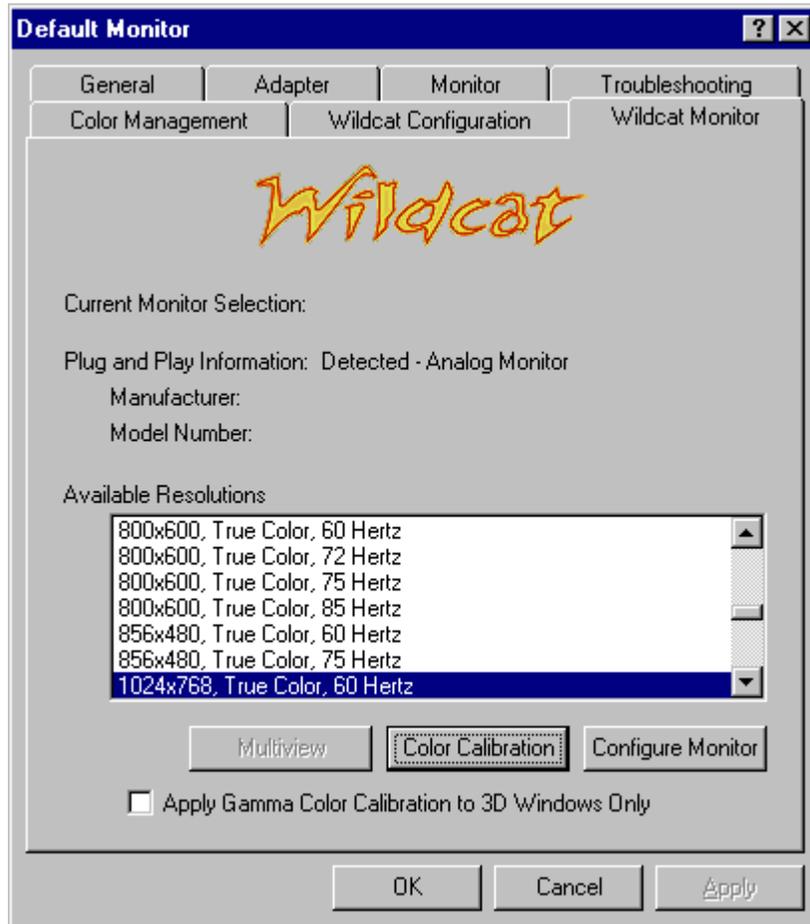
2. Click Color Calibration to modify the color settings. Make modifications to the Color Calibration dialog box, then check the Apply Gamma Color Calibration to 3D Windows Only box if you don't want the desktop affected. Click OK to accept the changes and dismiss the Color Calibration dialog box, or click Cancel to close the Color Calibration dialog box without making any changes. You are returned to the Wildcat Monitor Display Properties dialog box.
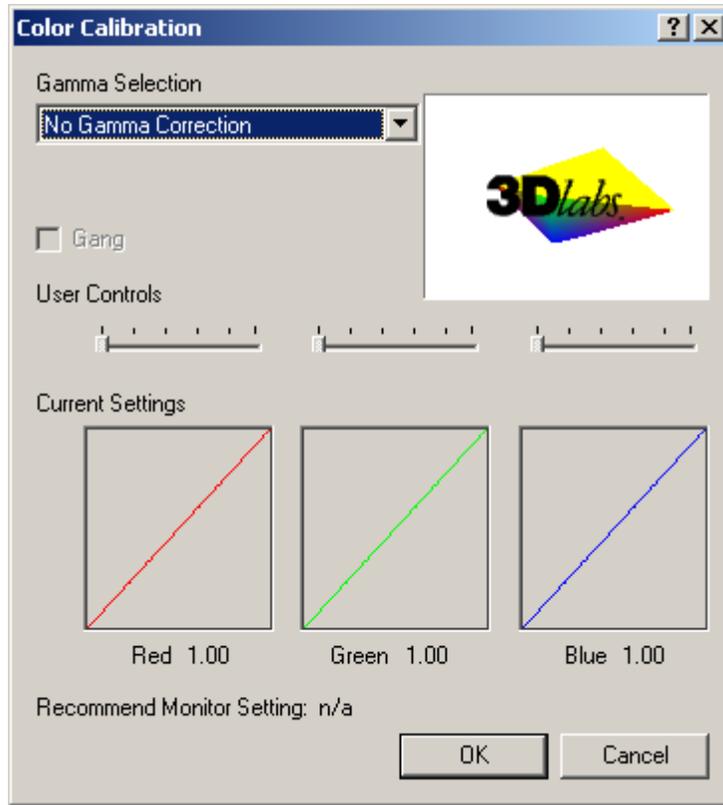
3. On the Wildcat Monitor Display Properties dialog box, click Configure Monitor to change the display mode, select a monitor type, or change the resolution/refresh rate. Once you have made the changes you require, click OK to accept the new configuration and dismiss the Configure Monitor dialog box or Cancel to reset to the default settings. You are returned to the Wildcat Monitor Display Properties dialog box.
4. Click OK on the Display Properties dialog box to accept the changes. 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. See *"Enabling the Dual Monitor Feature"* in this chapter for instructions on configuring dual displays.

