VERSION 1.0
1997/10/01 ROC

CE

FCC-B Radio Frequency Interference Statement

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 when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

MICRO-STAR MS-4413

FC

Tested to Comply with FCC Standard

FOR HOME OR OFFICE USE

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Chapter 1

MS-4413 3DLABs Permedia 2 AGP True 3D VGA Card

1. Overview

The MS-4413 3DLABs Permedia 2 AGP True 3D VGA card is a high performance graphics card that integrates high quality 3D polygon and textured graphics acceleration, windows acceleration and state-of-the-art MPEG1/MPEG2 playback with fast integrated SVGA core, integrated RAMDAC and video ports.

2. Features

Chip List:

❒ **3DLABs Permedia 2:** 2D & 3D accelerator processor w/ build-in Glint setup engine and 230MHz RAMDAC.

Full support for Intel's Accelerated Graphics Port (AGP)

- 66MHz operation
- DMA support
- Execute mode support
- Full sideband addressing

Enhanced 3D graphics features and performance

- 800k Polygons/sec Texture Mapped
- Polygon-based with Z-buffer
- True-color 3D graphics
- Texture decompression
- Full scene anti-aliasing

- 83M perspective correct, bilinear-filtered, texture-mapped pixel/sec
- 42M perspective correct, bilinear-filtered, texture-mapped, depth buffered pixel/sec

Integrated 100MFlop GLINT Delta Geometry pipeline setup processor

Integrated true-color 230 MHz RAMDAC

- DPMS, DDC1 and DDC2AB+
- Clock synthesizer and Hardware cursor

Fully Microsoft PC97 and Intel GPC compliant

Memory Support

- On-board 4MB or 8MB(optional), High-performance Synchronous Graphics RAM (SGRAM)

2D Driver

- Windows®95/98 with DirectDraw
- Windows®NT with DirectDraw
- QuickDraw

3D Driver

- Direct 3D
- OpenGL
- Creative labs' CGL
- Quickdraw 3D and RAVE
- Autodesk's Heidi for 3D Studio MAX

Resolutions Supported

- 640x480x32bpp
- 800x600x32bpp
- 1024x768x32bpp
- 1152x870x32bpp
- 1280x1024x32bpp
- 1600x1200x16bpp

3. System Requirements

To install MS-4413 VGA card, your computer system needs to meet the following requirements:

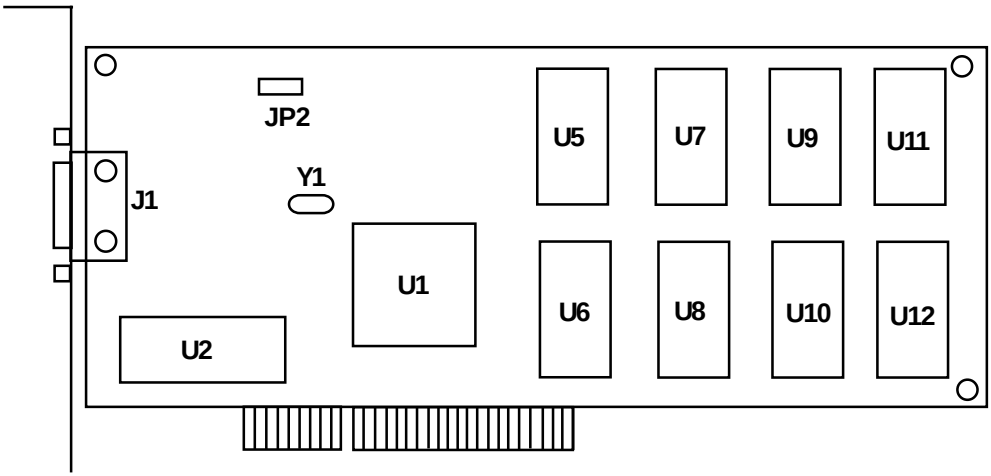
Computer	Intel Pentium® II processor or compatible system
Expansion Slot	AGP slot
Monitor	VGA Support, minimum 640x480 resolution
Operating system	Windows® 95, Windows® 98, Windows® NT 3.51 or 4.0
CD-ROM	Double Speed or Higher

4. Package Contents

Before installing the MS-4413 VGA card, please check to make sure that your package is complete:

- VGA card
- CD-ROM
  - drivers and applications on CD-ROM
  - documentation on CD-ROM
- User's Guide

5. Card Layout

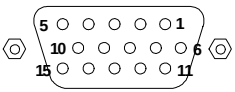


1. J1	**VGA Connector**
2. U1	**3DLABs Permedia 2**
3. Y1	**Crystal 14.31818MHz**
4. U5~U12	**256kx32SGRAM**
5. U2	**VGA BIOS**

