TNT2-AGP
TNT2-AGP(A)
TNT2-AGP(B)

TNT2 128-bit Graphics Accelerator

U s e r ' s   M a n u a l

Version 1.0

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Setting up Your Graphics Card

Congratulations on your purchase of the TNT2-AGP 128-bit Graphics
Accelerator

1.1   Minimum System Requirements

•   PC-based computer with PentiumII® processor.

•   AGP Bus slot.

•   10MB hard disk space (system files and drivers only).

•   CD-ROM drive.

•   Windows® 95 OSR 2.1, Windows® 98 or Windows NT® 4.0 with Service
     Pack 3.

•   USB upgrade supplement if you are running Windows® 95 OSR 2.0.

•   Windows NT® Service Pack 3 or later if you are running Windows NT®
     4.0.

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1.2   Safety Precaution

• Do not remove your graphics card from its protective bag until you are ready to install it.

• Always try to hold your graphics card by its edges. Avoid touching any electronic components on your graphics card.

• Static electricity can cause permanent damage to your graphics card. To prevent such damage, you must ground yourself while installing the card. You can do this in either of two ways :

   » Use a grounding strap, which is a coiled wire with a clip at one end and an elastic strap at the other. Wear the strap around your wrist and attach the clip to any non-painted metal surface of the computer's chassis.

   » If you do not have a grounding strap, touch any non-painted surface of the computer's chassis before you begin installation, and again every minute or so until the installation is completed.

1.3   Installation Notes

• Computers vary in appearance and layout. Therefore, the installation procedures in this chapter apply generally and you should compare the illustrations here with your computer before you start the graphics card installation.

• A Philips-type screwdriver is required for the graphics card installation.

• Your computer's documentation should come in handy during the graphics card installation. Have it ready by your side when you start the graphics card installation.

• If you have an existing graphics card (that is non-Plug-and-Play-based) installed in your computer, you must first un-install its drivers before you remove the graphics card. Refer to your existing graphics card documentation for more details on this.

1.4   Installation Procedure

To take advantage of all the features of the AGP graphics card, please check that your system has Windows® 95 OSR2.1 or later versions and DirectX™ 6.0 or later installed. If you are running Windows NT® 4.0, make sure that it has been upgraded with Service Pack 3.

The following Installation Procedure is recommended:

1.   If you are running Windows® 95 OSR 2.0, upgrade it to Windows® 95 OSR 2.1. If you are running Windows NT® 4.0, upgrade it with Service Pack 3.

2.   Install the graphics card.

3.   Install the graphics card drivers from the Installation CD.

4.   Install DirectX™ 6 or later versions (*for Windows® 95/98 only*).

1.5   Upgrading Windows® 95 OSR2.0 to OSR2.1

To upgrade from OSR2.0 to OSR2.1, first make sure you have OSR2.0 installed. By installing the USB upgrade, Windows® 95 OSR2.0 will be upgraded to OSR2.1.

## 1.6   Upgrading Windows NT® 4.0 with Service Pack 3

If you are using Windows NT® Service Pack 1 or 2, upgrade to Service Pack 3 before installing the card.

1.7   Installing the Graphics Card

You need to remove any existing graphics card installed in your computer. Note that if the graphics card is non-plug-and-play-based, you need to un-install it's drivers before you remove it. Check your existing graphics card documentation for details on this.

Remember to switch off your computer and any connected devices before starting with the installation of your graphics card.
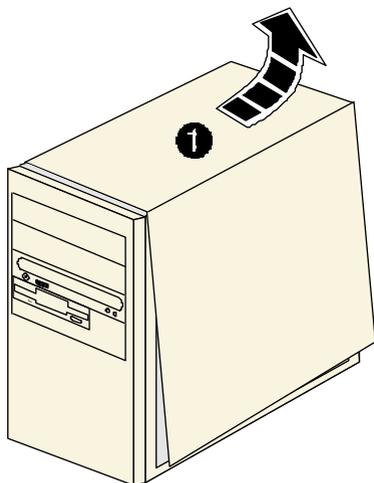
1. Remove your computer's chassis cover and set it aside, somewhere out of your way.

