ASUS® *3DexPlorer* DX

3DP-V375DX

2D/3D Graphics & Video Accelerator

USER'S MANUAL

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The product name and revision number are both printed on the board itself. Manual revisions are released for each board design represented by the digit before and after the period of the manual revision number. Manual updates are represented by the third digit in the manual revision number.

For previous or updated manuals, BIOS, drivers, or product release information, contact ASUS at http://www.asus.com.tw or through any of the means indicated on the following page.

Product Name:	**ASUS 3DP-V375DX**
Manual Revision:	**1.04**
Release Date:	**July 1997**

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FCC & DOC COMPLIANCE

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the 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 and, if not installed and used in accordance with 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 harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

> **WARNING!** The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

I. Introduction

T hank you for purchasing the ASUS 3DP-V375DX Graphics & Video Accelerator. With the S3 ViRGE/DX built-in, the ASUS 3DP-V375DX provides you surprising acceleration in both 2D/3D graphics and quality scalable video playback, which can fully support 3D Gaming and Multimedia Applications.

Item Checklist

☑ *PCI Adapter* x 1

☑ *User's Manual* x 1

☑ *ASUS Driver & Utility CD-ROM* x 1

Features

- New S3 ViRGE/DX 64-bit 2D/3D Graphics & Video Accelerator Built-in
- Performance-Oriented Design for Boosting Pentium II / Pentium Pro & MMX Acceleration
- Upgrade to 4MB Frame Buffer Supports 1280 x 1024 with True Colors at 85Hz
- 32-bit PCI 2.1 Interface Compliant for "Plug & Play"
- Enhanced Full-Scalable Real-Time 30 Frames/second up Video/MPEG Playback
- Integrated 170MHz RAMDAC supports up to 160Hz Refresh Flicker-Free Display
- ASUS Turbo Driver Boosts 20% More 2D/3D Graphics Performance
- ASUS Performance Adjustment Tech. Tunes up Speed for Various Types Memory Mix
- Multi-Language User Interface & Drivers supported
- Designed for Windows 95 & Windows 3.x Logo Approval
- Hassle-Free Installation for Windows 95 and Windows 3.x through AutoRun CD-ROM
- Built-in 16-bit & 8-bit LPB (Local Peripheral Bus) Connectors Ready for TV Tuner, Video Capture, and H/W MPEG-1 Upgrade

Layout

Feature Connector &
8-BIT LPB Connector

VGA BIOS   2MB DRAM Memory

16-BIT LPB
Connector

Video
Output
Connector

2MB
Upgrade
Sockets

S3 ViRGE/DX Chipset

TV-Tuner, Video
Capture, Hardware
MPEG, or other
compatible LPB
expansion cards

2
1   34
                 33
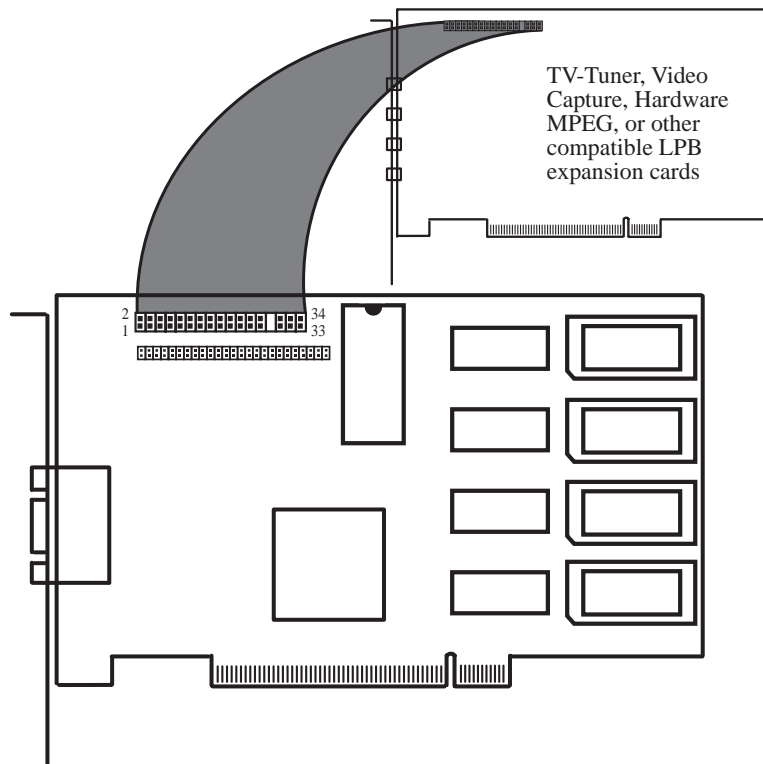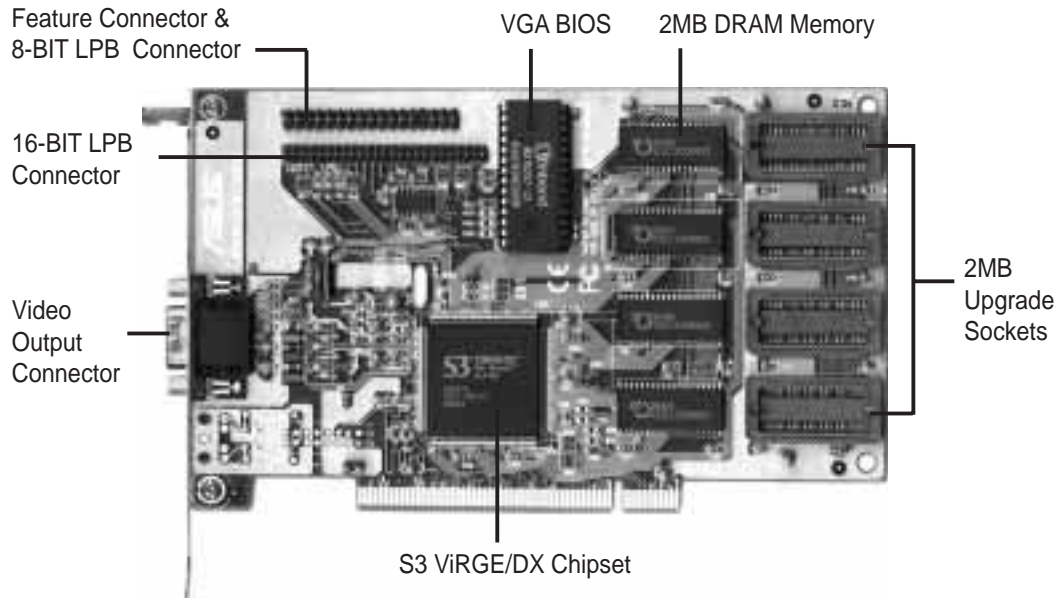
II. Hardware Installation

This section tells you how to install the ASUS 3DP-V375DX graphics and video card in your PC computer. The steps provided below demonstrate how to install the card in a typical system. Your system may be slightly different.

WARNING! Computer boards and components contain very delicate Integrated Circuit (IC) chips. To protect the computer board and other components against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Make sure that you unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.
2. Hold components by the edges and try not to touch the IC chips, leads, or circuitry.
3. Use a grounded wrist strap before handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the component whenever the components are separated from the system.

