NVIDIA

GeForce4 MX420/440/460

SP7100M273X032PU ; SP7100M273X032TV

SP7100M273V064PU ; SP7100M273V064TV

3D GRAPHIC ACCELERATOR MANUAL

SPARKLE COMPUTER CO., LTD.

NVIDIA GeForce4 MX420/440/460 User' s Manual

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1. NVIDIA GeForce4 MX420/440/460 Features

GeForce4 MX420 AGP bus, with 64MB or 128MB SDRAM on Board

Graphics core 256-BIT
Fill rate (AA samples/sec.) 1 BILLION
Triangles/sec 31 MILLION
Memory bandwidth 2.7 GB/SEC

GeForce4 MX440 AGP bus, with 64MB DDR SDRAM on Board

Graphics core 256-BIT
Fill rate (AA samples/sec.) 1.1 BILLION
Triangles/sec 34 MILLION
Memory bandwidth 6.4 GB/SEC

GeForce4 MX460 AGP bus, with 64MB DDR SDRAM on Board

Graphics core 256-BIT
Fill rate (AA samples/sec.) 1.2 BILLION
Triangles/sec 38 MILLION
Memory bandwidth 8.8 GB/SEC

nView Display Technology

Provides unprecedented flexibility and control for using multiple displays. nView boosts productivity by enabling the user to have two simultaneous displays for every GPU. Multiple graphics cards can be used if more than two displays are required.

Lightspeed Memory Architecture (LMA) II Technology

LMA II boosts effective memory bandwidth by up to 300% Radical new technologies – including Z occlusion culling, fast Z clear, and auto precharge – effectively multiplies the memory bandwidth to ensure fluid frame rates for the latest 3D and 2D games and applications

MX Memory Crossbar

Dual memory controllers allow more efficient utilization of memory bandwidth

Integrated Dual 350MHz DACs

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

Integrated TV Encoder supporting 1024x768 Resolution

Provides best-in-class TV-out functionality (optional)

Accuview Antialiasing

Delivers unprecedented AA performance and quality to the mainstream market and enables high resolution, high frame rate, full-scene antialiasing for the first time ever in this market segment

Video Processing Engine (VPE)

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

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

AGP 4X 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
64M high-speed 128-bit DDR RAM memory
High-performance 2D rendering engine
AGP 4X with Fast Writes
NVIDIA Shading Rasterizer
AGP 4X/2X 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

Operating systems support

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

API Support

OpenGL 1.3 and lower
DirectX 8.1 and lower

2. Hardware installation

2.1 Package Contents

1. NVIDIA GeForce4 MX 3D Accelerator card
2. CD title or Software diskettes
3. This manual

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 MX420/440/460

	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
	16	60/70/72/75/85
	32	60/70/72/75/85