Enabling stereo display

If you connect a device to the stereo port on the Wildcat III 6210 or Wildcat III 6110, 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 III 6210 or Wildcat III 6110. See *Chapter 2, "Connecting a Stereo Display Device"* for more information.
2. On the Wildcat III 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 to return to the Display Properties dialog box. 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.
4. Click OK if the display is correct and you wish to keep the new settings. The Display Properties dialog box is dismissed.
5. 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.**

Enabling Multiview and Genlock on the Wildcat III 6210

The Wildcat III 6210 comes with Multiview support for frame locking and rate locking of multiple workstations. Genlock support allows video timing to be synchronized to an external timing source.

NOTE:	**Your application must support Multiview for Multiview to work. Refer to the Wildcat support area on http://www.3dlabs.com/support/troubleshooting/wc-01.htm for information on ordering the correct cables.**

IMPORTANT:	**Multiview on a Wildcat III 6210 is not compatible with Multiview on any previous Wildcat product. Only connect Wildcat III 6210 cards together in a Multiview configuration.**

Enabling Multiview features

1. Insert one end of a shielded DB-9 cable into the Multiview Out port of the first workstation. This workstation becomes the "Master."
2. Insert the other end of the cable into the Multiview In port of the second workstation. This workstation becomes a "Slave."
3. If connecting more than two workstations, continue linking workstations to one another by connecting the Multiview Out port of one workstation to the Multiview In port of the next. The last workstation should terminate the links and only have a cable plugged into the Multiview In port.

Confirming multiview cables are detected

1. On the Slave workstation(s), right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click Advanced.
2. Click the Wildcat III Monitor Tab, then click Multiview.
3. The Input Cables will show as Detected under Multiview Information.

Enabling genlock features

1. Turn off your system, then connect the external timing source to the Genlock In port on the back of theWildcat III 6210. If you have Multiview enabled, connect the external timing source to the Genlock In port of the Master workstation.
2. Turn your on system and log on to Windows using an account that has administrative privileges.
3. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click Settings/Advanced/Wildcat III Monitor tab, then click Configure Monitor.
4. Select Vendor Monitor. From the menu below, select your monitor vendor and model from the list or select Genlock as the vendor and Default for the model.
5. Choose a resolution in the bottom box.
6. Click OK to accept the resolution change. If you get no video or scrambled video, wait 10 seconds and your previous settings will be restored.
7. Click OK, then Yes to accept changes. You are returned to the Wildcat Monitor tab.
8. Click Multiview.
9. Choose the signal source from the Source pull-down menu.
10. Select the Signal Edge Response, Signal Lock Rate, and Pixel Align Offset appropriate for your application and hardware setup.
11. Click the Enable check box, then Apply. If the genlock signal is present and the correct source is selected, the applet will display genlock signal "detected."

