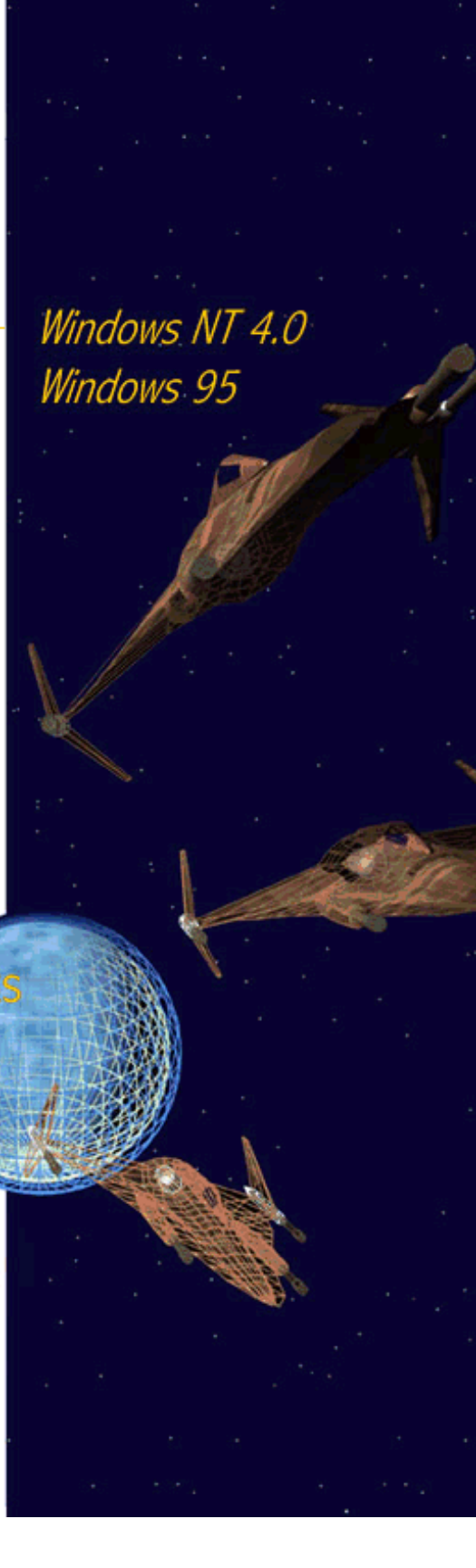
AccelSTAR II

Users Guide

Windows NT 4.0
Windows 95

Third Edition April 1998
Part Number 340-0506-05



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3D WITH A DIFFERENCE.

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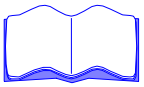

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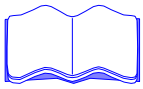

About This Manual

This manual provides detailed information on how to configure, test, and run the AccelGraphics AccelSTAR™ II graphics accelerator card. This manual can guide you through the installation and configuration of the card and associated software. It is not intended to teach the basics of PC operation or use and does not contain tutorial information.

In This Section

This section contains the following information:

Users Guide Organization

This manual contains three chapters and two appendixes, as follows:

Chapter 1: Welcome To AccelSTAR II

This chapter briefly describes the AccelSTAR II hardware and software, including its features and benefits.

Chapter 2: Installing AccelSTAR II

This chapter provides detailed instructions for installing the AccelSTAR II hardware and software.

Chapter 3: Configuring the AccelSTAR II

This chapter provides information on how to use the AccelPanel to configure the AccelSTAR II and certain system parameters for optimum performance and picture quality.

Appendix A: Configuring Applications

This appendix describes the procedures to configure various applications to use the AccelSTAR II card.

Appendix B: Technical Information

This appendix lists the specifications for the AccelSTAR II Accelerator card.

Task difficulty or complexity of information

EASY **MEDIUM** **MORE DIFFICULT** **MOST DIFFICULT**

Related Manuals

For further information about installing hardware and software in your PC, see your PC owner's manual and the following documents:

*Accel*STAR *II Release Notes*

AccelGraphics FAQ *(Frequently Asked Questions and answers) (Go to AGI web site and click on Support)*

Microsoft Windows NT User's Guide

Microsoft Windows 95 User's Guide

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The following conventions are used in this manual.

Convention	How Used
bold	Bold text in a sentence shows commands or menu choices that you are to select or text or commands that you are to enter. It is also used to highlight the first use of a new term. This term may be defined in the Glossary or described in the text where the word is introduced.
italics	Text in italics is used to call attention to important information. It also distinguishes software function terms and commands, library names, file names, and directory path names.
screen text	Plain screen text shows text that is displayed on the monitor screen (including the system prompts `C:\>`, etc.)
user entry	Bold screen text in an example shows text or commands that you should enter. Example: Type **a:\install**.
user variable	Italic and bold screen text shows a variable that you are to replace with an actual value, such as a number or name. Example: enter ***C:\<directory name>***

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Welcome to AccelSTAR II

In this Chapter:

This chapter contains a brief description of the capabilities of AccelGraphics' AccelSTAR II accelerator card. Topics include:

Note

You do not need to know all the information contained in this chapter to use your AccelSTAR II card, but you may need the information about resolutions, color depths, buffering, and texture mapping when you configure the driver.

Task difficulty or complexity of information

EASY MEDIUM MORE DIFFICULT MOST DIFFICULT

About the AccelSTAR II

The AccelSTAR II is a high-performance graphics accelerator designed for professional CAD users who require workstation-class screen resolution, visual depth, and performance. It provides optimum performance for 3D animation, 3D game users, and for smaller applications which require less power than high-end ones. The card features integrated SVGA (generated within the Permedia chip), eliminating the need for a video pass-through cable and a separate (S)VGA card in the system.

Form Factors

The AccelSTAR II card comes in three formats:

- **PCI**
- **AGP ATX**
- **AGP NLX**

Check the edge connector and form factor of your card to verify which type you have. The edge connector for both AGP form factors is the same, but the physical shape and dimensions of the cards are different. See Appendix B, Technical Information, for **dimensions** of the cards.

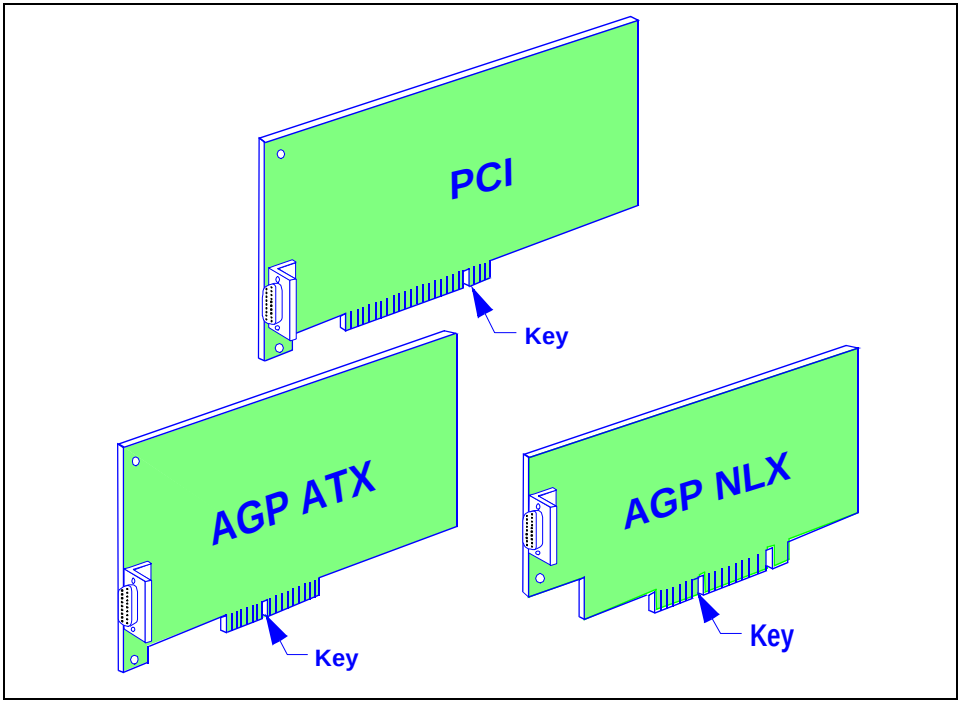
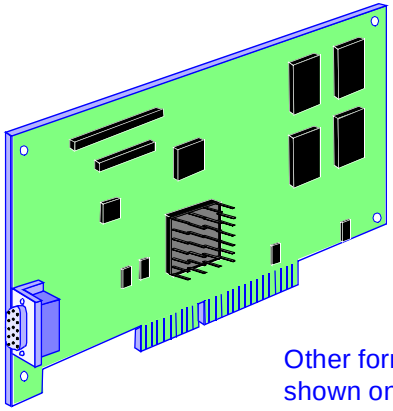


Figure 2-1. AccelSTAR II AGP and PCI form factors



AGP ATX
Form Factor Shown

Other form factors
shown on previous page

Memory

The PCI and AGP ATX versions of the AccelSTAR II are configured with either 4 or 8 MB industry-standard SGRAM (Synchronous Graphics RAM). The AGP NLX version is configured with 8 MB only). The SGRAM is automatically partitioned into front buffer, back buffer (for double-buffered operations), local (Z) buffer, and texture memory, depending on the resolution and color depth selected. The buffer configurations are described at the end of this chapter. Refresh rates of 60, 72, 75, 85, and 100 Hz are available at all color depths, as these are set by the internal RAMDAC and are independent of the SGRAM.

Supported modes, software, and applications are listed on the following pages. A **detailed description** of the hardware is located in Appendix B, “Technical Specifications”.

Note

Not all refresh rates are available at all resolutions. See the **table** on page 1-7 for details.

Operating Modes

2D (SVGA)

During system start-up (until Windows starts), the AccelSTAR II provides SVGA video to the monitor. The SVGA video is generated in the Permedia engine, and there is no separate VGA chip on the card. This mode is also used when you run Windows in (S)VGA mode.

2D Rendering functions:

The AccelSTAR II provides the following 2D rendering functions:

- Full Primitive Support
- Window Clipping
- Ultra fast solid fill and monochrome expansion
- High speed monochrome and color brushes
- Color translation
- Raster operations
- Fast upload and download
- High speed monochrome download
- Fast BLTs
- High speed stretch BLT
- Boolean Raster Operations
- Flexible font caching support
- 24-bit True Color (in single-buffered mode)
- Stippling

3D (High Resolution)

This mode is available only after the AccelSTAR II drivers have been installed. When Windows starts, the AccelSTAR II drivers switch the card to 3D mode. The card can then be set to provide accelerated 3D video at several combinations of resolutions, colors, and refresh rates. See the table at the end of this chapter for specific information. In 3D mode, any application which uses OpenGL, Direct3D, or the Heidi 3D graphics API will use the hardware acceleration provided by the AccelSTAR II.

3D Rendering functions:

In addition to the 2D rendering functions listed above, the AccelSTAR II provides the following 3D rendering functions:

- Full primitive support
- Generalized points, lines, triangles
- Gouraud and flat shading
- Z buffering in hardware
- Fog
- Transparency
- Alpha blending
- Scissors test
- Stipple-masking
- Texture functions: Nearest neighbor and Bilinear interpolation
- Fast hidden surface elimination
- Arbitrary cutout and multi-pass rendering
- High quality, rendering, textures, and lighting at any color depth
- Anti-aliased sprites
- Fast buffer clears
- 8, 15, or 16 bit rendering. The internal precision of the rendering engine is 15 bits. Therefore 24-bit 3D is not possible.

