

Trio64V2
PCI VGA Card
User's Manual

FCC Notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used properly, in strict accordance with the manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/television technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock 004-000-00345-4

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note : In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables and power cord must be used.

CE Notice:

Following standards were applied to this product, in order to achieve compliance with the electromagnetic compatibility :

- Immunity in accordance with EN 50082-1: 1992
- Emissions in accordance with EN 55022: 1987 Class B.

NOTICE

Manual Ver. 1.0

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Introduction

The Trio64V2 PCI VGA CARD is a true 64-bit PCI accelerators. It incorporates Trio64V2's graphics and multimedia single chip, to perform high speed fills, line draws, BitBlts, masking, and scissoring functions in accelerated modes.

The Trio64V2 PCI VGA card also support high quality video playback in true color modes with up to 30 frames/sec.

This product is more than just a hardware accelerator card. It comes complete with extensive drivers and comprehensive software utilities designed to enhance your productivity.

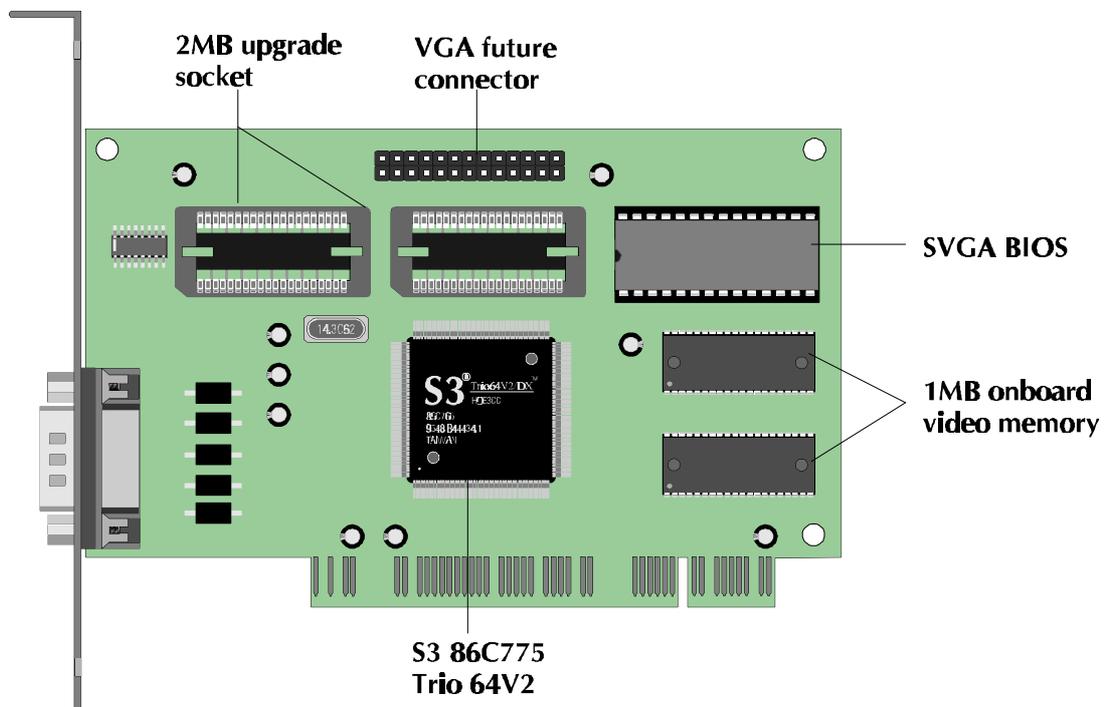
These cards have:

- High performance 64-bit graphics engine.
- Integrated 24-bit RAMDAC and programmable dual-clock synthesizer with 170 MHz output pixel rate.
- Unique S3 Streams Processor for hardware-assisted video playback.
- S3 Scenic Highway for direct interface to live video and MPEG-1 peripherals.
- Full software support drivers for Windows 3.11, Windows NT, and Windows 95.
- Fully VGA compatible in both hardware and software.
- Support all the VGA, super VGA, and multi-sync monitors.
- Easy installation for both hardware and software.