IMPORTANT: Keep the host adapter in its antistatic bag until you are ready to install it. Before you pick up the adapter, ground yourself by touching an unpainted surface on the computer chassis. Even a little static electricity can destroy a host adapter component!

Installation Procedures

1. Unplug all electrical cords on your computer.

2. Remove the screws for the back of the system unit cover.

3. Remove the system unit cover.

4. Find an unused 5volt PCI bus expansion slot. Make sure this slot is unob-structed.

5. Remove the corresponding expansion slot cover from the computer chassis. The slot cover is the metal strip in the back of the computer chassis that covers the opening for the adapter's external connector.

II. Hardware Installation

6. Ground yourself to an antistatic mat or other grounded source.

7. Pick up the board (still in its sleeve) by grasping the edge bracket with one hand. Avoiding touching board components.

8. Remove the plastic sleeve.

9. Position the card directly over the PCI slot and insert one end of the board in the slot first. Carefully press the bus connector on the bottom of the card down into the slot. Be sure the metal contacts on the bottom of the host adapter are securely seated in the slot.
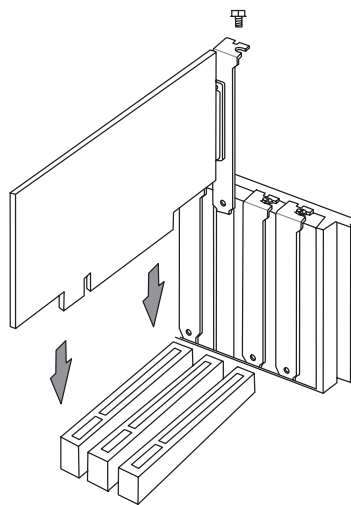
10. Anchor the board's mounting bracket to the computer chassis using the screw from the slot cover you set aside previously.

11. Replace the cover on the system unit.

12. Connect your analog monitor's 15-pin VGA connector to the card and fasten the retaining screws (if any).

13. Connect other cables and devices if available.

III. Microsoft Windows 95

Video Driver Installation

Introduction

After installing the ASUS 3DP-V375DX graphics & video card, software drivers and utilities must be installed. The ASUS 3DP-V375DX V1.02 Display Driver Installation CD not only provides the quick install program, which greatly simplifies the video driver setup steps in Windows 95, but also has the uninstall function which will enable you to completely remove drivers no longer needed.

1. Quick Installation

The following are various driver installation procedures for Windows 95 under specific situations. **NOTE:** this *Manual* will assume that your CD-ROM is the **D:** drive. Please use this accordingly.

1.1 Installing Drivers for Windows 95 (New Hardware Found)

If you are installing the ASUS 3DP-V375DX graphics & video card for Windows 95 for the first time, a **New Hardware Found** window will appear:

Select which driver you want to install for your new hardware:
- ○ Windows default driver
- ○ Driver from disk provided by hardware manufacturer
- ◉ Do not install a driver (Windows will not prompt you again)
- ○ Select from a list of alternate drivers

1. Please select **Do not install a driver**

2. Insert the ASUS 3DP-V375DX V1.02 Installation CD. The ASUS Windows 95 Install Shell will appear. If it does not appear, run **D:\SETUP.EXE**

3. Click **Install ASUS 3DP-V375DX Display Driver** and follow the installation steps.

III. Microsoft Windows 95

1.2 *Updating Drivers for Windows 95 (Using the Autorun Screen)*

If an ASUS graphics card or any other version of the ASUS video driver was installed at one time, Windows 95 Plug and Play may not detect automatically the new 3DP-V375DX graphics & video card. If this happens, follow the steps below:

1. Insert the ASUS 3DP-V375DX V1.02 Installation CD. The ASUS Windows 95 Install Shell will appear.

2. If it does not appear, run **D:\SETUP.EXE**. The CD-ROM's autorun facility will present you with a list of install options.

3. Click **Install 3DP-V375DX Display Driver** and follow the installation steps.

Click the **Next** button to install 3DP-V375DX V1.02 on your computer. A **"New Features"** screen is displayed.

Click the **Next** button.

III. Microsoft Windows 95

It is recommended that you select **ASUS 3DP-V375DX V1.02 Enhanced Driver (with 1280x1024x24)**. Press the **Next** button to start copying files to your hard disk.

The ASUS 3DP-V375DX V1.02 requires DirectX 3A for MMX 3D acceleration. We suggest that you press the **Yes** button to install DirectX 3A.

After all drivers have successfully been installed, restart your computer. Your ASUS 3DP-V375DX graphics card should be automatically detected.

If the ASUS 3DP-V375DX graphics card is detected, click the **OK** button to install other utilities.

If no ASUS 3DP-V375DX graphics card is detected, you can either select **Remove ASUS 3DP-V375DX Display Driver** or **Shutdown and install ASUS 3DP-V375DX VGA Card.**

Click the **OK** button to begin testing the video memory on the display card.

TESTING ON-SCREEN MEMORY: (This screen will flick during the testing)
The On-Screen video memory depends on the resolution and colors selected
for your display settings. For example, if your display setting is 1024x768x16
bpp, then you have 1.5MB on-screen memory.

TESTING OFF-SCREEN MEMORY: (This screen will flick during the testing)
Since the maximum video memory configuration of the ASUS 3DP-V375DX
graphics card is 4MB, if your display settings use 2MB, then the unused 2MB
will be the off-screen memory.

III. Microsoft Windows 95

Video Driver Installation

2. Traditional Installation

The following are two traditional driver installation procedures for Windows 95. **NOTE:** this *Manual* will assume that your CD-ROM is the **D:** drive. Please use this accordingly.

2.1 Installing Drivers for Windows 95 (New Hardware Found)

If you are installing the ASUS 3DP-V375DX graphics & video card for Windows 95 for the first time, a **New Hardware Found** window will appear:

> Select which driver you want to install for your new hardware:
>
> ○   Windows default driver
>
> ◉   Driver from disk provided by hardware manufacturer
>
> ○   Do not install a driver (Windows will not prompt you again)
>
> ○   Select from a list of alternate drivers

1. Click **OK** to use the default selection: **Driver from disk provided by hardware manufacturer**

2. Insert the ASUS 3DP-V375DX V1.02 Installation CD and click the **Browse** button. - Open window appears

3. Select your CD-ROM drive in the **Drives:** box

3. Select **WIN95**

5. Click the **OK** button - Install from Disk appears - Click **OK** button again

6. After restarting Windows, your ASUS card should be automatically detected.

III. Microsoft Windows 95

2.2 Installing Drivers (Using Windows 95 Control Panel)

1. Start Windows 95, switching display to VGA mode (16 colors, 640x480 pixels), then restart

2. Right click your mouse on the desktop and select **Properties**

3. Click the **Settings** tab

4. Select **Change Display Type**

5. Choose Adapter Type and click **Change**

6. Click **Have Disk**

7. Insert the ASUS 3DP-V375DX Installation CD.

8. Type **D:\WIN95** (assuming your CD-ROM drive is letter D) or click **Browse** button to select the path of the display driver for Windows 95. Click **OK.**

9. You will see a list of ASUS 3DP-V375DX drivers. It is recommended that you select the **ASUS 3DP-V375DX V1.02 Enhanced Driver (with 1280x1024x24)** and press the **OK** button to start installation

10. When all files are copied, go back to the **Display Properties** window by clicking **Close**. Press **Apply..**

11. A **System Settings Change** dialog box is displayed. Click **Yes** to restart Windows

12. When Windows starts up, your video adapter is now ready to use.

Settings

Change Display Type

Select Device

System Settings Change

III. Microsoft Windows 95

3. Removing the Video Drivers

If you want to install other graphics cards or if you no longer need the 3DP-V375DX display drivers, you can use one of the following procedures to completely remove the drivers from Windows 95 to save disk space.