Note

In 1024x768 true color (24-bit) mode, the 3D rendering actually occurs with 15-bit accuracy; however, any single buffered window will enjoy 24-bit accuracy. This is useful in situations when an animator is working with 3D programs for which 15-bit accuracy is adequate, but wants to also run Adobe Photoshop which is 2D, but requires 24-bit true color accuracy.

Supported Graphics Accelerators

The AccelSTAR II driver supports all models of the AccelSTAR II card but it supports only the AccelSTAR II card. It cannot be used with any other AccelGraphics card nor with any card made by another manufacturer.

Supported Processors

The AccelSTAR II drivers support the following processor(s):

- Intel 1386 architectures including Pentium, Pentium PRO, and Pentium II, on both AGP and PCI buses.
- Alpha architectures, on PCI bus only

Supported Software

The AccelSTAR II supports the following operating systems and drivers:

- Windows NT 4.0
- Windows 95
- Miniport
- Display Driver
- AccelPanel
- OpenGL
- Heidi
- Direct3D

Supported Applications

The AccelSTAR II will accelerate most applications which use the OpenGL, Direct3D, or Heidi graphics APIs, including those listed below.

- AutoCAD
- AVS
- I-DEAS Master Series
- Microstation
- Pro/ENGINEER
- Solid Designer
- Solidworks
- Unigraphics
- 3D Studio MAX

Software Distribution

Software for the AccelSTAR II is distributed with the card on CD-ROM.

Supported Monitors and Output Formats

The AccelSTAR II supports color multisync monitors and color monitors capable of displaying up to 1600 X 1200 pixels at 100Hz. or monitors which can be set to the *exact* resolutions and refresh rates as shown in the tables on the next two pages.

Note

All monitors must support non-interlaced video per EIA RS343 video specification, which defines separate red, green, blue, h-sync and v-sync signals. See Appendix B, **Technical Information** for detailed signal and connector specifications.

Automatic Monitor Compatibility Testing

The AccelSTAR II card complies with the VESA DDC2B standard. If the monitor connected to it also supports this standard, the AccelSTAR II automatically tests the monitor to see which resolution and refresh rates it can display. The AccelSTAR II then provides only those rates which the monitor can use, preventing out-of-sync displays. Resolutions, refresh rates, and colors can be changed dynamically via the **AccelPanel** (see Chapter 3).

AccelSTAR II Display Modes

The following table shows the operating modes and the available buffers and texture memory in each. The driver will provide double-buffering by default whenever sufficient memory is available.

Windows NT and Windows 95 Display Modes[1]

Resolution	3D Acceleration	Colors	Z-buffer	Texture Memory (MB)	Refresh Rate
640 x 480	Software	8-bit (bpp)[2]	n/a	n/a	60, 75, 85, 100
	Hardware	**16-bit**	**16-bit**	**6.25**	
		24-bit		**5.65**	
800 x 600	Software	8-bit	n/a	n/a	60, 75, 85, 100
	Hardware	**16-bit**	**16-bit**	**5.25**	
		24-bit		**4.33**	
1024 x 768	Software	8-bit	n/a	n/a	60, 75, 85, 100
	Hardware	**16-bit**	**16-bit**	**3.5**	
		24-bit		**2.0**	
1152 x 864	Software	8-bit	n/a	n/a	60, 75, 85, 100
	Hardware	**16-bit**	**16-bit**	**2.3**	
	Software	24-bit[3]	n/a	n/a	
1280 x 1024	Software	8-bit	n/a	n/a	60, 75, 85, 100
	Hardware	**16-bit**	**16-bit**	**0.5**	
	Software	24-bit[3]	n/a	n/a	
1600 x 1000	Software	8-bit	n/a	n/a	60, 75, 85
		16-bit[3]			
		24-bit[3]			60
1600 x 1200	Software	8-bit	n/a	n/a	60, 75, 85
		16-bit[3]			
		24-bit[3]			60
1920 x 1080 1920 x 1200	Software	8-bit[3]	n/a	n/a	60, 72
1920 x 1440	Software	8-bi [3]	n/a	n/a	60
		16-bit[3]			

[1] Later versions of the AccelSTAR II have an improved Permedia 2 chip and a faster RAMDAC, and can display all of the resolutions/refresh rates shown in this table. Earlier versions of the AccelSTAR II can display most, but not all of them.

[2] BPP = Bits Per Pixel. Example: 8 Bits Per Pixel = 8-bit color = 2^8 colors = 256 colors. 16BPP = 65K colors, 24BPP = 16.7M colors (true color)

[3] In Windows NT, this color mode is available only when "Export high-resolution Single Buffer formats" is set in AccelPanel. Windows 95 exports all possible modes automatically.

AccelSTAR II Color Modes

The AccelSTAR II card has the following maximum color modes available:

- True (24-bit) Color for 2D windows (windows that are not double buffered and Z buffered)
- 65K colors (16 bits) for 3D windows (windows that are double buffered and Z buffered)

It is easy to change color modes to suit the 2D and 3D applications you use, as Windows NT allows changing display settings “on the fly”, that is, without rebooting. You can make good use of this capability by changing the AccelSTAR II color settings to fit the application you are using.

For example, change the display settings to either 1024x768 or 800x600 resolution, and True Color. Concurrently, all 3D windows such as those for 3D Studio MAX or Lightwave will run in 65K color mode which is usually adequate for 3D modeling purposes. You can always switch to the 24-bit mode to view or playback your final renderings.

To run Photoshop at 1280x1024, use the **Accelpanel** to select 1280x1024 **single buffered** resolution.

When you have finished using Photoshop, set the display to 1280x1024 x 65K colors, double buffered mode to use with your Lightwave 3D, 3D Studio MAX or other 3D application.

Installing the AccelSTAR II

In This Chapter:

This chapter contains information about the following:

Task difficulty or complexity of information

EASY MEDIUM MORE DIFFICULT MOST DIFFICULT

Before Installing the AccelSTAR II Card

Installing the card is usually simple, easy, and fast. Any jumpers on the card are preset at the factory and do not normally need changing. However, there are a few things you should know before you install the card.

- **The AccelSTAR II card comes in two versions, AGP and PCI**. The illustration below shows the two types of edge connectors. Check the edge connector on your card to verify which type you have. See **Form Factors** in Chapter 1 for more information on layouts.

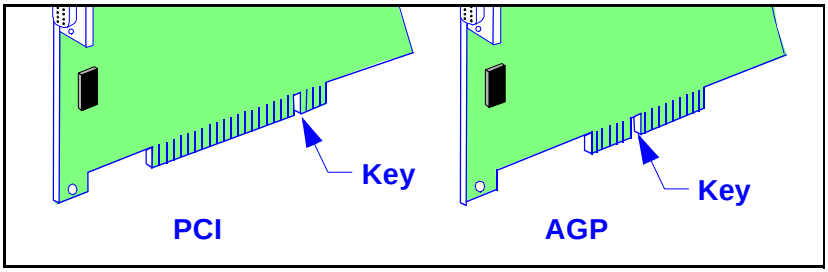


Figure 2-2. AccelSTAR II AGP and PCI connectors

- **A few types of machines may require special procedures to install the AccelGraphics hardware and/or software.** See the Release Notes before installing the AccelSTAR II card. The Release Notes and list of Frequently Asked Questions are viewable on line by clicking on the respective menu items in the AccelGraphics folder.
- **You must remove all other video card(s) from your system before installing the AccelSTAR II.** They may cause conflicts with the on-board VGA on the AccelSTAR II card, and the system may hang at startup or Windows NT may hang when it tries to start.
- **When installing the PCI version of the AccelSTAR II card in a PCI system, install it in the "Master" PCI slot.** This is usually the lowest numbered PCI slot. This is necessary to accommodate the BIOS, which may otherwise incorrectly configure the card. If the BIOS incorrectly configures the card, either the system may hang during system boot or Windows NT may hang when it tries to start.
- **The examples in this chapter show a "typical" PC with a mini-tower case.** Your PC may be different from those shown here. See your PC manual for specific instructions and examples.

Task Overview

The following table lists the tasks you must complete to install the AccelSTAR II card.

Table 2-1 Installation Tasks

Task	Detailed Info
Save files, halt software, power off and ground yourself.	See page 2-6
Disconnect cables, open the PC.	See page 2-7
Remove any existing VGA cards.	See page 2-7
Install an AccelSTAR II card.	See page 2-7
Close the PC and connect the video cable(s).	See page 2-8
Reconnect the remaining cables, power on, and wait for the PC to boot.	See page 2-8
Install the software.	See page 2-9

Hardware Requirements.

Before installing the AccelSTAR II Card, make sure that your PC has at least the following hardware and software:

Table 2-2 Hardware Requirements

PC	Intel-Based	Alpha-based - See Release Notes for availability
CPU	Intel Pentium or Pentium Pro	21064, 21164, or other DECChip
RAM	4 MB minimum. See Software Installation for other RAM requirements	
BUS	PCI	PCI
Hard Drive	200 MB or greater	200 MB or greater
Monitor	A color multisync monitor or a color monitor capable of displaying 640x480, 1800x600, 024x768, 1152x870, 1280x1024, or 1600x1200 pixels, and vertical refresh rates of 60, 72, 75, or 85 Hz.	

Software Requirements

See page 2-10, **Installing the Software**, for software requirements.

Save the Box

Save the box and packing materials in case you need to return the board for any reason. Shipping damage is NOT covered under the AccelGraphics warranty.

Make Sure You Have Everything

The AccelSTAR II graphics accelerator package should contain the items shown in the illustration below. Contact your authorized AccelGraphics reseller if any of these items is missing.

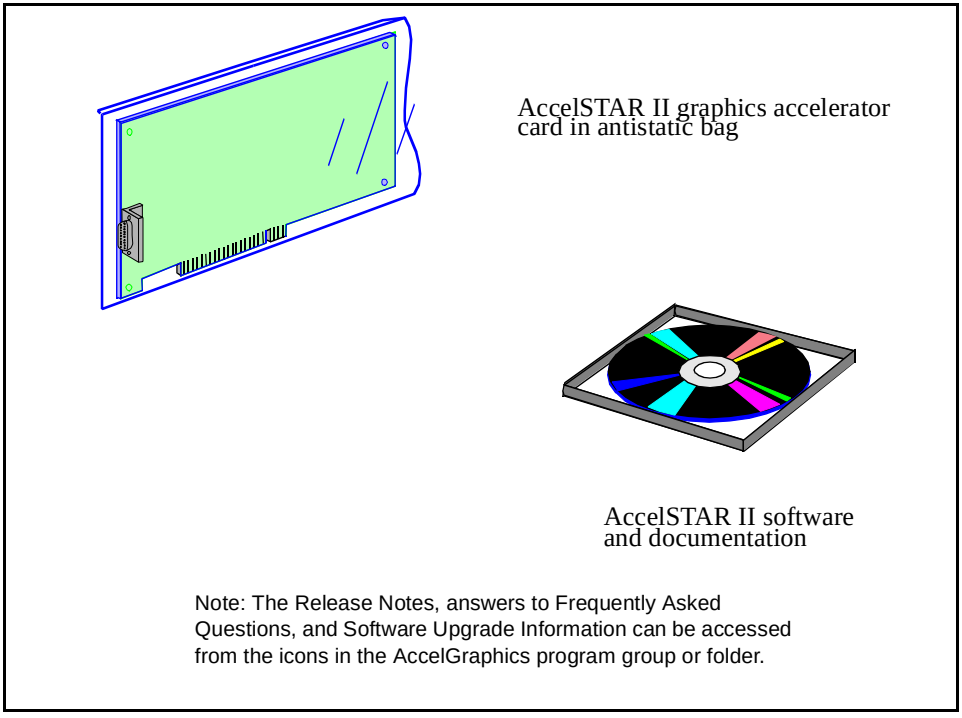


Figure 2-3. AccelSTAR II Package Components

Installing the AccelSTAR II Card

STOP! If you have not read **Before Installing The AccelSTAR II CARD**, click **here**.

