

NVIDIA

GeForce4 TI 4200-8X



SP7228T251X064DV	SP7228T251X064DT
SP7228T251X064TV	SP7228T251X064PU
SP7228T251V128DV	SP7228T251V128DT
SP7228T251V128TV	SP7228T251V128PU

3D GRAPHIC ACCELERATOR MANUAL

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NVIDIA GeForce4 TI 4200–8X User’s Manual

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1. NVIDIA GeForce4 TI 4200-8X Features

GeForce4 TI 4200-8X AGP bus, with 64/128MB DDR SDRAM on Board

Graphics core 256-BIT

Fill rate (AA samples/sec.) 4 BILLION

Memory bandwidth 8.0 GB/SEC

nView Display Technology

- nView delivers the maximum flexibility and control in display options
- nView allows for one card to driver multiple displays of any type(Analog, Digital, TV)
- Allows for multiple configurations of CRTs and digital flat panels
- Multi-desktop integration
- Advanced window management
- Individual application control

Lightspeed Memory Architecture (LMA) II Technology

- For independent memory controllers
- Lossless Z-compression
- Z-occlusion culling
- Fast Z-clear
- Auto-precharge

TI Memory Crossbar

Dual memory controllers allow more efficient utilization of memory bandwidth

Integrated Dual 350MHz DACs

Drives two independent CRT display with crisp and clear image quality at 2048x1536 resolution @ 75Hz (2 CRT output is optional function)

Accuvision-high-resolution antialiasing

- Accuvision technology delivers highest performance and no-penalty Quincunx AA quality
- Advanced technology ensures rock-solid compatibility with all applications
- New sub pixel sample locations provide improved AA quality.
- High quality 4XS mode for incredible image quality

Video Processing Engine (VPE)

Enables the highest quality, full-frame rate, full-screen HDTV and DVD without requiring a high performance CPU

AGP 8X/4X/2X with AGP Texturing and Fast Writes

AGP 8X is the highest performance connection between the CPU and graphics processor. Taking advantage of new methods for transferring information more efficiently allows content developers to use high-quality 32-bit color textures and high-polygon count scenes.

Other Features

- 2 dual-rendering pipelines
- 4 texels per clock cycle
- Cube environment mapping
- 64MB/128MB high-speed 128-bit DDR RAM memory
- High-performance 2D rendering engine
- NVIDIA Shading Rasterizer

AGP Fast write and AGP Texturing Support
Integrated hardware transform engine
Integrated hardware lighting engine
True-color hardware cursor
High-quality HDTV/DVD playback
True, reflective bump mapping
Multibuffering (double, triple, quad) for smooth animation and video playback
Support for AGP 3.0 signaling at 0.8 V
AGP3.0 support for 8X and 4X and AGP2.0 support for 4X, 2X, 1X
AGP 8X data and sideband address (SBA) transfers at rates up to 533MT/s, resulting
in a theoretical data transfer rate of 2.1 GB/s

[Operating systems support](#)

Windows XP, Windows 2000, Windows Me, Windows 98 Compatible

[API Support](#)

OpenGL 1.3 and lower
DirectX 8.1 and lower

2. Hardware installation

[2.1 Package Contents](#)

1. NVIDIA GeForce4 TI 4200-8X 3D Accelerator card
2. Drivers CD title
3. This manual
4. Accessories

[See appendix for accessories detail and connection topology.](#)

[2.2 Installing the card](#)

1. Turn off your computer
2. Remove the cover of the computer per the owner's manual
3. Install the card in the AGP bus slots
4. Replace the cover.

3. Resolutions and colors supported:

GeForce4 TI 4200-8X

	B.P.P.	Refresh Rates (HZ)
640*480	8	60/70/72/75/85/100/120/140/144/150/170/200/240
	16	60/70/72/75/85/100/120/140/144/150/170/200/240
	32	60/70/72/75/85/100/120/140/144/150/170/200/240
800*600	8	60/70/72/75/85/100/120/140/144/170/200/240
	16	60/70/72/75/85/100/120/140/144/170/200/240
	32	60/70/72/75/85/100/120/140/144/170/200/240
1024*768	8	60/70/72/75/85/100/120/140/144/150/170/200/240
	16	60/70/72/75/85/100/120/140/144/150/170/200/240
	32	60/70/72/75/85/100/120/140/144/150/170/200
1152*864	8	60/70/72/75/85/100/120/140/144/150/170/200
	16	60/70/72/75/85/100/120/140/144/150/170/200
	32	60/70/72/75/85/100/120/140/144/150
1280*960	8	60/70/72/75/85/100/120/140/144/150/170
	16	60/70/72/75/85/100/120/140/144/150/170
	32	60/70/72/75/85/100/120/140/144/150
1280*1024	8	60/70/72/75/85/100/120/140/144/150/170
	16	60/70/72/75/85/100/120/140/144/150/170
	32	60/70/72/75/85/100/120/140/144/150
1600*900	8	60/70/72/75/85/100/120/140/144/150
	16	60/70/72/75/85/100/120/140/144/150
	32	60/70/72/75/85/100/120
1600*1200	8	60/70/72/75/85/100/120
	16	60/70/72/75/85/100/120
	32	60/70/72/75/85/100