What you'll need ?

- **Computer System** - Intel 486, Pentium, Pentium Pro or compatible.
- **Expansion Slot** - Require at least one PCI bus slot.
- **Operating System** - DOS 5.0 or higher, Windows 3.1, OS/2 2.1 or higher.
- **Monitor** - VGA, supporting minimum 640 x 480 resolution.
- **Display Drivers** - Any standard VGA or VESA drivers. For best performance, use the Trio64V2 drivers supplied with these cards.

TRIO64V2 PCI VGA Card Layout



CHAPTER 2

Hardware Installation

Trio64V2 PCI VGA card automatically detects whether you are using a monochrome or color monitor. Therefore, the monitor must be turned on before the computer, or an incorrect monitor type may be detected. This card supports most analog monitors on the market. If monitor type is not detected during power-up, the card will default to support monochrome VGA.

These cards should be configured for the best resolution and refresh rate your monitor can support. Check the specifications of your monitor for signal compatibility with this card and find an optimum setting to suit your applications.

Installing the Hardware

WARNING !!

- Static electricity can damage sensitive electronic components. Discharge your body's static electric charge by touching a grounded surface. e.g., the metal area of the computer chassis before performing any hardware procedure.
- The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel. If you do not feel comfortable performing the installation, consult a qualified computer technician.

Procedure

- 1 . Power off the computer and disconnect the monitor cable.
- 2 . Remove the computer cover. If necessary, consult your system manual for removal instructions.
- 3 . Make sure the jumper setting and memory configuration are correct.
- 4 . Select an empty PCI expansion slot for the Trio64V2 PCI VGA card. With the slot cover removed, grasp the card by the top edge and carefully seat it firmly into the slot. Fasten the retaining bracket with a screw.
- 5 . Reinstall the computer cover.
- 6 . Connect the monitor cable to the Video Output connector of the PCI VGA card.

If the system successfully powers up and the normal DOS boot-up message appears on the screen, the Trio64V2 PCI VGA card is installed properly. If the system does not boot, there are a few things you can check in the following "Hardware Troubleshooting" section.

CHAPTER 3

Software Installation

Software Driver Support

The "Software Installation Diskette" supplies drivers for the following operating systems and programs.

- | | |
|---------------------------|------------------|
| ■ Windows 3.1 | ■ Windows NT3.51 |
| ■ Windows NT4.0 | ■ Windows 95 |
| ■ AutoCAD 12/13/3D Studio | ■ Microstation |

How To Install Trio64V2 Drivers ?

Trio64V2 Drivers contain on several pieces of floppy diskettes or one piece of CD-ROM.

To begin installation DOS utilities/Windows NT drivers, insert the "DOS Utilities & Drivers and Windows NT3.51/4.0" disk in drive A: (or drive B:) or CD-ROM in CD-ROM drive.

To begin installation Windows 3.1/95 drivers, insert the "Windows 3.1/95 drivers" disk in drive A: (or drive B:) or CD-ROM in CD-ROM drive.

If you are installing drivers for Windows 3.1, Windows NT and Windows 95 please make sure that you change your display setting back to VGA mode (640 x 480 x 16 colors) before beginning installation.

Please refer to the following sections for installation of specific drivers.

Microsoft Windows 3.1 Drivers Installation

To make installation more user friendly, the installation disk provides an easy way for Windows 3.1 driver installation. Before you install the windows 3.1 drivers, make sure that you change your display setting to standard VGA mode.

1. Start Windows using the standard VGA driver.
2. Insert "Windows 3.1/95" Drivers Diskette into drive A: or drive B:.
From the File Manager or using the "File" and "Run..." pull-down command to execute the **SETUP** program from the floppy drive containing the S3 Trio64V2 Windows driver disk. or

Insert CD-ROM into CD-ROM drive. From the File Manager or using the "File" and "Run..." pull-down command to execute the **SETUP** program from the CD-ROM drive Win31 directory which containing the S3 Trio64V2 Windows driver.