2. Remove the cover plate of the AGP Bus slot. Keep the mounting screw to secure your graphics card later.

AGP Bus Slot

Cover Plate

Mounting Screw
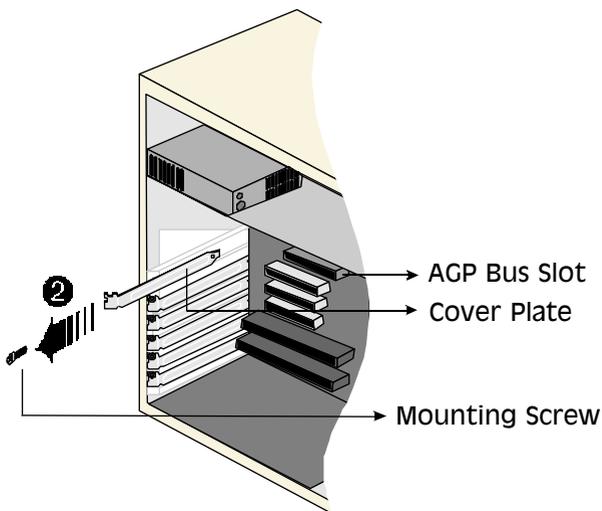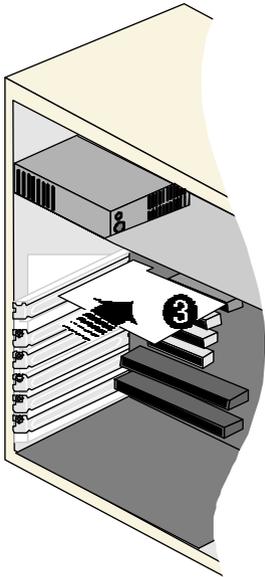
3. Align your graphics card with the AGP Bus slot and firmly push it into the slot. If the card cannot be slide in, do not force it. Make sure the graphics card is lined up properly and try again.

4. Secure your graphics card to the computer chassis with a mounting screw.
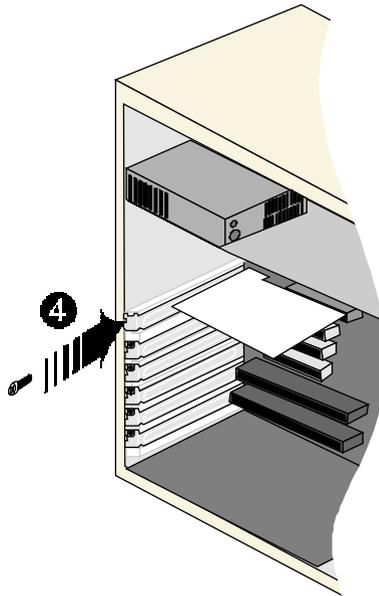
5. Replace your computer's chassis cover.

1.8   Connecting the Graphics Card

1.   Plug your standard 15-pin male monitor cable into the **VGA port**, or, if
      you are using a Digital Flat Panel, connect the video cable to the
      Digital Flat Panel Jack * of the graphics card.

      The TNT2-AGP and TNT2-AGP(A) models support both Composite
      Video (CVBS) and S-Video (Y/C). If your TV is equipped with an **S-
      Video Jack**, it is recommended that an S-video cable be connected for
      better resolution.