Different driver version or different windows platform may have different support table.

4. Smart Installation

Support Windows XP, Windows 2000, Windows 98 and Windows ME System. **Note:** If you already have old NVIDIA drivers in your system, please remove old nVIDIA drivers before install new drivers.

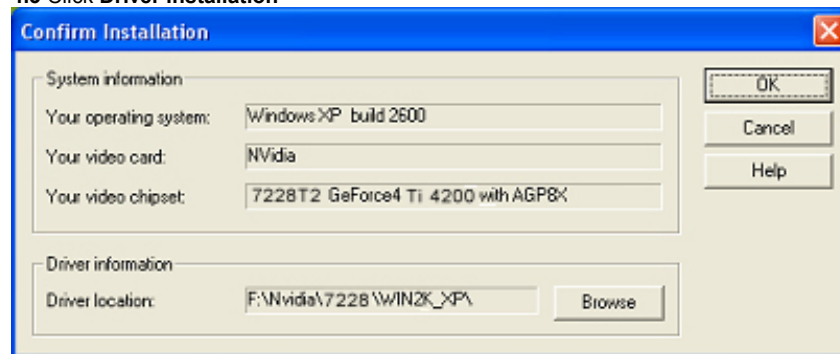
4.1 Remove old Drivers: (only if you have old NVIDIA drivers)

From "Start", "Setting", select "Control Panel", double click "Add or remove drivers". Then comes up the list, find "NVIDIA WINDOWS ...", select it and click "install or remove" to remove it. Reboot your system and go on next step.

4.2 Put the DRIVERS CD in your CD-ROM

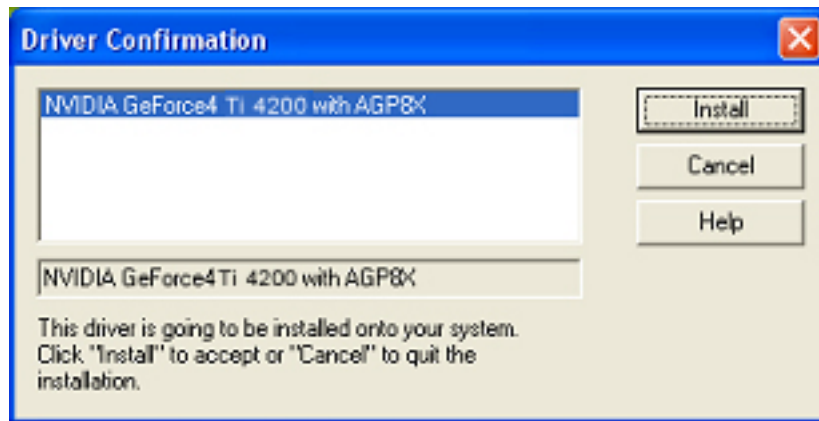


4.3 Click Driver installation



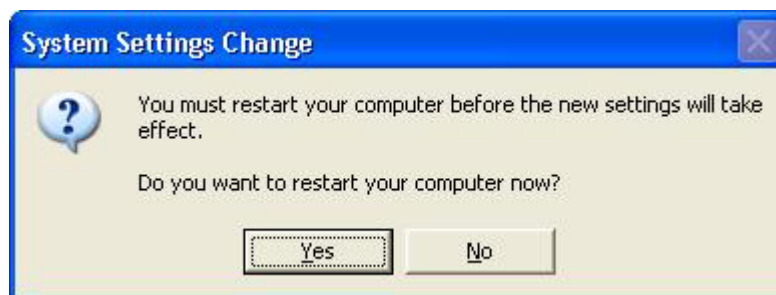
4.4 If everything fine, screen will show **Confirm Installation** window. Then Select **OK**

- 4.5 Now appears the **Driver Confirmation** window
Select **Install**



If the drivers is very new may not be certified by Microsoft, if so, system will prompt you the drivers do not have "digital signature", still you can force to install.