3. After you've done with step 2. The Trio64V2 Windows 3.1 driver installation menu will appear on screen. The setup program will prompt the default path and directory where the drivers and Trio64V2 tool will copy to. You may specify another path or directory if you wish, then click on the "OK" icon to begin driver installation. The installation program will complete installing Trio64V2 windows 3.1 driver for you.



Microsoft Windows 95 Drivers Installation

To make installation more user friendly, the installation disk provides an easy ways for Windows 95 driver installation. Before you install the windows 95 drivers, make sure that you change your display setting to standard VGA mode.

1. Start Windows 95 using the standard VGA driver.
2. Click the "Start" button.
3. Double click on the Display icon in the "Setting ->Control Panel" folder. You can also click the right mouse button anywhere on the desktop and select the "Properties" option from the pop-out menu.
4. Click the "Settings" tab.
5. Click the "Change Display Type" button.
6. Click the "Change" button on the right of the first item "Adapter Type".
7. Click the "Have Disk.." button and "Install from Disk" box will appear.
8. Click "Browse" button and "Open" box appears.
9. Select your A: floppy drive (or CD drive) in the "Drives" selection on the bottom.
10. Double click "Win95" in the "Folders" selection.
11. "S3TrioV2.inf" appears in the filename selection.
12. Click "OK" button.
13. You will see a list of Trio64V2 cards. Select type of your VGA card and click "OK".
14. After copying all files of the driver, it will back to "Change Display Type".
15. Select Monitor type if necessary.
16. Click "Close" button and "Display Properties" box appears.
17. Click "Apply" button and "System Setting Change" box appears.
18. Click "Yes" to restart your Windows 95.

Installing Windows NT 3.51 Display Drivers

1. Start system with Windows NT 3.51 installed.
2. **IMPORTANT:** When the “Please select the operating system to start...” message is displayed, select “Windows NT Workstation Version 3.51 [VGA mode]”.
3. In the “Main” group, Double click on the “Control Panel” icon.
4. In the “Control Panel”, Double click on the “Display” icon.
5. In the “Display Settings” screen, click on the “Change Display Type...” button.
6. In the “Display Type” screen in the “Adapter Type” section, click on the “Change...” button.
7. In the “Select Device” screen, click on the “Other...” button.
8. Insert the new display driver diskette into the A:\ drive, then click on the “OK” button.
9. When “S3 Video Driver Update...” appears in the list, select that line then click on the “Install” button.
10. If the following message appears: “This operation will change your system configuration. Do you want to proceed anyway?”, click on “Yes”.
11. If the message appears stating the driver is already installed on the system, do you want to use the current or new drivers, be sure to select the “New” button.
12. If prompted for the driver diskette a second time, click on the “Continue” button.
13. When the message “The drivers were successfully installed” is displayed, remove the display driver diskette, then click on the “OK” button.
14. When the message “The driver could not be started dynamically. Please restart Windows NT to run with the new driver.” is displayed, click on the “OK” button.
15. In the “Display Settings Change” screen, click on the “Restart Now” button.

Installing Windows NT 4.0 Display Drivers

1. Start system with Windows NT 4.0 installed.
2. **IMPORTANT:** When the “Please select the operating system to start...” message is displayed, select “Windows NT Workstation Version 4.00 [VGA mode]”.
3. From “Start”, select the “Settings group”, then click on the “Control Panel” icon.
4. In the “Control Panel”, double click on the “Display” icon.
5. In the “Settings” screen, click on the “Display Type...” button.
6. From the “Display Type” screen, and in the “Adapter Type” section, click on the “Change...” button.
7. In the “Change Display” screen, click on the “Have Disk...” button.
8. Insert the new display driver diskette into the A:\ drive, then click on the “OK” button.
9. From the list of displayed S3 devices, select your S3 device.
10. From “Third-party Drivers”, click on the “Yes” button to proceed.
11. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the “New” button.
12. If prompted for the driver diskette a second time, click on the “Continue” button.
13. When the message “The drivers were successfully installed” is displayed, remove the display driver diskette, then click on the “OK” button.
14. Back at the “Display Type” window, click on the “Close” button.
15. Back at the “Display Properties” window, click on the “Close” button.
16. When you see the “System Settings Change” window, asking if you wish to restart your computer, click on the “Yes” window to reboot now.

