The Wildcat™ 4110 PRO

Graphics Accelerator User's Guide

Contents

Preface

The *3Dlabs Wildcat 4110 PRO User's Guide* contains information on the setup and use of the 3Dlabs Wildcat 4110 PRO video card, as well as troubleshooting information, connections, and specifications.

If you purchased this card as part of a system, the card was factory installed and configured in your system prior to shipment. This document provides instructions for setting your display parameters and installing the video drivers and hardware in case you bought the card as part of an upgrade or add-on purchase.

About This Document

The *3Dlabs Wildcat 4110 PRO User's Guide* is organized as follows:

♦ Chapter 1, "Introduction," provides an overview of the 3Dlabs Wildcat 4110 PRO video card, a list of features, and a brief description of the external connectors.

♦ Chapter 2, "Setup," provides step-by-step instructions for installing the video card and related software, and connecting the monitor and stereo display device.

♦ Chapter 3, "Using the Video Card," provides instructions for configuring the video display and enabling the stereo display.

♦ Chapter 4, "Troubleshooting," describes common problems and solutions, and instructions for obtaining a usable video resolution, reinstalling the video driver, and how to get help.

♦ Appendix A, "Specifications," provides general, functional, and performance specifications for the Wildcat 4110 PRO video card, as well as a list of resolutions, the card dimensions, and power requirements.

♦ Appendix B, "Connectors," describes the ports and connectors on the Wildcat 4110 PRO.

Document Conventions

Bold	Commands, words, or characters that you key in literally.
Italic	Variable values that you supply, or cross-references.
Monospace	Output displayed on the screen.
SMALL CAPS	Key names on the keyboard, such as D, ALT or F3; names of files and directories. You can type filenames and directory names in the dialog boxes or the command line in lowercase unless directed otherwise.
CTRL+D	Press a key while simultaneously pressing another key; for example, press CTRL and D simultaneously.

Operating System Information

You must have Microsoft Windows NT 4.0 with Service Pack 5 (or later) or Windows 2000 installed. The appropriate operating system was installed on your computer prior to shipment if you bought the Wildcat 4110 PRO video card as part of a system.

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

Hardware Information

For more information about your computer, refer to the documentation delivered with your system.

Customer Support

For technical assistance, please contact 3Dlabs by phone at 1-800-464-3348 (US) or 44-178-447-0555 (UK), or send e-mail to: support@3dlabs.com.

World Wide Web

For the latest *3Dlabs* news and product information, visit **http://www.3Dlabs.com**.

1 Introduction

The 3Dlabs Wildcat 4110 PRO video card equips your personal computer or personal workstation with powerful and professional 3D graphics capability. This video card infuses Intel Pentium II or greater computers running the Microsoft Windows NT or Windows 2000 operating system with workstation-class 3D graphics features and performance.

NOTE   If you purchased the 3Dlabs Wildcat 4110 PRO video 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 bought the Wildcat 4110 PRO as an ad-on or upgrade. Store the driver CD/diskette that came with your system in a safe place in case you ever need to reinstall the drivers.

Features

Card Interface	AGP Pro card designed for systems that have either a 50-watt or a 110-watt AGP Pro slot. NOTE: The 3Dlabs Wildcat 4110 PRO cannot plug into a standard AGP slot.
Video Memory	Frame Buffer: 64MB Texture Buffer: 64MB DirectBurst: 8MB
Graphics Controller	High-speed Wildcat chipset technology
RAMDAC	220MHz
Plug-and-Play Monitor Support	Yes
Maximum Resolution (bits per pixel); Refresh Rate	1920x1200 (96); Aspect Ratio = 16:10; 60Hz NOTE: Supported refresh rates, monitor resolutions, aspect ratios, and color depths depend on your type of monitor, and whether or not you have multisampling selected. See Appendix A, "Specifications," for a list of supported resolutions and refresh rates. NOTE: To display at a specific resolution with the desired refresh rate, both the video card and monitor must support it. Refer to the documentation that came with your monitor for a list of supported video resolutions.
Accelerated 3D API	OpenGL

Features, cont.	
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 24 lights) ♦ View volume clipping ♦ Up to six user clip planes ♦ Image processing
Traditional 2D Operations	♦ 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)
OpenGL Operations	♦ Image support for multiple formats, zooming, bilinear scaling, color matrix, and color tables ♦ Fogging: linear, exponential, exponential^2, and user-defined ♦ 2D/3D points, vectors, and polygons ♦ Texture mapping: point, bilinear, trilinear, and multiple internal formats ♦ 24- and 32-bit depth buffering ♦ Dithering

Features, cont.	
OpenGL Operations, cont.	♦ Fast window clears ♦ Window clipping ♦ Fast window-mode double buffering ♦ Masking ♦ Frame-sequential and interlaced stereo support ♦ Stencil operations ♦ Matrix transformations

OpenGL Extensions	♦ Imaging Extensions:
	  ▪ pixel buffer
	  ▪ color table
	  ▪ color matrix
	  ▪ convolution
	♦ Blend Extensions:
	  ▪ color
	  ▪ minmax
	  ▪ function separate
	♦ Fog Extensions:
	  ▪ fog function
	  ▪ fog offset
	♦ Texture Extensions:
	  ▪ 3D textures: edge, border, and LOD clamps
	  ▪ mipmap generation
	♦ Video Extensions:
	  ▪ interlace
	  ▪ interlace read
	  ▪ 422 pixels

Features, cont.	