- 4.6 Then click "**Yes**" to restart your computer.



5. Manually install Windows XP drivers

Note: If you already have old NVIDIA drivers in your system, please remove old nVIDIA drivers before install new drivers.

5.1 Remove old Drivers: (only if you have old NVIDIA drivers)

From "Start", "Setting", select "Control Panel", double click "Add or remove drivers". Then comes up the list, find "NVIDIA WINDOWS ...", select it and click "install or remove" to remove it. Reboot your system and go on next step.

5.2 Installation and Setup

The Windows setup program installs and modifies all of the necessary files. Follow these steps to install the Windows XP drivers.

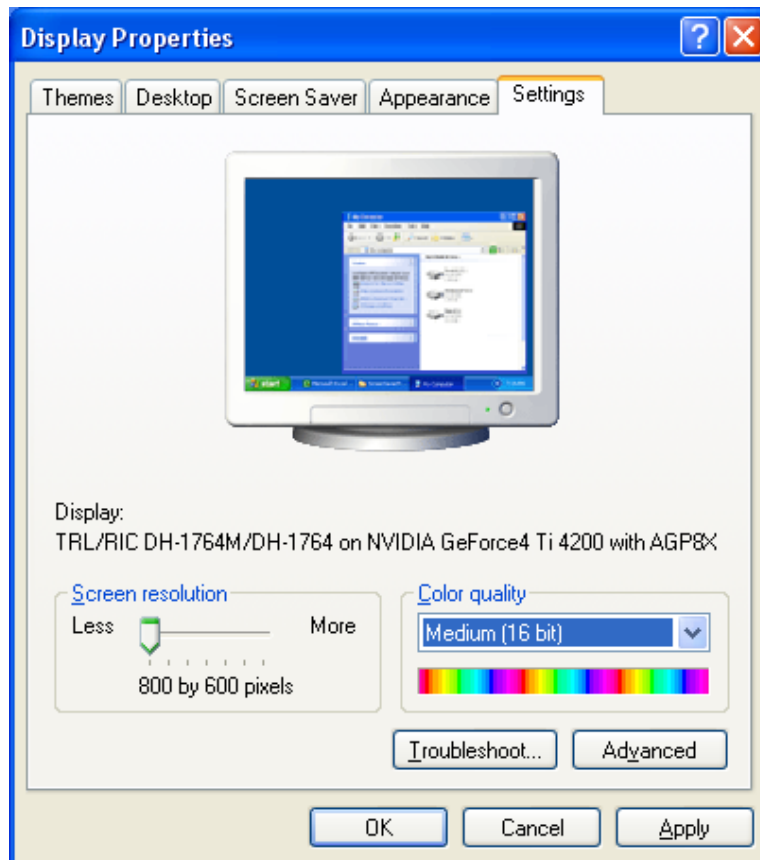
1. Insert the DISC (CD Title Driver). Click "EXIT" to quit Smart Installation program.
2. Select **Control Panel** from **Start menu**
3. Select the **Display** icon
4. Double-click on the **Display** icon in the **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option from the pop-out menu.
5. Click **Settings**, and then **Advanced**
6. Now shows **[Plug And Play Monitor and NVIDIA...]** window
Select **Adapter**
7. Then show **Standard PCI Graphics...(or NVIDIA GeForce...)**
Select **Properties**
8. Then show **Adapter Properties ...**
Select **Driver** and click **Update driver...**
9. Then show **Hardware Update Wizard**
Select **Install from a list or specific location (Advanced)** – recommended for saving installation time
Then select **Next**.
10. Default setting will select **Search for the best driver in these locations**
Please check **Include this location in the search** – recommended for saving installation time
Select **Browse**
11. Then show **Browse for Folder**
Select **E:\drivers\ NVIDIA\7228\win2K_XP** (If 7228 not exist, use 7X00 instead)
Note: "E:"-> CD Drive, "NVIDIA"-> VGA chip brand name, "7228"-> VGA model name
Then select **OK** and then click **Next**
12. If no problem occur, system will start to install the driver
13. Then show **Completing the Hardware Update Wizard**
Select **Finish**
14. Close the **Adapter Properties** window
15. Then show **System Settings Change**
Select **OK**, System will restart automatically.

5.3 How to Change Color Depth and Resolution in Windows XP

Make sure that you have installed Windows Driver.

1. Select **Control Panel** from **Start menu**
2. Select the **Display** icon
3. Double-click on the **Display** icon in the **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option from the pop-out menu.