Installing AutoCAD R12/R13 Drivers

1. Insert the "DOS Utilities & Drivers" disk in drive A:. (or insert the CD-ROM in CD-ROM drive)
2. Go to drive A: (or D:, Assume CD-ROM drive is D:)
3. Change the directory to **\DOS**.
4. Type **Install** then press <Enter>.
5. The Trio64V2 installation menu will be displayed on screen select "AutoCAD" then press <Enter>.



6. After you've done with step 4. The installation program will ask you if all the utilities will be O. K. to install in C:\ACAD directory. To continue by pressing <Enter> key.
7. The install program will drivers to main AutoCAD directory.

Note:For AutoCAD R13, the directory is C:\ACADR13\DOS\DRV. For AutoCAD R12, the directory is C:\ACADR12\DRV.

8. Run AutoCAD.
9. Issue AutoCAD's CONFIG command, then change display driver and select a desired Trio64V2 driver from the list of drivers.

Installing Trio64V2 DOS Utilities

The Trio64V2 DOS utilities installation program is included inside the "Software Installation Diskette". The Trio64V2 utilities have included the following functions:

S3REFRSH.EXE

Run this program to configure the display adapter for the highest vertical refresh rates supported by your monitor. Higher refresh rate is less likely to cause eye fatigue due to screen flicker. The configuration settings you select can optionally be written to your AUTOEXEC.BAT file so that the display adapter will be set according to your selections each time you start the system.

S.MODE.EXE

Run this program whenever you need to configure the S3 for a specific video mode.

How To Install Trio64V2 Utilities

1. Insert the "DOS Utilities & Drivers" disk in drive A:. (or insert the CD-ROM in CD-ROM drive)
2. Go to drive A: (or D:, Assume CD-ROM drive is D:)
3. Change the directory to **\DOS**.
4. Type **Install** then press <Enter>.
5. The Trio64V2 installation menu will be displayed on screen select "S3 VGA DOS Utilities" then press OK.
5. After you've done with step 4. The installation program will ask you if all the utilities will be O. K. to install in C:\S3UTIL directory. To continue by pressing <Enter> key.



```
Select the utility and/or drivers:  
(multiple selections)  
  
[X] S3 VGA Dos Utilities  
[ ] Autodesk Device Interface 4.2  
[ ] Microstation 4.0/5.0  
[ ] Exit Setup
```

CHAPTER 4

Windows Driver Setup

Left Click (Windows 3.x), or right click(Windows 95) the 'S3 VManager' icon and then select the 'Display Control Panel' menu item, or double click the 'Display Control Panel' icon on Media Pro program group, the 'Display Control Panel' program will open, then with the following configuration procedures, you can set the optimized desktop environment for yourself.