3.1 Using the Autorun Screen

1. Insert the ASUS 3DP-V375DX V1.02 Installation CD

2. Select **Remove 3DP-V375DX Display Driver** in the ASUS Windows 95 Install Shell and follow the uninstallation steps.

3.2 Using Windows 95 Control Panel

1. Click **Start**. Move to **Settings**, **Control Panel**, **Add/Remove Programs**

2. Click the **Install/Uninstall** tab

3. Select **ASUS 3DP-V375DX V1.02** from the list

4. Press the **Add/Remove** button.

During uninstallation, a **"Remove Shared File?"** dialog box will display asking you to remove some shared files. Click the **Yes** or **Yes To All** button to remove the shared files no longer used.

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4. Install MPEG Video Player, DirectX 3A, and S3 S3d ToolKit

For Software MPEG support in Windows 95, you must first install Microsoft DirectX 3A libraries, then install MPEG Video Player. ASUS also provides the S3 S3d ToolKit, which contains three kinds of 3D libraries: S3d ToolKit Windows drivers, RenderWare Windows drivers, and BRender Windows drivers.

1. Start Windows 95

2. Insert the ASUS 3DP-V375DX V1.02 Installation CD. The ASUS Windows 95 Install Shell should appear.
   If it does not appear, please run **D:\SETUP.EXE**

ASUS Windows 95 Install Shell

3. Select **Install DirectX 3A** in the ASUS Windows 95 Install Shell

4. After **DirectX 3A** driver has successfully been installed, click **Install Video Player**

5. For some Windows 95 applications which need 3D libraries, click **Install S3 S3d ToolKit** in the ASUS Windows 95 Install Shell and follow the installation steps.
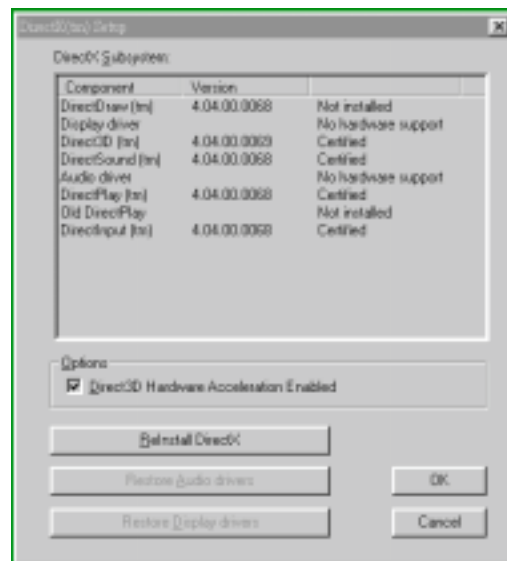
DirectX 3A Setup
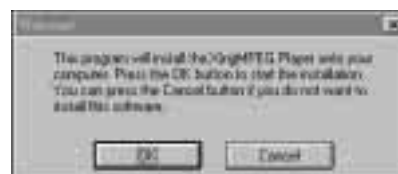
Install XingMPEG Player

5. Windows 95 Display Settings

Shell Notify Icon

After installing the ASUS 3DP-V375DX Windows 95 Driver, you will
see an ASUS icon on your taskbar notification area. You can **"Close
Enhanced Functions"** or **"Launch Display Properties"** from this
icon. If you encounter any problem, you may want to close ASUS
Enhanced Functions. These functions will be enabled again next time
you enter Windows.

Changing Display Settings

To enter the **Display Properties** at any time, right click your mouse
on the desktop and select **Properties,** or double click the **Display** icon
in the **Control Panel**. Click the appropriate Tab as follows:

Settings

This allows you to change your display settings, adjust screen resolu-
tion and color depth, virtual desktop size, and font size. The maxi-
mum desktop and screen size selectable depends on how much memory
you have. The maximum screen size selectable depends on the moni-
tor specified.

Current refresh rate

Adjust color

Adjust font size

Adjust screen resolution

Adjust virtual desktop size
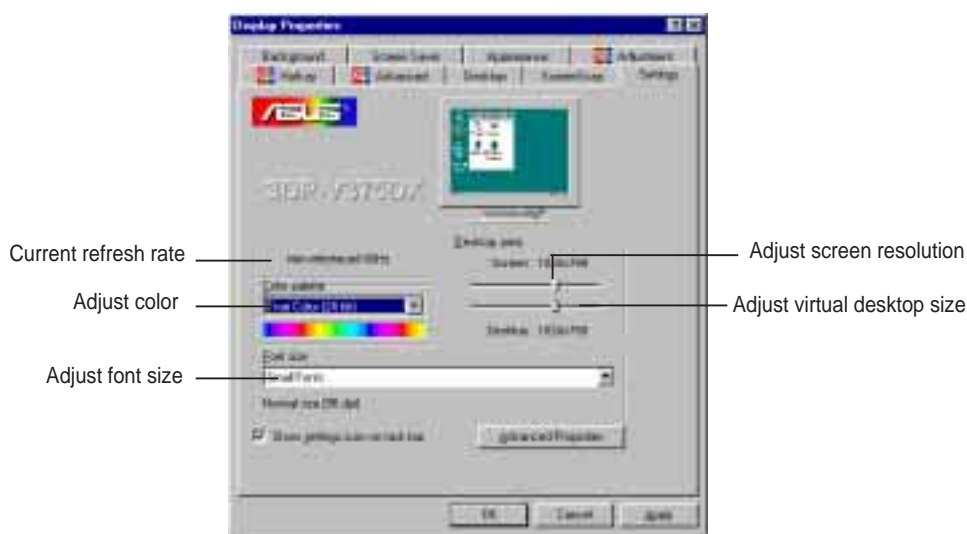
Adjustment

This lets you change your monitor settings, such as display position, size, and refresh rate. While adjusting display size and position, you can press the **ESC** key to restore to your original settings at any time. After selecting a new refresh rate, the system will restore to the original settings in 10 seconds if you do not click the **OK** button.

