NVIDIA

GeFORCE256
GeFORCE256DDR

3D GRAPHIC ACCELERATOR

MANUAL

NVIDIA GeFORCE 256 & GeFORCE 256 DDR User's Manual
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1. NVIDIA GeFORCE256/GeFORCE256DDR

Memory Size:
SP6000 GeFORCE256   : 32MB on Board with SDRAM
SP6100 GeFORCE256DDR : 32MB on Board with DDRSGRAM
SP6200 GeFORCE256   : 64MB on Board with SDRAM
SP6300 GeFORCE256   : 64MB on Board with SDRAM
SP6500 GeFORCE256DDR : 64MB on Board with DDRSDRAM

1.1 NVIDIA GeFORCE256/GeFORCE256DDR Features
Visually stunning interactive 3D
- Optimized Direct3D and OpenGL acceleration, Complete DirectX7.0 and OpenGL support
- 4 pixels-per-clock cycle, 15 Million Triangles
- 4pixels-per-cloc cycle, 15 Million Triangles per second,480 Million Pixels per second
- 32-bit ARGB rendering with destination alpha
- 8-sample fully filtered pixels per second
- Transform and Lighting
- Cube Environment Mapping
- Texture Blend support:
   *Multi-texture   *Bump map
   *Texture modulation *Procedural texture
   *Reflection maps *Detail textures

High performance 256-bit 2D Rendering
- RAMDAC: 350MHz - support resolution up to 2048x1536x32bpp 75Hz
- Hardware acceleration for Windows GDI operations
- Optimized for multiple color depths including 32, 24, 16, and 8-bits per pixel
- Multi-buffering (up to quad buffering) for smooth animation and video playback
- Fast 32-bit VGA/SVGA support

High quality video playback
- Full screen DVD playback
- DVD sub-picture alpha-blended compositing
- Video acceleration for DirectShow, MPEG-1, MPEG-2, and Indeo
- Advanced support for DirectDraw
- Hardware color space conversion(YUV 4:2:2 and 4:2:0)

Robust system interface
- Comprehensive AGP 4x / 2x interface
- Memory configurations up to 64MB of SDRAM

Direct Interface to Broad Range of LCD (Optional)
- VESA P&D and VESA FPDI-S™ standard compliant
- Adjustable TMDS™ low-voltage swing signaling for long distance support
- Support up to UXGA TFT color panels using Silicon Image SiI154/160 transmitter
- Digital Flat Panel interface with scaling and filtering
- DVI PanelLink™ standard connector(digital only).

TV-OUT (Optional)
- Using BT868 TV encoder
- S-video connector

Designed to WHQL compatibility standards
- Windows2000, Windows NT4.0, Windows98, and Windows95 display drivers
- Complete support for DirectDraw , Direct3D, DirectShow, and ActiveX
- OpenGL IDC for all operating systems listed above

2. NVIDIA GeFORCE 256 & NVIDIA 256 DDR Board Outline
2.1GeFORCE 256 using SDRAM (SP6000)
32M on board with 16 pieces of 1Mx16 SDRAM
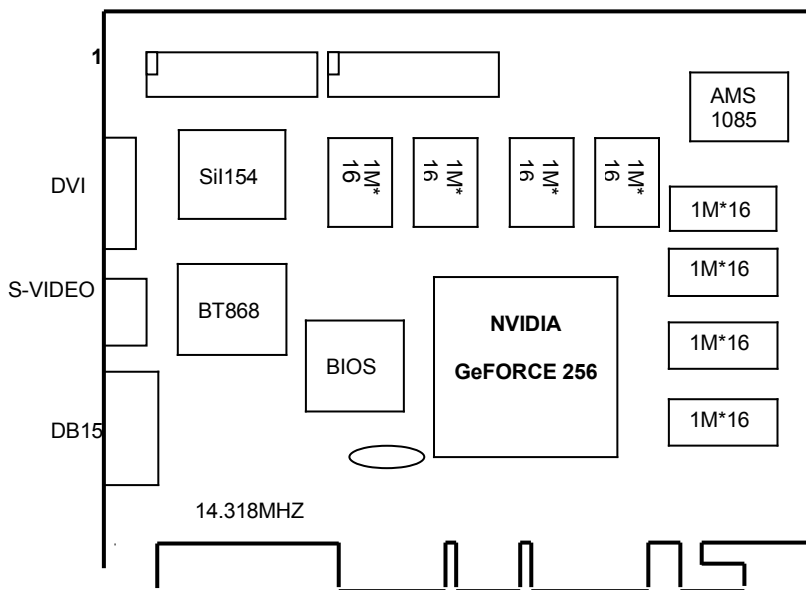
NOTE 1: TV output connector and encoder are reserved for optional
NOTE 2: DVI connector and LCD encoder are reserved for optional