Tools Needed

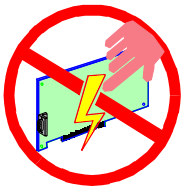
- A Phillips and/or a flat-bladed screwdriver to remove and reinstall the PC cover screws and card mounting screws. See your PC manual for specific requirements.
- An antistatic wrist strap (recommended but not required.)
- AccelSTAR II Software CDROM

Warning

Possibility of Electric Shock: The power supply in your PC contains high voltage. Do not remove cables or open the unit while the power is on. Turn off the power and **wait at least 10 seconds before removing cables or opening the unit.**

Caution

WATCH OUT FOR STATIC ELECTRICITY!



Although the AccelSTAR II card is reasonably protected against static electricity, we recommend that you do not take the card out of the static-protective bag until you are grounded. You can ground yourself by touching *unpainted* metal on your PC chassis while it is plugged in but **not** turned on, or by using an antistatic ground strap. See the information on static electricity near the beginning of this manual and on the next page.

Back Up Data

1. Exit any applications you are running and back up working data. Although the installation procedure automatically backs up any files it changes, it is always a good idea to back up system and configuration files before installing new hardware or software.

Turn Off the PC and Ground Yourself

2. After completing step 1, turn off the power to the PC and all peripherals (monitors, printers, scanners, etc.) connected to it. Ground yourself to the PC and the AccelSTAR II card before removing the card from the static-protective bag:
3. Make sure the power to the PC **and** to the monitor is OFF.
4. Touch the antistatic plastic bag that the card is packaged in **and** the back or other unpainted metal on the PC for at least one second.

   OR, use an antistatic ground strap.

This will discharge any static electricity buildup in your body and will help prevent damage to the card from static electricity.

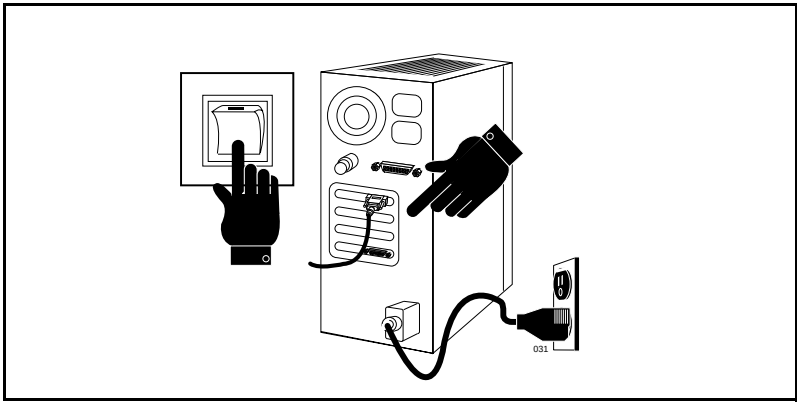


Figure 2-1. Discharging Static Electricity

Disconnect Cables and Open the PC

5. Disconnect the power cord. Disconnect the monitor video cable and other cables as needed to be able to remove the PC cover. Be careful not to pull on the wires themselves. Gently rock the connectors out of their sockets.

6. Remove the PC cover retaining screws and remove the cover. See your PC manual for details.

Remove Existing Video Cards

7. Remove any installed video card, as the VGA chip on it will cause a hardware conflict with the VGA chip on the AccelSTAR II and the system will probably hang as soon as it tries to boot.

Install the AccelSTAR II Card

8. Remove the mounting screw from the cover over the slot where you want to install the AccelSTAR II card and remove the cover. Save the screw for use when installing the AccelSTAR II card. NOTE: Some systems use spring clips instead of screws.

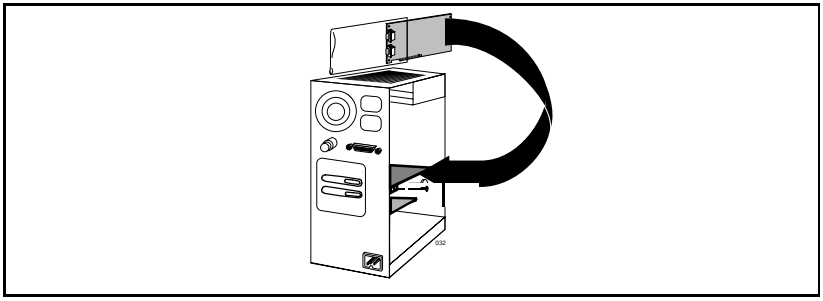


Figure 2-2.Installing the AccelSTAR II Card

9. Remove the card from its static-protective bag. Install it in a **master** PCI slot in your system **(see page 2-2)**. Use the mounting screw from step 8 to fasten the card's bracket to the PC frame. See your PC manual for specific instructions on how to install a PCI option card and for information regarding the master slot if needed.

Close the PC.

10. Before closing the PC, make sure that the AccelSTAR II card is fully seated in its connector, the screw holding the card mounting bracket to the PC frame is securely tightened, and the card is not touching any other card or devices in the computer.

11. Replace the cover and install the screws. See your PC manual for specific instructions if needed.

Connect the Video Cable

12. Connect the video cable as shown in the illustration below.

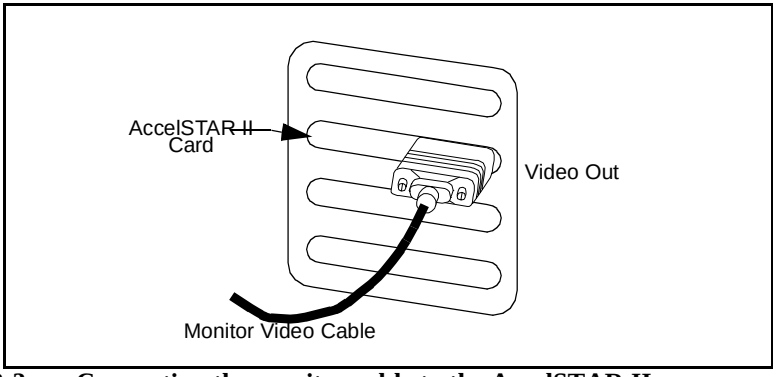


Figure 2-3. Connecting the monitor cable to the AccelSTAR II

Connect the Remaining Cables

13. Connect the data cables to your printer and other peripherals.

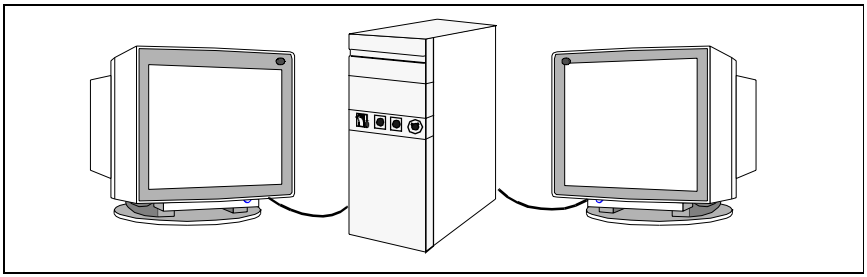
14. Plug in the power cords to the PC, monitor, and other peripherals.

Turn on the PC

15. Turn the PC and monitor power back on. Turn on other peripherals as desired.

Dual Screen Installations

The AccelSTAR II card supports dual screen installations, as needed with certain applications to provide more room for graphics and text displays.



Hardware Requirements

Dual screen installations require the following hardware:

- **AccelSTAR II Cards:** One AGP AccelSTAR II card and one PCI AccelSTAR II card with the same memory configuration.
  -OR-
  Two AccelSTAR II PCI cards with the same memory configuration**.**
- **System:** A Pentium or Pentium PRO-based PC system with one AGP slot and one free PCI slot, or a PCI system with at least two free PCI slots. Alpha systems are not currently supported.
- **Monitors:** Two color multisync monitors which can run the same resolutions (from 800x600 to 1600x1200) and refresh rates of 60 to 85 Hz. Both monitors should either support the DDC2B standard or neither should.

Note

Card models cannot be mixed; for example, you cannot use one AccelSTAR II and one AccelECLIPSE II card.

Software Requirements

Dual screens are supported under Windows NT in the AccelSTAR II driver release 4.6.06 and later only.

Hardware Setup

The two AccelSTAR cards are used as described below:

The Primary Card

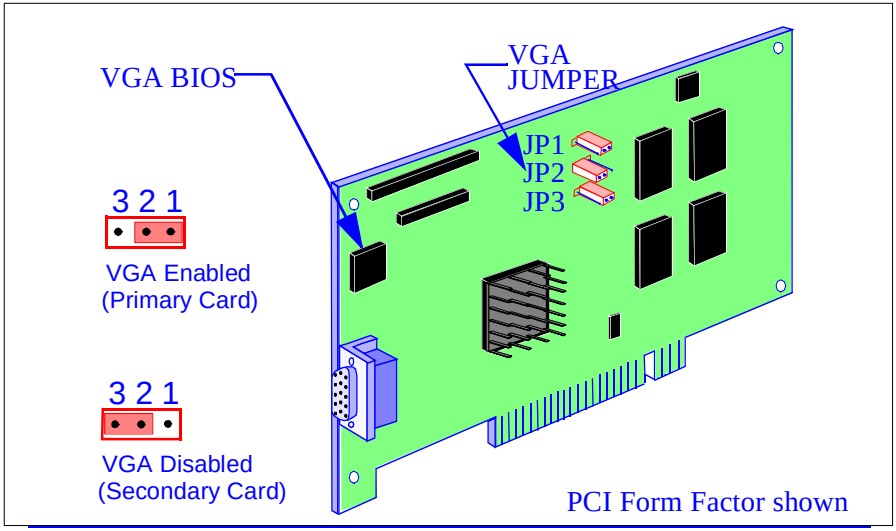
The primary card can be either an AGP card, or a PCI card with VGA enabled. It is connected to the primary monitor. This card has VGA enabled and provides video during startup as well as after Windows boots.

If using a PCI card as the primary card, check jumper JP2 and make sure it connects pins 1 and 2 as shown in the illustration below.

The Secondary Card

The secondary card must be a PCI card with VGA disabled (AGP cards do not have jumpers). The monitor connected to it will not display video until after Windows boots.

To disable VGA, move jumper JP2 to connect pins 2 and 3 as shown in the illustration below



Note

See Appendix B, Technical Information, for instructions on setting all the **jumpers** on the card.