Adjust display position

Adjust display size

Current screen, virtual desktop size and color palette

Change refresh rate

Set to default values

Change Refresh Rate

If you want to customize a new refresh rate, select a nearest default refresh rate, then adjust the slider to where you want, test it and then add it to the list.
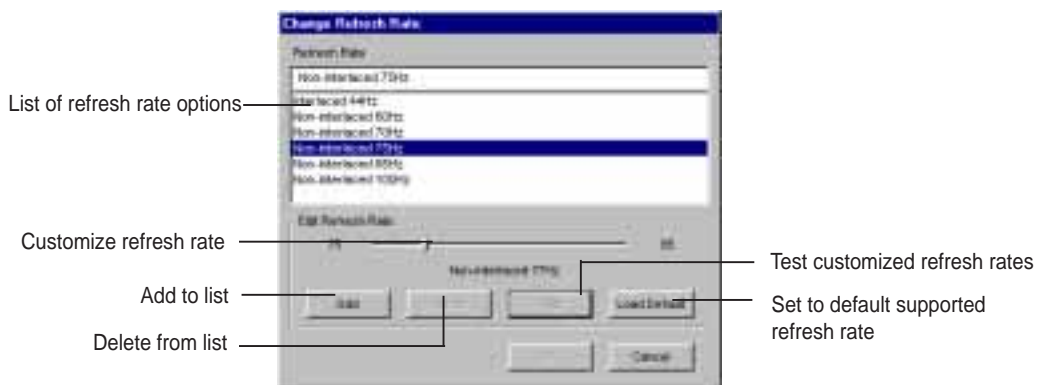
List of refresh rate options

Customize refresh rate

Add to list

Delete from list

Test customized refresh rates

Set to default supported refresh rate

III. Windows 95
Display Settings

Hotkey

This allows you to assign hotkeys in the **Value** box to move your screen up, down, left, and right, or zoom in, zoom out, and lock in the virtual desktop. Select the option from the **Name** box, then define the hotkey in the **Value** box with a single key stroke such as the **Up** key. (**Ctrl** and **Alt** keys are not necessary when making these settings)

List of hotkey options

Value

Description

Enable Hotkey

Set to default hotkey values
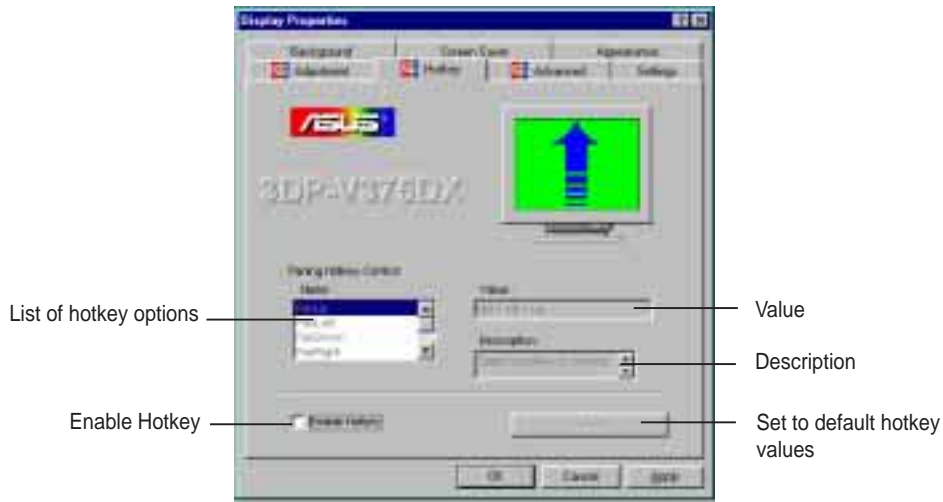
III. Windows 95
Display Settings

Advanced

These advanced settings allow you to achieve better performance and video quality.

Pentium II & Pentium Pro Acceleration — Vertical Interpolation

MMX Direct3D Acceleration — MMX Video Enhancement

Performance Setting — MPEG Color Adjustment
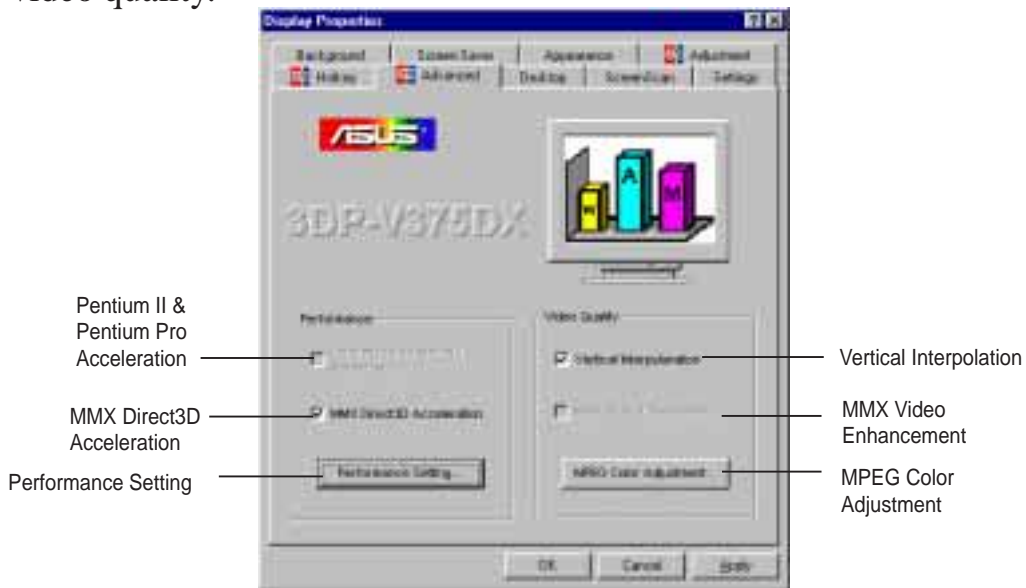
Vertical Interpolation
Check this function to enable vertical interpolation and enjoy smooth motion video.

MPEG Color Adjustment
This lets you control the color of your MPEG video, such as hue, saturation, brightness & contrast for improved visual quality.

Adjust hue
Adjust saturation
Adjust brightness
Adjust contrast
Set to default values
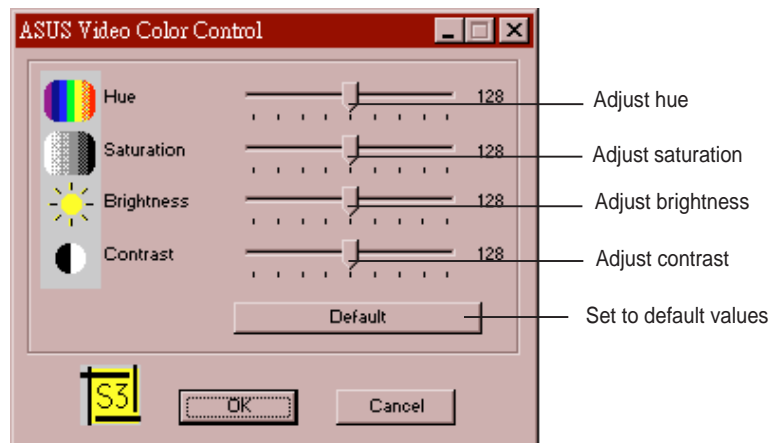
Pentium II & Pentium Pro Acceleration
Check this function to enable Pentium II & Pentium Pro CPU acceleration.