2.2GeFORCE 256 using DDR SGRAM (SP6100)

32M on board with 8 pieces of 1Mx32 DDRSGRAM
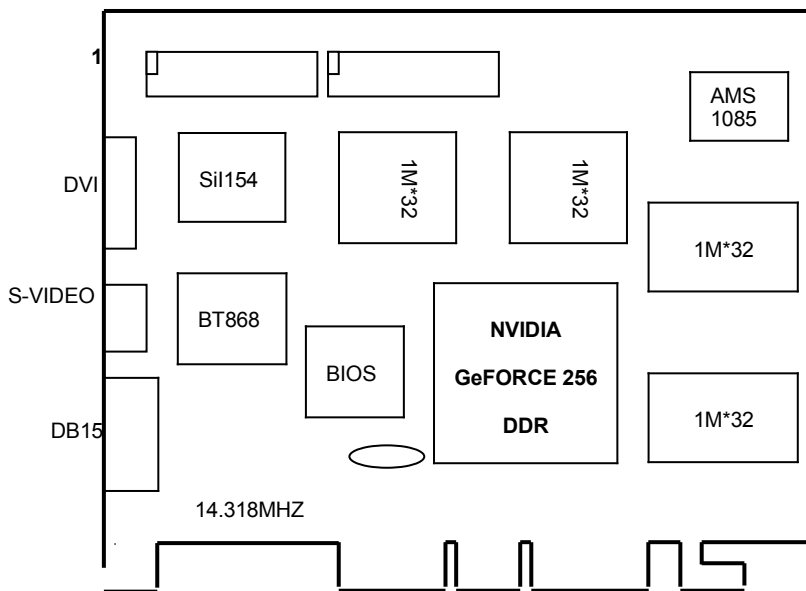
NOTE 1: TV output connector and encoder are reserved for optional
NOTE 2: DVI connector and LCD encoder are reserved for optional

2.3GeFORCE 256 using DDR SDRAM (SP6500)
64M on board with 8 pieces of 4Mx16 DDRSDRAM
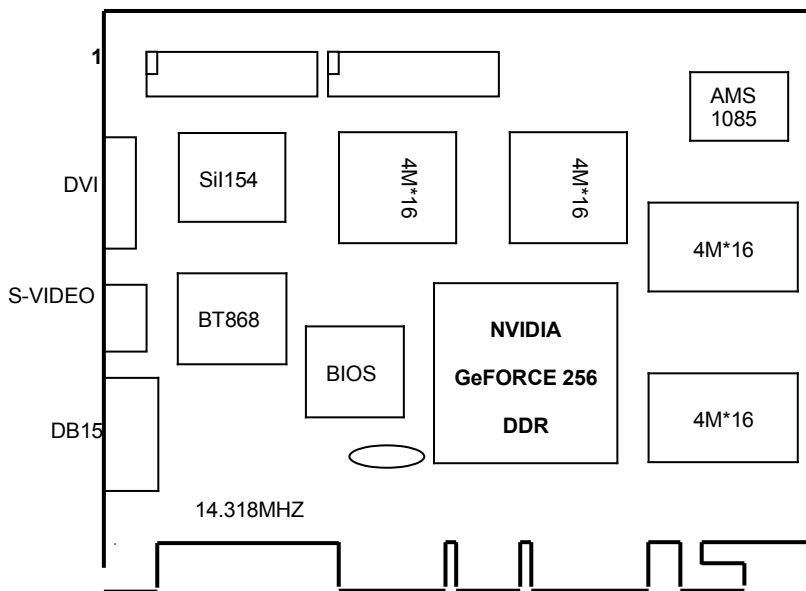
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DVI	Sil154
S-VIDEO	BT868
DB15	BIOS