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

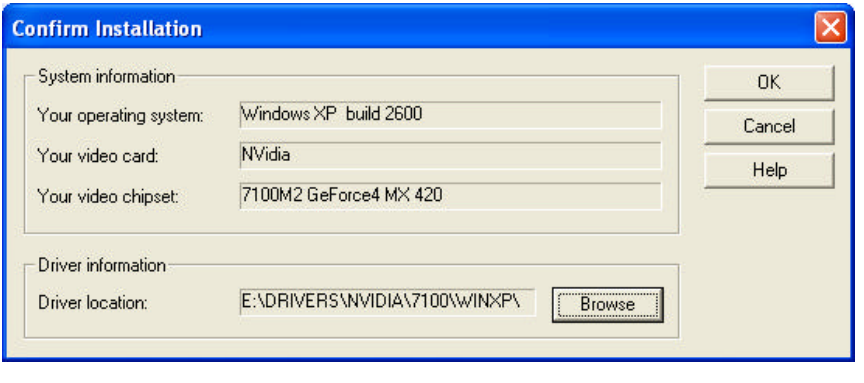
4. Smart Installation

For Windows XP, Windows 2000, Windows 98, Windows ME

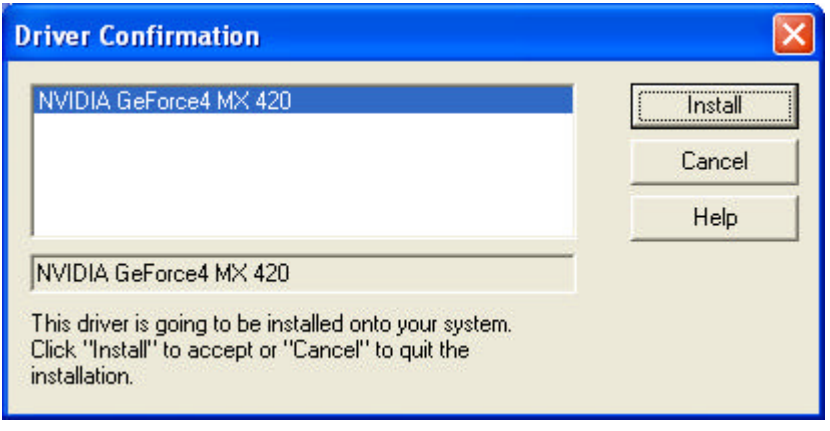
4.1 Put the DRIVERS CD in your CD-ROM

4.2 Click **Driver installation**

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



4.4 Now appears the **Driver Confirmation** window
Select **Install**



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.

4.5 Then **restart your computer.**

5. Manually install Windows XP drivers

5.1 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).
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 form 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\7100\winXP** (If 7100 not exist, use 7X00 instead)

Note: "E:"-> CD Drive, **"NVIDIA"->** VGA chip brand name, **"7100"->** 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.

5.2 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 form the pop-out menu.

Click Settings

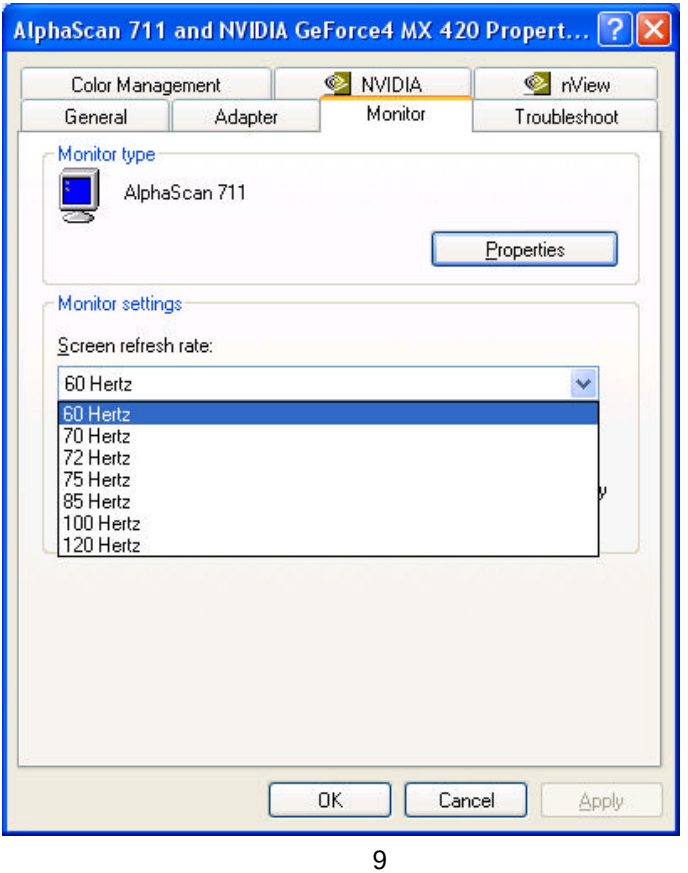
Click on the pull-down arrow from the Color palette area to select color depth or adjust the sliding bar to either Less or More from the Desktop area

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

5.3 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 not select the refresh rate you wanted.



