WinFast® 3D S320

User's Manual

Leadtek®

We Make Dreams a Reality

Leadtek Research Inc.

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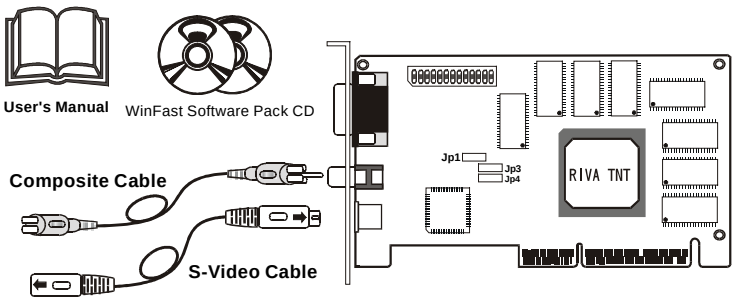
Getting Started

Accessories

- WinFast 3D S320 card
- User's Manual
- WinFast software pack CD
  (Including drivers for
  Windows 95/98, Windows
  NT 4.0)

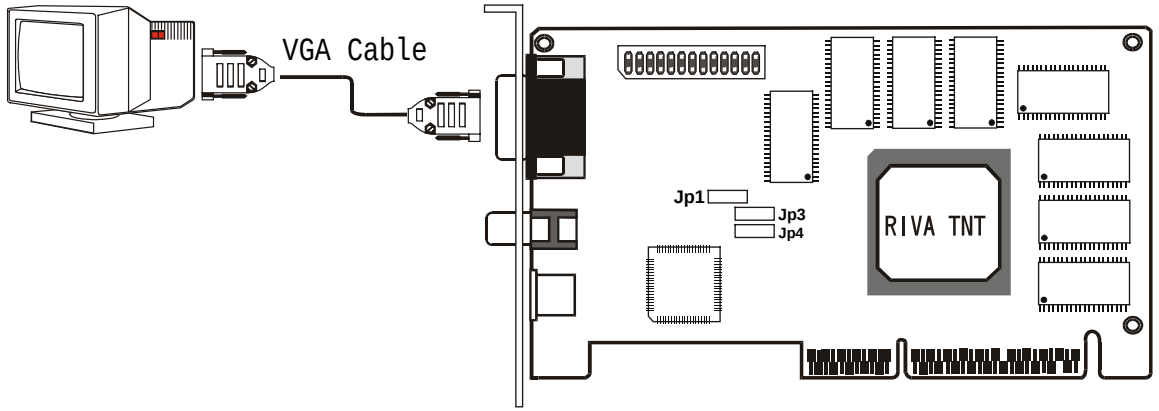


System Requirements

- Hardware : Pentium II or compatible system with AGP slot
- Operating system: Win 95/98 / Windows NT 4.0 with Service Pack 3 or later

Connection Guide

Step 1 Insert the WinFast 3D S320 card into an empty AGP slot and fix it with screw on back panel.



Step 2 Plug the free end of the monitor cable into the video connector on the WinFast 3D S320 card.

1

Welcome to WinFast 3D S320

1.1 Introduction

Congratulations! You have chosen one of the most powerful high-end 3D accelerator cards. Leadtek's "WinFast 3D S320" uses the RIVA TNT 3D processor chip from nVIDIA. The "WinFast 3D S320" introduces the most advanced Direct3D/OpenGL acceleration solution and also delivers leadership VGA, 2D and Video performance, enabling a range of applications from 3D games through DVD and Multimedia applications.

1.2 Features

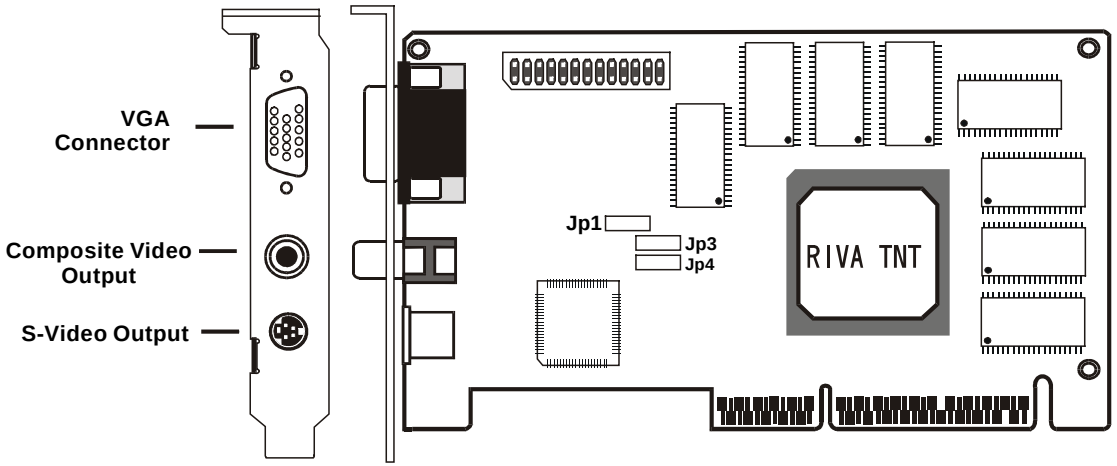
- Fast 32-bit VGA / SVGA
- High performance 128-bit 2D / GUI / DirectDraw Acceleration
- 128-bit wide frame buffer interface supporting up to 16Mbyte SDRAM
- Video Acceleration for DirectShow™, MPEG-1/2 and Indeo®.
- Optimized for Direct3D acceleration with complete support for DirectX5.0 and 6.0
- Twin texel 32-bit graphics pipeline
- 32-bit RGB rendering with destination alpha
- 24-bit Z-buffer, 8-bit stencil buffer
- Anisotropic filtering (better than Tri-Linear MIP-mapping)
- 100% hardware triangle setup engine
- 250MHz Palette-DAC supporting up to 1920x1200 ,75Hz
- Support TV-output
- Bus mastering DMA 2X 66MHz AGP Interface with full sideband support