4M*16

4M*16

AMS 1085

4M*16

4M*16

NVIDIA GeFORCE 256 DDR

14.318MHZ

NOTE 1: TV output connector and encoder are reserved for optional
NOTE 2: DVI connector and LCD encoder are reserved for optional

3.Hardware installation
3.1 Package Contents
1. NVIDIA GeFORCE 256 or GeFORCE256DDR 3D Accelerator card
2. CD title of Software diskettes
3. This manual

3.2 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.

3.3 Micro Cross DVI Connector System

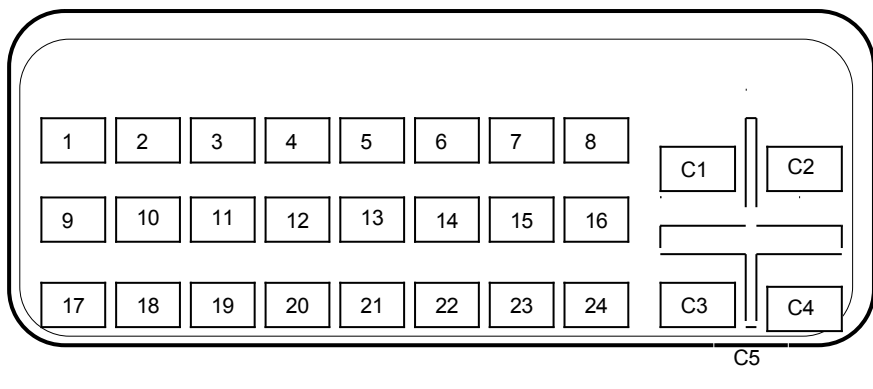**"Micro Cross:"/high speed pins;**
C1   Analog Red Video Out
C2   Analog Green Video Out
C3   Analog Blue Video Out
C4   Analog Horizontal Sync
C5   Analog Common Ground Return (Red , Green , Blue Video Out)
Note: C1 – C5 Analog signal is not support, just for SPEC. reference

Main Pin Field:
1. TMDS Data 2-
2. TMDS Data 2+
3. TMDS Data 2/4 Shield
4. TMDS Data 4-
5. TMDS Data 4+
6. DDC Clock
7. DDC Data
8. Analog Vertical Sync
9. TMDS Data 1-
10. TMDS Data1+
11. TMDS Data1/3 Shield
12. TMDS Data 3-
13. TMDS Data 3+
14. +5V Power
15. Ground (+5, Analog H/V Sync)
16. Hot Plug Detect
17. TMDS Data 0-
18. TMDS Data 0+
19. TMDS Data 0/5 Shield
20. TMDS Data 5-
21. TMDS Data 5+
22. TMDS Clock Shield

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23. TMDS Clock
24. TMDS Clock