MMX Direct 3D Acceleration
Check this function to enable MMX Direct 3D acceleration.

Performance Setting

You can increase the performance setting with faster memory chips.

WARNING! Slower memory chips may produce noise or cause your system to hang when the performance setting is too high.

Lowest performance — Slow ... Fast — Highest performance

Video Memory Speed = 35 ns

III. Windows 95
Display Settings
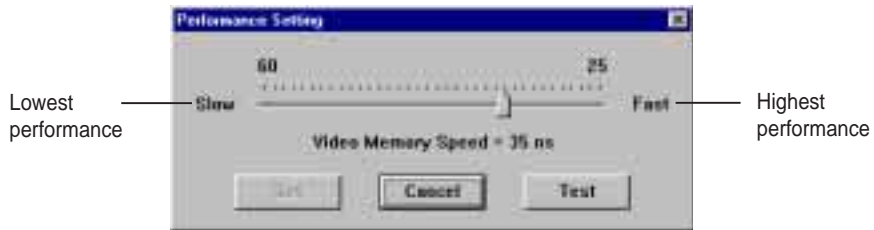
IV. Microsoft Windows 3.x

1. Video Driver Installation

The ASUS 3DP-V375DX Video drivers for Windows 3.x can be installed in Windows 3.x or in DOS.

1.1 Installing Video drivers in DOS

Insert the ASUS 3DP-V375DX Video card. Start your computer. Type **D:\SETUP** (assuming your CD-ROM drive is letter D) in DOS mode. ASUS DOS installation shell will appear and present you with a list of install options. Select **Install Windows 3.1x Driver** and then input path where your Windows 3.x system is located. (You can also go to **D:\WIN31** and type **INSTALL**)

When the ASUS drivers have been successfully installed, you can launch Windows 3.x by pressing the **Y** key if the 3DP-V375DX Video card has been installed in your system. After Windows 3.x boots up, the CD-ROM's autorun facility will present you with a list of install options. You can continue to install the other applications.

1.2 Installing Video drivers in Windows 3.x

Insert the ASUS 3DP-V375DX Video card. Restart your computer. Enter DOS mode. Switch to the standard VGA mode (16 colors, 640x480 pixels), then start Windows 3.x and double click **D:\SETUP.EXE**. The CD-ROM's autorun facility will present you with a list of install options. Click on **Install Windows 3.x Display Driver** and follow the installation steps.
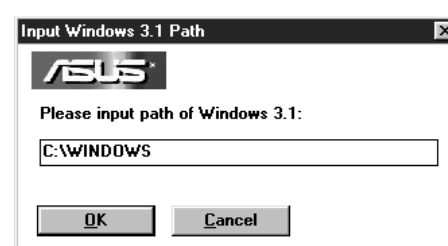
IV. Microsoft Windows 3.x

2. Install MPEG Video Player in Windows 3.x

For Software MPEG support in Windows 3.x, you must first install Microsoft Video for Windows, then install MPEG Video Player.

1. Start Windows 3.x

2. Insert the ASUS 3DP-V375DX installation CD

3. Execute **D:\SETUP.EXE**

   The CD-ROM's autorun facility will present you with a list of install options
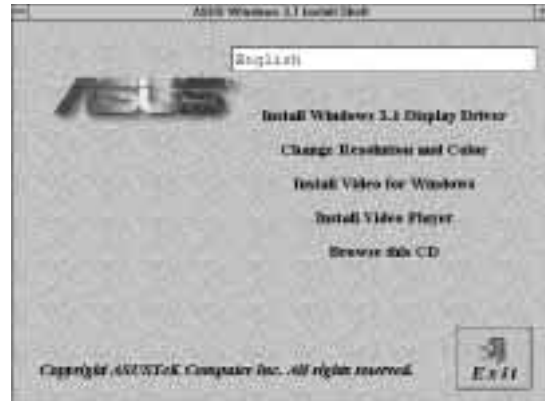
ASUS Windows 3.x Install Shell

4. Click on **Install Video for Windows** if you have not installed Video for Windows

MS Video for Windows Setup

5. Click on **Install Video Player** and follow the installation steps.
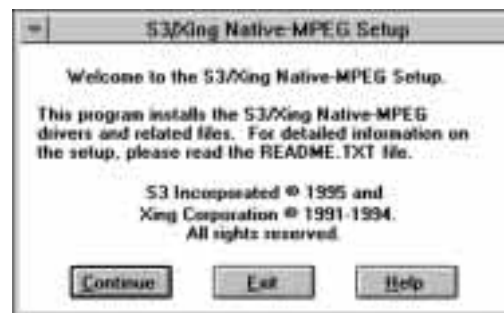
S3/Xing Native-MPEG Setup

IV. Microsoft Windows 3.x

3. Changing Display Settings in Windows 3.x

To enter the **ASUS Display Panel**, open **ASUS S3 Series** program group and click **ASUS Display Panel** icon. Click the appropriate Tab as follows:

Setting

This allows you to adjust screen resolution, virtual desktop size, color palette, font size, and change performance. The maximum desktop and screen size selectable depends on how much memory you have. The maximum screen size selectable depends on the monitor specified. You can disable the on-line help by clearing the **"On-Line Help Enabled"** check box.

Adjust color
Adjust font size
On-Line Help Enabled
Adjust screen resolution
Adjust virtual desktop size
Adjust performance
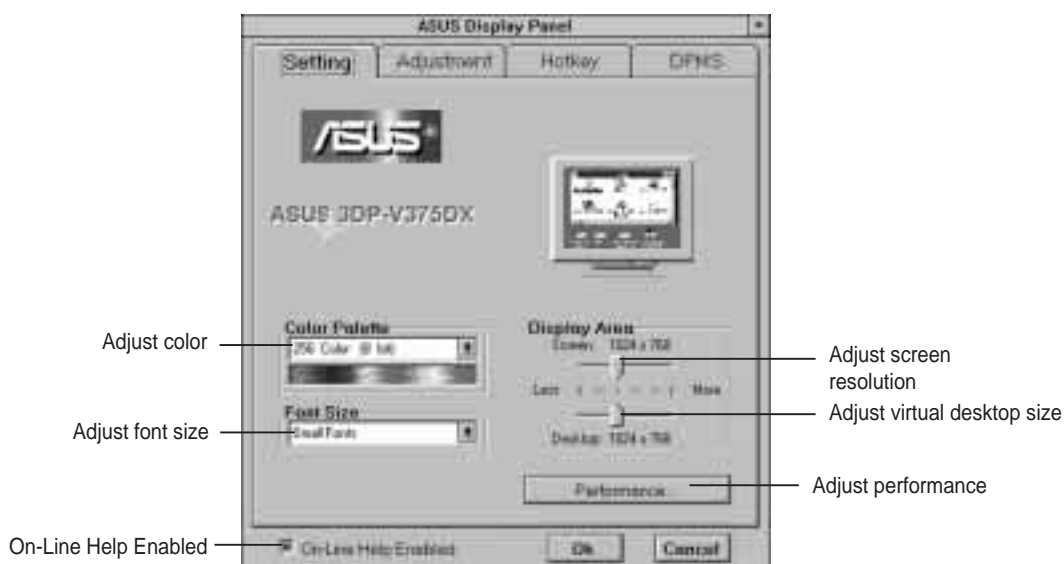
Tune Performance

You can increase the performance setting with faster memory chips. **WARNING!** Slower memory chips may produce noise or cause your system to hang when the performance setting is too high.