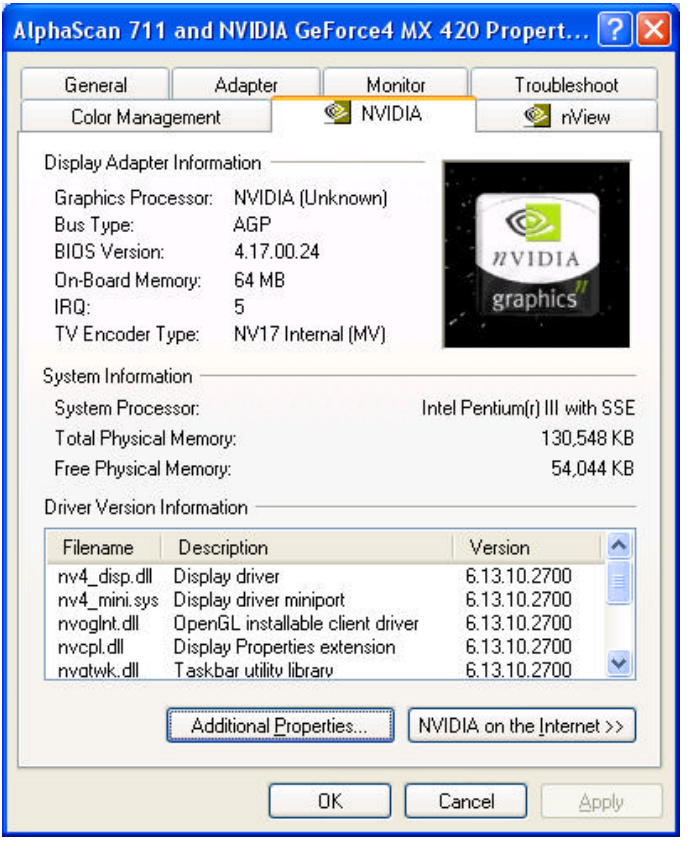
5.4 NVIDIA Utility in Windows System

5.4.1 GeForce4 MX (NVIDIA)

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

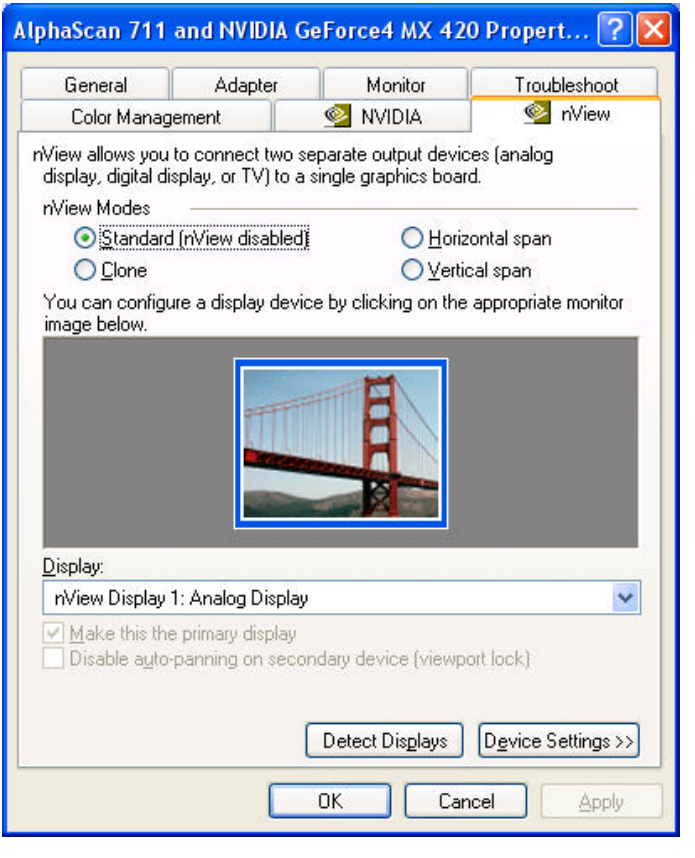
Additional properties is for advance user to setting OpenGL, Direct3D, Overlay control, Desktop Utilities and 3D antialiasing settings.

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



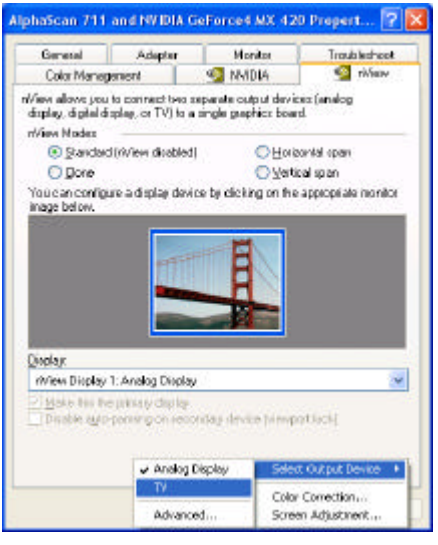
5.4.2 nView

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.