3.4 Resolutions and colors supported:

SP6000/SP6100/SP6500

	BPP	Memory Req.	Refresh Rates (HZ)
640*480	8	1MB	60/70/72/75/85/100/120/140/144/150/170/200/240
	16	1MB	60/70/72/75/85/100/120/140/144/150/170/200/240
	32	2MB	60/70/72/75/85/100/120/140/144/150/170/200/240
800*600	8	1MB	60/70/72/75/85/100/120/140/144/170/200/240
	16	1MB	60/70/72/75/85/100/120/140/144/170/200/240
	32	2MB	60/70/72/75/85/100/120/140/144/170/200/240
1024*768	8	1MB	60/70/72/75/85/100/120/140/144/150/170/200/240
	16	2MB	60/70/72/75/85/100/120/140/144/150/170/200/240
	32	4MB	60/70/72/75/85/100/120/140/144/150/170/200
1152*864	8	1MB	60/70/72/75/85/100/120/140/144/150/170/200
	16	2MB	60/70/72/75/85/100/120/140/144/150/170/200
	32	4MB	60/70/72/75/85/100/120/140/150/170
1280*960	8	2MB	60/70/72/75/85/100/120/140/144/150/170
	16	4MB	60/70/72/75/85/100/120/140/144/150/170
	32	8MB	60/70/72/75/85/100/120/140/150
1280*1024	8	2MB	60/70/72/75/85/100/120/140/144/150/170
	16	4MB	60/70/72/75/85/100/120/140/144/150/170
	32	8MB	60/70/72/75/85/100/120/140/150
1600*900	8	2MB	60/70/72/75/85/100/120/140/144/150
	16	4MB	60/70/72/75/85/100/120/140/144/150
	32	8MB	60/70/72/75/85/100/120
1600*1200	8	2MB	60/70/72/75/85/100/120
	16	4MB	60/70/72/75/85/100/120
	32	8MB	60/70/72/75/85/100
1920*1080	8	4MB	60/70/72/75/85/100
	16	8MB	60/70/72/75/85/100
	32	16MB	60/70/72/75/85
1920*1200	8	4MB	60/70/72/75/85/100
	16	8MB	60/70/72/75/85/100
	32	16MB	60/70/72/75/85
1920*1440	8	4MB	60/70/72/75/85
	16	8MB	60/70/72/75/85
	32	16MB	60/70/75
2048*1536	8	4MB	60/70/72/75
	16	8MB	60/70/72/75
	32	16MB	60

BPP: Bit Per Pixel

4. Smart Installation
   For Windows 95 OSR2.1, Windows 98, WindowsNT4.0 SP3 or newer
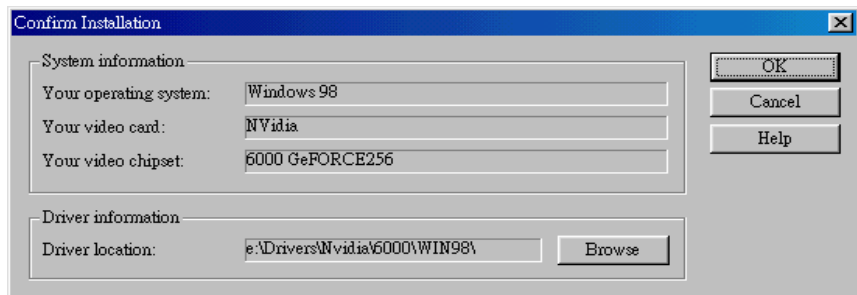**4.1** Put the DRIVERS CD in your CD-ROM

4.2 Click the **Driver installation**

4.3 If everything fine, screen will show **Confirm Installation** window.
     Then Select the **OK (Here the picture shows NVIDIA GeFORCE256 for example)**

4.4 Now appears the **Driver Confirmation** window
Select the **Install**
(Here the picture shows NVIDIA GeFORCE256 for example, if your are using NVIDIA GeFORCE256DDR Driver Confirmation window will show NVIDIA GeFORCE256DDR drivers)

Driver Confirmation

NVIDIA GeForce 256 V3.53

Install
Cancel
Help

NVIDIA GeForce 256 V3.53

This driver is going to be installed onto your system. Click "Install" to accept or "Cancel" to quit the installation.
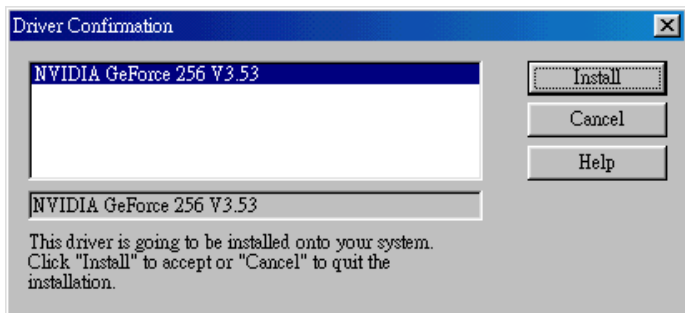
4.5 Then restart your computer.