Jumper Setting: JP2

Short 1-2	VGA Enable
Short 2-3	VGA Disable

6. DB 15 Pin Connector



Analog Video Display Connector(DB15-S)	
Pin	**Signal Description**
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

7. Vertical Refresh Rate

Resolution	Color	Vertical Refresh
640x480	8bit, 16bit, 32bit	60, 72, 75
800x600	8bit, 16bit, 32bit	60, 72, 75
1024x768	8bit, 16bit, 32bit	60, 72, 75
1280x1024	8bit, 16bit, 32bit	60, 70
1600x1200	16bit	60

Chapter 2

Installation of MS-4413 VGA Drivers

1. Driver

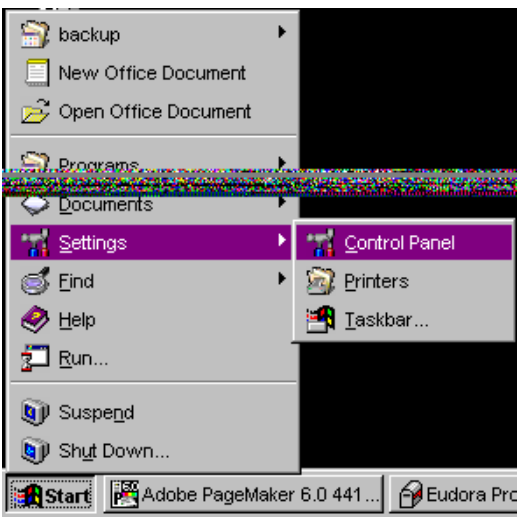
1.1 Install Enhance Drivers for Windows® 95

After installing MS-4413 card in the mainboard, Windows® will auto-detect the changes in your hardware configuration, and will install the Standard VGA Driver. To get a higher resolution and performance, you need to install the MS-4413 Driver.

To install MS-4413 Enhance Drivers, follow the steps below:

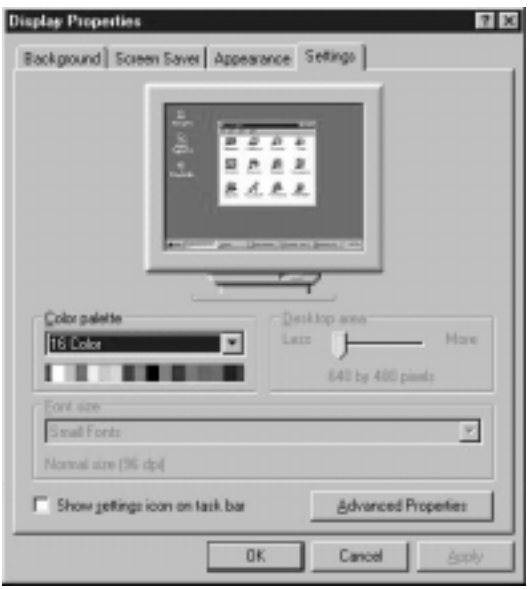
Step 1: Insert the 4413_DRV CD into your CD-ROM drive.

Step 2: In Windows®95, click on the **Start** Menu.



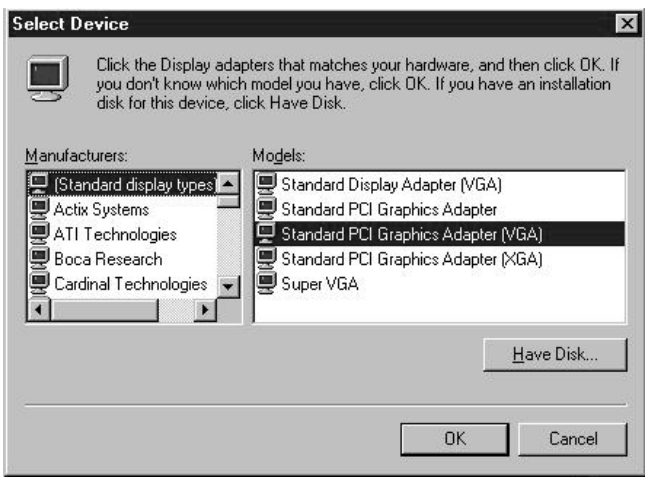
Step 3: Choose **Settings,** then open **Control Panel.**

Step 4: Double click on **Display** Icon.