      Connect one end of the S-Video cable to the **S-Video Jack** of the
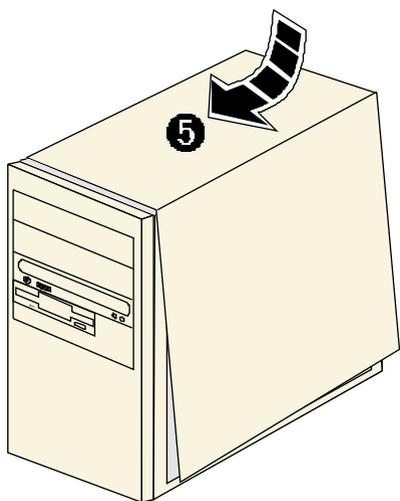   graphics card and the other end to the S-Video In of a TV set.
      Otherwise, connect one end of the RCA-type cable to the **TV Out Jack**
      of the graphics card and the other end to the Video In of a TV.
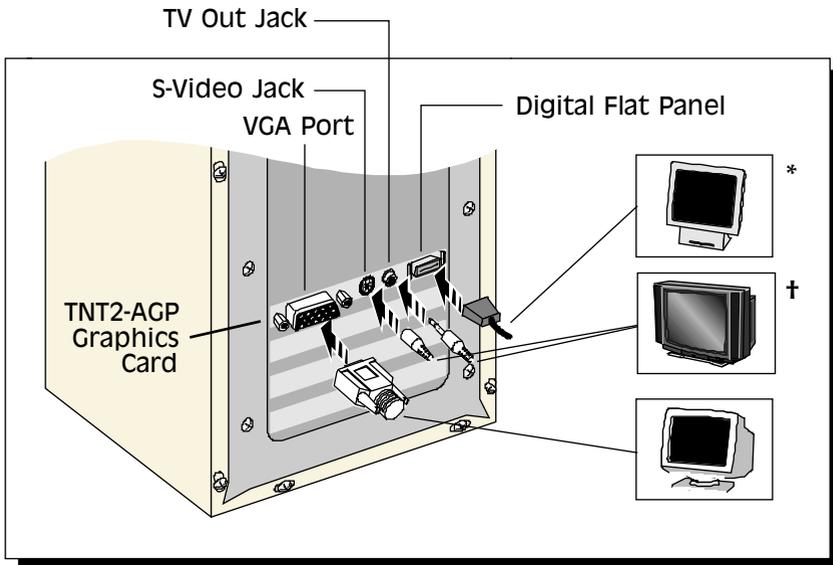
*   Digital Flat Panel Jack is available on TNT2-AGP

†   S-Video Jack and TV Out Jack are available on TNT2-AGP and TNT2-
     AGP(A)

Chapter

2

Installing the Graphics Card Drivers

To take advantage of all the features of the AGP graphics card, please check that your system has Windows® 95 OSR2.1 or later versions and DirectX™ 6.0 (or later) installed. If you are running Windows NT® 4.0, make sure that it has been upgraded with Service Pack 3 or later.

2.1   Installing the Drivers in Windows® 95

1.   Turn on your computer to start Windows® 95. Windows® 95 will detect the newly-installed graphics card and an **Update Device Driver Wizard** window will appear. Place the **Installation CD** on the CD-ROM drive and click **Next**.

Update Device Driver Wizard

This wizard will complete the installation of:

Standard PCI Graphics Adapter (VGA)

by searching your local drives, network, and Internet locations for the most current driver.

If you have a disk or CD-ROM that came with this device, insert it now.

It is recommended that you let Windows search for an updated driver. To do this, click Next to continue.

< Back   Next >   Cancel

2.   Allow the system to search for an updated driver and click **Finish** to
      use the driver found.

3.   When prompted to restart the system, click **Yes** to restart. This is to
      ensure that the new graphics settings take effect.

4. After restarting, a program folder called "TNT2-AGP Information" will be created. It provides a link to the User's Manual, a list of FAQs and the Readme.txt file. In order to read the User's Manual, Acrobat Reader is required. Install Acrobat Reader first if you do not have the program.
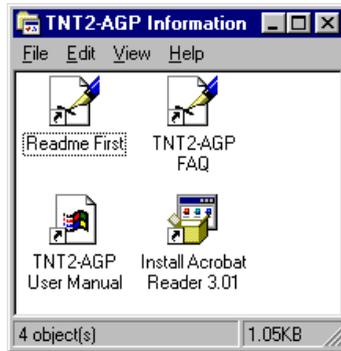
5. From the **Start** button on the taskbar, click **Settings** and choose **Control Panel**. Double-click the **Display** icon. Click the **Settings** tab and change the Colour Palette to 16-bit or higher.