Maximum performance
Adjust performance

Adjustment

This lets you change your monitor settings, such as display position, size and refresh rate. While adjusting display size and position, you can press the **ESC** key to restore to your original settings at anytime.

Adjust display position

Adjust display size

Set to default values

On-Line Help Enabled

Current screen, virtual desktop size, and color palette

Current refresh rate
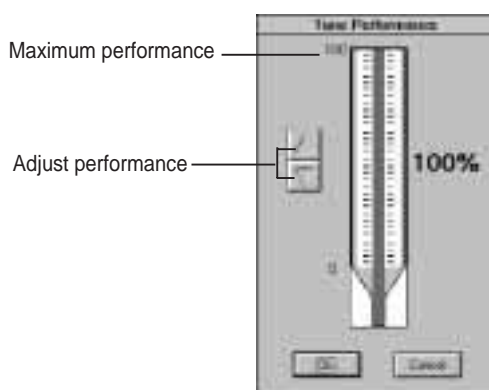
Change refresh rate
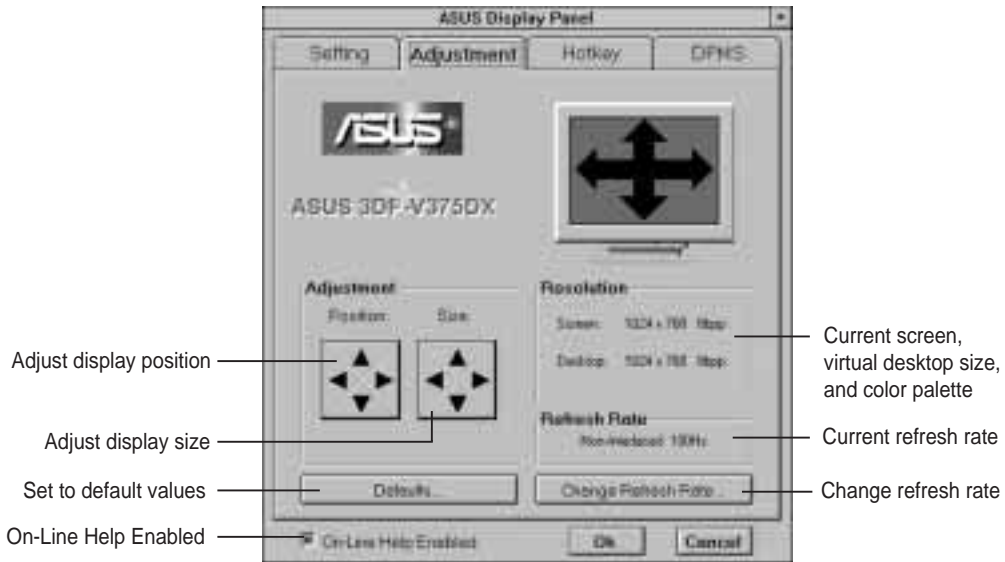
Change Refresh Rate

After selecting a new refresh rate, the system will restore to the original settings in 10 seconds if you do not click the **OK** button. If you want to customize a new refresh rate, you can first select a nearest default refresh rate, adjust the slider to where you want, test it and then add it to the list.
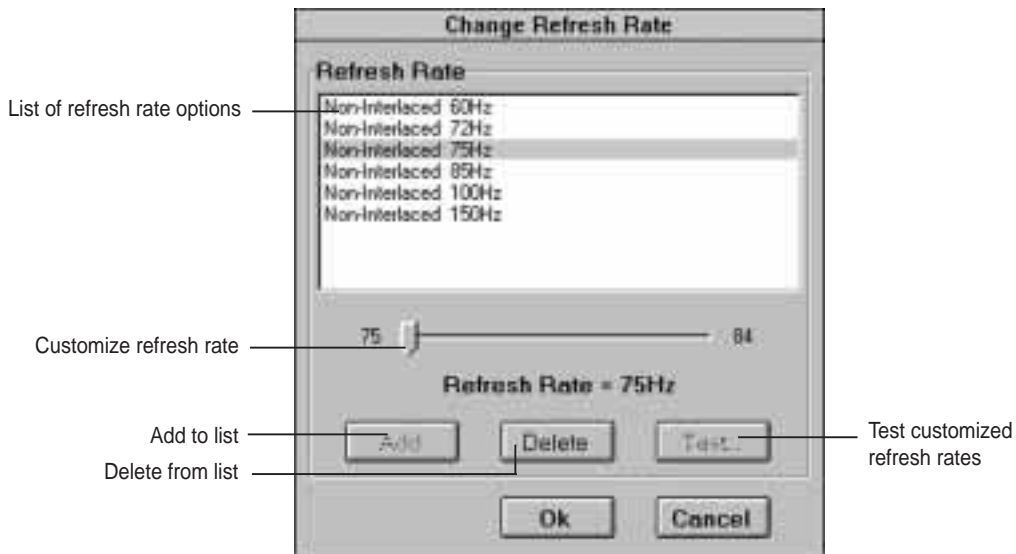
List of refresh rate options

Customize refresh rate

Add to list

Delete from list

Test customized refresh rates

IV. Windows 3.x
Display Panel

Hotkey

This allows you to assign hotkeys in the **Value** box to move your screen up, down, left, and right, or zoom in, zoom out, an lock in the virtual desktop. Select the option from the **Name** box, then define the hotkey in the **Value** box with a single key stroke such as the **Up** key. (**Ctrl** and **Alt** keys are not necessary when making these settings)

List of hotkey options

Value

Description

Hotkey enabled

Set to default values

On-Line Help Enabled

DPMS

This lets you configure the time of Standby, Suspend, and PowerOff mode for your DPMS-compliant monitor to conserve electrical energy.

DPMS enabled

Set to default values

On-Line Help Enabled

V. Microsoft Windows NT

Video Driver Installation

Installing Video Display Drivers in Windows NT 4.0

The procedure below describes how you install ASUS S3 series display driver for Windows NT.

1. Change Display Type to Standard VGA mode.

2. Run Windows NT Display program located in the **Control Panel**, under **Settings** in the **Start** menu. Alternatively, position the cursor on the background of the desktop, click the right mouse button, then select **Properties** from the pop-up menu.

3. Select the **Settings** page.

4. Select **Display Type...**

5. Select **Change...** from the display options.

6. Select **Have Disk...**

7. Windows NT will prompt you for the correct path, enter the path of driver in CD-ROM such as **D:\NT40** (assuming your CD-ROM drive is letter D).