2

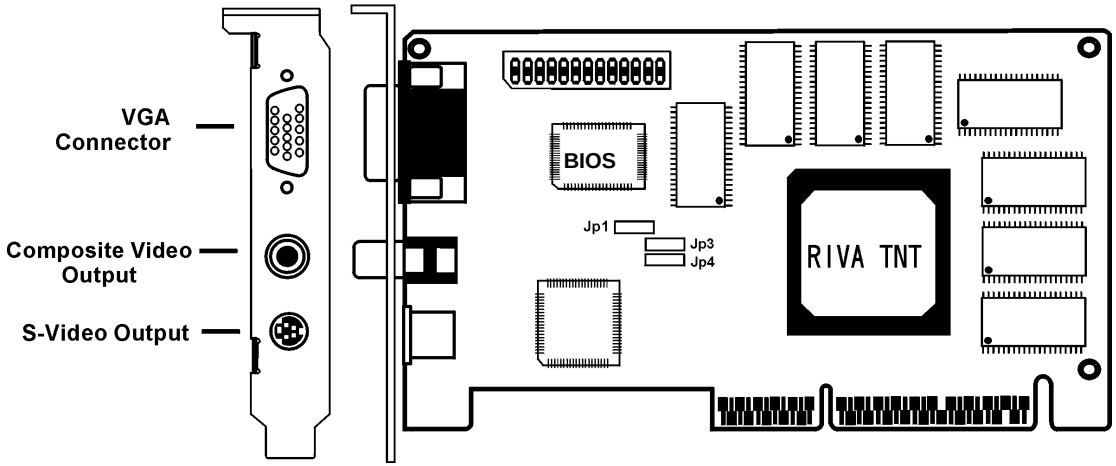
Hardware Installation

2.1 Card Layout

(Version A)



(Version B)


VGA
Connector
Composite Video
Output
S-Video Output
BIOS
Jp1
Jp3
Jp4
RIVA TNT

2-2 Jumper Settings

Please follows the jumper layout to set TV output format:(for Version B):

Jumper	NTSC	PAL
JP1		
JP3		
JP4		

3

Software Installation

Note: The **WinFast 3D S320** package contains the "**WinFast Software Pack CD**", Please read the "**Readme.txt**" file in the "**S320**" sub-directory of the CD for the latest information about the software before installation.

3.1 Windows 95/98

3.1.1 Installing the WinFast 3D S320 Drivers and DirectX 6 for Windows 95/98

During the booting of Win95/98 after having inserted the WinFast 3D S320 card into AGP slot, the new installed hardware will be detected and the "Update Device Driver Wizard" window will appear on the screen. At this point, if your machine has updated version of "**VGARTD**" software installed then you can use the "**nv4agp.inf**" file in the accompany CD to install the driver, otherwise lets Windows install the "Standard PCI Graphics Adapter (VGA)" driver which Windows found.

When Standard VGA driver installation is complete, Windows will prompt you to restart your Windows. Click "NO" to response the prompt and follows the steps described below for continuing installation:

Step 1 Insert the "**WinFast 3D S320"** CD into the CD-ROM drive.

Step 2 The "**Autorun**" will be executed immediately and a "**WinFast 3D S320 Installation Program**" dialog with four selectable buttons will be shown on the screen. Click the"**Win9x**" button to install the driver for Win95/98 automatically.

Step 3 When finishing the driver installation follow the screen direction "**Restart**" Windows 95/98.

Step 4 Eject the CD-ROM and load WinFast 3D S320 CD again. Click the "**DirectX 6**" button to install the DirectX 6 to your machine for better 3D performance.

Note: If the autorun function is not enabled on your machine. Please find the "**Install.exe**" file in the CD and double click it to install the software automatically.

3.1.2 Explanations for the WinFast 3D S320 Display Adapter Properties

When drivers were installed properly, right click on Win95/98 desktop wallpaper area and select "**Properties**" item. A window with a title name "**Display Properties**" will appear on your screen as shown on the right.