Please proceed to install DirectX™ 6.0.

2.2   Installing the Drivers in Windows® 98

1.   Turn on your computer to start Windows® 98. Windows® 98 detects the
      newly-installed graphics card. Click **Next** to continue.

2.   Place the **Installation CD** into the CD-ROM drive.

3.   Select the **Search for the best driver for your device. (Recommended)**
      option and click **Next** to continue.

4. Enable the **CD-ROM drive** selection to direct Windows to search for the drivers on the Installation CD. Click **Next** to continue.


5. Windows will prompt that it is ready to install the drivers. Click **Next** and then **Finish** to complete the installation of the drivers.

6.   When prompted to restart the system, click **Yes**. This is to ensure that the new graphics settings take effect.

7.   After restarting, a program folder called "TNT2-AGP Information" will be created. It provides a link to the User's Manual, a list of FAQs and the Readme.txt file. In order to read the User's Manual, Acrobat Reader is required. Install Acrobat Reader first if you do not have the program.
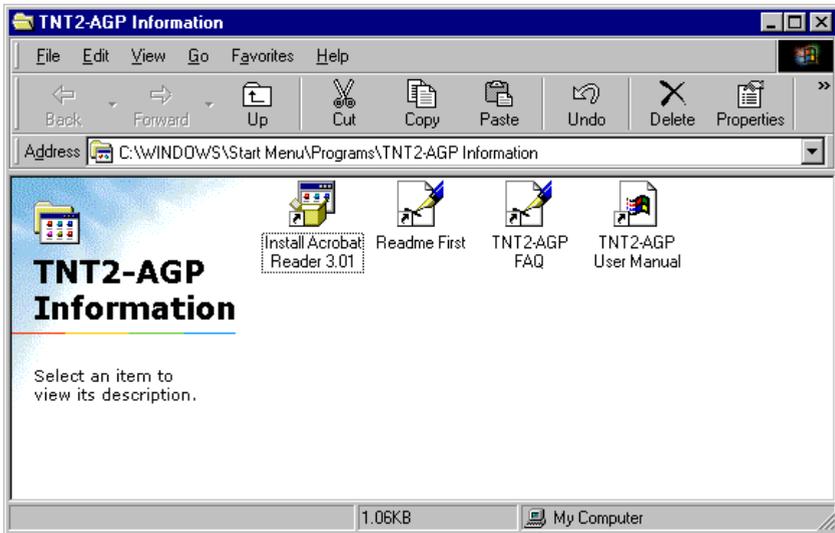
8.   From the **Start** button on the taskbar, click **Settings** and choose **Control Panel**. Double-click the **Display** icon. Select the **Settings** tab and make sure that the Colour Palette is set to 16-bit or higher. Click the **Advanced...** button.

     Please proceed to install DirectX™ 6.0.

2.3   Installing DirectX™ 6.0 in Windows® 95/98

1.   Place the **Installation CD** onto the CD-ROM drive.

2.   In Windows® 95/98, click the **Start** button and then **Run**.

3.   In the text box, type "*D:\Directx6\directx\dxsetup.exe*" (where D is the letter of your CD-ROM drive) and click **OK**.

4.   A **DirectX(R) Setup** window appears. Make sure that under *Options*, **Direct-3D Hardware Acceleration Enabled** is checked. Click **Reinstall DirectX**.

5.   Follow all on-screen instructions to complete the installation of DirectX.

    Please proceed to the next chapter on testing the card.