Installing the Cards

The Primary Card

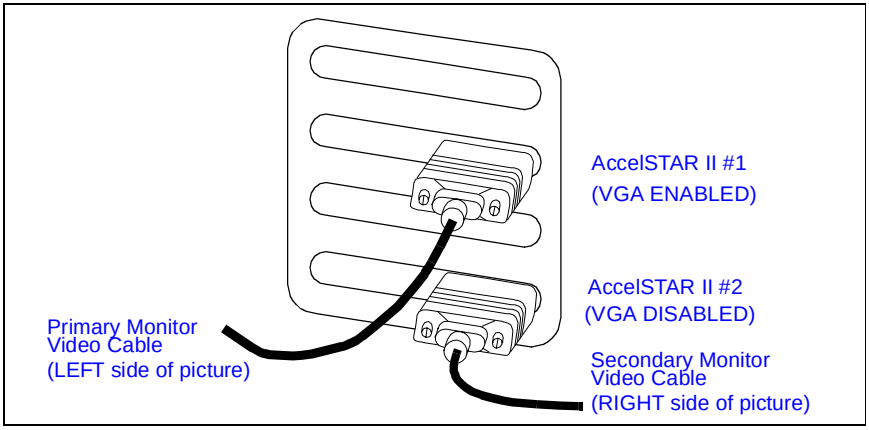
- If the primary card is an AGP card, install it in the AGP slot in your system.
- If the primary card is a PCI card, install it in the Master (lowest numbered) PCI slot in your system. Make sure that VGA is enabled on this card (see previous page).

The Secondary Card

Install the secondary AccelSTAR II card in any PCI slot that has a higher number than the slot the primary card is in.

Connecting Monitors

Connect the primary (left) monitor video cable to the primary AccelSTAR II card and connect the secondary (right) monitor video cable to the secondary AccelSTAR II card as shown in the illustration below.



Software Setup

Other than using release 4.6.06 or later of the driver, no special software setup is required. The AccelGraphics driver scans the bus when Windows boots and detects the number and type of AccelSTAR II cards that are installed. The driver then operates accordingly.

For further information about the AccelSTAR II drivers, see Installing the Software on the next page.

Before Installing the Software

Note

If you install the software before you install the AccelSTAR II card, Windows will default to the VGA mode on bootup.

RAM Requirements

Your system should contain at least the amount of RAM specified in the following table.

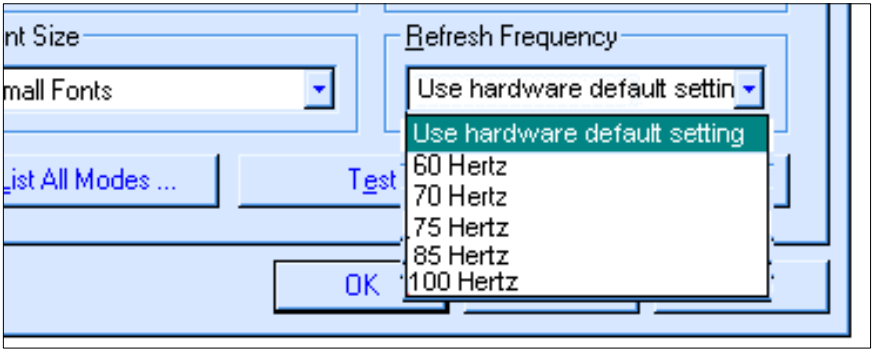
RAM	USE
32 MB	Windows 95 or NT and 2D applications
64 MB	CAD applications under Windows
96 MB or more	CAD applications under Windows, best performance

Automatic Monitor Compatibility Testing

The AccelSTAR II card complies with the VESA DDC2B standard. If the monitor connected to it also supports this standard, the AccelSTAR II automatically tests the monitor to see which resolution and refresh rates it can display. The AccelSTAR II then provides only those rates which the monitor can use, preventing out-of-sync displays. Resolutions, refresh rates, and colors can be changed dynamically via the AccelPanel (see Chapter 3).

Hardware Default Refresh Rate (Windows NT only)

(This feature is automatic in Windows 95.) In addition to the refresh rates of 60, 70, 75, 85, and 100 Hz supplied by the AccelSTAR II driver, you can also select a refresh rate setting called hardware default, as shown in the following illustration.



How it Works

When you select Use hardware default settings and the monitor is DDC2-compatible, the AccelSTAR II driver queries the monitor to find out the maximum refresh rate it can display at the current resolution and changes the refresh rate provided by the card to that rate, if the card can provide it.

For example, if the current resolution is 1280x1024 and the monitor can use refresh rates up to 85 Hz, but the card can supply 100 Hz., the card will be switched to 85 Hz. This prevents out-of-sync displays.

The reverse is also true. If the monitor can display 1600x1200 at 100 Hz. but the card can provide only 85 Hz at that resolution, then the monitor will switch to 85 Hz to match the card.

Note

If you select Use hardware default settings and the monitor is not DDC2B-compatible, the card will switch to 60Hz to make sure the monitor can display the video.

To set the refresh rate to use hardware default settings.

1. Place the cursor in the desktop area and press the right mouse button to display the *display menu*.
2. Select Properties to open the *Display Properties* window.
3. Select Settings to display the *Settings* page.
4. Use the Refresh Frequency scroll bar to select Use hardware default settings as shown on the previous page.

Installing the Software

STOP! If you have not read **Before Installing The Software**, click **here.**

Installing the Driver From the CDROM

1. Place the cursor in the desktop area and press the right mouse button to display the *main menu*.
2. Select Properties to open the *Display Properties* window.
3. Select Settings to display the *Settings* page.
4. Select Display Type to open the *Display Type* window.
5. Select Change to open the *Change Display* window.
6. Select Have Disk to open the *Install from Disk* window.
7. If the drivers are on CDROM, either use Browse to locate the *Win 95* directory, **-or-** enter the pathname of the directory, then select Open. (For Windows NT, select *Win NT 4.0*.)
8. If the files are on the hard drive, use Browse to locate the directory where the files are, **-or-** enter the pathname of the directory, then select Open.
9. A progress indicator (“thermometer”) is displayed showing the files being loaded. When the files are loaded, a confirmation dialog box is displayed. Select OK and Restart Windows NT when prompted to do so.

Installing the Driver From the Hard Disk

1. If you have downloaded the driver file, put it in an empty directory on your hard disk.
2. Expand the file by either double-clicking on the filename in either Windows NT Explorer or File Manager, or by typing the filename in a DOS window.

Note

Some versions of the installation program will automatically start as soon as the file has expanded. If this happens, skip step 3 and continue with step 4.

3. When the file has expanded, find SETUP.EXE and double-click on it to start the installation program (Installshield).
4. Follow the directions on the screen. The installation program will guide you through a few easy questions and then install the driver files for you.
5. When the installation is complete, a confirmation dialog box is displayed. Select **OK** and then restart Windows NT when prompted to do so.

Changing Driver Settings

Use the Settings and AccelPanel pages of the Windows *Display Properties* applet, to change driver settings.

1. Place the cursor in the desktop area and press the right mouse button to display the *main menu*.
2. Select Properties to open the *Display Properties* window.
3. Select Settings to display the *Settings* window, then select the resolution, refresh rate, and color depth desired. You do not need to restart Windows to make these changes.
4. Select the AccelPanel tab to change other settings. See Chapter 3 for information on using the **AccelPanel**. To effect changes made with AccelPanel, restart Windows when prompted to do so.

Deinstalling the AccelSTAR II

Caution

Turn the power off to the PC and the monitor before removing or installing the video cable. You may damage the AccelSTAR II card if you remove or install the video cable with the power on.

Hardware Procedure

When removing an AccelSTAR II from your system, you must replace the card with another video card or your system will not run.

Software Procedure

No special software deinstallation procedure is needed when deinstalling the AccelSTAR II card as the driver detects the presence or absence of the card. If the driver finds an AccelSTAR II card, it runs the selected settings for the installed card. If it does not find an AccelSTAR II card in the system, it defaults to the VGA driver.

Note

Depending on the video card you use to replace he AccelSTAR II card with, it may be necessary to install a driver for that card.

Configuring the AccelSTAR II

In This Chapter:

This chapter contains information about the following:

Task difficulty or complexity of information

EASY MEDIUM MORE DIFFICULT MOST DIFFICULT

About the AccelPanel

The AccelPanel is a control applet that is installed on your system when you install the drivers for the AccelSTAR II card. It is integrated into the Microsoft display property sheets and contains four pages for Windows 95 and four pages for Windows NT 4.0. These provide the capability of reviewing and changing several types of information and settings.

Starting the AccelPanel

1. To start the AccelPanel, place the cursor in the desktop area and press the **right mouse button** to display the *main menu*.
2. Select **Properties** to open the **Display Properties** window.
3. Select the **AccelPanel** tab. When AccelPanel starts, it checks to see which operating system is running and displays only the windows for that operating system. The screens in this manual simulate the operation of the AccelPanel except for the AccelPanel tab in the screen below. Click on the OS you wish to use.

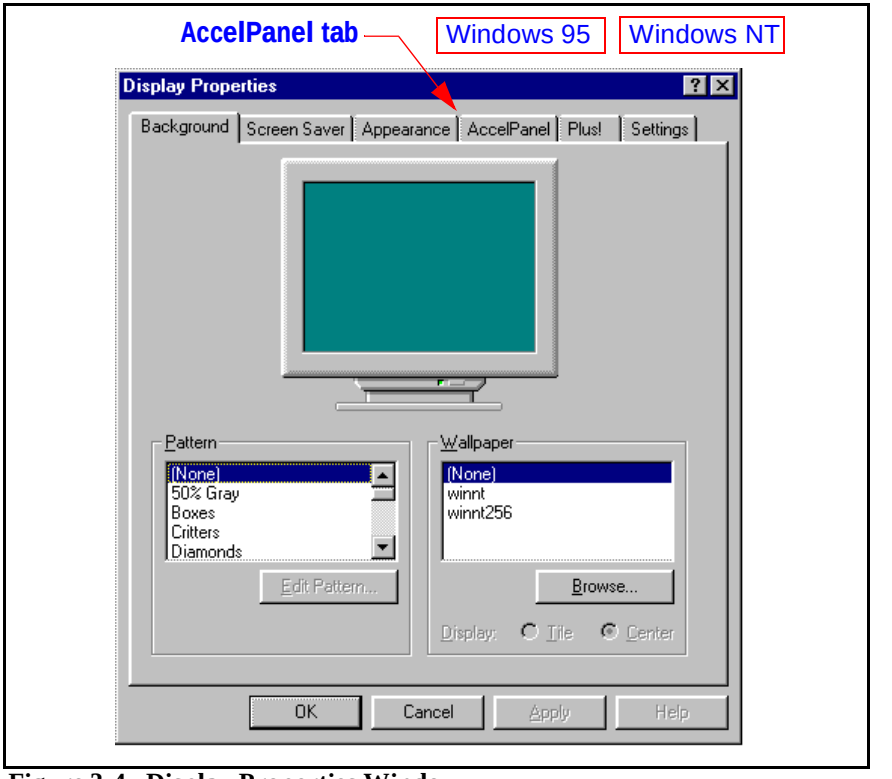


Figure 3-4. Display Properties Window

AccelPanel Pages

The AccelPanel contains four pages for Windows 95 and four pages for Windows NT 4.0, as shown in the following table. The individual AccelPanel pages are shown and described in detail on the following pages in this chapter. Click on the name of the page of interest to display that page.