NOTE:	**Some monitors require custom timing file entries for Genlock to be properly maintained. Please refer to the documentation delivered with your monitor for further information.**

Configuring Dual Monitors

The Wildcat III 6210 and Wildcat III 6110 feature support for dual monitors under Windows 2000 or Windows XP (but not under Windows NT). The dual monitor feature allows two monitors — either two digital, two analog (with an adapter), or a combination of digital and analog — to be connected to the card so the display area stretches across both monitors.

Enabling the Dual Monitor Feature

1. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click Advanced.
2. Click the Wildcat Configuration Tab, then next to Maximum Number of Displays, select 2.
3. Click Apply.
4. When asked if you want to reboot, choose No. Follow the directions below for your operating system:
   - Windows 2000 -- go to the Start menu and choose Shutdown, then choose Shutdown from the displayed menu.
   - Windows XP -- go to the Start menu and select Turn off computer.
5. If you have not already done so, connect the second monitor, then turn on power to the workstation. The primary monitor will display the startup sequence. If either monitor's Power On LED does not illuminate, or if the primary monitor does not display the startup sequence, consult *Chapter 4, "Troubleshooting*."
6. Start Windows and log on using an account with administrative privileges.
7. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu.
8. On the Display Properties dialog box, click the Settings tab. The monitors display as icons labeled 1 (for primary) and 2 (for secondary).
9. Highlight monitor 2 and click "Extend my Windows desktop onto this monitor."
10. Drag the monitor icons to match the physical arrangement of your monitors.
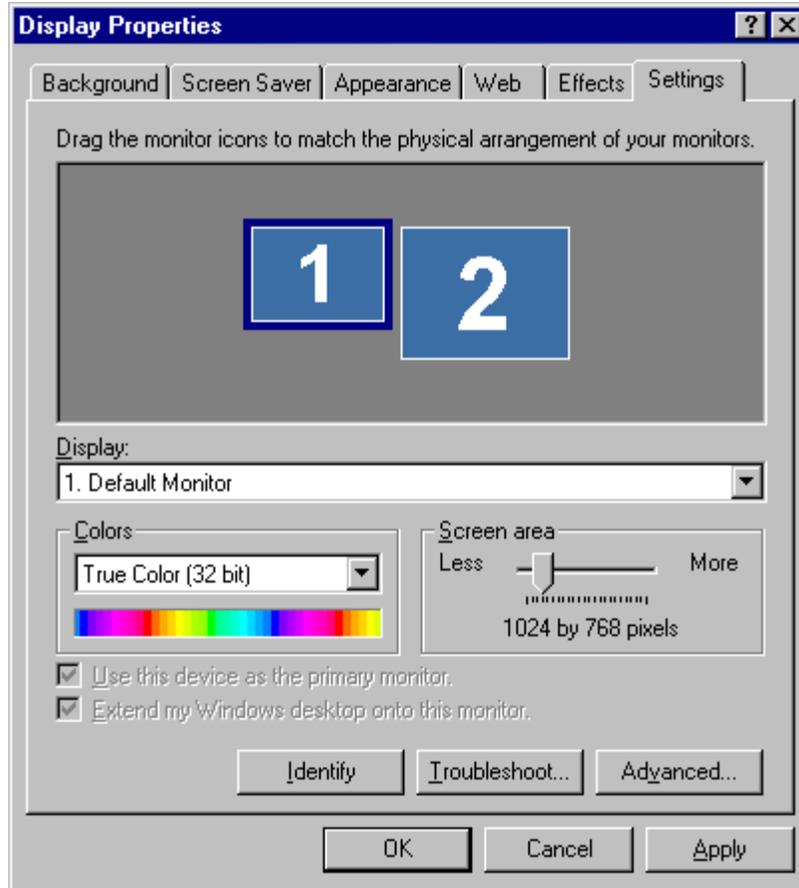
Adjusting colors or resolutions of either monitor

1. Click the icon for that monitor or select the monitor from the pulldown menu under Display.
2. With the monitor to adjust selected, click Advanced. Select Wildcat Monitor and make changes to the Colors or Screen area. Click OK.
3. Select the other monitor icon or select from the pulldown menu under Display to change the color or resolution of the other monitor.