OpenGL Extensions, cont.	◆ Swap Control Extensions:
	
	  ▪ swap control
	
	  ▪ swap group
	
	  ▪ swap statistics
	
	◆ Texture color table
	
	◆ Pixel texture and 4D texturing
	
	◆ Stencil operation wrap
	
	◆ Post-texturing specular

Additional Features	◆ SuperScene full-scene multisampled anti-aliasing:
	
	  ▪ Point sampled with eight 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 digital flat panel display support

External Connectors

The 3Dlabs Wildcat 4110 PRO video card has three standard external connectors (see Figure 1):

1. 3-Pin, MiniDIN stereo sync output connector

2. 15-Pin, D-sub analog video output connector

3. DVI-I output connector
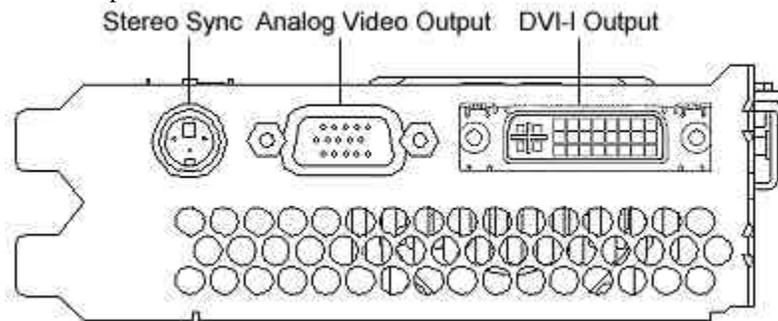
Figure 1. Wildcat 4110 PRO External Connectors

See Appendix B, "Connectors," for detailed information on each of the 3Dlabs Wildcat 4110 PRO connectors.

2 Setup

This chapter provides step-by-step instructions for installing the video card and related software, and connecting the monitor and stereo display device.

Preparing for Installation

NOTE: If you purchased your 3Dlabs Wildcat 4110 PRO video 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.

NOTE: Refer to your system's documentation for instructions on opening and closing the system, identifying the AGP Pro expansion slot, Peripheral Component Interconnect (PCI) expansion slots, and adding expansion cards.

Make Sure Your Computer is Ready

General system requirements include:

- ◆   Pentium II or greater processor
- ◆   Microsoft Windows NT 4.0 with Service Pack 5 (or later) or Windows 2000
- ◆   AGP Pro expansion slot

CAUTION: The 3Dlabs Wildcat 4110 PRO video card cannot plug into a standard AGP slot.

- ◆   An open PCI slot adjacent to the AGP Pro slot for cooling purposes
- ◆   Minimum of 32MB DRAM (64MB recommended)
- ◆   Industry-standard, multiple-frequency monitor or a DVI-compliant digital display device
- ◆   3MB of free space on the computer's primary system disk for the video display driver software

Collect Materials and Tools

Make sure you have the following items:

- ♦ 3Dlabs Wildcat 4110 PRO video card
- ♦ Delivery media with the 3Dlabs Wildcat 4110 PRO video display driver
- ♦ Flat-head or Phillips screwdriver
- ♦ Monitor cable supplied with your computer or with the monitor
- ♦ Your computer's documentation
- ♦ Grounding wrist strap

Take Anti-static Precautions

Static electricity can damage the components inside a computer or on a printed circuit card. To reduce the possibility of electrostatic discharge:

- ♦ Turn off power to the computer.

CAUTION: **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.**

- ♦ Touch the metal chassis of the computer to drain off any static electricity before touching the card.
- ♦ Wear a properly connected grounding wrist strap when handling the card or working in the computer.
- ♦ 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.

Installing the Video Card

Refer to your computer's documentation for instructions on opening and closing the computer, identifying the AGP Pro expansion slot, PCI expansion slots, and adding expansion cards.

To install the 3Dlabs Wildcat 4110 PRO video card:

1. Turn off power to the computer and to the monitor, and disconnect the cables from the computer.

2. Open the computer to gain access to the AGP Pro expansion slot.

3. Remove the existing card. Keep the screws; you will use them to secure the 3Dlabs Wildcat 4110 PRO card to the chassis.