Windows 95	Windows NT 4.0	Description
AccelPanel	**AccelPanel**	Displays system hardware and software information and allows you to select the default factory settings or open the configuration pages described below.
OpenGL	**OpenGL**	Displays OpenGL settings and allows you to change them as desired
System Settings	**System Settings**	Displays current 3D driver settings and allows you to change them as desired
Direct3D		Displays current 3D driver settings and allows you to change them as desired
	Applications	Displays current 3D driver settings and allows you to change them as desired.

Note

When prompted to do so, you must restart Windows for changes made via AccelPanel to take effect.

The Accelpanel page (Windows 95)

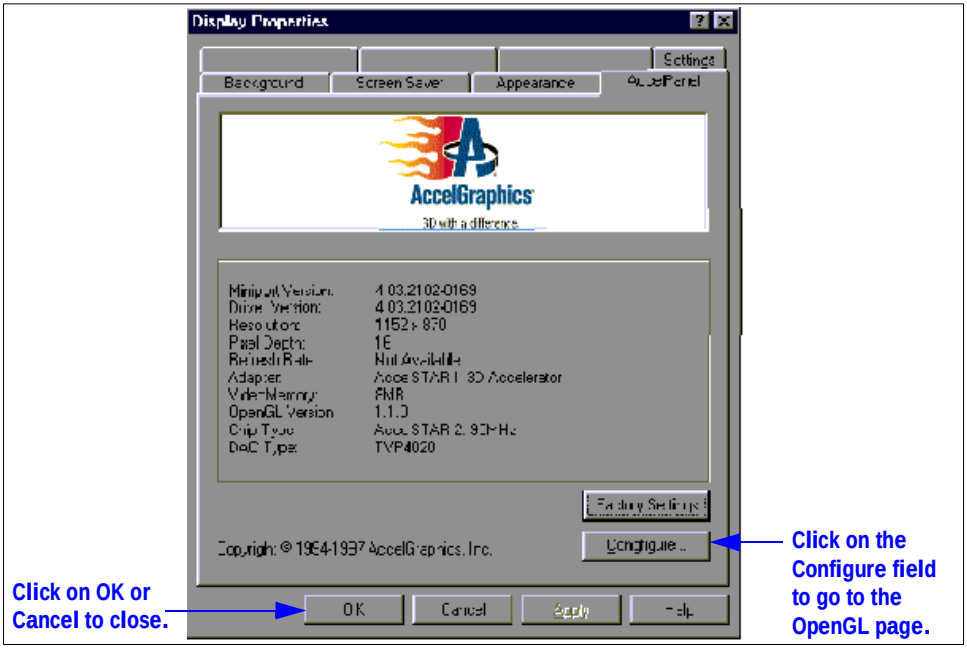


Figure 2-1. AccelSTAR II Windows 95 AccelPanel - Page 1

Feature Title	Description
Miniport Version	Displays the version of the miniport driver.
Driver Version	Displays the version of the AccelGraphics driver.
Resolution	Displays the current screen resolution.
Pixel Depth	Displays the current pixel depth (Bits-Per-Pixel, or number of colors). See the resolution table in chapter 1 for information on BPP and number of colors.
Refresh Rate	Displays the current refresh rate.
Adapter	Displays the name of the graphics board installed in the system.
Video Memory	Displays the number of MB of SGRAM installed on the card.
OpenGL Version	Displays the version of the installed OpenGL API.
Chip Type	Displays the name of the Graphics processor on the graphics board.
DAC	Displays the type of the Permedia II chip's internal Digital to Analog Converter
Factory Settings	Resets all the choices in the AccelPanel to the default factory settings.
Configure	Opens the AccelPanel configuration pages and displays them on the screen
OK	Saves changes and closes the AccelPanel.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.

The *OpenGL* Page (Windows 95)

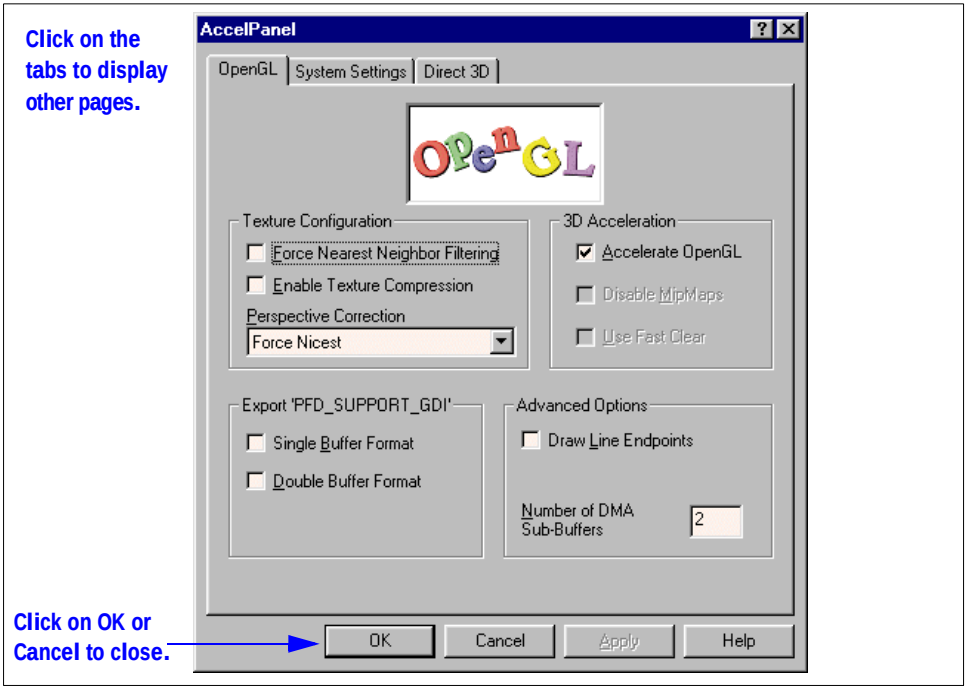


Figure 2-2. AccelSTAR II Windows 95 AccelPanel - Page 2, *OpenGL*

Feature Title	Description
Texture Configuration	**Force Nearest Neighbor Filtering** - Setting this registry value will ensure that OpenGL performs only nearest neighbor texturing operations. In some applications, this can produce higher performance, though the video may be slightly degraded. Note that textures will still be rendered with perspective correction. Select this box if you are happy with the performance and/or texturing quality that is achieved with your application.
	Enable Texture Compression - Setting this registry value will force OpenGL to shrink 2D texture maps as they are loaded to reduce the memory needed to store them. Texture maps are halved in both x and y dimensions so that they require a quarter of the original memory. The setting has no effect on 2D or paletted texture maps. This setting applies to all hardware configurations.
	Perspective Correction - The accuracy of the perspective-correction calculations performed during textured rendering can be varied in the following ways: **Force Nicest**, the default option, enforces that the most accurate division always operates, resulting in the best image quality. **Force Fastest** switches to a reduced accuracy divide when Delta hardware is present and no perspective-correction at all if Delta is not present. This results in best performance at the cost of lower image quality. **GLHint** gives control of the division accuracy to OpenGL applications through the API. A smart application can vary the division accuracy used on a per-primitive basis, since primitives that are heavily perspected require higher accuracy for good image quality than those that are not.

Feature Title	Description
Export PFD_SUPPORT_GDI	These two check-boxes control whether the PFD_SUPPORT_GDI flags are exported for single buffered and double buffered pixel formats. This is a bit in the pixel format which informs the apps whether GDI is allowed to render into the OGL drawing area.
3D Acceleration	**Accelerate OpenGL** - Selecting this box enables hardware acceleration. **Disable MipMaps** - Disables software levels of detail texturing mode.Disable software levels of detail texturing mode. **Use Fast Clear** - Enables hardware aceleration of buffer initialization (example: texture buffers). Disable software levels of detail texturing mode.
Advanced Options	**Draw Line Endpoints** - This option when set can improve the legibility of text rendered by some applications using stroke fonts, such as Pro/ENGINEER. **Number of DMA Sub-Buffers** - Default is 2. Each DMA buffer is sub-divided into sub-buffers which are used in conjunction with an Interrupt DMA mechanism to reduce latency in the system. Setting it to 2 disables the interrupt mechanism. See also DMA Buffers in the System Settings page.
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.
NOTE: When prompted to do so, you must restart Windows for changes made via the AccelPanel to take effect.	

The *System Settings* Page (Windows 95).

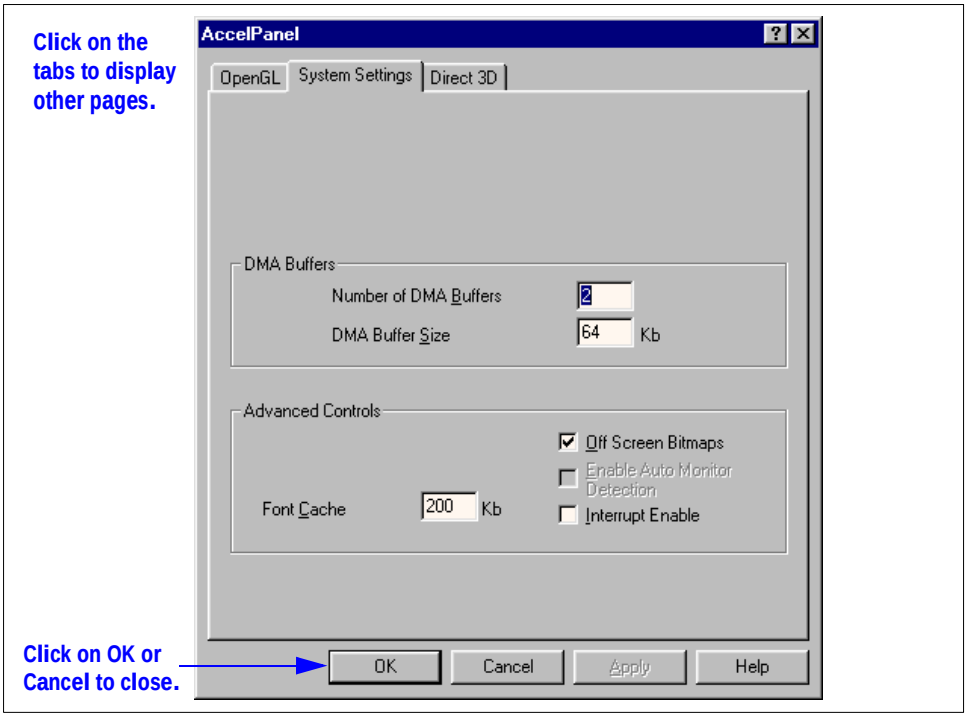


Figure 2-3. AccelSTAR II Windows 95 AccelPanel - *System Settings* Page

Feature Title	Description
Number of DMA Buffers	Sets the number of DMA buffers that the driver will allocate. To disable DMA, set to zero. The default is 8. Each openGL context that is created uses one DMA buffer (the ICD then chops up this DMA buffer into chunks of subbuffers). For example if there are 8 buffers, that means there can be upto 8 OpenGL contexts running in DMA mode. The 9th context will not get a DMA mode butinstead will use programmed IO which is slower than DMA. Each application can have one or more contexts at a time. If you plan to have a large number of openGL apps running at the same time (or large number of openGL contexts), increase the number of buffers. The disadvantage of this is that the graphics driver will consume a large portion of the contiguous non-paged memory pool resources and you may see slower performance from other devices such as network cards. NOTE: Even though you may want a large number of buffers, it is not gurauranteed that NT will allow that number. The drivers will create as many buffers as the NT allows.. Reducing the number of DMA buffers, frees up memory to be used by the applications and this may help in general application and system performance on those systems with less physical memory.
DMA Buffer Size	Sets the size of each DMA buffer. Min=2, default = 64, no max.