2.4   Installing the Drivers in Windows NT® 4.0

1.   Start Windows NT® 4.0.

2.   Place the **Installation CD** in the CD-ROM drive.

3.   From the Windows NT® taskbar, click the **Start** button and then select **Settings, Control Panel**.

4.   Double-click the **Display** icon.

5.   Click the **Settings** tab and then click the **Display Type** button.

6.   Click the **Change** button and a **Change Properties** window appears.

7.   Place the **Installation CD** into the CD-ROM drive and click **Have Disk**. Browse to D:\winntX (D is the CD-ROM drive's letter). The system will locate the driver.

8.   Click **OK** twice to finish the installation of the drivers.

Chapter
3

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Testing the Graphics Card in Windows® 95/98 & Adjusting the Display Properties

3.1   Testing the Graphics Card

1.   From the Windows® 95/98 taskbar, click the **Start** button and then select **Settings** and **Control Panel**.

2.   Double-click the **System** icon.

3.   A **System Properties** window appears. Click the **Device Manager** tab.

4.   Double-click on the **Display adapters** to reveal the *TNT2-AGP* graphics card. Double-click on it.

5.   A **TNT2-AGP Properties** window appears. Under the **General** tab, check that the *Device Status* has the message: "This device is working properly". This means that your graphics card had been installed properly.

3.2   Adjusting the Graphics Card's Display Properties

When the drivers have been successfully installed, you can change the display resolution, color and other settings (Windows® 95/98 only). Other than the information in this User's Manual, more details can be obtained by clicking on the [?] button at the top-right of the **Display Properties** window and then clicking on the section you wish to know more about.

Appendix

A

Frequently Asked Questions

You may encounter some problems or doubts while installing or using your card. This chapter highlights some of the more common issues concerning your card and their possible solutions. Reviewing this chapter can help you solve many problems and often eliminate the need for telephone assistance.

Why does my Monitor display flicker badly?

Change your Refresh Rate at your Display properties in the Control Panel to 60Hz or higher. Refresh rate below 60Hz generally flickers badly. It is also Monitor-dependent.

There are no refresh rate settings for some of the screen resolutions.

The refresh rates for these screen resolutions are fixed at a certain value.

My System hangs when playing games such as Forsaken or MageSlayer.

There are patches available for downloading from the Web Sites of the respective Games Vendors that will enable the fixing of these issues.

There is no display after I plugged in the Card and switched on the System.

Check that your monitor cables and power cables are plugged in properly and power supply switched on. The card may not be inserted fully into the AGP slot. Try taking out and putting back the card again.

I am unable to obtain 1600X1200 resolution on my monitor.

The highest resolution that the Graphic Card is able to run is dependent on the Monitor itself. If your monitor does not support this resolution, then you will not be able to go up to this resolution.

I cannot get 16 color using screen resolutions above 1280X1024.

Screen resolutions above 1280X1024 can only be run at a minimum of 256 color. This is a common implementation among Graphic Cards Manufacturers.

Under Windows NT® 4.0, I am unable to install the Graphics Card correctly.

Under Windows NT® 4.0, you must first install Windows NT® 4.0 Service Pack 3 or later in order to get AGP support.

I am having difficulties installing the Graphics Card Under Windows® 95.

Please ensure that you have installed USB Supplement from Microsoft and there are no conflicting devices in your device Manager that may be causing Resources allocation problem. Also check that you have installed DirectX™ 6.0 or later for best performances.

Do I need to install DirectX™ 6.0 in the Installation CD under Windows NT® 4.0?

The DirectX™ 6.0 is meant for Windows® 95 SR2.1 or later. Do not install it under Windows NT® 4.0.

Can I install the TNT2-AGP Graphics Card under Windows® 95 OSR1 or earlier?

Due to the fact that Windows® 95 OSR1 or earlier does not have support for AGP devices, the features of the TNT2-AGP will not be fully utilised.

After the drivers are installed and Windows restarted, there is Plug and Play detection of my Monitor. Why is this so?

The Plug and Play detection of your monitor is to enable the TNT2-AGP Graphics Card to detect the capabilities and limits of your Monitor's Supported Resolutions and Refresh Rates. If you are uncertain of what to choose, just click the "Next" button and let Windows select the most appropriate drivers for your Monitor.