Click **Settings**

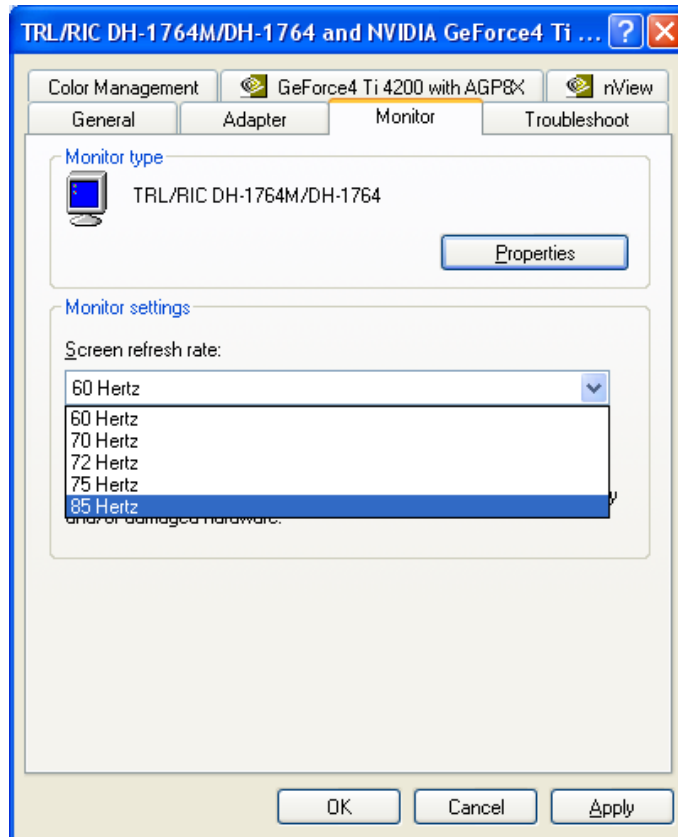


Click on the pull-down arrow from the Color palette area to select color depth or adjust the sliding bar to either **Less** or **More** from the Desktop area
Select **OK** to restart System and new color depth or new resolution will take effect.

5.4 How to Change Refresh Rate in Windows XP

1. Make sure that you have installed windows XP Driver. Click on the **Start** box in the lower left corner and proceed to Setting, **Control Panel**
2. Inside the **Control panel** group, click on **Display** icon to open the **Display Properties** folder and choose **Settings** click the **Advance Settings** choose **Monitor**
3. Click on the **Refresh Rate** sub window to change refresh rate
4. Select **OK** and new refresh rate takes effect
5. Refresh Rate default is Optimal.
6. If you change Refresh Rate from Optimal to another, you maybe need to restart Windows System for functional.

Note: If your monitor is not Branded or Plug&Play, you will only see Adapter default and optimal. Please contact your monitor supplier to get right or compatible drivers for your monitor. Otherwise you can't select the refresh rate you wanted.