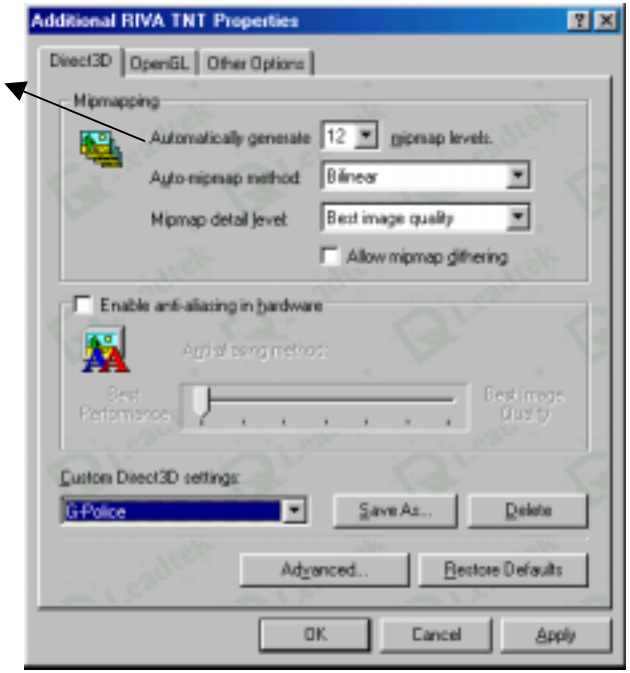
NOTE: Please enable the **Monitor Protective Setting** by click the check box to protect your monitor. This sets the range of display modes such as Refresh Rate, Display Area you can select according to your specific monitor manufacturer.

Click the "**Advance...**" button, another sheet of "**Additional RIVA TNT Properties**" will be shown as on next page.

"Direct3D" Tab

The RIVA TNT can automatically generate mipmaps to increase the efficiency of texture transfers across the bus and provide higher application performance.

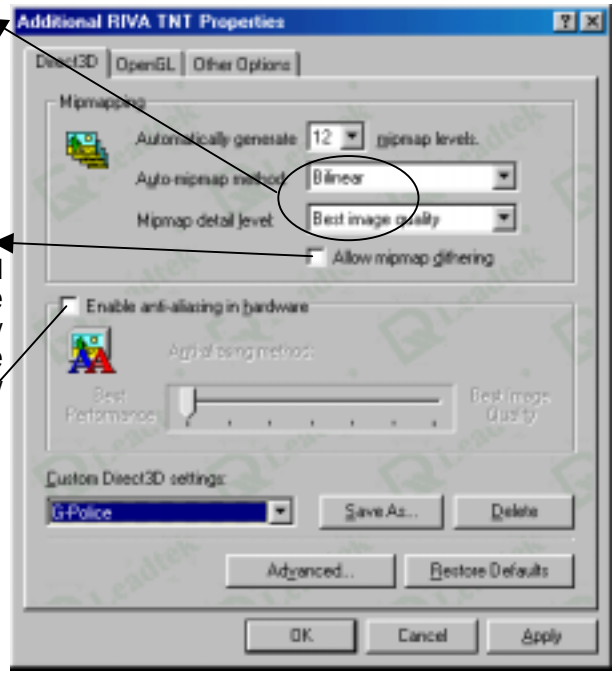
However, some applications may not display correctly when auto-generated mipmaps are enabled. To correct any problems, reduce the number of automatically generated mipmap levels until the images are properly displayed. Reducing the number of mipmap levels can often eliminate texture misalignment or "seaming" (at the expense of some performance).



Allows you to select the auto-mipmapping method used by the RIVA TNT.
You can select either the bilinear or trilinear mipmapping method, whereby the bilinear method generally provides better performance, while the trilinear method generally produces a higher quality image.

This option allows for dithering of trilinear mipmaps. Allowing mipmap dithering will provide increased application performance at the expense of some image quality. In some cases, a loss of image quality may not be noticeable, so you may wish to take advantage of the extra performance gained by enabling this feature.

These options allow you to control the anti-aliasing features of the drivers
Anti-aliasing is a method used to smooth edges of 3D objects to eliminate a jagged appearance. Note that enabling anti-aliasing will not automatically cause all Direct3D programs to render anti-aliased images. Anti-aliasing must be supported by the application in order for it to work properly.

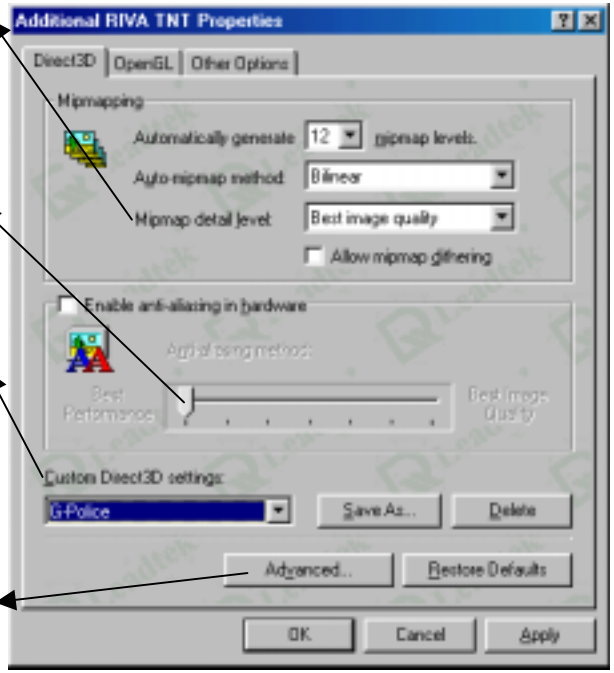


Allows you to adjust the LOD (Level of Detail) bias for mipmaps.
A lower bias will provide better image quality, while a higher bias will increase application performance. You can choose from five preset bias values, varying from "Best Image Quality" to "Best Performance"

Allows you to select the anti-aliasing sampling method.
You can adjust the settings to values which range from providing the fastest application performance to rendering the highest quality image.