Appendix B

Technical Specifications

GENERAL

- Full Power True 128-bit TwiN-Texel (TNT) architecture
    - 2 Texture mapped, lit pixels per clock
    - Single pass multi-texture rendering
- 128-bit wide frame buffer interface
- 32MB SDRAM Memory on board (TNT2-AGP(B) – 16MB)
- 4X/2X/1X AGP interface with full sideband support
- Optimized for Direct3D acceleration with complete support for DirectX5.0 and 6.0
- Video acceleration for DirectShow™ , MPEG-1, MPEG-2 and Indeo®
- Triple 8-bit 300MHz Palette DAC
- Digital Flat Panel Support (TNT2-AGP only)
- NTSC and PAL output (TNT2-AGP and TNT2-AGP[A] only)
- Operating at memory bus speed of 150MHz
- Resolution of up to 2048 x 1536 @ 60Hz
- True color rendering

3D CAPABILITIES

- 100% Hardware Triangle Setup
- Optimized Direct3D acceleration
- Complete DirectX 6.0 support
- 32-bit Z-buffering with 8-bit stencil buffer
- Twin texel (TNT) 32-bit graphics pipeline
    - 2 texture mapped, lit pixels per clock
    - single pass multi-texturing support
    - square and non-square support
- TextureBlend supports:
    - Multi-texture
    - Bump map
    - Texture modulation

- ◆ Light maps
- ◆ Reflection maps
- ◆ Detail textures
- ◆ Environmental maps
- ◆ Procedural textures
- ◆ Backend blend
  - ◆ DirectX6.0: 121 modes supported for source and destination and alpha blending
  - ◆ 32-bit ARGB rendering with destination alpha
  - ◆ point sampled, bilinear, trilinear and 8-tap anisotropic filtering (better than trilinear Mip mapping)
- ◆ Per pixel perspective correct texture mapping
  - ◆ Fog
  - ◆ Light
  - ◆ Mip mapping
- ◆ Anti-aliasing, full scene and order independent

2D CAPABILITIES

- ◆ High performance 128-bit 2D/GUI/DirectDraw Acceleration
- ◆ Fast 32-bit VGA/SVGA support
- ◆ True color hardware cursor
- ◆ Hardware color dithering
- ◆ Full feature 2D Engine for acceleration of BLT, indexed, DIB, color translation, transparent BLT, stretchBLT, points, lins, lines, polylines, polygons, fills, patterns, arbitrary rectangular clipping and fast text rendering from hardware font cache
- ◆ Pipeline optimized for multiple color depths including 32,24,16,15 and 8-bits per pixel
- ◆ Multi-buffering (Double, Triple, Quad buffering) for smooth animation and video playback

VIDEO/DISPLAY/BIOS

- ◆ Advanced support for DirectDraw
- ◆ Back-end hardware video scaling for video conferencing and playback
- ◆ Hardware color space conversion
- ◆ Multiple video windows feature
- ◆ Flashable BIOS allows easy upgrading

♦ Composite and S-Video Out Connector (TNT2-AGP and TNT2-AGP[A] only)
♦ MDP-20 DFP Connector (TNT2-AGP only)

DIGITAL FLAT PANEL SUPPORT (TNT2-AGP only)

♦ Using Silicon Image, Inc Sil154
♦ Full compatibility with all PanelLink® receivers
♦ Resolution support from VGA - SXGA
♦ Digital Scaling and filtering for flat panels up to 1280X1024
♦ 24-bit True Color support in all modes (16.7 million colors)

TV OUTPUT (TNT2-AGP and TNT2-AGP[A] only)

♦ Supports 640x480, 640x400, 720x400, 800x600 and 512x384 resolutions in PAL/NTSC modes
♦ Full support for Multiple-line flicker-filthering and Macrovision 7.1