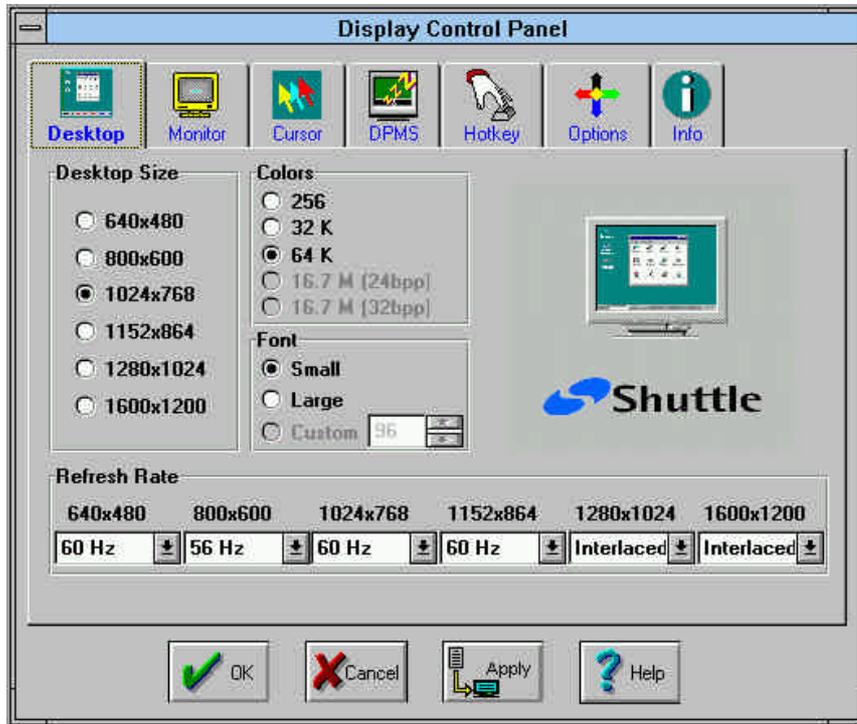
1. Clicking Monitor tabbed dialog to open it, then click 'DDC detect' (Windows 3.x) or 'Change' (Windows 95) button to view your monitor information. If you have a plug n' play monitor, Media Pro will show your monitor's manufacturer name and model name, and list all the available resolutions with the maximum vertical refresh rate that your monitor can support. If your monitor does not support plug n' play, on Windows 3.x, a "Old-type monitor" message will be displayed, but on Windows 95, you can select the monitor type manually.
2. Clicking Display tabbed dialog to set various desktop environments. If you have selected a monitor, a button, below 'Refresh rate' box, with caption 'Load PnP monitor refresh rates' or 'Load selected monitor refresh rates' will show, press this button will update the refresh rate for all modes in the 'Refresh rate' box, these refresh rate values are the maximum refresh rates which your monitor supports, you can use these refresh rates with no trouble. However, you can still select a higher refresh rate if you like, Media Pro has 'Preview' facility(see below) which means if your monitor can't support some resolution and refresh rate combination, simply press 'Enter' key or space bar or wait 15 seconds, then the original settings will be restored. Now you can select the desired resolution*, color depth, and font size*, and choosing the expected vertical refresh rate* from the combo-list of the resolution you choose, then you click "OK" or "Apply" button to finish the desktop configuration.
3. After Windows changes to the new desktop setting, Media Pro will pop up a "Reconfirm" message dialog. You need to click "OK" to accept the new desktop resolution and/or refresh rate, otherwise the setting will be changed back to the original one either by clicking "Cancel" (defaulted option) or press 'Enter' key or space bar or being changed back automatically after 15 seconds.

Remember that, if you change your display to higher resolution or higher refresh rate and your Windows can't appear correctly, simply press 'Enter' key or space bar or wait 15 seconds and your Windows will be restored with original settings.,

4. Clicking Monitor tabbed dialog to adjust screen position. You can locate the screen to the center of the monitor by clicking the four buttons in Screen Adjust group. Also, Media Pro provides you the Compute Refresh Rate utility to let you check the current vertical refresh rate. After this adjustment, you can click "Apply" or "OK" to memorize the final setting. Next time you enter this mode, Media Pro will auto-adjust the screen centering.
5. Clicking Cursor tabbed dialog to choose the hardware cursor color according to your preference.
6. Clicking DMPS tabbed dialog to set the time slot for each power-saving mode.
7. For your convenience, you can change resolution on-the-fly or turn off screen directly if you enable Hotkeys function and define some combination keys for each listed function.