Lets you save the current settings as a custom "tweak". Saved settings will then be added to the adjacent list.
Once you have found the optimal settings for a particular Direct3D application, saving the settings as a custom tweak allows you to quickly configure Direct3D before starting the program and eliminates the need to set each of the options individually.

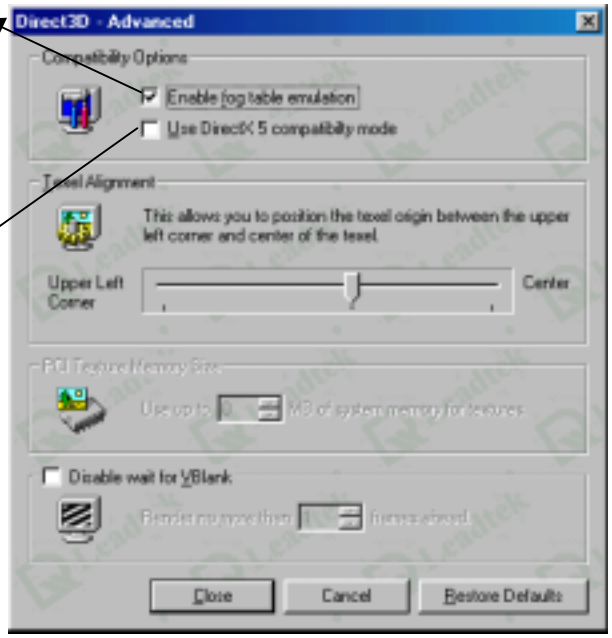
Displays a dialog which allows you to customize additional Direct3D settings for the RIVA TNT as shown on next page.



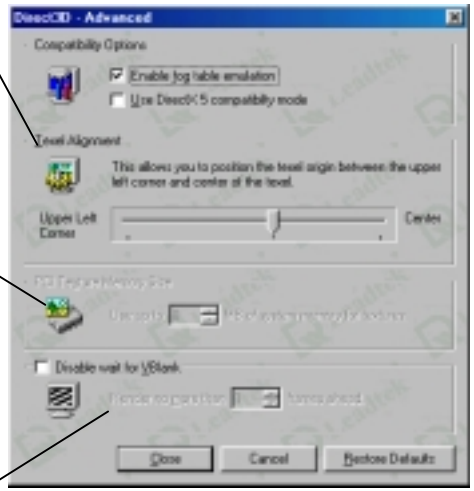
This option is used to turn fog table emulation on or off.
Direct3D specifies that a display adapter capable of D3D hardware acceleration should be able to implement either vertex fog or table fog. Some games do not correctly query the D3D hardware capabilities and expect table fog support. Choosing this option will ensure that such games will run properly on the RIVA TNT.

This option allows you to disable the DirectX 6 features of the drivers.
Some games written for earlier versions of DirectX may not run properly with DirectX 6 installed and the DirectX 6 support enabled in the drivers. Selecting this option forces the drivers to run in DirectX 5 compatibility mode so that older games will run correctly.
Use this option if you wish to run certain older games that do not start or do not run as they should.

Continued on next page…..



This option changes the hardware texture addressing scheme for texels (texture elements).
Changing these values will change where texel origin is defined. The default values conform to the Direct3D specifications. Some software may expect the texel origin to be defined elsewhere. The image quality of such applications will improve if the texel origin is redefined. Use the slider control to adjust the texel origin anywhere between the upper left corner and the center of the texel.



Allows you to specify the maximum size of the PCI texture heap.
Increasing this value on PCI systems with sufficient memory may significantly improve the performance of some Direct3D applications.
For performance reasons, this utility will not allow you to set the value to more than one half of the available system memory as reported by Windows.

This option is not available on display adapters which use the AGP bus.

This option allows you to limit the number of frames the CPU can prepare before they are processed by the RIVA TNT (when VSYNC is disabled).
In some cases, the higher the number of pre-rendered frames allowed, the greater the "input lag" may be in response to devices such as joysticks, gamepads or keyboards.
Reduce this value if you experience a noticeable delay in response to the input devices connected to your computer while playing games.

"OpenGL" Tab

Allows you to adjust the image quality of textures displayed in OpenGL applications.

Optimize for best image quality renders textures with the highest image quality available for the best appearance.

Optimize for best performance renders textures with reduced image quality to improve application performance.