API SUPPORT

♦ OpenGL ICD™
♦ Direct3D™
♦ DirectDraw™
♦ DirectVideo™
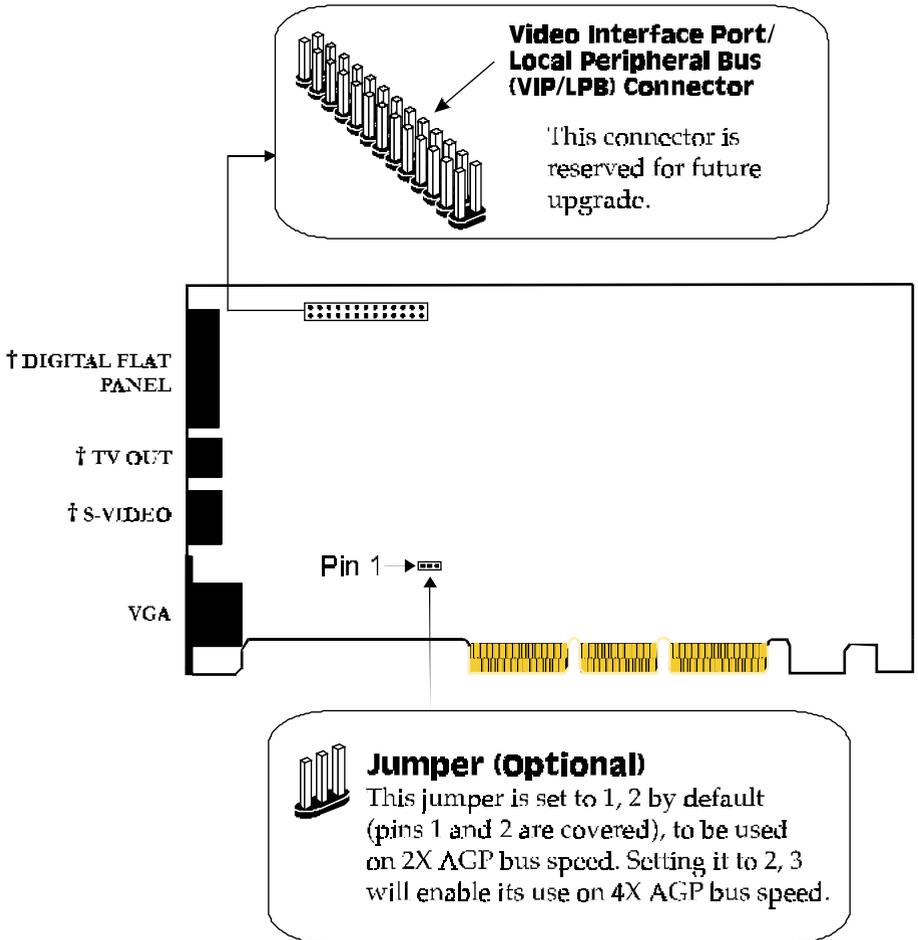♦ DirectShow™
♦ ActiveX™

OPERATING SYSTEM & DRIVER SUPPORT

♦ Windows® 2000
♦ Windows® 98 Retail or later
♦ Windows® 95 SR 2.1 or later
♦ Windows NT® 4.0 with Service Pack 3 or later

The product specifications herein are subject to change without prior notifications.

Appendix C

Card Layout

**Video Interface Port/
Local Peripheral Bus
(VIP/LPB) Connector**

This connector is
reserved for future
upgrade.

† DIGITAL FLAT
PANEL

† TV OUT

† S-VIDEO

VGA

Pin 1 →

Jumper (Optional)
This jumper is set to 1, 2 by default
(pins 1 and 2 are covered), to be used
on 2X AGP bus speed. Setting it to 2, 3
will enable its use on 4X AGP bus speed.

† Digital Flat Panel Jack is available on TNT2-AGP
TV Out Jack and S-Video Jack are available on TNT2-AGP and TNT2-AGP(A)