Note : The large font is suggested to be selected for the resolution higher than 800x600. The higher vertical refresh rate is more comfortable to your vision than the lower one.
800x600 resolution is suggested if a 14- or 15-inch monitor is used.
1024x768 or above resolution is suggested if 17-inch monitor is used.

Desktop



The Desktop dialog allows you to configure your desktop size, color depth, font size and refresh rate.

Desktop Size

The desktop size option allows you to select a desktop resolution. The following table lists the resolutions and colors which can be supported for different video memory sizes.

1M	2M
640x480x8 bpp	all modes for 1M
800x600x8 bpp	and
1024x768x8 bpp	1024x768x16bpp
1152x864x8 bpp	1280x1024x8bpp
640x480x16 bpp	1600x1200x8bpp
800x600x16 bpp	
640x480x24 bpp	

When you change to a higher resolution than the current one, Media Pro will display a "Conform window" which you need to click "OK" to accept the new resolution in 15 seconds. For some resolution which are too high to be supported by your monitor, your screen may not display properly or even can not be seen, in these cases, just wait for 15 seconds or press Enter key or Space bar, then your screen will be restored to previous settings.

Colors

Available color options depend on desktop size and installed memory, and determine the number of colors that can be displayed on screen.

Font Size

This option allows you to select the font size Windows will use for system menus and resources.

Refresh Rates

These options allow you to adjust refresh rate settings for each display mode. Faster refresh rates are less likely to cause eye fatigue due to screen flicker.

When you change the refresh rate to a higher value than the current one, Media Pro will display a "Conform window" which you need to click "OK" to accept the new refresh rate in 15 seconds. For some refresh rates which are too high to be supported by your monitor, your screen may not display properly or even can not be seen, in these cases, just wait for 15 seconds or press Enter key or Space bar, then your screen will be restored to previous settings.

Load PnP(or Selected) Monitor Refresh Rates

This button will load the maximum refresh rates for all resolutions which detected by DDC monitor or by the monitor you selected. In general, these refresh rates will work fine. These refresh rates are only as a suggestion, you are allowed to choose a different refresh rate if you like.

Screen Adjustment

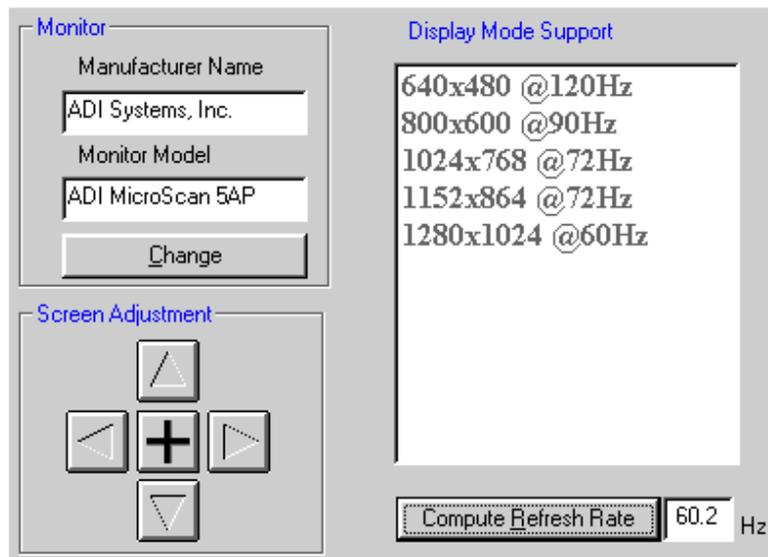
The Screen Adjustment buttons allow you to adjust screen position on your monitor without using your monitor's panel. A further advantage is that it can adjust your screen position according to the resolution and refresh rate combinations. Using the arrow bitmap buttons for up, down, left, right adjustment, the cross (+) bitmap button on the center will restore the screen to its original position. The adjustments you make will be "remembered" by the Media Pro if you click "OK" or "Apply", that means each time you start Windows, the screen will be adjusted to the position which you have set previously.