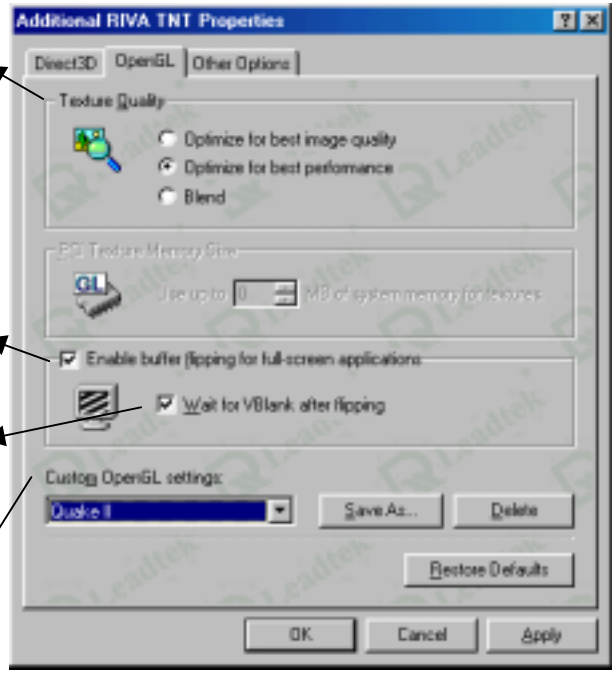
Blend uses a combination of the above two features. This is the default value.

This option turns on page flipping for full-screen OpenGL applications, which may improve their performance. If disabled, OpenGL will use a bit block transfer to flip from the back buffer to the front buffer.

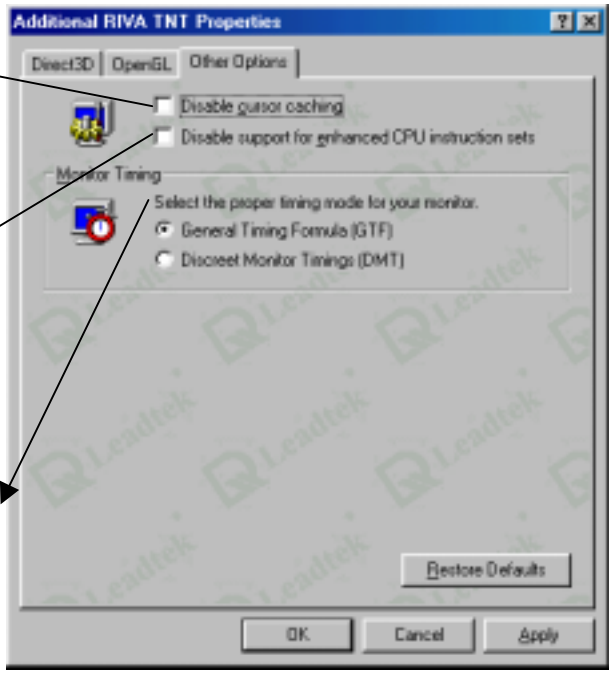
This option forces the driver to wait on VBlank after a page flip

This allows for frame rates higher than the refresh rate of your monitor, but may produce visual artifacts and tearing resulting in reduced image quality.

A list of the custom settings (or "tweaks") you have saved. Selecting an item from the list will activate the setting. To apply the setting, choose the "OK" or "Apply" button.



"Other Options" Tab



Select this option to disable the caching of cursors by the drivers.

If the mouse cursor is improperly displayed or becomes corrupted while running certain applications, disabling the cursor cache may correct the problem. If this setting is changed, Windows must be restarted for new setting to take effect.

Select this option to disable driver support for enhanced instructions used by certain CPUs.

Some CPUs support additional 3D instructions that complement your RIVA TNT and improve performance in 3D games or applications. This option allows you to disable support for these additional 3D instructions in the drivers. This can be useful for performance comparisons or for troubleshooting.

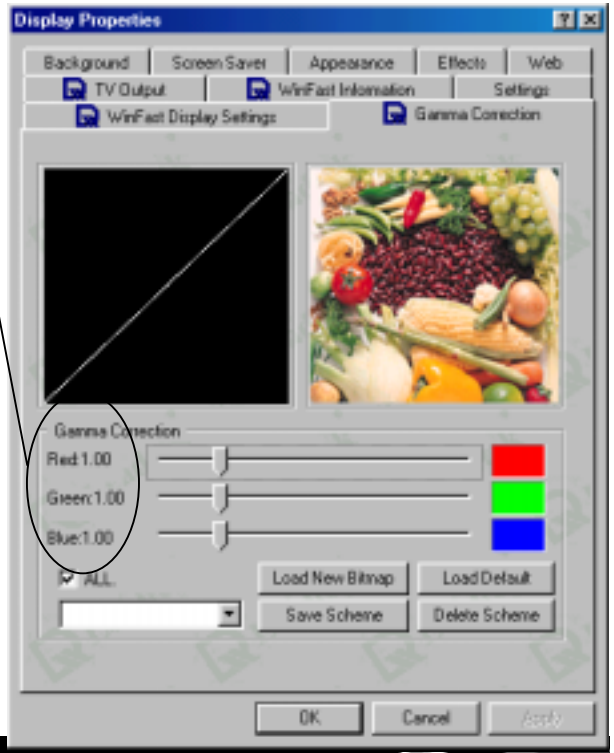
Allows you to select between two monitor timing modes:

General Timing formula or **GTF** is a standard used by most newer hardware. This is the default setting.

Discreet Monitor Timings or **DMT** is an older standard still in use on some hardware. Enable this option if your hardware requires DMT.

"Gamma Correction" Tab

The slider controls allow you to adjust the gamma values for each channel (red, green, or blue).