4. Align the Wildcat 4110 PRO card with the AGP Pro expansion slot. Make sure the gold-fingered connections on the card's edge are aligned properly with the slot connector (see Figure 2; these connectors are labeled on the left side of the image).
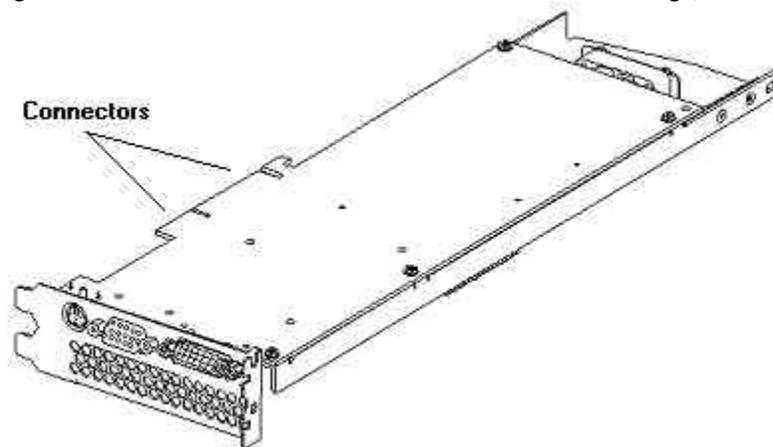
Figure 2. Wildcat 4110 PRO Video Card

5. Push the card into the expansion slot firmly and evenly until it is fully seated in the slot connector.

6. Visually inspect the connection. If it does not appear to be correct, remove and reinstall the card.

7. Use the screws you removed previously to secure the card to the computer's chassis.

8. Close the workstation and reconnect the power cord. See "Connecting the Monitor" in this chapter for instructions on connecting a display device to the Wildcat 4110 PRO video card.

Connecting the Monitor

Your 3Dlabs Wildcat 4110 PRO video card was factory installed prior to shipment if you purchased it as part of a system. If you installed the card yourself, you will need to install the video driver software after connecting the monitor. See "Installing the Software" in this chapter for instructions.

To connect the monitor:

1. Make sure the power to the computer is turned off.

2. Connect the workstation monitor's video cable to the appropriate output port on the 3Dlabs Wildcat 4110 PRO video card. See the documentation that came with your monitor for information on the type of connection that is required. Typically, you will connect the monitor cable to the analog video output port (see Figure 3).

NOTE: If your monitor does not have a built-in video cable, use a shielded video cable with a 15-pin (D-sub) video connector 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.
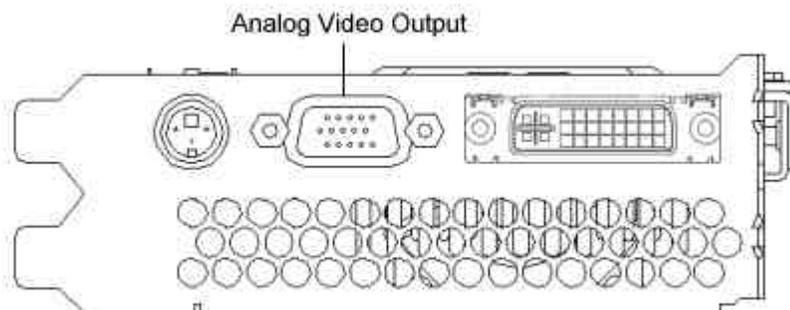
Figure 3. Wildcat 4110 PRO Analog Video Output

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 you installed the video card yourself, the computer will boot into VGA mode. Go to "Installing the Software" in this chapter for instructions on installing the video drivers.

NOTE: See "Connecting a Stereo Display Device" in this chapter for instructions on connecting other devices to the video card.

NOTE: If you ordered the 3Dlabs Wildcat 4110 PRO 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.

Installing the Software

If you received your 3Dlabs Wildcat 4110 PRO video card with a system, the graphics drivers were installed prior to shipment. This section only applies if you purchased your 3Dlabs Wildcat 4110 PRO video card as an upgrade, or if you are reinstalling the driver.

Make Sure Your Computer is Ready

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

- Microsoft Windows NT Workstation 4.0 with Service Pack 5 (or later) or Windows 2000 operating system software installed

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

CAUTION: **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.**

NOTE: Refer to the Microsoft Windows NT or Windows 2000 documentation and online Help for more information on installing drivers and software application programs.

NOTE: If you are reinstalling the 3Dlabs Wildcat 4110 PRO driver, you must remove the current driver prior to installing the update.

If you're running Windows NT 4.0

To remove the existing 3Dlabs Wildcat 4110 PRO driver:

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 3Dlabs Display Driver and click Add/Remove.