System Settings Change

? You must restart your computer before the new settings will take effect.

Do you want to restart your computer now?

Yes   No
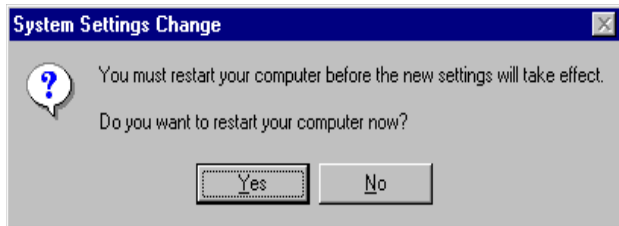
5. Manually install Windows 95 & Windows 98 drivers

5.1 Installation and Setup

5.1.1 Windows95
The Windows setup program installs and modifies all of the necessary files. Follow these steps to install the Windows 95 drivers.
- Insert the DISC (CD Title Driver).
- Select **Control Panel** from **My Computer** group.
- Select the **Display** icon
- 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.
- Click the **Settings** tab.
- Click the **change** Display Type button.
- Click the **Have Disk** button.
- Change directories and Select **NV4agp.inf**
  Disc (CD Title) is **E:\drivers\Nvidia\6000\WIN9x**

Note: "E:"-> CD Drive **"Nvidia"->** VGA chip brand name **"6000"->** VGA model name
  (GeFORCE256: 6000, GeFORCE256 DDR: 6100/6500)
- Select AGP driver form the list and click the **OK** button. If a message stating that one or more driver files is older than the files on the system respond **YES** to overwrite the files.
- Click the Close button and Apply button, and restart your computer.

5.1.2 Windows98
The Windows setup program installs and modifies all of the necessary files. Follow these steps to install the Windows 98 drivers.
- Insert the DISC (CD Title Driver).
- Select **Control Panel** from **My Computer** group.
- Select the **Display** icon
- 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.
- Click the **Settings** tab.
- Then show **[Unknown Device.] Properties** tab
  Select **Adapter**
- Then show **Standard PCI Graphics…** tab
  Select **Change**
- Then show **Update Device …** tab
  Select **Next**
- Then show **Update Device …** tab
  Select **Search for a better…**
  Then select **Next.**
- Then show **Update Device …** tab
  If the **Specify a location** is wrong
  Please select **Brows**
- Then show **Browse for Folder** tab
Select **E:\drivers\ Nvidia\6000\win98**
  Disc (CD Title) is **E:\drivers\ Nvidia\6000\WIN98**