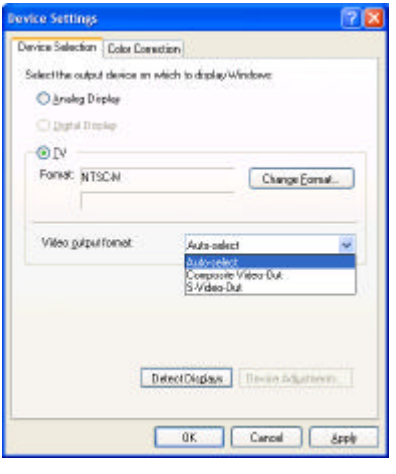


5.4.2.1 Standard mode:

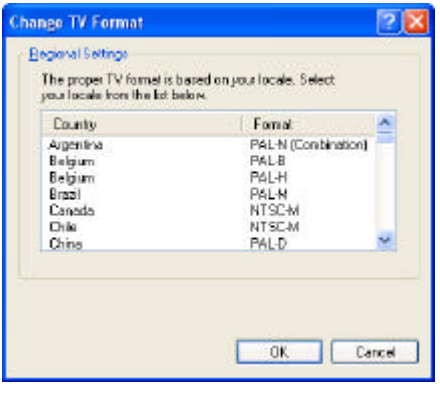
nView disabled, only one monitor will work. Click **Device Settings >>** , you can select output device – CRT or TV. Or you can select **Advanced ..**and select output device.



Click **Video output format** bar to select S-Video or RCA (optional) output, default is auto select.



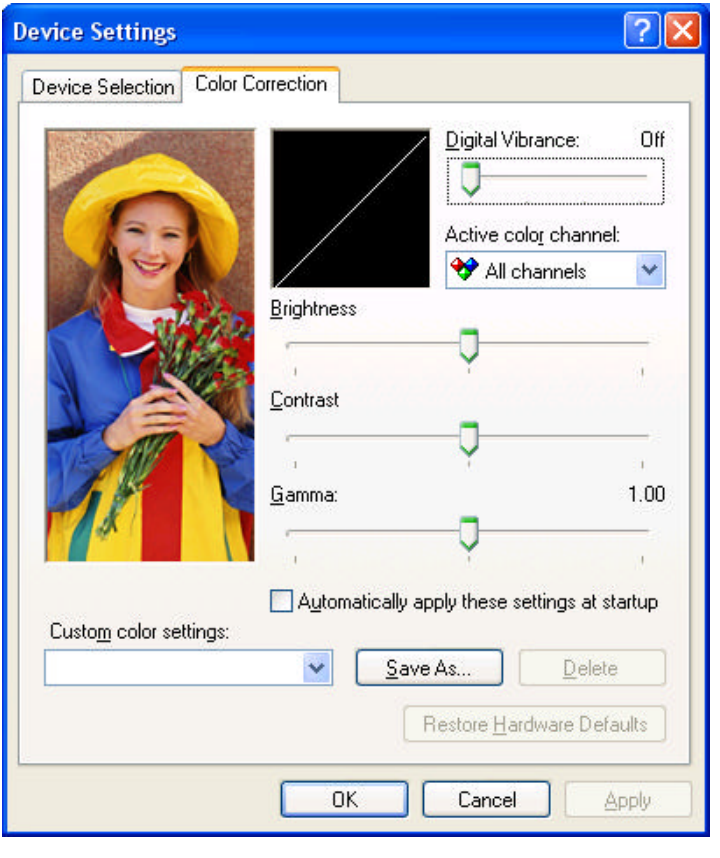
Click **Change Format** to select your country and TV system – NTSC or PAL, no SECAM.



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

5.4.2.2 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.