4. Click Yes when prompted to confirm the driver removal, and follow the prompts. Reboot the system before installing the Wildcat 4110 PRO driver.

To install the Wildcat 4110 PRO video driver:

1. Log on using an account that has administrative privileges.

2. Insert the delivery media into the appropriate device (for diskettes or CD).

3. From the operating system Start menu, go to Settings/Control Panel/Display and click the Settings tab.

4. Click Display Type, then click Change.

5. In the Change Display dialog box, click Have Disk.

6. In the Install From Disk dialog box, type the path to the directory that contains the delivery media.

7. In the Change Display dialog box, verify that the Wildcat 4110 PRO driver is highlighted, then click OK.

8. Click Yes when asked if you want to install a third-party driver. The files are copied from the delivery media.

9. After the driver files are copied, a message that the driver successfully installed displays. Click OK.

10. Click Close to exit the Display Type dialog box.

11. Click Close to exit the Display Properties dialog box.

12. When told that the workstation must be restarted for the new settings to take effect, remove the diskette from the workstation's floppy disk drive, if applicable. Click Yes to restart the workstation.

13. After the system restarts and you log in, 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.

NOTE: See Chapter 3, "Using the Video Card," for instructions on setting the display properties.

If you're running Windows 2000

To remove an existing driver:

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 3Dlabs 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.

To install the Wildcat 4110 PRO video driver:

1. Log on using an account that has administrative privileges. The Found New Hardware Wizard displays.

2. Click Next on the Found New Hardware Wizard.

3. Under Install Hardware Device Drivers, click "Search for a suitable driver for my device (recommended)," then click Next.

4. 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.

5. Under Driver Files Search Results, click Next to start the installation.

6. Insert Disk 2 when prompted, then click OK to continue with the installation.

7. Once the driver successfully installs, click Finish to dismiss the Found New Hardware Wizard.

8. When told that the workstation must be restarted for the new settings to take effect, remove the delivery media from the disk drive (if applicable) and click Yes to restart the workstation.

NOTE: See "Configuring the Video Display in Windows 2000" later in this document for instructions on setting the display properties.

Verify the Default Video Display Driver

If you're running Windows NT 4.0

To verify the default video display driver:

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 3Dlabs Wildcat 4110 PRO is listed under Display. This indicates that the appropriate driver is installed.

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

If you're running Windows 2000

To verify the default video display driver:

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 two 3Dlabs Wildcat 4110 PRO devices are 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

If you're running Windows NT 4.0

To verify the default system startup version:

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 3Dlabs Wildcat 4110 PRO graphics driver is not running.

4. Click OK to close the System dialog box.

To check 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.

If you're running Windows 2000

To verify the default system startup version:

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 the listed as the Default operating system, then click OK.

4. Click OK to close the System Properties dialog box.

Upgrading the VGA Controller for the 3Dlabs 4110 PRO

NOTE: This procedure is only for systems running Windows 2000

To upgrade the VGA Controller:

1. From the operating system Start menu, go to Settings/Control Panel/System. Click the Hardware tab on the System dialog box. Then, click Device Manager.

2. Under Display Adapters, double click Chips and Technologies 655554 Graphics Adapter (see Figure 4).

3. Under the Driver tab, click Update Driver.

4. The Upgrade Device Driver Wizard displays. Click Next, then select Display a list of known drivers, then click Next.

5. Select Show all hardware of this device class. Under Manufactures choose 3Dlabs, and under Model choose 3Dlabs VGA. Click Next.

6. An Update Driver Warning dialog box appears. Click Yes. The Update Device Driver reappears. Click Next on the Wizard.

7. A prompt will display stating a digital signature is not found and will ask if you want to continue with this installation. Click Yes.

8. Insert Disk 2 when prompted, then click OK to continue with the installation.

9. Once the driver successfully installs, click Finish to dismiss the Upgrade Device Driver Wizard.

10. When told that the workstation must be restarted for the new settings to take effect, remove the diskette from the workstation's floppy disk drive and click Yes to restart the workstation.

To verify the 3Dlabs VGA controller is installed:

1. From the operating system Start menu, go to Settings/Control Panel/System, and click the Hardware tab on the System dialog box. Then, click Device Manager.