NOTE: **Any changes made under Wildcat Configuration will affect both monitors.**

Optimizing the Wildcat 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. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click 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.**

Enabling Direct3D optimizations

1. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click Advanced.
2. Under the Wildcat Configuration tab, select Configuration Wizard. Click Next to continue.
3. From the configuration pull down menu, select Default Direct3D Settings, then click Next.

NOTE: **Configuring the Wildcat III 6210 or Wildcat III 6110 for Direct3D will use all available off screen memory.**

4. Click Finish to save your configuration and dismiss the Wizard, or click Cancel to close the Wizard without accepting any changes.

Creating a Custom Optimization

1. Right click on the Windows desktop (or left click if you've altered the default mouse setup) and choose Properties from the menu. Click the Settings tab, then click 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 III 6210 or Wildcat III 6110 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.**

Solution: 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.

Solution: Make sure that your video cable is connected securely to the monitor *and* to the monitor connector on your Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card. If you're using only one monitor, make sure that monitor is plugged into the primary connector labeled "1" on the back of the card. See your monitor documentation and *Chapter 1 – "Installation*," in this document.

Solution: Your card might not be seated properly in the 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.

Solution: Reboot into VGA/Safe Mode and select a supported resolution and refresh rate. See *"Obtaining a Usable Video Resolution"* later in this chapter for instructions.

Solution: 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 III 6210 or Wildcat III 6110 Graphics Accelerator Card are not what I expected.**

Solution: The Wildcat III 6210 or Wildcat III 6110 Graphics Accelerator Card driver may not have installed fully, or a file may have been corrupted. Try installing the driver again.

Solution: 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.

Solution: 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..

Solution: 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 proceedures 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, 60 Hz refresh rate. Then restart Windows NT again in non-VGA mode.

Booting into Safe Mode

Press CTRL+ALT+DEL but do not log on to the Windows 2000 or Windows XP 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 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, 60 Hz refresh rate. Then restart Windows 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 reseat 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 your operating system. If you are unsure, refer to the README.TXT file located on the driver delivery media for this information.**

Refer to Microsoft Windows documentation and online Help for more information on installing drivers and software application programs.

If you are installing the Wildcat III 6210 or Wildcat III 6110 driver, you must remove the current driver prior to installing the update.

Removing the existing 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, then Properties, Install/Uninstall tab.
3. Under Install/Uninstall, highlight the Wildcat III 6210 or Wildcat III 6110 Display Driver and click Add/Remove.
4. Click Yes when prompted to confirm the driver removal, and follow the prompts.

Removing an existing driver under Windows 2000

1. Log on to Windows 2000 using an account that has administrative privileges. Please consult your system administrator or Microsoft Windows 2000 User's Manual for more information on Administrator privileges.
2. From the Start menu, go to Settings/Control Panel and click Add/Remove Programs.
3. Under Change or Remove Programs, highlight the current Wildcat 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.

Removing an existing driver under Windows XP

1. Log on to Windows XP using an account that has administrative privileges. Please consult your system administrator or Windows XP User's Manual for more information on Administrator privileges.
2. From the Start menu, go to Control Panel.
3. Under Change or Remove Programs, highlight the current Wildcat Display Driver and click Change/Remove.
4. Click Yes when prompted to confirm the driver removal.
5. Click OK when notified you must reboot your system for driver removal to occur.