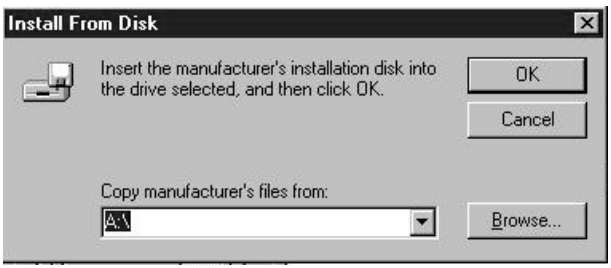


Step 5: Choose **Settings.** Then, click on the **Advanced Properties.**

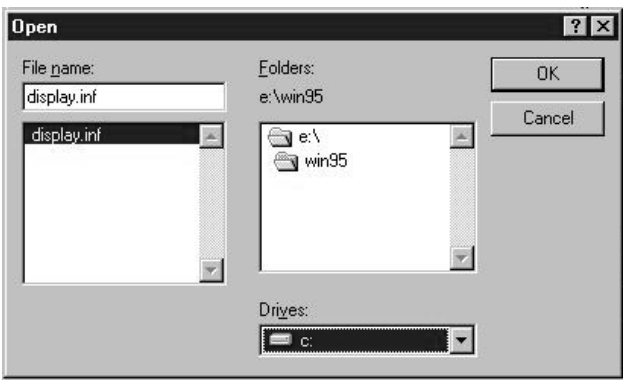
Step 6: Look for **Adapter** Type**,** then click on **Change.**



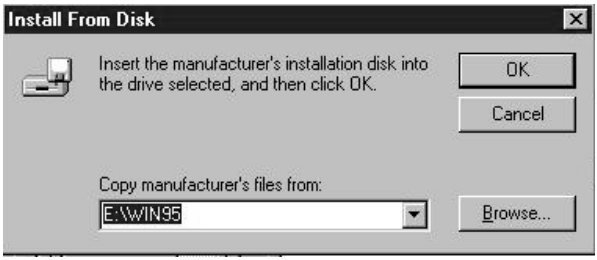
Step 7: Click on **Have Disk.**



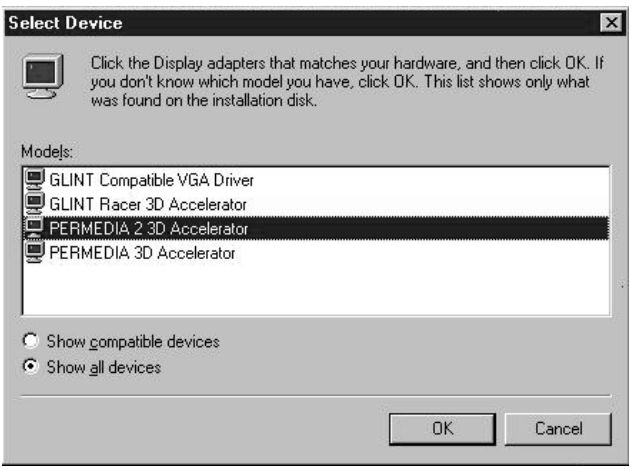
Step 8: Click **Browse.**



Step 9: Look for the CD-ROM drive and search for **E:\Win95** Directory**.** Then, click **OK.**



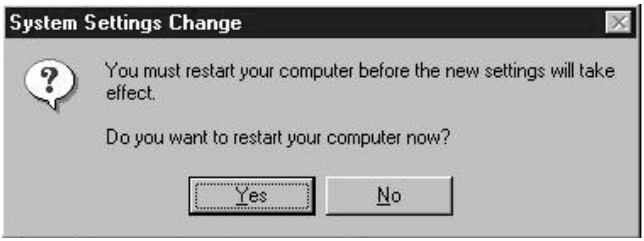
Step 10: Choose **OK.**



Step 11: Select **PERMEDIA 2 3D** , then click **OK.**
This will start copying the necessary files.

Step 12: Click on the **Apply** button, then **OK**.

Step 13: Click on the **Apply** button.



It will then prompt you to restart Windows®.

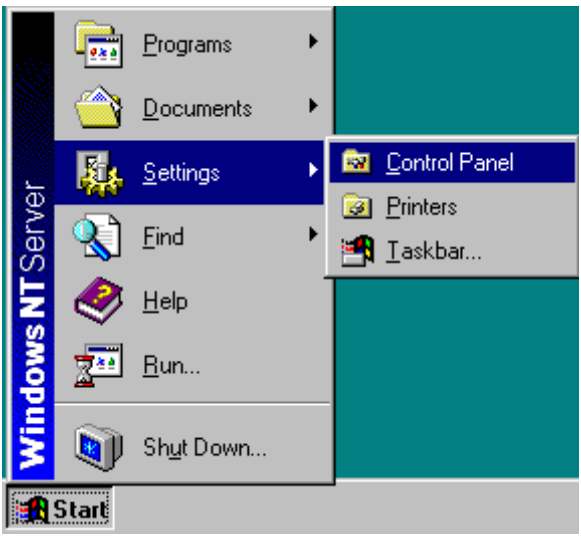
Step 14: Click on the **Yes** button.