2. Verify that 3Dlabs VGA is listed under Display Adapters. This indicates that the appropriate driver is installed.
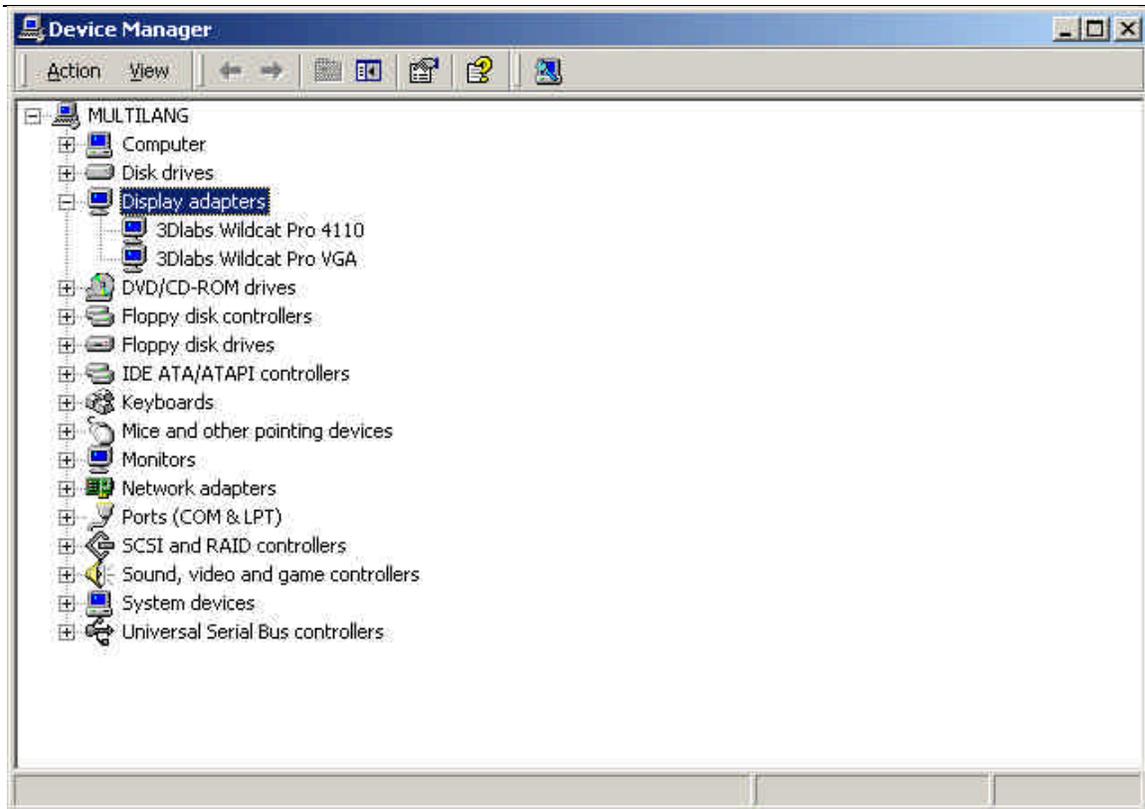
Figure 4. Device Manager showing Chips and Technologies 655554 Graphics Adapter

Connecting a Stereo Display Device

The following instructions apply only if you are connecting a stereo video display device to the Wildcat 4110 PRO video card.

To connect a stereo display device:

1. Connect one end of the stereo emitter cable to the input port on your stereoscopic display device.

NOTE: See the documentation delivered with your stereoscopic display device for information on the connectors and proper cables.

2. Connect the other end of the cable to the stereo output port on the Wildcat 4110 PRO video card (see Figure 5).

3. Configure the display settings to enable stereo display. See Chapter 3, "Using the Video Card," for step-by-step instructions.
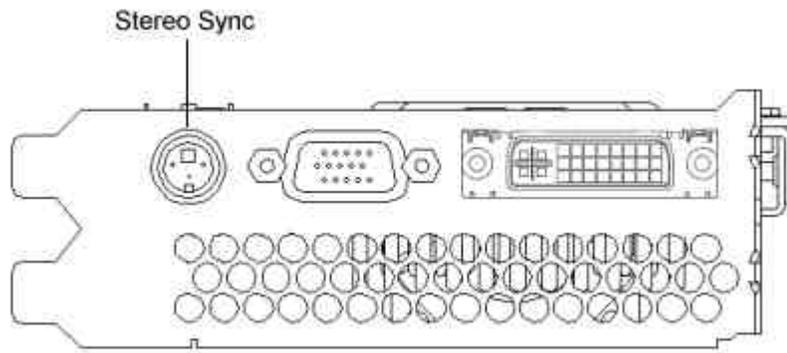
Figure 5. Wildcat 4110 PRO Stereo Output Port

3 Using the Video Card

This chapter contains instructions for configuring the video display and enabling the stereo display.

NOTE: If you ordered this video card with a system, it was configured for use prior to shipment. The following instructions apply only if you purchased the card as an upgrade or add-on.

Configuring the Video Display

Once the drivers are installed properly, the Display Properties dialog box will have two additional tabs: 3Dlabs Configuration and 3Dlabs Monitor.

Wildcat Configuration Tab

To use 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 3Dlabs Configuration tab if it is not already displayed. In Windows 2000 follow the same path; then click the Settings tab and then Advanced. Click the 3Dlabs Configuration tab if it is not already displayed (see Figure 6).