Reinstalling the video driver

1. Log on using an account that has administrative privileges.
2. From the operating system Start menu in Windows NT and Windows 2000, go to Settings, Control Panel, System. In Windows XP, go to Start, Control Panel, Performance and Maintenance, System
3. Under System, click the Hardware tab.
4. Click Device Manager, click Display Adapters, then select Wildcat III 6210 or Wildcat III 6110.
5. Right click on Wildcat III 6210 or Wildcat III 6110, select Properties, then click Update Driver.
6. The Upgrade Device Drivers Wizard displays. Click Next.
7. Under Install Hardware Device Drivers, click "Search for a suitable driver for my device (recommended)," then click Next.
8. Under Locate Driver Files, make sure the appropriate search location is selected, and that Disk 1 of the driver media is loaded in the appropriate drive; then, click Next. The Wizard locates the driver installation files
9. Under Driver Files Search Results, click Next to start the installation.
10. Insert Disk 2 when prompted then click OK to continue with the installation.
11. Once the driver successfully installs, click Finish to dismiss the Install Hardware Device Drivers Wizard.
12. Remove the delivery media from the disk drive and restart the workstation.

Online Information

If you cannot find the problem you are experiencing, or the solution to a problem, listed in this chapter, check the Troubleshooting section of the 3Dlabs web site at: http://www.3dlabs.com/support/troubleshooting/index.htm, or contact your vendor for additional help.

APPENDIX A – SPECIFICATIONS

A Specifications

General	
Manufacturer	3Dlabs
Model number	Wildcat III 6210 or Wildcat III 6110
Functional	
System	**NOTE: IF YOU ORDERED THIS VIDEO CARD WITH A SYSTEM, IT WAS PREINSTALLED AND CONFIGURED FOR USE IN YOUR SYSTEM PRIOR TO SHIPMENT.**
Interface	AGP Pro 50
Graphic controller	High-speed Wildcat III chipset technology
DAC speed	320 MHz
Data width (dual pipeline)	• Frame Buffer: 128 bits per pipe • Texture Buffer: 64 bits per pipe • DirectBurst: 64 bit
Connectors	**Wildcat III 6210** • One 3-Pin, Mini-DIN stereo sync output • Two DVI compatible Digital Video Output Ports • One BNC Connector • Two 6-pin modular jacks	**Wildcat III 6110** • One 3-Pin, Mini-DIN stereo sync output • Two DVI Digital Video Output Ports
Interrupts	PCI-assigned Interrupt A for Wildcat III 6210 or Wildcat III 6110
DMA channels	AGP 4X or 2X
Video memory	**Wildcat III 6210** • Frame Buffer: 128 MB • Texture Buffer: 256 MB • DirectBurst: 32MB	**Wildcat III 6110** • Frame Buffer: 64 MB • Texture Buffer: 128 MB • DirectBurst: 16 MB
3D Performance	**NOTE: PERFORMANCE NUMBERS REFLECT MAXIMUM HARDWARE RATE. NUMBERS MAY VARY DEPENDING ON APPLICATION.** • 3D Gourad-shaded triangles, Z-buffered: 33 M Tri/Sec • Trilinear-textured pixel fill-rate: 400 M Pixels/Sec • 3D vectors, solid-color, 10-pixel: 26.1 M Vec/Sec

Dimensions		**Wildcat III 6210**	**Wildcat III 6110**
	Height	1.6"	1.6"
	Length	13.92"	13.89"
	Width	4.97"	4.97"
	Slots Required	One AGP Pro 50 slot One PCI slot (for mechanical and cooling purposes)	One AGP Pro 50 slot One PCI slot (for mechanical and cooling purposes)
Power Requirements		Wildcat III 6210 50 W maximum 12.0V— 1.1A maximum 5.0V — 0.2A maximum 3.3V— 10.9A maximum	Wildcat III 6110 50 W maximum 12.0V— 1.1A maximum 5.0V — 0.1A maximum 3.3V— 10.9A maximum

Maximum Supported Resolutions	NOTE: THESE ARE MAXIMUM SUPPORTED MONITOR RESOLUTIONS AND REFRESH RATES. RESOLUTIONS AND REFRESH RATES MAY VARY DEPENDING ON YOUR MONITOR.