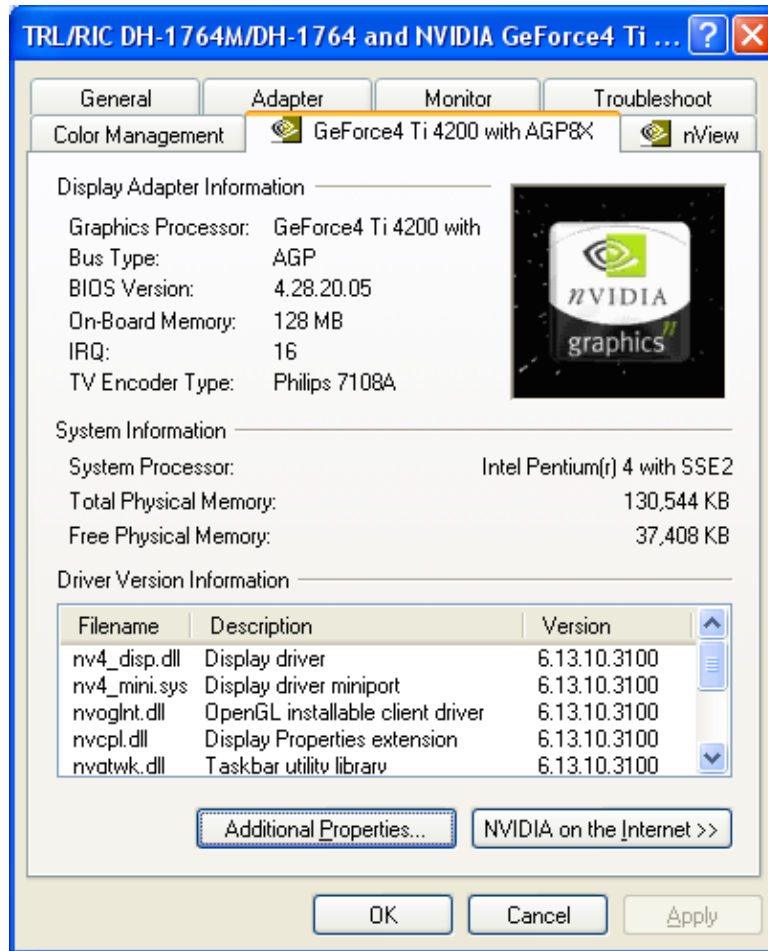
5.5 NVIDIA Utility in Windows System

5.5.1 GeForce4 Ti 4200-8X (NVIDIA)

Display Adapter Information Table, you can tell the BIOS and Drivers version, NVIDIA Chip model name, IRQ setting and more useful information.

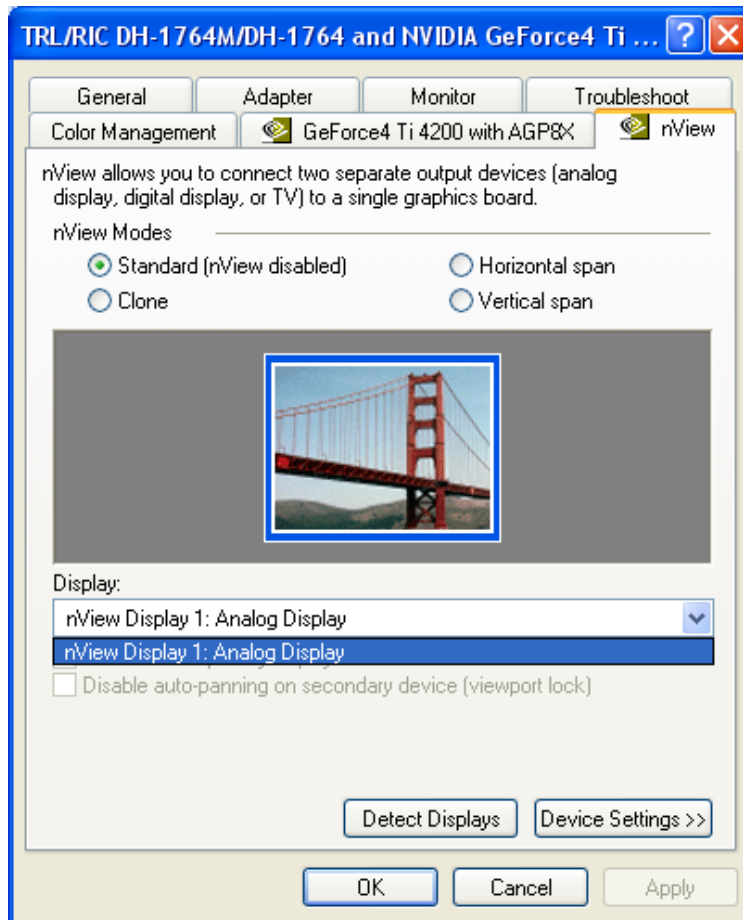
Additional Properties... is for advance user to setting OpenGL, Direct3D, Overlay control, Desktop Utilities and 3D antialiasing settings.

NVIDIA on the Internet>> can reach NVIDIA official web site for more NVIDIA news.



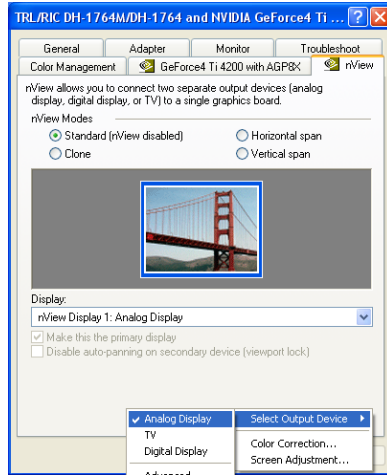
5.5.2 nView

nView have 4 modes : Standard, Clone, Horizontal span and Vertical span. If the optional connector is connected, you will be able to choose one as Windows default display device. Only the device is plugged and functional, You will be able to check the selection box. If you plug the connector after window boot up, click **Detect Displays** to enable the plugged output device.