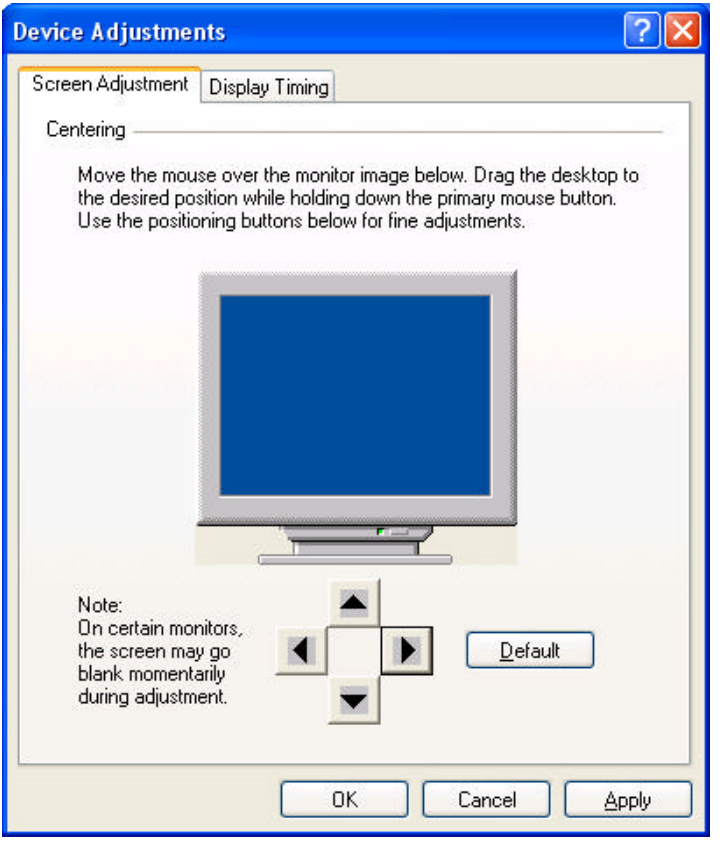


5.4.2.3 Screen Adjustment…

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

You can adjust screen position.

Display Timing can let you set your computer timing.

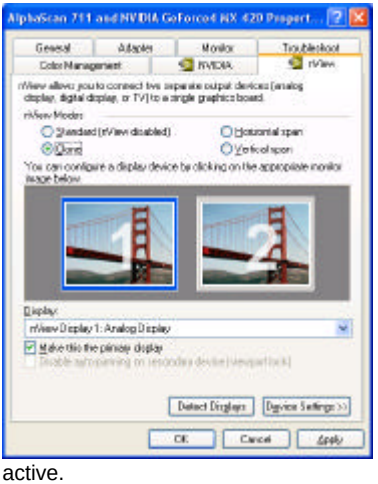


5.4.2.4 nView enable mode

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

Clone mode:

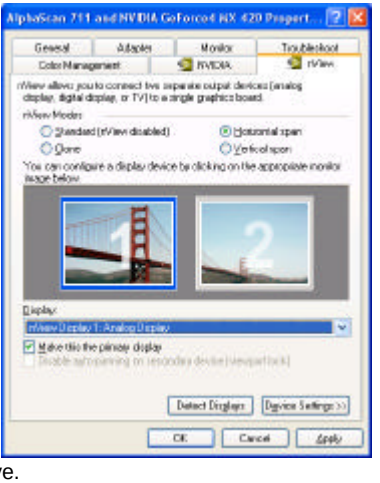
2 monitors show the same picture,
Select **Clone** and Click **Apply** to active.



active.

Horizontal span mode:

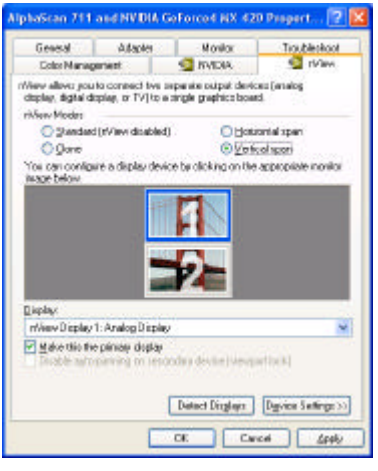
Picture span horizontally on 2 monitors.
Select **Horizontal span**, Click **Apply** to



active.

Vertical span mode:

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



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

6.1 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 form 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\7100\Win9X or \Winme** (If 7100 not exist, use 7X00 instead)
Note: "E:"-> CD Drive, **"NVIDIA"->** VGA chip brand name, **"7100"->** 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**

6.2 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.

6.3 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.

Windows ME/98 nView setting please see GF4MX_nViewMEen.doc for detail.

7. Manually install Windows 2000 drivers

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 MX 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\7100\win2000 (If 7100 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.

The following steps describe how to update Windows2000 display drivers

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\7100\win2000 (If 7100 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 condition.(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, used and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference in to radiate 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 form that to which the receiver in 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 by used.
(2) Use only shielded cables to connect I/O devices to this equipment.3
(3) Changes or modifications not expressly approved by the party responsible for compliance could void the use’ s authority to operate the equipment.

Trademark Acknowledgments

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