NOTE: SUPERSCENE ANTIALIASING IS AVAILABLE AT RESOLUTIONS UNDER 1152 X 864 ON A SINGLE DISPLAY

Wildcat III 6210
Supported Screen Resolutions (true color, double-buffered)

Resolution	Max. Refresh Rate (Hz)	SuperScene Antialiasing Supported	Stereo Available At (Hz)
2048 x 1152	75	-	-
1920 x 1440	75	-	-
1920 x 1200	76	-	-
1920 x 1080	85	-	-
1856 x 1392	80	-	-
1824 x 1368	75	-	-
1824 x 1128	75	-	-
1792 x 1344	75	-	-
1792 x 1120	75	-	-
1600 x 1200	90	-	-
1600 x 1024	76	-	-
1600 x 900	85	-	-
1520 x 856	90	-	106
1440 x 900	90	-	100
1360 x 766	90	yes	118
1280 x 1024	85	-	120
1280 x 960	85	-	120
1280 x 800	90	yes	112
1280 x 720	75	yes	120
1152 x 864	85	yes	120
1024 x 768	85	yes	120
856 x 480	75	yes	120
800 x 600	85	yes	120
640 x 480	85	yes	120

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Maximum Supported Resolutions (cont')	NOTE: THESE ARE **MAXIMUM SUPPORTED** MONITOR RESOLUTIONS AND REFRESH RATES. RESOLUTIONS AND REFRESH RATES MAY VARY DEPENDING ON YOUR MONITOR.
	NOTE: SUPERSCENE ANTIALIASING IS AVAILABLE AT RESOLUTIONS UNDER 1152 X 864 on a single display

Wildcat III 6110
Supported Screen Resolutions (true color, double-buffered)

Resolution	Max. Refresh Rate (Hz)	SuperScene Antialiasing Supported	Stereo Available At (Hz)
2048 x 1152	75	-	-
1920 x 1440	75	-	-
1920 x 1200	76	-	-
1920 x 1080	85	-	-
1856 x 1392	80	-	-
1824 x 1368	75	-	-
1824 x 1128	75	-	-
1792 x 1344	75	-	-
1792 x 1120	75	-	-
1600 x 1200	90	-	-
1600 x 1024	76	-	-
1600 x 900	85	-	-
1520 x 856	90	-	106
1440 x 900	90	-	100
1360 x 766	90	yes	118
1280 x 1024	85	-	120
1280 x 960	85	-	120
1280 x 800	90	yes	112
1280 x 720	75	yes	120
1152 x 864	85	yes	120
1024 x 768	85	yes	120
856 x 480	75	yes	120
800 x 600	85	yes	120
640 x 480	85	yes	120

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APPENDIX B – SOFTWARE LICENSE

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APPENDIX C – REGULATORY STATEMENTS

DECLARATION OF CONFORMITY

Manufacturer's Name: 3Dlabs Ltd – Wildcat Division
Manufacturer's Address: Huntsville, Alabama, USA. 35824

declares that the product

Product Name: Wildcat III 6110/6210 Graphics Accelerator Card

conforms to the following product specifications:

EMC

Following provisions of the 89/336/EEC Directive

Specification	Class / Level
EN 55022:1994 (CISPR 22 limits)	**Class B** Radiated Electric Field Emissions
EN 55022:1994 (CISPR 22 limits)	**Class B** Power Line Conducted Emissions
47 CFR Part 15,Subpart B (ANSI C63.4:1992)	**Class B** Radiated Electric Field Emissions
EN 55024:1998 (IEC 61000-4-3)	Radiated Disturbance Immunity
EN 55024:1998 (EN 61000-4-2:1995)	Electrostatic Discharge Immunity
EN 55024:1998 (EN 61000-4-4:1995)	Electrical Fast Transient/Burst Immunity
EN 55024:1998 (EN 61000-4-6:1996)	Conducted Disturbance Immunity
EN 55024:1998 (EN 61000-4-11:1994)	Voltage Dips and Sags Immunity
EN 55024:1998 (EN 61000-4-5:1995)	Surge Immunity

Date of Declaration: .11-12-01...

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.

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.

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.

DDR SDRAM

Double Data Rrate SDRAM is synchronous dynamic RAM that improves memory clock speed.

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.

Heidi
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 -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 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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