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Note: "E:"-> CD Drive **"Nvidia"->** VGA chip brand name **"6000"->** VGA model name
(GeFORCE256: 6000, GeFORCE256DDR: 6100/6500)
Then select **OK**
● Then show **Update Device Driver Wizard** tab
Select **CD-ROM driver**
Click the **Specify a locator,** if right
Then select **Next**
● Then show **Update Device Driver Wizard** tab
Select **Next**
● Then show **Update Device Driver Wizard** tab
Select **Finish**
● Then show **System Settings Change** tab
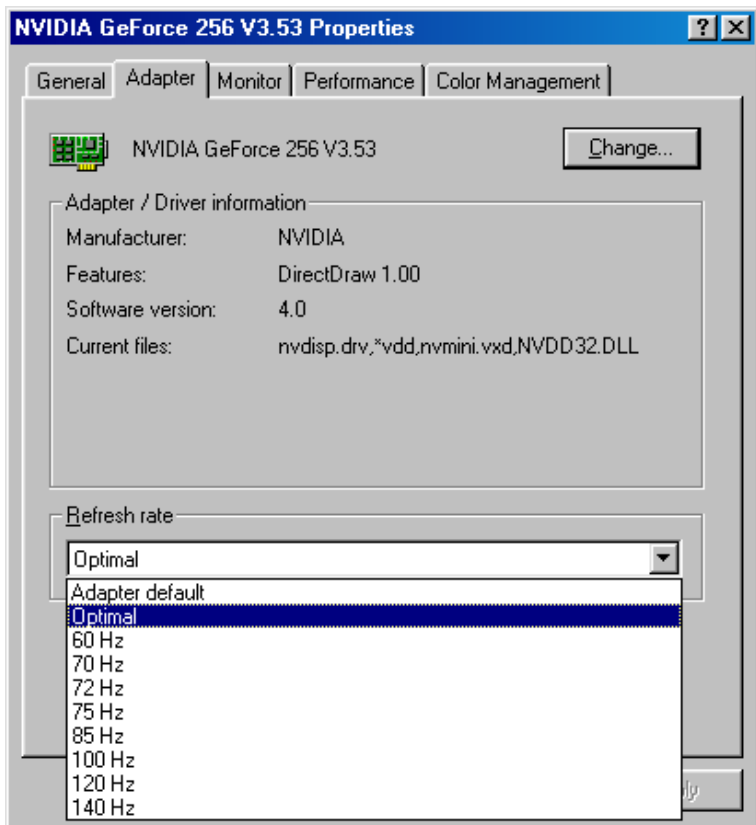Select **OK**

5.2 How to Change Color Depth and Resolution

1. **Make sure that you have installed windows95/98 Driver.**
2. **Click on the** Start **box in the lower left corner and proceed to** Control Panel**.**
3. **Inside the** Control panel **group , click on** Display **icon to open the** Display
   Properties **folder and select the** Setting table
4. **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
5. **Select** OK **to restart** WINDOWS95 **and new color depth or the new resolution
   takes effect.**

5.3 How to Change Refresh Rate
Here the picture shows Voodoo Banshee for example
1. Make sure that you have installed windows95/98 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

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.

NVIDIA GeForce 256 V3.53 Properties

| General | Adapter | Monitor | Performance | Color Management |

NVIDIA GeForce 256 V3.53   Change...

Adapter / Driver information

Manufacturer:	NVIDIA
Features:	DirectDraw 1.00
Software version:	4.0
Current files:	nvdisp.drv,*vdd,nvmini.vxd,NVDD32.DLL

Refresh rate

Optimal

Adapter default
Optimal
60 Hz
70 Hz
72 Hz
75 Hz
85 Hz
100 Hz
120 Hz
140 Hz

- **Here the picture shows NVIDIA GeFORCE 256 for example.**
- Refresh Rate default is Optimal.
- If you change Refresh Rate from Optimal to another, you maybe need to restart WINDOWS 95 or 98

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6. Windows NT 4.0

The following steps describe how to install Windows NT4.0 display drivers

1.   Select **Control Panel** from the **Main** group.
2.   Select the **Display** icon.
3.   Select C**hange Display Type**.
4.   Select Change from the **Adapter Type** area.
5.   Select **Other**.
6.   Place the Disc (CD Title) into Driver. Click **OK**.
7.   Select I**nstall** and click "**YES**" when the Installing Driver dialog box appears.
8.   When the Windows NT **Setup** dialog box appears select CDROM, and click "**Continue**".

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

7. Windows 2000
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 SP6000/SP6100/SP6500 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 \2000drv\nvidia\win2000 or \drivers\nvidia\ 6000\win2000 (For SP6100 or SP6500, please change 6000 to 6100 or 6500)
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:\2000drv\nvidia\win2000 or \drivers\nvidia\6000\win2000 (For SP6100 or SP6500, please change 6000 to 6100 or 6500) or the directory where you put your drivers
9. Select I**nstall** 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.