"TV Output" Tab

TV Output allows you to select output device: **Monitor** or **TV**.

This selection allows you to select the resolution of your TV output is simulated from monitor resolution of 800 x 600 or 640 x 480.

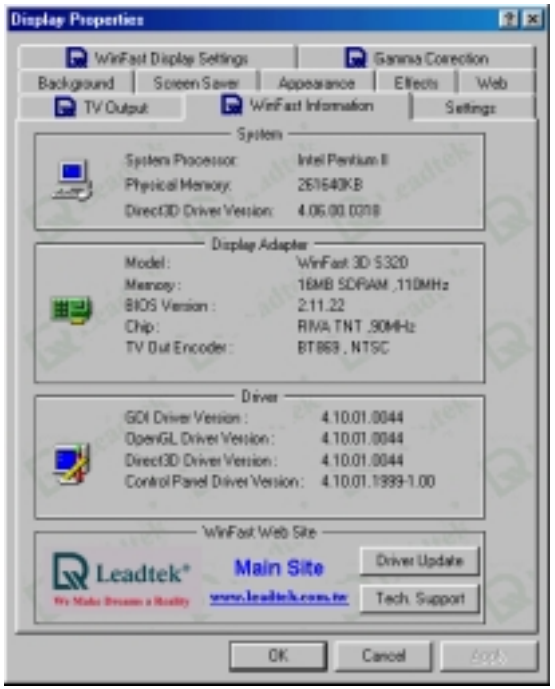
"**WinFast Information**" Tab

Indicates information about **System, Display Adapter, Driver and Leadtek Web Site.**

Click on the "**Driver Update**" button will invoke your browser and connect to the driver update web page in Leadtek Web Site for updating drivers.

Click on "**Tech Support**" button will invoke your browser and connect to the technical support web page in Leadtek Web Site. You can get help, Browsing FAQ or leave message about problems you have encountered here.

Move your mouse on www.leadtek.com.tw to and click will invoke your browser and connect Leadtek Web Site home page. From here you can browse the whole site to get support and all information about Leadtek Research Inc.



3.2 Windows NT 4.0

3.2.1 Installation of Windows NT 4.0 with WinFast 3D S320

Install Windows NT 4.0 in the usual way. When installation is complete, Windows NT 4.0 will be booted on the VGA mode since . It did not recognize the WinFast 3D S320 during NT installation.

3.2.2 Install Windows NT4.0 Display Driver

Step 1 Reboot the system and select "**Windows NT 4.0 (VGA)**" from the Boot Menu List.

Step 2 Insert the "**WinFast 3D S320"** CD into the CD-ROM drive.

Step 3 From your Windows NT 4.0 desktop wallpaper area, press the "**right**" button on your mouse.

Step 4 Select the "**Properties**"; a window with a title name of "**Display Properties**" will appear on your screen.

Step 5 Choose the "**Settings**" tab in the "**Display Properties**" window.

Step 6 Select the "**Display Type**" button; a window with a title name of "**Display Type**" will appear on your screen.

Step 7 Select the "**Change**" button in the "**Adapter Type**" section; a window with a title name of "**Change Display**" will appear on your screen.

Step 8 Select the "**Have Disk**" button; a window with a title name of "**Install From Disk**" will appear on your screen.

Step 9 Specify the path X:\S320\NT40 (X means CD-ROM drive letter) and select the "**OK**" button in the "**Install From Disk**" window ;Then press "**OK**" in the "**Change Display**" window; a window with a title name of "**Third Party Drivers**" will appear on your screen.

Step 10 Select the "**Yes**" button in the "**Third Party Drivers**" window.

Step 11 After all new drivers are installed, a message indicating the complete installation of the driver will appear on your screen. Press "**OK**".

Step 12 Select the "**Close**" button in the "**Display Type**" window. Select the "**Close**" button in the "**Display Properties**" window; a window with a title name of "**System Settings Change**" will appear on your screen.

Step 13 Remove the diskette from your floppy drive A and press the "**Yes**" button to restart Windows NT 4.0.

Step 14 When the system is rebooted, enter "**Windows NT 4.0**" from the Boot Menu List.

After logon of Windows NT, the "**Invalid Display Setting**" applet will appear on your screen

NOTE: This window will only appear when you use new display drivers for the first time.

Choose the resolution, color palette, refresh rate and font size of your preferences. On the otherhand, you can also use the "**TEST**" button to verify whether the monitor can support the specified resolution and refresh rate or not .

Press the "**OK**" button to change display mode to the specified resolution, color palette, refresh rate and font size.

3.3 Updating existing WinFast 3D S320 Windows 95/98 drivers

You may get updated drivers from your dealer or directly download from our Web Site (www.leadtek.com.tw). The downloaded file name is Win9X.zip, unzip this file and install updated drivers on your system.

3.4.BIOS Flash Utility

Note : Please obtains the BIOS binary file from WEB site (www.leadtek.com.tw) or from your local dealer.