4. 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.

Figure 6. Wildcat Configuration Tab

Wildcat Monitor Tab

To use the Wildcat Monitor tab:

1. On the Display Properties dialog box, click the Wildcat Monitor tab (see Figure 7). This tab contains commands for adjusting the resolution, color depth, and refresh rate. See the steps under "Wildcat Configuration Tab" if you need instructions on opening the Display Properties dialog box.
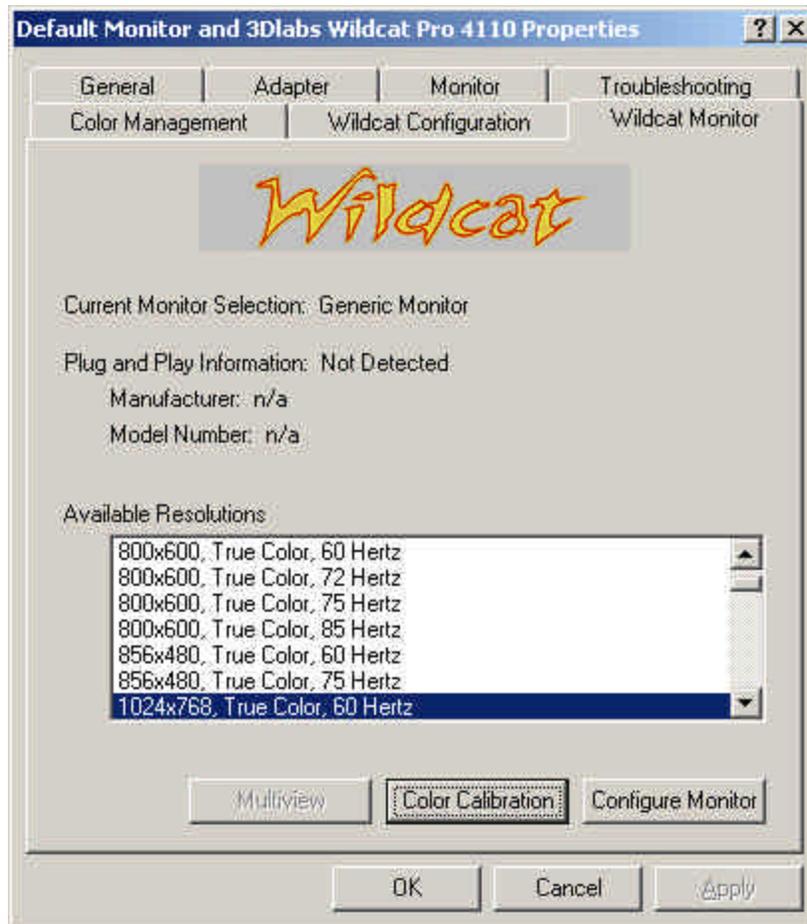
Figure 7. Wildcat Monitor Tab

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.

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. Click OK on the Display Properties dialog box to accept the changes, or click Cancel to close the dialog box without accepting any modifications.

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.

NOTE: 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 4110 PRO card, you must change the display mode to view in stereo. See Figure 2 in Chapter 2, "Setup," for an illustration of the stereo output port.

NOTE: The Display Properties dialog box must be displayed. See "Configuring the Video Display" in this chapter for instructions on activating the Display Properties dialog box and selecting the 3Dlabs Monitor tab.

To enable stereo display:

1. Make sure your stereo display device is properly connected to the stereo output port on the Wildcat 4110 PRO card. See Chapter 2, "Setup," for more information.

2. On the Wildcat Monitor tab under Display Properties, click Configure Monitor. The Configure Monitor dialog box displays (see Figure 9, above).

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.

4 Troubleshooting

This chapter describes common problems and solutions, obtaining a usable video resolution, reinstalling the video driver, and how to get help.

Common Problems and Solutions

Monitor Checks

Problem	Cause	Solution
Display is black, not synchronized, or distorted	Display properties are not set correctly.	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.
Monitor does not support a selected resolution or refresh rate	The selected settings are not compatible with your monitor and video 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.
		Reinstall the video driver.
There is no VGA bootup screen	The connections may not be set up properly.	Verify that the monitor cable is securely fastened to the video card.
		Make sure the monitor and computer are plugged into electrical outlets and are receiving power.
		Check any other external display connectors, if applicable.
		Verify that the video card is seated properly in its expansion slot.

Screen image is off-center	Monitor settings may be configured improperly.	Refer to your monitor's documentation for instructions on making horizontal and vertical adjustments.
Color balance is wrong	Monitor settings may be configured improperly.	Refer to your monitor's documentation for instructions on adjusting the color display.
There is no picture	Improper software setup or hardware problem.	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.
Screen image defects appear	Possible indication of a hardware problem.	Run diagnostics to check the graphics hardware.