Feature Title	Description
Advanced Controls	**Font Cache** - Sets the amount of memory allocated for the font cache. Adding memory to font chaching speeds up text drawing somewhat, but takes memory from other buffer, including high resolution display modes, textures, and off-screen bitmaps. To disable font caching, set this number to 0. Default is 200K. Windows restart is required to effect the change. **Off Screen bitmaps** - Enables the use of offscreen bitmaps for faster performance. **Enable Auto Monitor Detect** - uses the DDC2B function to test the monitor and determine which resolutions and refresh rates it can accept. **Interrupt Enable** - Enables interrupts for DMA operations.
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.
NOTE: When prompted to do so, you must restart Windows for changes made via the AccelPanel to take effect.	

The *Direct3D* Page (Windows 95).

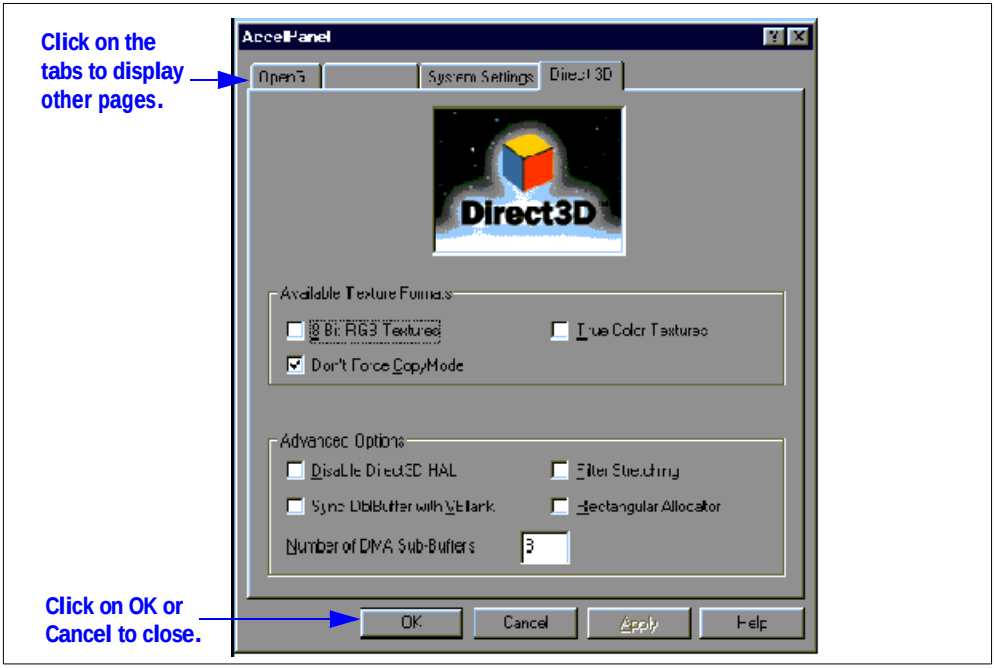


Figure 2-4. AccelSTAR II Windows 95 AccelPanel - *Direct3D* Page

Feature Title	Description
Available Texture Formats	**8 Bit RGB Textures** - Enables 8-bit RGB textures. Sets Direct3D so that the Direct3D Retained Mode chooses the texture format that best matches the original file. However, this can cause applications to use 8-bit RGB textures when a higher resolution texture format would be better, so 8-bit RGB textures are disabled by default. **True Color Textures** - Enables the use of true color textures in the Direct3D HAL driver. This option will use more video memory if it is used by a Direct3D application. **Don't Force CopyMode** - Allows the Direct3D driver to use texture modulation. When turned off, it allows the original color of the texture map to be seen.
Advanced Options	**Disable Direct3D HAL** - Disables Direct3D hardware acceleration Sync DblBuffer with VBlank - Ensures no flickering or tearing during 3D animation, but may decrease performance slightly. Number of DMA Sub-Buffers - Sets the number of DMA Sub-buffers. The default is 2. Setting this to 2 or less disables interrupt-driven DMA. Setting this to 3 or more enables interupt-driven DMA if interrupts are available on the system. If interrupts are not available, the number reverts to 2. **Filter Stretching** - Filters all stretched blit operations. Set this option OFF by default as it can slow the performance of stretch blit, but it is good for t real-time anti-aliasing applications that stretch large images down with filtering. **Rectangular Allocator** - Changes the memory usage from linear to rectangular.
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.
NOTE: When prompted to do so, you must restart Windows for changes made via the AccelPanel to take effect.	

The *AccelPanel* Page (Windows NT 4.0)

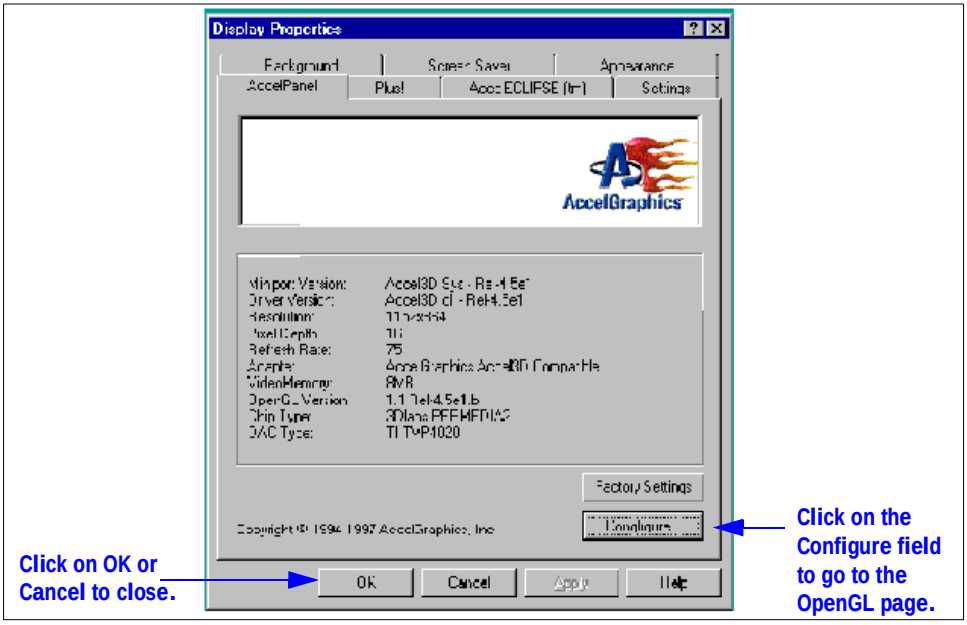


Figure 2-5. Windows NT 4.0 AccelPanel - *AccelPanel* Page

Feature Title	Description
Miniport Version	Displays the version of the miniport driver.
Driver Version	Displays the version of the AccelGraphics driver.
Resolution	Displays the current screen resolution.
Pixel Depth	Displays the current pixel depth (Bits-Per-Pixel, or number of colors). See the resolution table in chapter 1 for information on BPP and number of colors.
Refresh Rate	Displays the current refresh rate.
Adapter	Displays the name of the graphics board installed in the system.
Video Memory	Displays the number of MB of SGRAM installed on the card.
OpenGL Version	Displays the version of the installed OpenGL API.
Chip Type	Displays the name of the Graphics processor on the graphics board.
DAC	Displays the type of the Permedia II chip's internal Digital to Analog Converter
Factory Settings	Resets all the choices in the AccelPanel to the default factory settings.
Configure	Opens the AccelPanel configuration pages and displays them on the screen
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.

The *OpenGL* Page (Windows NT 4.0).

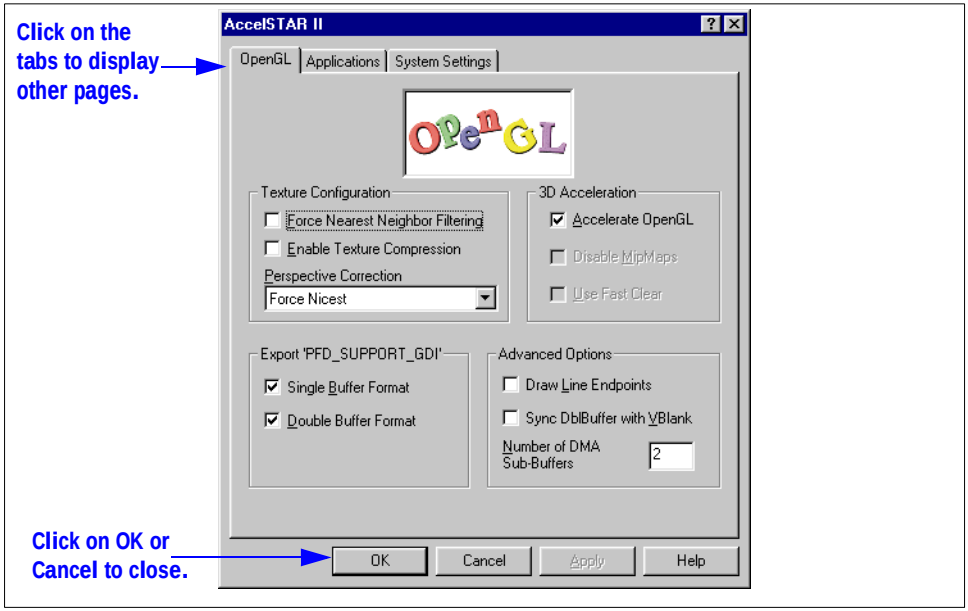


Figure 2-6. Windows NT 4.0 AccelPanel, OpenGL Page

Feature Title	Description
Texture Configuration	**Force Nearest Neighbor Filtering** Setting this registry value will ensure that OpenGL performs only nearest neighbor texturing operations. In some applications, this can produce higher performance, though the video may be slightly degraded. Note that textures will still be rendered with perspective correction. Select this box if you are happy with the performance and/or texturing quality that is achieved with your application.
	Enable Texture Compression Setting this registry value will force OpenGL to shrink 2D texture maps as they are loaded to reduce the memory needed to store them. Texture maps are halved in both x and y dimensions so that they require a quarter of the original memory. The setting has no effect on 1D or paletted texture maps. This setting applies to all hardware configurations.
	Perspective Correction The accuracy of the perspective-correction divide performed during textured rendering can be varied in the following ways: Force Nicest, the default option, enforces that the most accurate divide always operates, resulting in the best image quality. **Force Fastest** switches to a reduced accuracy divide when Delta hardware is present and no perspective-correction at all if Delta is not present. This results in best performance at the cost of lower image quality. **Use GLHint** gives control of the divide accuracy to OpenGL applications through the API. A smart application can vary the divide accuracy used on a per-primitive basis, since primitives that are heavily perspected require higher accuracy for good image quality than those that are not.
Export PFD_SUPPORT_GDI	These two check-boxes control whether the PFD_SUPPORT_GDI flags are exported for single buffered and double buffered pixel formats.