Compute Refresh Rate

When you click on the Compute Refresh button, Media Pro will attempt to determine the current refresh rate of your monitor in Hz.

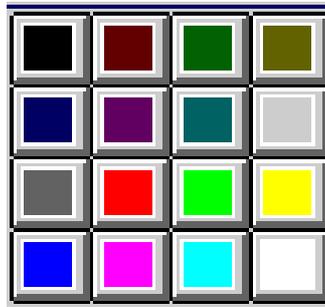
Monitor

The built-in DDC function allows the Media Pro to interact with Plug 'n Play monitors. Media Pro queries your monitor for capabilities and lists the answer in the monitor information box whenever you enter Windows or keeps the monitor type you select previously.



Cursor

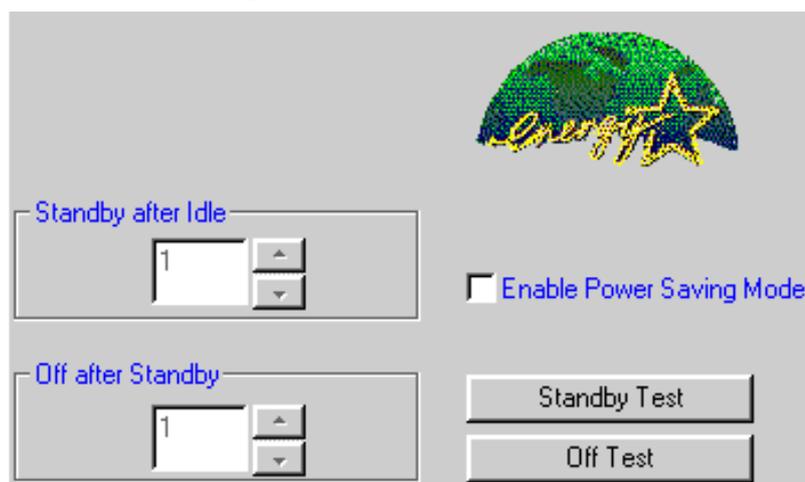
By clicking the desired color rectangle on palette, and clicking "Ok" or "Apply" button, you can change the hardware cursor color to make it more obvious on your screen.



DPMS

The DPMS group shows the current power management settings. Inactivity time-out values are shown for Standby and Off. Display Power management services work in conjunction with EPA Energy Star compliant monitors. The DPMS screen allows you to enable, configure and test these services.

Enable Power Savings



To enable power savings this option must be checked. If you do not wish to use power management services, unchecked this option.

Standby Mode

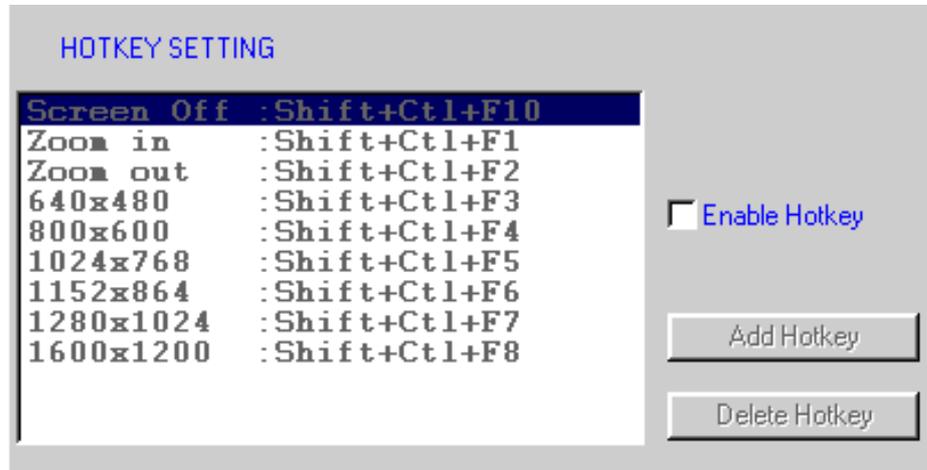
This option allows you to set the inactivity delay time, in minutes, after which Standby power management takes effect. Standby mode provided minimal power savings but has the fastest recovery time.