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:

In Windows NT 4.0

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.

To use the Last Known Good option in 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.

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.

To Boot into Safe Mode

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.

Determining a Defective Unit

To determine a defective unit:

1. Save and exit from all files, if possible, then shut down Windows NT.

2. Turn off the power to the monitor and to the workstation.

CAUTION: 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

CAUTION: 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.**

NOTE: 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.

NOTE: If you are reinstalling the 3Dlabs Wildcat 4110 PRO driver, you must remove the current driver
          prior to installing the update.

Reinstalling the video driver under Windows NT 4.0

To remove the existing 3Dlabs Wildcat 4110 PRO driver:

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 3Dlabs
    Display Driver and click Add/Remove.

4. Click Yes when prompted to confirm the driver removal, and follow the prompts.

To reinstall the video driver:

1. Log on using an account that has administrative privileges.

2. Insert the delivery media into the appropriate device (for diskettes or CD).

3. From the operating system Start menu, go to Settings/Control Panel/Display and click the
    Settings tab.

4. Click Display Type, then click Change.

5. In the Change Display dialog box, click Have Disk.

6. In the Install From Disk dialog box, type the path to the directory that contains the
    delivery media.

7. In the Change Display dialog box, verify that the Wildcat 4110 PRO driver is
    highlighted, then click OK.

8. Click Yes when asked if you want to install a third-party driver. The files are copied from
    the delivery media.

9. After the driver files are copied, a message that the driver successfully installed displays.
    Click OK.

10. Click Close to exit the Display Type dialog box.

11. Click Close to exit the Display Properties dialog box.

12. When told that the workstation must be restarted for the new settings to take effect,
    remove the diskette from the workstation's floppy disk drive, if applicable. Click Yes to
    restart the workstation.

13. After the system restarts and you log in, 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.

Reinstalling the video driver under Windows 2000

To remove an existing driver:

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 3Dlabs 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.

To reinstall the video driver:

1. Log on using an account that has administrative privileges.

2. From the operating system Start menu, go to Settings, Control Panel, System. Under System, click the Hardware tab.

3. Click Device Manager, click Display Adapters, then select 3Dlabs Wildcat 4110 PRO

4. Right click on 3Dlabs Wildcat 4110 PRO, select Properties, then click Update Driver.

5. The Upgrade Device Drivers Wizard displays. Click Next.

6. Under Install Hardware Device Drivers, click "Search for a suitable driver for my device (recommended)," then click Next.

7. 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

8. Under Driver Files Search Results, click Next to start the installation.

9. Insert Disk 2 when prompted then click OK to continue with the installation.

10. Once the driver successfully installs, click Finish to dismiss the Install Hardware Device Drivers Wizard.

11. If told that the workstation must be restarted for the new settings to take effect, remove the delivery media from the disk drive and click Yes to restart the workstation.

Getting Help

If the troubleshooting procedures in this document do not resolve the problem, please contact your vendor for technical assistance (refer to your system documentation for instructions). For information about your warranty, see your system documentation.

A Specifications

General	
Manufacturer	3Dlabs
Model number	Wildcat 4110 PRO
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 or standard AGP
Graphic controller	High-speed Wildcat chipset technology
DAC speed	220MHz
Data width	♦ Frame buffer: 128 bits ♦ Texture buffer: 64 bits ♦ DirectBurst: 64 bits
Connectors	♦ 3-Pin, MiniDIN stereo sync output ♦ 15-Pin, D-sub analog video output ♦ DVI-I output
Interrupts	♦ PCI-assigned ♦ Interrupt A for Wildcat 4110 PRO
DMA channels	♦ PCI ♦ AGP 2X
Video memory	♦ Frame Buffer: 64MB ♦ Texture Buffer: 64MB ♦ DirectBurst: 8MB
Resolutions	NOTE: Supported monitor resolutions and refresh rates may vary depending on your monitor.

Monitor Resolutions (bits per pixel)	Refresh Rates (Hz)
1920x1200 (96)	60
1600x1200 (96, 128)	60, 65, 70, 75, 80
1280x960 (96, 128)	60, 75, 85
1280x1024 (96, 128)	60, 75, 85
1024x768 (96, 128)	60, 75, 85
800x600 (96, 128)	60, 75, 85
640x480 (96, 128)	60, 75, 85

3D Performance	NOTE: Performance numbers reflect maximum hardware rate. Numbers may vary depending on application. ♦ 3D Gourad-shaded triangles, Z-buffered, 15-pixel: 6.0M Tri/Sec ♦ 3D Gourad-shaded triangles, Z-buffered, 25-pixel: 4.3M Tri/Sec ♦ 3D Vectors, solid-color, 10-pixel: 12.0M Vec/Sec	
Dimensions	**Height**	1.01"
	Length	13.34"
	Width	4.25"
	Slots Required	Two (one AGP Pro or standard AGP slot and one adjacent PCI slot for cooling purposes)
Power Requirements	♦ 50 W maximum ♦ 12.0V 140 mA maximum ♦ 5.0V 1.8A maximum ♦ 3.3V 12.8A maximum	

B Connectors

The 3Dlabs Wildcat 4110 PRO PRO is an AGP Pro card designed for systems that have either a 50-watt or a 110-watt AGP Pro slot.