Feature Title	Description
3D Acceleration	**Accelerate OpenGL** - Selecting this box enables hardware acceleration. **Disable MipMaps** - Disables software levels of detail texturing mode.Disable software levels of detail texturing mode. **Use Fast Clear -** Enables hardware aceleration of buffer initialization (example: texture buffers). Disable software levels of detail texturing mode.
Advanced Options	**Draw Line Endpoints -** This option when set can improve the legibility of text rendered by some applications using stroke fonts, such as Pro/ENGINEER. **Sync DblBuffer with VBlank** - Ensures no flickering or tearing during 3D animation, but may decrease performance slightly. **Number of DMA Sub-Buffers -** Each DMA buffer is sub-divided into sub-buffers which are used in conjunction with an Interrupt DMA mechanism to reduce latency in the system. The number of sub-buffers can be set here, setting it to 2 will disable the interrupt mechanism.
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.
NOTE: When prompted to do so, you must restart Windows for changes made via the AccelPanel to take effect.	

The *Applications* Page (Windows NT 4.0).

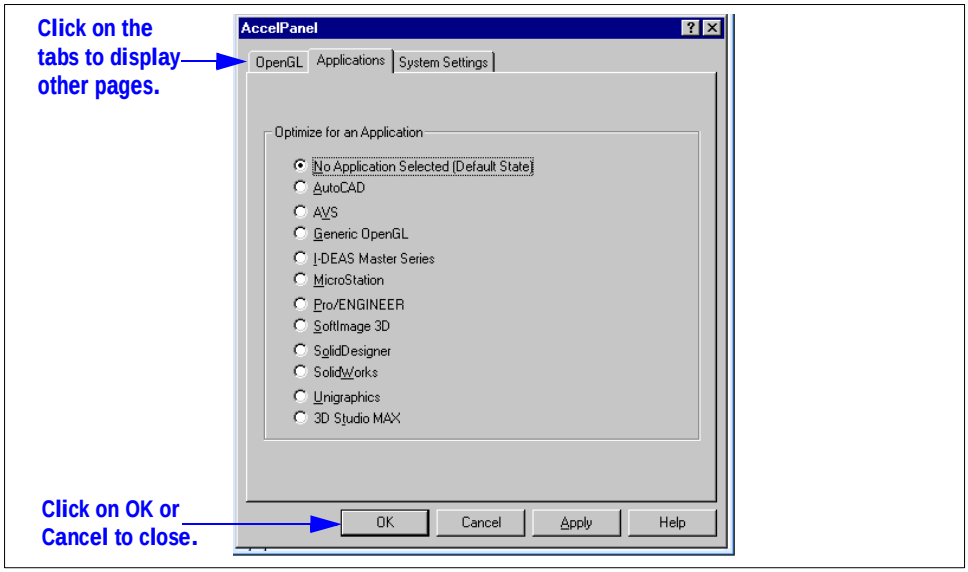


Figure 2-7. Windows NT 4.0 AccelPanel, *Applications* Page

Feature Title	Description
No Application Selected	**No Application Selected (User Defined State)** will be automatically selected whenever you use the Advanced Settings dialog box to change any AccelPanel settings. **No Application Selected (Default State)** will be automatically selected when AccelPanel panel is first opened, and the system is set so that only Gamma and Stencils are enabled. To return to the default state, select any other application and then select this button.
AutoCAD AVS Generic OpenGL IDEAS Master Series MicroStation Pro/ENGINEER SoftImage 3D SolidWorks Unigraphics 3D Studio MAX	**Application Selected** Sets the Display parameters and the Windows Registry parameters for the selected application. *NOTE: You must restart Windows for changes made to these settings to take effect.*
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.

The *System Settings* Page (Windows NT 4.0).

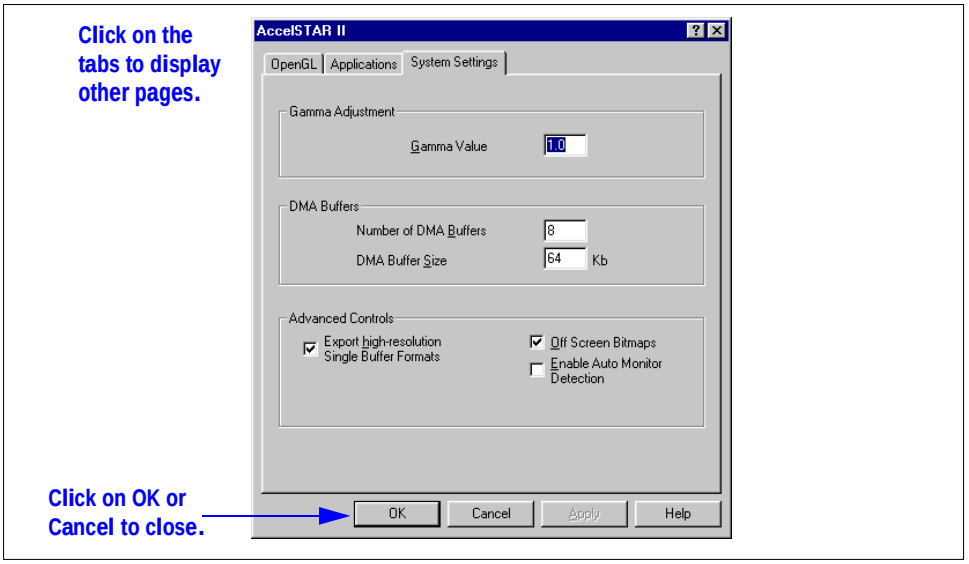


Figure 2-8. Windows NT 4.0 AccelPanel, *System Settings* Page

Feature Title	Description
Gamma Adjustment Gamma Value	The gamma adjustment affects the entire screen display. The default gamma value is 1.0 and the allowable range of floating point values is 0.3 to 4.0. Any new user-defined value will take effect when the Apply or OK buttons are selected.
Number of DMA Buffers	Sets the number of DMA buffers that the driver will allocate. To disable DMA, set to zero.
DMA Buffer Size	Sets the size of each DMA buffer.
Advanced Controls	**Export High Resolution, Single Buffered Formats** - Select this option to run 2D applications at the highest available resolutions. When this box is checked, it will enable the driver to boot at resolutions where only single buffered pixel formats are supported by GLINT acceleration, because at higher resolutions, there is not enough VRAM to support double-buffered formats. By default, this is not enabled and prevents you from unknowingly booting into unaccelerated OpenGL mode with applications that use double buffering. **Off Screen bitmaps -** Enables the use of offscreen bitmaps for faster performance. **Enable Auto Monitor Detect** - uses the DDC2B function to test the monitor and determine which resolutions and refresh rates it can accept.
OK	Saves changes and closes the AccelPanel.
Apply	Saves changes but leaves the AccelPanel open.
Cancel	Ignores changes and closes the AccelPanel.
Help	Displays the on-line help for AccelPanel on the screen.
NOTE: When prompted to do so, you must restart Windows for changes made via the AccelPanel to take effect.	

Configuring Applications

In This Appendix

This appendix describes the procedures to set up the AccelSTAR II and to configure the following applications to use the AccelSTAR II hardware and software:

Note

This appendix may not include information on all applications that can be run with the AccelSTAR II card. Call your authorized AccelGraphics reseller for information about applications which is not included here.

Configuring Applications

Task difficulty or complexity of information

EASY MEDIUM MORE DIFFICULT MOST DIFFICULT

Important Information

There are two main requirements to obtain optimum performance from an application and a graphics accelerator card such as the AccelSTAR II.

- Set up the operating parameters of the card.
- Configure the application to use OpenGL

Setting Up the Card

Most applications are designed to provide optimum 3D performance at specific resolutions, color depths, and numbers of buffers. You can set the *resolution* and *color depth* by using either the Windows Display applet or AccelGraphics' control applet called **AccelPanel** (see Chapter 3). See the following paragraphs for information on AccelPanel and double-buffering. You can also set the *refresh rate* (vertical scan rate) of the display. This parameter affects the "flicker" of the screen, but does not affect the number of buffers used. In most cases, however, the best way to set up the card is to use the **Applications** page in AccelPanel.

Use AccelPanel (Applications - Windows NT only)

AccelPanel contains built-in settings for several popular CAD and 3D Animation applications. These settings are recommended by the application manufacturers and many experienced users. Using them is a fast and easy way to ensure that you get the best performance from your system, application, and AccelSTAR II card. In some cases, you must use the built-in settings because AccelPanel also makes necessary changes to the Windows registry. To use the built-in settings:

1. Display the AccelPanel and go to the **Applications** page.
2. Select the desired application and then select **OK**.
3. Restart Windows.

See Chapter 3 for a complete description of the **AccelPanel**.

Use a Double-Buffered Driver

Most OpenGL applications require that a double-buffered driver be used for accelerating 3D shaded models. A single-buffered driver will not implement the OpenGL acceleration and shaded models will return to wireframe mode when you rotate them. However, you cannot set the number of buffers directly. The SGRAM holds the combination of resolution, color depth, and number of buffers. When you select the resolution and color depth, those factors are combined and stored in the SGRAM. If there is enough SGRAM left, the driver will run double-buffered; otherwise it runs single-buffered. See the **table** in Chapter 1 for details on resolution, color depth, and buffer depth.

Checking the SGRAM

To check the amount of SGRAM installed on the AccelSTAR card, display the AccelPanel, go to the 3D Settings page, and look in the upper right corner. See the description of **AccelPanel** in Chapter 3 for more information.

Configuring Applications

Many applications running under Windows must be set up, generally with a configuration file. Some applications simply use OpenGL if it is running on the system, and will automatically take advantage of an OpenGL-based graphics accelerator card such as the AccelSTAR II if it is installed in the system.

AutoCAD

No specific configuration is needed to run the Mechanical Desktop or AutoCAD Release R13C4 or later under Windows NT with the AccelSTAR II card. Note, however, that although the AccelSTAR II card will speed up 2D operations, the card by itself will not allow you to edit or manipulate (rotate, etc.) 3D rendered objects because AutoCAD does not directly use OpenGL.

This function is accomplished by AccelVIEW 3D from AccelGraphics. Call your authorized AccelGraphics reseller for information about this product. To accelerate the rotation with an AccelSTAR II card, install a double-buffered driver. You can choose any double-buffered driver that has the color depth, resolution, and refresh rate compatible with your application and monitor. See the section on **double-buffering** in this appendix.

Solidworks

Solidworks requires a double-buffered driver. You can choose any double-buffered driver that has the color depth, resolution, and refresh rate compatible with your application and monitor. See the section on **double-buffering** in this appendix.

3D Studio Max

Note

Before running 3D Studio MAX Release 2, follow the instructions below to set the recommended AccelSTAR II driver configuration for running the application. Note that it may “hang” if not set up properly.

1. Display the AccelPanel Applications page (refer to **Chapter 3** for information on how to do this if needed).
2. Select 3D Studio MAX.
3. Select OK.
4. Close the Display Properties applet
5. Restart Windows NT to have this change take effect.

Software Configuration

3D Studio Max can use any of the following:

- OpenGL
- HEIDI
- Direct 3D (not recommended with AccelSTAR II)
- software Z-buffer (not recommended with AccelSTAR II).

AccelGraphics recommends the following procedures when configuring the AccelSTAR II card to support 3D Studio MAX.