Test Buttons: Standby test and Off test

These test buttons allow you to check the effect immediately when your monitor enter "standby" or "off" power saving mode.

HotKeys

You can specify a hot key sequence to perform a particular action by using the Hot Key options. Hotkeys can be used to blank the screen, zoom in, zoom out, and switch on the fly to various supported resolutions.



Enable HotKey

To enable hotkeys, this option must be checked, If you do not wish to use hotkeys, unchecked this option.

Add Hotkey

This button allows you to assign or change a hotkey assignment. A hot key sequence can consist of the SHIFT, ALT and CTL keys, plus any one of the function key HotKey List.

APPENDIX A

Video Mode Table

The display table on the following page lists all the supported resolutions and refresh rates of 1MB or 2MB video memory onboard. Each row describes a single screen configuration. Table-1 and table-2 list all the supported resolutions and refresh rates with 1MB video memory onboard. Table-1, table-2 and table-3 list all the supported resolutions and refresh rates with 2MB video memory onboard.

When discussing color depth, 8 bits per pixel (8bpp) is the same as 256 colors, 16 bits per pixel (16bpp) is the same as 65,000 colors, and 24 bits per pixel (24bpp) is the same as 16.7 million colors. Trio64V2 PCI VGA card also supports 15bpp (32000 colors).

Memory	Resolution	Color	Refresh Rate
1MB	640 x 480	256 Color	60Hz 72Hz 75Hz 85Hz 90Hz 120Hz
1MB	800 x 600	256 Color	60Hz 72Hz 75Hz 85Hz 90Hz 120Hz
1MB	1024 x 768	256 Color	Interlace 60Hz 70Hz 75Hz 85Hz
1MB	640 x 480	32K Color	60Hz 72Hz 75Hz 85Hz 90Hz 120Hz
1MB	800 x 600	32K Color	56Hz 60Hz 72Hz 75Hz 85Hz 90Hz 120Hz
1MB	640 x 480	64K Color	60Hz 72Hz 75Hz 85Hz 90Hz 120Hz
1MB	800 x 600	64K Color	56Hz 60Hz 72Hz 75Hz 85Hz 90Hz 120Hz

Memory	Resolution	Color	Refresh Rate
1MB	640 x 480	16.7M Color	60Hz 72Hz 75Hz 85Hz

Table-2

Table-1

Memory	Resolution	Color	Refresh Rate
2MB	1024 x 768	32K Color	Interlace 60Hz 70Hz 75Hz 85Hz
2MB	1024 x 768	64K Color	Interlace 60Hz 70Hz 75Hz 85Hz
2MB	1152 x 864	256 Color	60Hz
2MB	1280 x 1024	256 Color	Interlace 60Hz 75Hz
2MB	1208 x 1024	256 Color	Interlace 60Hz 75Hz
2MB	1600 x 1280	256 Color	Interlace 60Hz 75Hz

Table-3

APPENDIX B

Analog Color Display Pinouts

Table listed below shows the Trio64V2 video card's analog color display pinouts.

Pin	Function
1	Red Video (note 1)
2	Green Video (note 1)
3	Blue Video (note 1)
4	Not used
5	Ground
6	Red Return (ground)
7	Green Return (ground)
8	Blue Return (ground)
9	Key (no pin)
10	Sync Return (ground)
11	Monitor ID (not used)
12	SDA (DDC support, note 2)
13	Horizontal Sync
14	Vertical Sync
15	SCL (DDC support)

Note 1: Analog monochrome type monitors use green video for all video input and ignore red video and blue video.

Note 2: Monochrome monitors connect Pin 12 to ground. Color monitors leave Pin 12 open. The adapter uses Pin 12 to detect the monitor type.