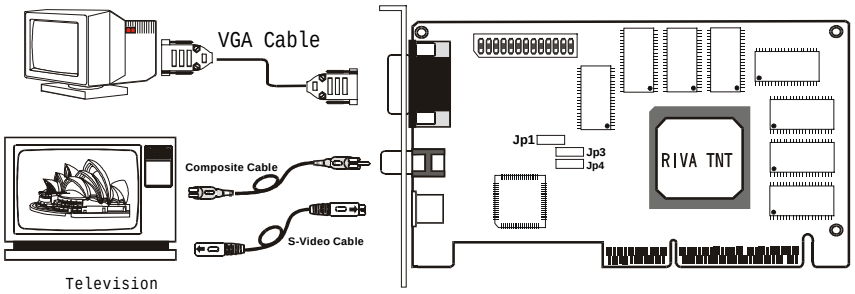
Step 1 Reboot into DOS or Command Prompt Only of Windows 95/98
Step 2 Insert the accompany CD into CD-ROM.
Step 3 Copy **DOS4GW.EXE, NV4FLASH.EXE** to a new directory from **X:\S320\FLASH** sub-directory . (X: means CD-ROM drive letter)
Step 4 Copy the new BIOS binary file to the new directory
Step 5 Change to the new directory and type the following command : **NV4FLASH [Filename]**. ([Filename] means the file name of BIOS binary file)
Step 6 Reboot the system.

4

TV Output (Optional)

Support mode :

- NTSC 640x480, 800x600
- PAL 640x480, 800x600



5

Display Modes Table

Resolution	BPP	Vertical Frequency(HZ)	Horizontal Frequency (KHZ)
640 x 480	8/16/32	60/70/72/75/85/100/120/140/144/150/170/200/240	31/35/36/38/43/51/62/73/75/78/90/108/133
800 x 600	8/16/32	60/70/72/75/85/100/120/140/144/150/170/200/240	38/44/45/47/54/64/77/91/94/98/113/135/166
1024 x 768	8/16/32	60/70/72/75/85/100/120/140/144/150/170	48/56/58/60/69/82/99/117/120/126/144
1152 x 864	8/16	60/70/72/75/85/100/120/140/144/150	54/63/65/68/77/91/110/131/135/141
1152 x 864	32	60/70/72/75/85/100/120/140	54/63/65/68/77/91/110/131
1280 x 1024	8/16	60/70/72/75/85/100/120	64/75/77/80/91/109/131
1280 x 1024	32	60/70/72/75/85/100	64/75/77/80/91/109
1600 x 1200	8/16	60/70/72/75/85	75/87/90/94/107
1600 x 1200	32	60/70/72/75	75/87/90/94
1920 x 1080	8/16	60/70/72/75/85	67/79/81/85/96
1920 x 1080	32	60/70/72	67/79/81
1920 x 1200	8/16	60/70/72/75	74/87/90/94
1920 x 1200	32	60	74

A

Frequently Ask Questions

Q : I am having problems opening the Display Properties window with the WinFast 3D S320 on a Socket 7, ALI, SOYO, or SiS chipset motherboard. I installed the WinFast 3D S320 for Windows 98 and now I get lockups when using another peripheral or I get a Fatal Exception Error when booting into Windows. After installing the WinFast 3D S320 display drivers in Windows 98, selecting a resolution, and rebooting, the system fails to return to Windows.

A :There are several things to check in regard to this:

Step1: Install and enable the latest USB update for your system.

Step2: In the CMOS setup for the motherboard BIOS, enable "Assign IRQ to VGA" and disable Video Shadow,Video Cache, Decouple (or Hidden) Refresh, Byte merge, and Palette Snoop.

Step3: Check the Windows Device Manager Computer Properties View Resources Interrupt Request list to see if the video adapter is sharing an IRQ with another device. Windows may not see this as an actual conflict, but the nVidia RIVA chipset on the WinFast 3D S320 must not share an IRQ with another device. "IRQ holder for PCI steering" is not considered another device.

Step4: Obtain a new VGARTD.VXD file from the motherboard manufacturer and overwrite the existing file in the Windows\System subfolder.

Step5: Make sure you have loaded the latest copy of DirectX 6 from the WinFast Software CD prior to installing the LEADTEK display drivers.

Q : I have installed the WinFast 3D S320 but I am unable to get above 256 colors in any resolution.

A : The current display drivers available on the LEADTEK web site may take care of this problem on most systems. Change to VGA, remove the old display drivers and install the new display drivers.

Q :I am getting random lines on redraws of the screen with the WinFast 3D S320.

A : The current display drivers available on the LEADTEK web site may take care of this problem on most systems. Change to VGA, remove the old display drivers and install the new display drivers.

Q :Since installing the WinFast 3D S320 I am experiencing corruption in Internet Explorer 4.01, check boxes are blacked out or missing, and I get Icon corruption when shelling out to DOS games.

A : The latest display drivers on the LEADTEK web site may correct this. Reinstalling Internet Explorer 4.01 will restructure files and prevent Page Fault error messages. Change to VGA, remove the old display drivers and install the new display drivers.

Q :I have the WinFast 3D S320 running under Windows 98 on a non-Intel motherboard and I am having trouble getting it to run without problems, especially in 3D.

A : AGP is an Intel standard. Many non-Intel motherboards will require additional system drivers in order to work properly with AGP, so make sure you have all the latest updates from your motherboard vendor for your particular system. Also, make sure you have the latest video BIOS and display drivers for the WinFast 3D S320 from http://www.leadtek.com.tw

Q :How do I ensure I have a clean install of the WinFast 3D S320 display drivers?