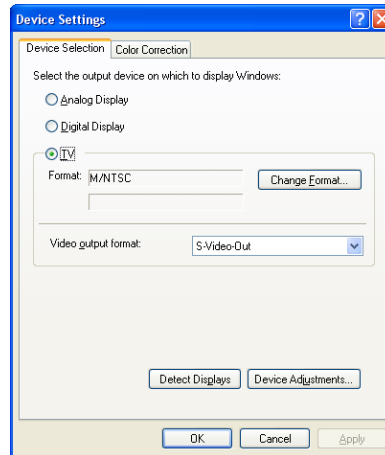
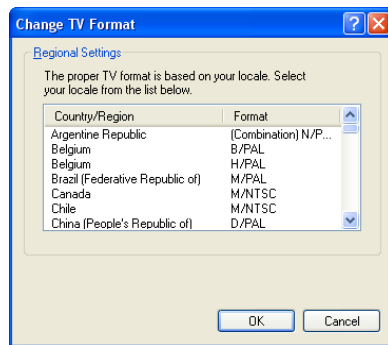
5.5.2.1 Standard mode:

nView disabled, only one monitor will work. Click **Device Settings >>**, you can select output device – CRT or TV. Or you can select **Advanced ...** and select output device.



Click **Video output format** bar to select S-Video or RCA (Composite Video) output, default is S-Video Out. It is better choose the right out put device, Do not use Auto select.

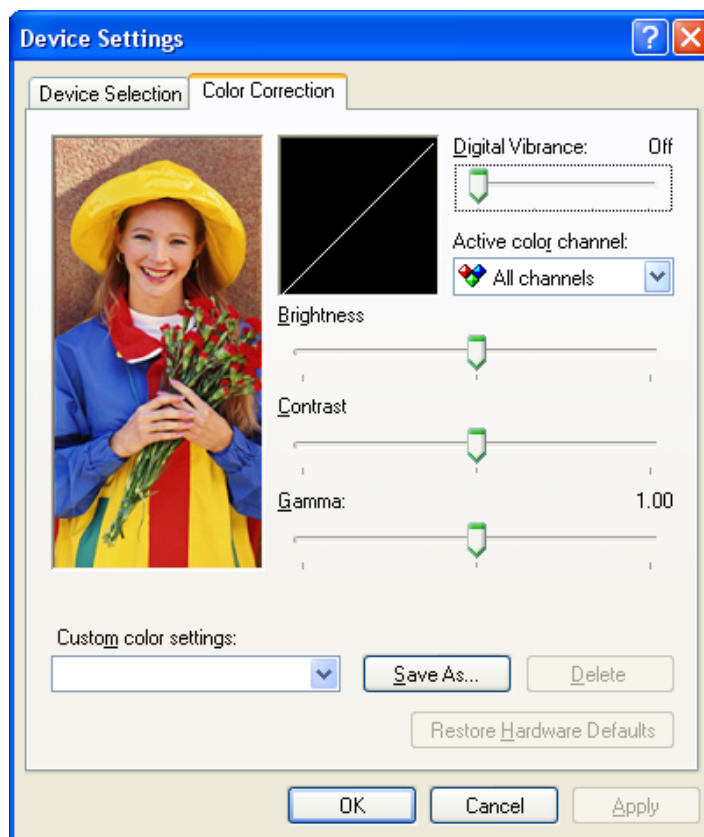
Click **Change Format** to select your country and TV system – NTSC or PAL, no SECAM.



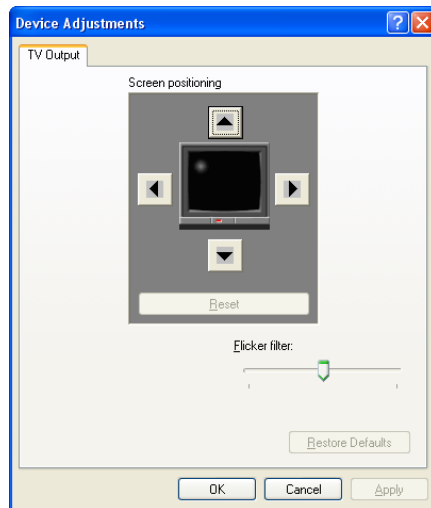
Note:
If you can not switch from PAL back to NTSC, please set resolution to 640x480 and try again

5.5.2.2 Color correction...

Click **Device Settings >>**, select **Color Correction....** This Window shows NVIDIA Digital Vibrance is functional and you can adjust Brightness, Contrast, Gamma and save it as your favorite setting. If you don't like your adjustments, you can also check **Automatically apply these settings at startup** to change it back.



5.5.2.3 Screen Adjustment...



Click **Device Settings >>**, select **Screen Adjustment...**

You can click the arrow to adjust screen position.