NOTE: The 3Dlabs Wildcat 4110 PRO cannot plug into a standard AGP slot.

NOTE: If you ordered this video card with a system, it was installed and configured for use prior to shipment.
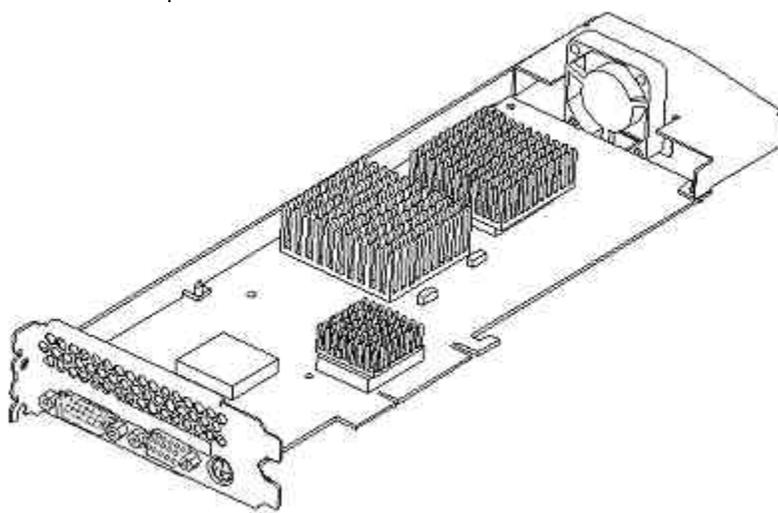
Figure 8. Bottom View
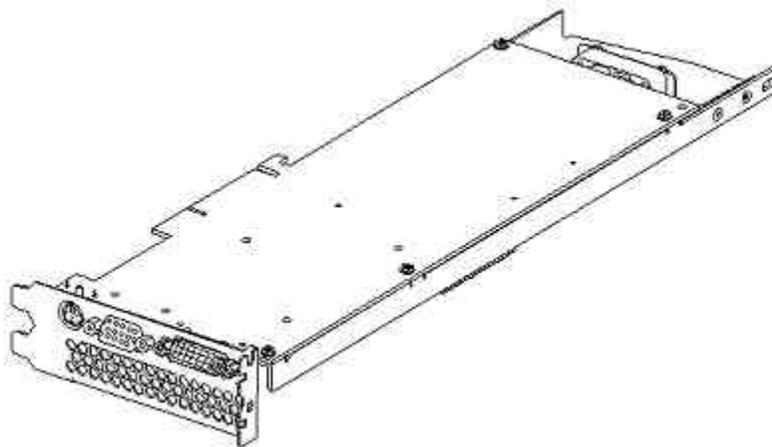
Figure 9. Top View
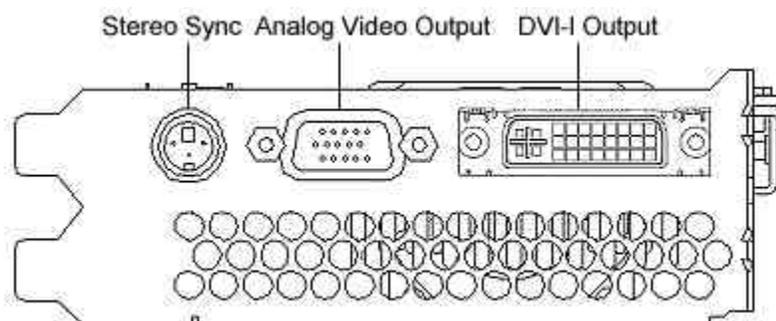
Figure 10. Connectors

Stereo Sync Output

The stereo port (female, 3-pin, mini-DIN connector) provides connection to a LCD shutter glasses emitter module or to other stereo shutter devices.

Analog Video Output

The video port (female, 15-pin, D-SUB connector) provides connection to an analog CRT display.

DVI-I Output

The Digital Video Output Port uses a DVI-I receptacle with 29 signal contacts as specified by the Digital Visual Interface Revision 1.0 specification. This port supports pixel rates up to 112MHz using the SII150A PanelLink device from Silicon Image. The port is 100 percent compliant to the DVI specification, and supports digital and analog displays.

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