A : Reset your system to standard VGA. Search your hard drive for V128*.* and NV4*.* and remove these files. You may also, at your discretion, run REGEDIT and search for V128 and NV4 and remove these keys. Then install the WinFast 3D S320 display drivers.

Q :My 2D applications work fine with my WinFast 3D S320 but I have problems with 3D applications like web sites and games in Windows 98.They will not run at a bus speed of 100 but when I set to 83 they work.

A : Your motherboard memory may be PC-66 and not PC-100, or it may have defective memory or incorrect motherboard memory settings in the CMOS setup for the motherboard BIOS. Contact your motherboard manufacturer for more information.

Q :Do you have any advice for additional tweaking or configuration for the WinFast 3D S320?

A : Leadtek configures the WinFast 3D S320 for optimum performance by default. If you are interested in any additional tweaks or configuration files for games, etc., you may want to check out one of the RIVA users' groups like http://www.rivazone.com/.

Q :I have the WinFast 3D S320 and Windows 95B. It reports that addresses E7* and E9* are in conflict with the PCI-PCI bridge.

A : The PCI to PCI Bridge conflict is a known issue with Microsoft Windows and you will get this message with any AGP video card. This occurs because Windows 95 does not recognize your AGP port. It is purely a cosmetic issue and not an actual conflict, so there is no cause for alarm. You may simply ignore it or take it as a sign that AGP is working properly on your system.

Q :I changed from a previous video adapter to the WinFast 3D S320 and now the video is distorted with color bleed.

A : LEADTEK display drivers save wear and tear on the monitor with increased video drive. You may turn down the brightness and contrast on the monitor to clear color bleed resulting from overdriving the monitor.

Q :I have the WinFast 3D S320 running Windows 98. How do I view the video output on my television?

A : Right-click on your Windows 98 desktop and select "Properties." Go to the Settings tab and click on Advanced. The tab for TV Out features is located here. It will let you activate TV Out on the WinFast 3D S320.

Q :I have on-board video with my motherboard. Windows says the WinFast 3D S320 is not configured properly and keeps asking to install the on-board video.

A : Please contact the motherboard manufacturer for advice on disabling on-board video. The on-board video must be completely disabled for the WinFast 3D S320 to install properly.

Q :I have an AMD K6-2 with 3D-Now and 64 MB memory running Windows 98. I just bought an WinFast 3D S320 board and I absolutely love it. I also have had an original Diamond Monster 3D card. Is there any benefit of having both the WinFast 3D S320 and another 3D accelerator? Your product has done a lot for my computer already. It installed without a hitch on my motherboard.

A : The WinFast 3D S320 should take over all 3D support for the System. You may need to reinstall a few of the games if they were set up to run with the Monster 3D.

Limited Warranty

Leatek warrants to the original purchaser of this product that it shall be free of defects resulting from workmanship or components for a period of one (1) year from the date of sale. Defects covered by this Limited Warranty shall be corrected either by repair or, at Leadtek's discretion by replacement. In the event of replacement, the replacement unit will be warranted for the remainder of the original one (1) year period or thirty (30) days, whichever is longer. THERE ARE NO OTHER ORAL OR WRITTEN WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Limited Warranty is nontransferable and does not apply if the product has been damaged by negligence, accident, abuse, misuse, modification, misapplication, shipment to the Manufacturer or service by someone other than the Leadtek Transportation charges to Leadtek are not covered by this Limited Warranty. To be eligible for warranty service, a defective product must be sent to and received by Leadtek within fifteen (15) months of the date of sale and be accompanied with proof of purchase. Leadtek does not warrant that this product will meet your requirements; it is your sole responsibility to determine the suitability of this product for your purposes. Leadtek does not warrant the compatibility of this product with your computer or related peripherals, software.

LEADTEK'S SOLE OBLIGATION AND LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT. THE MANUFACTURER SHALL NOT, IN ANY EVENT, BE LIABLE TO THE PURCHASER OR ANY THIRD PARTY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIABILITY IN TORT RELATING TO THIS PRODUCT OR RESULTING FROM ITS USE OR POSSESSION.

This warranty is governed by the laws of Taiwan.

Calling for Technical Support

In the event of not finding the solution for your problem please contact our Technical Support staff.

Product Name

It will be easier for our staff to answer your question if you know the name of the product. The name is displayed during system boot.

Software Driver Version

From time to time we update the Utilities and Drivers, so it will be a great help for us to understand where the problem lies. The version number is printed on the diskette label.

Motherboard Manufacturer, BIOS Version and Chipset

It is important to know who made your motherboard? Which system BIOS you are using and what types of chipset are used on your motherboard.

Computer Type and Speed

We need to know the type of processor you are using and its speed.

Monitor Manufacturer and Model

Please determine the type of monitor you are using. List the mode your monitor supports described in your monitor manual.

Detailed Description of your Problem

Please answer in detail all the problems you encountered. What kind of software/hardware you are using and the contents of your system files?

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FEDERAL COMMUNICATIONS COMMISSION REQUIREMENTS

This device complies with Part 15 of the 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 interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications, However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help
- Shielded interface cables must be used in order to comply with emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.