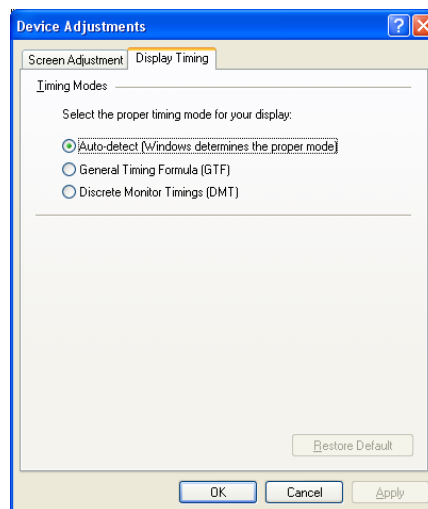
From Flicker filter Bar, you can adjust the flicker filter effect.

5.5.2.4 Display Timing...

Display Timing can let you set your computer timing.

Default setting is “Auto-detect(Windows determines the proper mode)”.

The other 2 options are “**General Timing Formula (GTF)**” and “**Discrete Monitor Timings (DMT)**”.

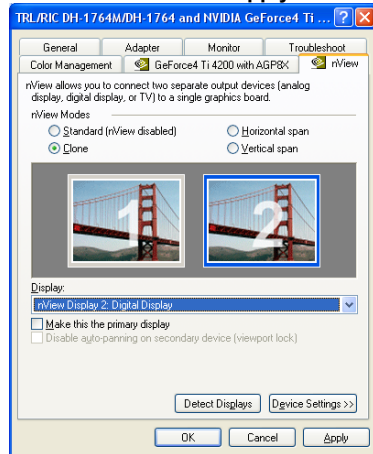


5.5.2.5 nView enable mode

You need two monitors, one analog monitor(CRT) and one TV or DVI (Optional). All connected well and functional.

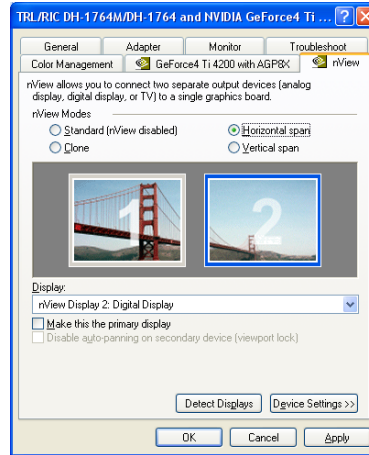
Clone mode:

2 monitors show the same picture,
Select **Clone** and Click **Apply** to active.



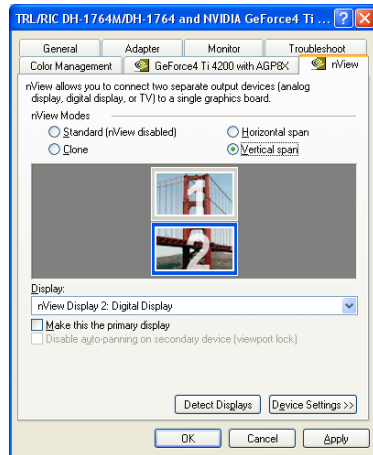
Horizontal span mode:

Picture spans horizontally on 2 monitors.
Select **Horizontal span**, Click **Apply** to active.



Vertical span mode:

Picture spans vertically on 2 monitors
Select **Vertical span**, Click **Apply** to active.



Monitor with blue frame is active. Right click on it will show the configuration menu. Or you can click **Device Settings>>** to set all the functions like "Standard mode".

6. Manually install Windows 98 and Windows ME drivers

Note: If you already have old NVIDIA drivers in your system, please remove old NVIDIA drivers before install new drivers.

6.1 Remove old Drivers: (only if you have old NVIDIA drivers)

From "Start", "Setting", select "Control Panel", double click "Add or remove drivers". Then comes up the list, find "NVIDIA WINDOWS ...", select it and click "install or remove" to remove it. Reboot your system and go on next step.

6.2 Installation and Setup

The Windows setup program installs and modifies all of the necessary files. Follow these steps to install the Windows 98/ME drivers.