8. A list of ASUS video adapters will be displayed. Select ASUS 3DP-V375DX , then click on the **OK** button.

9. Windows NT will once again prompt for confirmation. All appropriate files are then copied to the hard disk.

10. Select **Apply** in **Control Panel**. Restart Windows NT. Windows NT will start up using the ASUS 3DP-V375DX driver.

11. Windows NT will boot into a default mode and start the Display applet allowing for mode selection.

Note: You must select Standard VGA while installing Windows NT 4.0. If you use the detected S3 driver provided by Windows NT, and press the "**Test**" button, the system will hang!

V. Microsoft Windows NT

Video Driver Installation

Installing Video Display Drivers in Windows NT 3.51

The procedure below describes how you install ASUS 3DP-V375DX display driver for Windows NT.

1. Change Display Type to Standard VGA mode.

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

3. Double-click the **Control Panel** icon.

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

5. Click **Change Display Type** button.

6. Click **Change** button.

7. Click **Other**.

8. Insert the ASUS 3DP-V375DX Installation CD into your CD-ROM drive. For Windows NT 3.51, type the following: **D:\NT351** (assuming your CD-ROM drive is letter D)

9. Click **OK** button.

10. Select **ASUS 3DP-V375DX**

11. Click **Install**.

12. Click **Yes** to change your system configuration.

13. Click **Continue** to confirm the full path name.

14. After the files have been copied to your computer, click **OK**.

15. Reboot Windows NT.

16. After reboot, the **Invalid Display Settings** window appears. Click **OK**.

17. The **Display Settings** dialogue box appears. Select a desired display mode. For more detailed information about changing your display mode, click **Help**.

   Note: You must select Standard VGA while installing Windows NT 3.5x. If you use the detected S3 driver provided by Windows NT, and press the "**Test**" button, the system will hang!

VI. DOS Drivers

DOS Drivers Installation

Type **D:\SETUP.EXE** to install video drivers in pure DOS mode. The ASUS DOS installation shell will appear.

Install DOS Utilities

DOS Utilities let you select a default refresh rate for each resolution. It will keep your settings in AUTOEXEC.BAT. You can modify it by running S3REFRSH.EXE.

Install AutoCAD, MicroStation, & S3d Toolkit Drivers

1. Enter pure DOS mode
2. Insert the ASUS Installation CD (assuming your CD-ROM drive is letter D)
3. Type **D:\SETUP.EXE** to install video drivers in DOS. The ASUS DOS installation shell will appear and present you with a list of install options.
4. You can choose **Install AutoCAD Driver**, **Install MicroStation Driver**, or **Install S3d Toolkit Drivers.** Follow the instructions to complete the installation of the drivers. Your video drivers should be installed and ready to use.

```
========================================
S3d Driver Installer version 1.00
Copyright S3 Incorporated 1996
========================================
=>   S3 ToolKit Drivers
     BRender Drivers
     RenderWare Drivers (Use Windows Setup)
     Help
     Exit


Press   RETURN   to start installation
        ESC      to exit without installation
```

* S3d Toolkit provides S3d, RenderWare, and BRender 3D libraries.

VII. Display Information

3D Function Support

The following 3D functions are supported on this product:

☑ Dynamic Z-buffering

☑ Double buffering

☑ Texture modes
   - ☑ Point sampling
   - ☑ Bilinear filtering
   - ☑ MIP mapping
   - ☑ Trilinear MIP mapping
   - ☑ Perspective correction

☑ Atmospheric effects
   - ☑ Fogging
   - ☑ Transparency

☑ Shading
   - ☑ Dynamic flat shading
   - ☑ Gouraud shading

☑ Lighting

VII. Display Information

Resolution Table

2MB Video Memory

Resolution & Color Depth	Vertical Frequency	Horizontal Frequency	Note
640x480 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.8KHz 81.3KHz	
800x600 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	
1024x768 256 colors	87Hz (int.) 60Hz 70Hz 75Hz 85Hz 100Hz 120Hz	35.6KHz 48.5KHz 56.6KHz 60.0KHz 68.6KHz 80.8KHz 96.7KHz	
1152x864 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz	55.3KHz 66.4KHz 70.2KHz 79.6KHz 92.1KHz	
1280x1024 256 colors	87Hz (int.) 60Hz 75Hz 85Hz	46.5KHz 64.0KHz 80.1KHz 90.4KHz	
1600x1200 256 colors	98Hz (int.) 60Hz 72Hz	63.9KHz 80.0KHz 96.2KHz	

int. = Interlaced

VII. Display Information

2MB Video Memory (Cont.)

Resolution & Color Depth	Vertical Frequency	Horizontal Frequency	Note
640x480 65K high colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.8KHz 81.3KHz	
800x600 65K high colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	
1024x768 65K high colors	87Hz (int.) 60Hz 70Hz 75Hz 85Hz 100Hz 120Hz	35.6KHz 48.5KHz 56.6KHz 60.0KHz 68.6KHz 80.8KHz 96.6KHz	
640x480 16.7M true colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.7KHz 81.3KHz	
800x600 16.7M true colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	

int. = Interlaced

VII. Display Information

Resolution Table

4MB Video Memory

Resolution & Color Depth	Vertical Frequency	Horizontal Frequency	Note
640x480 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.8KHz 81.3KHz	
800x600 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	
1024x768 256 colors	87Hz (int.) 60Hz 70Hz 75Hz 85Hz 100Hz 120Hz	35.6KHz 48.5KHz 56.6KHz 60.0KHz 68.6KHz 80.8KHz 96.7KHz	
1152x864 256 colors	60Hz 72Hz 75Hz 85Hz 100Hz	55.3KHz 66.4KHz 70.2KHz 79.6KHz 92.1KHz	
1280x1024 256 colors	87Hz (int.) 60Hz 75Hz 85Hz	46.5KHz 64.0KHz 80.1KHz 90.4KHz	
1600x1200 256 colors	98Hz (int.) 60Hz 72Hz	63.9KHz 80.0KHz 96.2KHz	
640x480 65K high colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.8KHz 81.3KHz	

int. = Interlaced
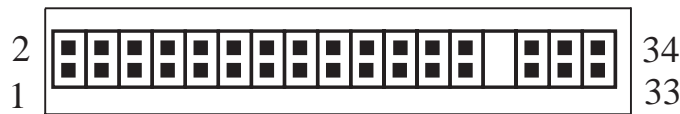
VII. Display Information