1.2 Install Enhance Drivers For Windows® NT

After installing MS-4413 Card, Windows®NT will default to Standard VGA mode 640x480x16 colors. Follow the steps below to install the VGA driver.

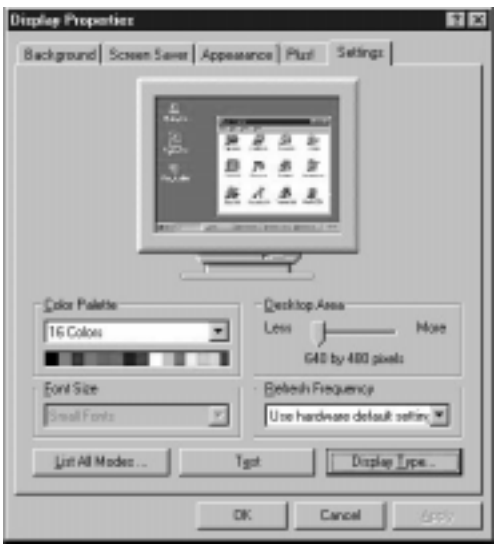
Step 1: Insert the 4413_DRV CD into your CD-ROM.

Step 2: In Windows®NT, click on the **Start** Menu.

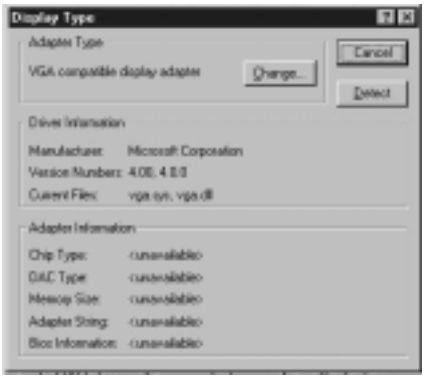


Choose **Settings,** then click on the **Control Panel.**

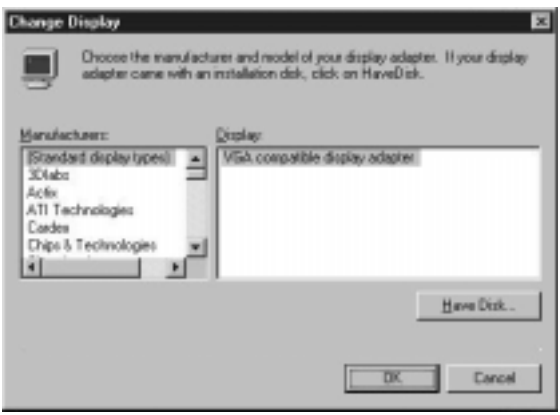
Step 3: Double Click the **Display** Icon.



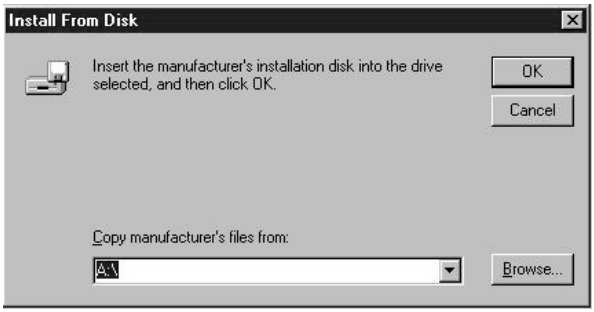
Step 4: Choose **Settings,** then click on the **Display Type.**



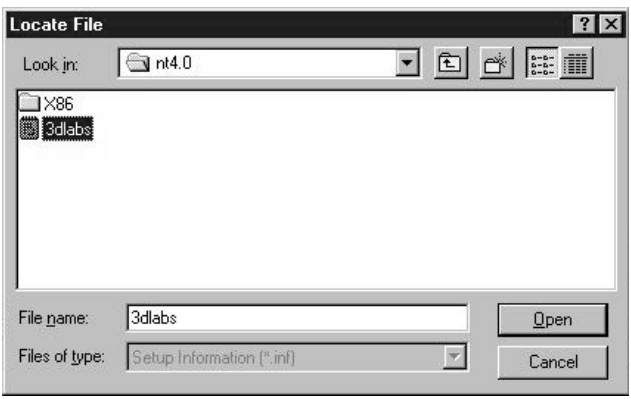
Step 5: Click on the **Change** button.