1. Insert the DISC (CD Title Driver).
2. Select **Control Panel** from **My Computer** group.
3. Select the **Display** icon
4. Double-click on the **Display** icon in the Setting -> **Control Panel** folder. You can also click the right mouse button anywhere on the desktop and select the Properties option from the pop-out menu.
5. Click the **Settings** tab.
6. Then show **[Unknown Device.] Properties** tab
Select **Adapter**
7. Then show **Standard PCI Graphics...** tab
Select **Change**
8. Then show **Update Device ...** tab
Select **Next**
9. Then show **Update Device ...** tab
Select **Search for a better...**
Then select **Next**.
10. Then show **Update Device ...** tab
If the **Specify a location** is wrong
Please select **Brows**
11. Then show **Browse for Folder** tab
Select **E:\drivers\ NVIDIA\7228\Win9X or \Winme** (If 7228 not exist, use 7X00 instead)
Note: "E:"-> CD Drive, "NVIDIA"-> VGA chip brand name, "7228"-> VGA model name
Then select **OK**
12. Then show **Update Device Driver Wizard** tab
Select **CD-ROM driver**
Click the **Specify a locator**, if right
Then select **Next**
13. Then show **Update Device Driver Wizard** tab
Select **Next**
14. Then show **Update Device Driver Wizard** tab
Select **Finish**
15. Then show **System Settings Change** tab
Select **OK**

6.3 How to Change Color Depth and Resolution

Make sure that you have installed windows98/ME Driver.

Click on the **Start** box in the lower left corner and proceed to **Control Panel**.

Inside the **Control panel** group , click on **Display** icon to open the **Display Properties** folder and select the **Setting table**

Click on the pull-down arrow from the **Color** palette area to select color depth or adjust the sliding bar to either **Less** or **More** from the **Desktop area**

Select **OK** to restart **Windows System** and new color depth or the new resolution takes effect.

6.4 How to Change Refresh Rate

1. Make sure that you have installed windows 98/ME Driver. Click on the **Start** box in the lower left corner and proceed to Setting, **Control Panel**
2. Inside the **Control panel** group , click on **Display** icon to open the **Display Properties** folder and choose **Settings** click the **Advance Settings** choose **Adapter**
3. Click on the **Refresh Rate** sub window to change refresh rate
4. Select **OK** and new refresh rate takes effect
5. Refresh Rate default is Optimal.
6. If you change Refresh Rate from Optimal to another, you maybe need to restart Windows System for functional.

Note: If your monitor is not Branded or Plug&Play, you will only see Adapter default and optimal. Please contact your monitor supplier to get right or compatible drivers for your monitor. Otherwise you can not select the refresh rate you wanted.

7. Manually install Windows 2000 drivers

7.1 First time install drivers under windows2000

1. When system boot up, system will prompt find new device. Suppose the device is VGA, now system will find the default drivers for you.
2. If you want to install our drivers along with the GeForce4 TI pack. Please put the drivers CD in your CDROM drive. If now shows SmartInstall window, please click **EXIT** button to quit.
3. Drivers for windows2000 are located at \drivers\NVIDIA\7228\win2K_XP (If 7228 not exist, use 7X00 instead)
4. If the drivers is very new may not certified by Microsoft, if so, system will prompt you the drivers do not have "digital signature", still you can force to install.
5. Follow on screen instructions will finish the installation.

7.2 The following steps describe how to update Windows2000 display drivers

Note: If you already have old NVIDIA drivers in your system, please remove old NVIDIA drivers before install new drivers.

Remove old Drivers: (only if you have old NVIDIA drivers)

From "Start", "Setting", select "Control Panel", double click "Add or remove drivers". Then comes up the list, find "NVIDIA WINDOWS ...", select it and click "install or remove" to remove it. Reboot your system and go on next step.

1. Place the Disc (CD Title) into CDROM Drive. If now shows SmartInstall window, please click **EXIT** button to quit
2. Right click mouse button on Desktop Area, now shows a sub menu window. Please select **Properties**.
3. Now come up **Display Properties** window, please select **Settings** on the top.
4. Select **Advanced**
5. Select **Adapter**.
6. Select **Change**
7. Now comes up a update drivers wizard window. Please follow the on screen instruction.
8. Please specify the drivers location at your CDROM letter:
\drivers\NVIDIA\7228\win2K_XP (If 7228 not exist, use 7X00 instead) or the directory where you put your drivers
9. Select **Install** and click "**YES**" when the Installing Driver dialog box appears. If the drivers is very new may not certified by Microsoft, if so, system will prompt you the drivers do not have "digital signature", still you can force to install.

A message appears stating that drivers were successfully installed. Click **OK**. Another message appears stating that the driver could not be restarted dynamically. Restart Windows2000 to run the new driver. Click **OK**.

FCC Statement

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. (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning:

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.

Notice:

(1) An Unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

(2) Use only shielded cables to connect I/O devices to this equipment.

(3) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Trademark Acknowledgments

All brand names and trademarks are the property of their owners.