Using the OpenGL Driver

OpenGL is usable with 3D Studio Max Release 2.0 and later.

1. In 3D Studio MAX R2, display the 3D Studio MAX Driver Setup Window.
2. Select the OpenGL button. OpenGL speed and features will be used when using 3DSMAX.

Installing the HEIDI Driver

Install the correct Heidi Driver on your system as follows:

1. Locate the 3DStudio Max directory on your hard drive.
2. Go to the Drivers sub-directory.
3. In that directory, locate the file **wglint.hdi** and rename it 'wglint.sav'.
4. For 3D Studio MAX Release **1**, copy the file **wglint.hdi** from this CDROM to the Drivers directory.
5. For 3D Studio MAX Release **2**, copy the file **wglint5.hdi** from this CDROM to the Drivers directory.

Note

When using the Heidi driver under Windows 95, Direct X version 3 or later must also be installed.

Set the color mode to 32768 colors to get the best performance from your AccelSTAR II card.

Configuring 3D Studio MAX

When you use HEIDI with 3DStudio MAX R1, the new Heidi driver will be used automatically. In 3D Studio MAX R2, you can choose which driver you want.

1. In 3D Studio MAX R2, display the 3D Studio MAX Driver Setup Window.
2. Select the HEIDI button.
3. Select the Custom Driver button, then use the scroll bar to list all the custom drivers in the /drivers directory.
4. Select wglint5.hdi. This is the correct driver to use with the AccelSTAR II.

Using the Direct 3D Driver (Release 2.0 and later)

Note

Direct 3D is not recommended for use with the AccelSTAR II card, as this card is optimized for OpenGL use, and OpenGL speed and features will not be used when Direct3D is selected.

1. In 3D Studio MAX R2, display the 3D Studio MAX Driver Setup Window.
2. Select the Direct 3D button.

Known Problems and Workarounds

Errors in OpenGL Applications while running 3DS MAX.

When running 3D Studio MAX using the 3Dlabs GLINT Heidi driver, OpenGL applications and Heidi exhibit context switch conflicts and the OpenGL application does not run correctly in accelerated mode. To run an OpenGL application, first close 3D Studio MAX and then run the OpenGL application.

Workaround
Avoid running OpenGL applications while 3D Studio MAX is running.

Incorrect rendering of the grid lines

Incorrect rendering of the grid lines may be seen when an object is rendered in faceted or smooth shaded mode. The incorrect lines are visible only in those areas of the perspective window occupied by the rendered object.

Workaround
Redraw the view from the pull-down menus to correct inaccurately rendered grid lines.

No 3D Acceleration

Workaround

Configure 3D Studio MAX to use the "Glint Hardware" driver, not the "software Z-buffer". When starting the program, you can force it to prompt for this option by executing the program with the "-h" switch.

Photoshop

To use 3D programs such as 3D Studio MAX or Lightwave 3D and 2D applications such as Adobe Photoshop at the same time:

1. Open the NT Display window and set 1024x768 or 800x600 resolution and true color mode. All 2D windows (such as those for Photoshop) will then run in 24-bit color. All 3D windows such as those for 3D Studio MAX or Lightwave will run in 16-bit color mode which is usually adequate for 3D modeling purposes. Switch to the 24-bit mode to view/playback your final renderings.
2. To run Photoshop at 1280x1024, use the **AccelPanel** to select 1280x1024 **single buffered** resolution. When you have finished using Photoshop, set the display to 1280x1024 x 32K or 65K colors, double buffered mode to use with your Lightwave 3D, 3D Studio MAX or other 3D application.

Technical Information

In This Appendix

This appendix includes technical information for the AccelSTAR II card.

Task difficulty or complexity of information

EASY MEDIUM MORE DIFFICULT MOST DIFFICULT

Hardware Description

The AccelSTAR II is a single slot, short form factor card, with a 32 bit slave PCI or AGP interface. The following illustration shows the major components on the AccelSTAR II card. See Chapter 1 for information about the differences in PCI and AGP **edge connectors**. See Table B-1 below for jumper settings. The AGP version does not have jumpers.

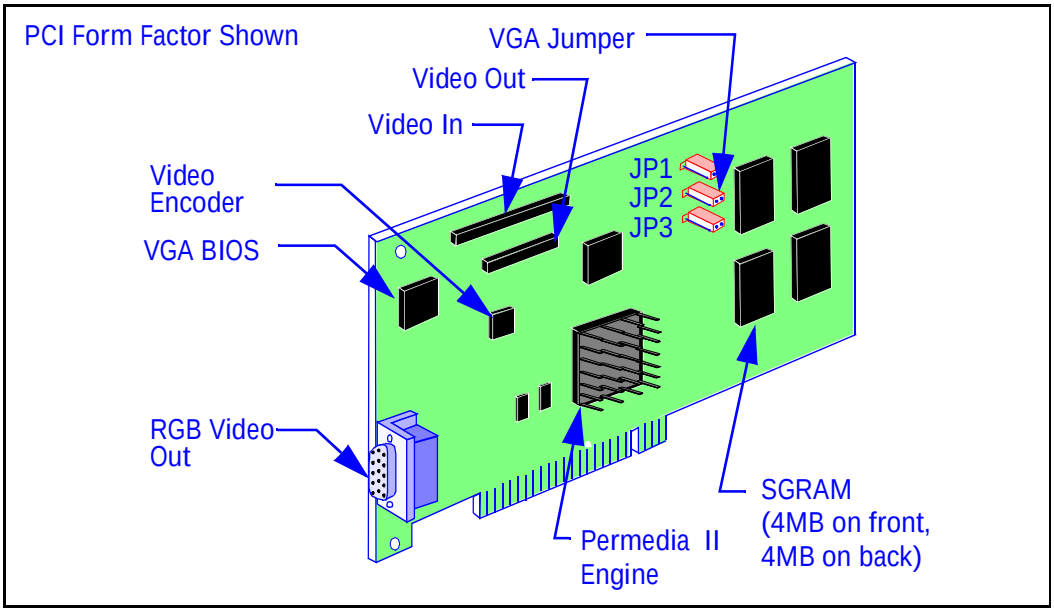


Figure B-1. The AccelSTAR II Card (PCI version)

Table B-1. AccelSTAR II Jumper Settings

JUMPER/ PINS	FUNCTION	DESCRIPTION	FACTORY SETTING
JP1 3 2 1	SET BASE CLASS	SET BASE CLASS 3 WHEN INSTALLING THE ACCELSTAR II IN NEWER SYSTEMS. SET BASE CLASS 0 WHEN INSTALLING THE ACCELSTAR II IN OLDER SYSTEMS	BASE CLASS 3 CONNECT PINS 1-2 TO SET BASE CLASS 0, CONNECT PINS 2-3
JP2 3 2 1	VGA	VGA MAY BE DISABLED WHEN ANOTHER VGA SOURCE IS BEING USED IN THE SYSTEM. SEE CHAPTER 2 FOR INFO ON DUAL SCREEN INSTALLATIONS.	ENABLED CONNECT PINS 1-2 TO DISABLE VGA, CONNECT PINS 2-3
JP3 3 2 1	VGA FIXED ADDRESS	ENABLE FIXED ADDRESS TO OVERRIDE SYSTEM BIOS SETTING (USES A000-BFFF). DISABLE FIXED ADDRESS TO USE SYSTEM BIOS SETTING.	ENABLED CONNECT PINS 1-2 TO DISABLE FIXED ADDRESS, CONNECT PINS 2-3

Mechanical and Electrical Specifications

Mechanical Dimensions

Table B-2. Accel*STAR* II Dimensions

Form Factor	Dimension	Inches	Millimeters
PCI	Length	8.661	220
	Width	4.2	106.4
	Height	0.065	17
AGP ATX	Length	6.875	174.6
	Width	4.188	106.4
	Height	0.065	14.2
AGP NLX	Length	6.875	174.6
	Width	3.750	98.4
	Height	0.562	14.2

Electrical Requirements

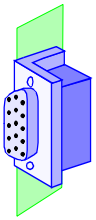
Table B-3. AccelSTAR II Power Requirements

Voltage	+5.0 VDC +/- 5% +3.3 VDC +/- 5%
Current	5V: 550ma; 3.3V: 3.79A
Power	5V: 2.75W; 3.3V: 12.5W

Video Connectors and Pin Assignments

This section describes the three video connectors on the AccelSTAR II.

RGB Video Connector (out)



This 15-pin female miniature D-shell connector provides standard RS-343 RGB video. The following table describes the connector pin assignments.

Table B-4: VGA Pin Assignments

Pin	Signal	Pin	Signal	Pin	Signal
1	Red*	6	Signal Ground	11	Not Connected
2	Green*	7	Signal Ground	12	Not Connected
3	Blue*	8	Signal Ground	13	H Sync (TTL)
4	Not Connected	9	Not Connected	14	V sync (TTL)
5	Signal Ground	10	Signal Ground	15	Not Connected

*RS-343A Compatible

Feature Connector - Video In

The 26-pin VESA video in connector has the following pin assignments.

Table B-5: Video In Pin Assignments

Signal	Pin	Pin	Signal
GND	1	2	VSAData0
GND	3	4	VSAData1
GND	5	6	VSAData2
VSCtl5	7	8	VSAData3
VSCtl1	9	10	VSAData4
VSCtl3	11	12	VSAData5
SBCLK	13	14	VSAData6
GND	15	16	VSAData7
GND	17	18	VSAClk
GND	19	20	HRef VSCtl7
GND	21	22	Not connected
GND	23	24	Not connected
SBData	25	26	GND

Feature Connector - Video Out

The 40-pin VESA video out connector has the following pin assignments.

Table B-6: Video Pin Assignments

Signal	Pin	Pin	Signal
VDD 12V	1	2	VSBData0
VSBData1	3	4	GND
GND	5	6	VSBData2
VSBData3	7	8	VSBData4
VCC	9	10	VSBData5
VSBData6	11	12	VSBData7
Not Connected	13	14	VSCtl0
VSCtl1	15	16	VSCtl2
VSCtl3	17	18	VCC
GND	19	20	VSAResetN
VSGPChipSelectN	21	22	GND
VSGPDataStrobeN	23	24	VSGReadWriteN
VDD_3V3	25	26	VSGPDataAckN
Not Connected	27	28	VSCtl4
Not Connected	29	30	Not Connected
VCC	31	32	VDD_3V3
VSBClk	33	34	GND
VSBResetN	35	36	Not Connected
Not Connected	37	38	Not Connected
Not Connected	39	40	Not Connected

Environmental and Safety Specifications

Mechanical Environment

The AccelSTAR II card has been certified to the following mechanical specifications.

Table B-7: Mechanical Environment

	Operating:	Non-operating	Shipping
Temperature	0°C to 70°C (32°F to 158°F)	-10°C to 70°C (14°F to 158°F)	-10°C to 70°C (14°F to 158°F)
Altitude	0 to 9,750 feet (0 to 3000 M)	0 to 32,500 feet (0 to 10.000 M)	0 to 32,500 feet (0 to 10,000 M)
Humidity	30 to 90%, non-condensing	10-90%, non-condensing	10 to 90%, non-condensing

Product Safety

The AccelSTAR II card conforms to the following product safety specifications:

Table B-8: Product Safety

Electromagnetic Interference (EMI)	
FCC	FCC Part 15/Class B
CE	EN 55022, Class B and EN50082-1