4 MB Video Memory (Cont.)

Resolution & Color Depth	Vertical Frequency	Horizontal Frequency	Note
800x600 65K high colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	
1024x768 65K high colors	87Hz (int.) 60Hz 70Hz 75Hz 85Hz 100Hz 120Hz	35.6KHz 48.5KHz 56.6KHz 60.0KHz 68.6KHz 80.8KHz 96.6KHz	
1280x1024 65K high colors	87Hz (int.) 60Hz 72Hz 75Hz 85Hz	46.5KHz 65.9KHz 77.9KHz 81.1KHz 91.9KHz	
* 1600x1200 65K high colors	102Hz (int.) 60Hz 70Hz	63.7KHz 76.4KHz 85.8KHz	* Windows 95 S3 Enhanced Driver Only
640x480 16.7M true colors	60Hz 72Hz 75Hz 85Hz 100Hz 160Hz	31.3KHz 37.9KHz 37.5KHz 43.4KHz 50.7KHz 81.3KHz	
800x600 16.7M true colors	60Hz 72Hz 75Hz 85Hz 100Hz 150Hz	38.2KHz 48.3KHz 47.0KHz 53.6KHz 62.9KHz 94.2KHz	
1024x768 16.7M true colors	87Hz (int.) 60Hz 70Hz 75Hz 85Hz 100Hz	35.6KHz 47.7KHz 55.5KHz 59.5KHz 67.4KHz 79.1KHz	
* 1280x1024 16.7M true colors	87Hz (int.) 60Hz 75Hz 85Hz	46.5KHz 63.3KHz 79.1KHz 89.5KHz	* Windows 95 S3 Enhanced Driver Only

int. = Interlaced

8-BIT LPB Connector

The LPB (Local Peripheral Bus) Connector is an extension of the VESA feature connector. An additional 6-pin signal and 2-pin space added to the 26-pin feature connector make a 34-pin header. This allows the normal 26-pin cable used for feature connector applications to be swap out for a standard 34-pin cable to achieve LPB operation.
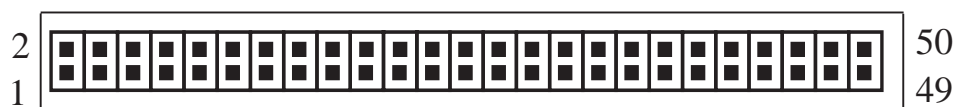
J1

Pin	Signal Description	Pin	Signal Description
1	GND	2	PA0/LPB0
3	GND	4	PA1/LPB1
5	GND	6	PA2/LPB2
7	EVIDEO/VREQ/VRDY/HS	8	PA3/LPB3
9	ESYNC/NF	10	PA4/LPB4
11	EVCLK/CREQ/CRDY/VS	12	PA5/LPB5
13	N/C	14	PA6/LPB6
15	GND	16	PA7/LPB7
17	GND	18	VCLK/LCLK
19	GND	20	BLANK/NF
21	GND	22	HSYNC/NF
23	N/C	24	VSYNC/NF
25	N/C	26	GND
27	N/C	28	N/C
29	GND	30	NF/I^{2}C CLK
31	N/C	32	NF/I^{2}C DATA
33	NF/ENABLE2	34	NF/ENABLE1

16-BIT LPB Connector

This LPB (Local Peripheral Bus) Connector is also an extension of the VESA feature connector. The 16-bit LPB connector supports a larger data transfer than the 8-bit LPB connector.

J1A

| Pin	Signal Description	Pin	Signal Description
1	GND	2	PA0/LPB0
3	GND	4	PA1/LPB1
5	GND	6	PA2/LPB2
7	EVIDEO/VREQ/VRDY/HS	8	PA3/LPB3
9	ESYNC/NF	10	PA4/LPB4
11	EVCLK/CREQ/CRDY/VS	12	PA5/LPB5
13	N/C	14	PA6/LPB6
15	GND	16	PA7/LPB7
17	GND	18	VCLK/LCLK
19	GND	20	BLANK/NF
21	GND	22	HSYNC/NF
23	N/C	24	VSYNC/NF
25	N/C	26	GND
27	N/C	28	N/C
29	GND	30	NF/I^{2}C CLK
31	N/C	32	NF/I^{2}C DATA
33	NF/ENABLE2	34	NF/ENABLE1
35	N/C	36	N/C
37	GND	38	PA8/LPB8
39	GND	40	PA9/LPB9
41	GND	42	PA10/LPB10
43	PA12/LPB12	44	PA11/LPB11
45	PA13/LPB13	46	GND
47	PA14/LPB14	48	GND
49	PA15/LPB15	50	GND

VIII. Hardware Information

Memory Upgrades

The ASUS 3DP-V375DX graphics card comes with 2MB video memory configuration. Four memory sockets are available to upgrade the video memory to 4MB by adding four 512KB (256Kx16) EDO DRAM chips. Memory size of 3MB is not supported on this product. Specifications may change without notice.

Onboard DRAM Specification:
40 pins SOJ, 256Kx16,
DUAL CAS EDO DRAM 30ns/35ns

Suggested DRAM for 3DP-V375DX:
1. MOSEL V53C16258HK35
2. EtronTech Em614163A-35
3. Silicon Magic SM81C256K16A1-30

Small indentation on the chip's sloped edge
Socket's cut corner
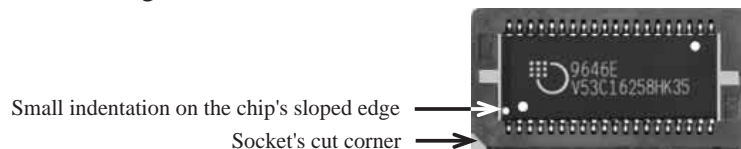
This is an example of an installed DRAM. The indentations were made white for visibility, they are normally black.

1. Match the small indentation on the chip's sloped edge with the socket's cut corner.
2. Place the chip flat and evenly into the socket and press firmly but carefully so that the chip enters evenly. When installed, the chip should be flush with the socket.

> **WARNING**: Installing the memory chip incorrectly may damage the memory and the product itself.

NOTE:

1. Make sure that all video memory are of the same type and speed.
2. For greater reliability, use the same memory specification as the on-board memory.
3. If you experience problems with your display such as noise or irregular objects, try decreasing the performance adjustment, as on pages 22 & 26.

A. Questions & Answers

QI. *After installing the driver, Windows 95 doesn't prompt me for restarting and the driver still doesn't work after I reboot it.*

A> You may have installed similar drivers before. Try the following steps to install:

1. Use right button of mouse to click on **My Computer** icon on desktop
2. Select **Properties.** System Properties box appears
3. Click on **Device Manager** tab
4. You will see a list of devices on your computer
5. If **Display adapters** appears in the list, click it.
    If **Display adapters** does not appear, jump to step 9. and continue
6. The name of your card will be listed in the box. Double-click it
7. The properties box of your card appears. Select **Driver** tab
8. Click **Change Driver..** and follow the installation steps
9. Click **Other devices**, you will see your card is listed
10. Click on the name of card, the properties box appears. Select **Driver** tab
11. Click **Change Driver.** and follow the installation steps.

QII. *After installation and restarting, Windows 95 informs me that display setting is still incorrect. What can I do?*

A> There may be a conflict between previous and current display drivers. This is caused by incomplete removal of previous display driver. Try the following steps to remove it:

1. Use right button of mouse to click on **My Computer** icon on desktop
2. Select **Properties**. System Properties box appears
3. Click on **Device Manager** tab
4. You will see a list of devices on your computer
5. Open **Display adapters** in the list (double-click it)
6. You will find two (or more) conflicted adapters listed here
7. Remove all previous adapters by selecting them and press **Remove**
8. Close Device Manager and restart Windows 95
9. Now display driver will work correctly.

QIII. *My monitor is not capable of high resolution or refresh rate.*

A> It depends on display characteristics of your monitor. Consult your monitor manual for proper configuration.