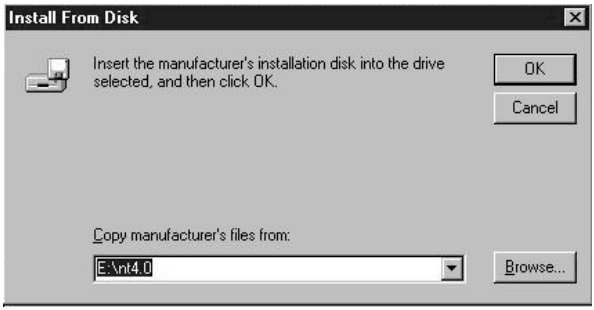
Step 6: Click on the **Have Disk** button.



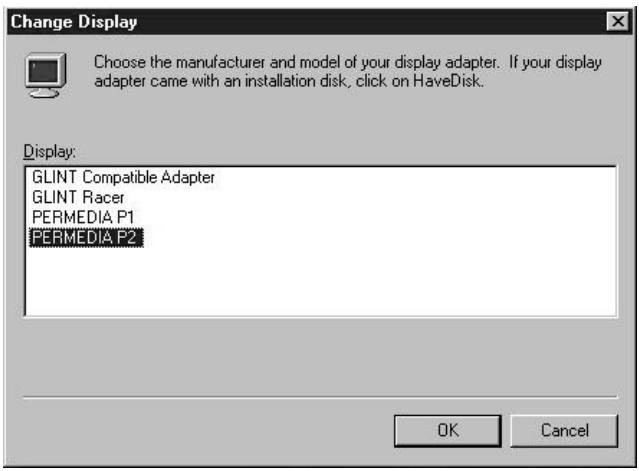
Step 7: Click on the **Browse** button.



Step 8: Go to the **CD-ROM drive,** then look for the **NT4.0** folder. Choose **3dlabs,** then click the **Open** Button.



Step 9: Click the **OK** button.

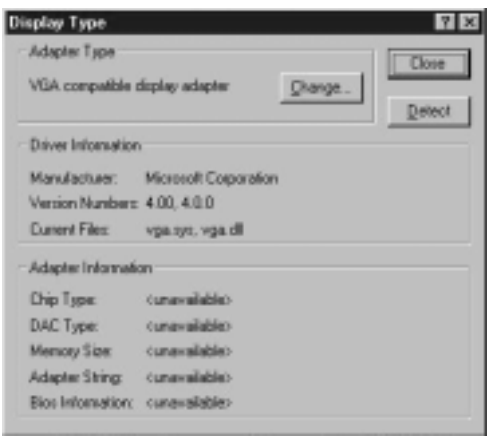


Step 10: Choose **PERMEDIA P2,** then click **OK**.

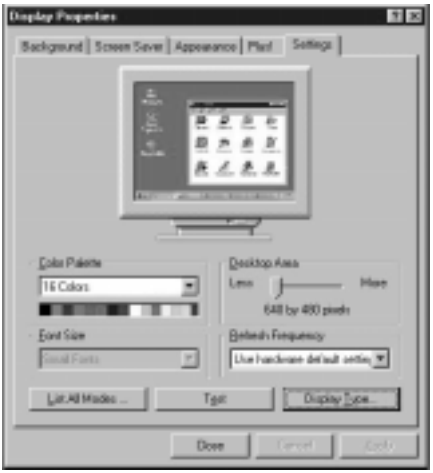
This will prompt you about a Third Party Driver.

Step 11: Click the **Yes** button.

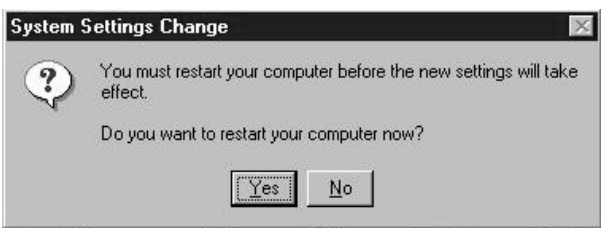
Step 12: Click the **OK** button.



Step 13: Click the **Close** button.



Step 13: Click the **Close** button.



It will then prompt you to restart Windows®.

Step 14: Click on the **Yes** button.

1.3 Install Enhance Drivers For Windows® 98 (Memphis)

After installing MS-4413 card in the mainboard, Windows® will auto-detect the changes in your hardware configuration, and will automatically install the Standard VGA Driver. To get a higher resolution and performance, you need to install the MS-4413 Driver.

To install MS-4413 Enhance Drivers, follow the steps below:

Step 1: Insert the 4413_DRV CD into your CD-ROM.

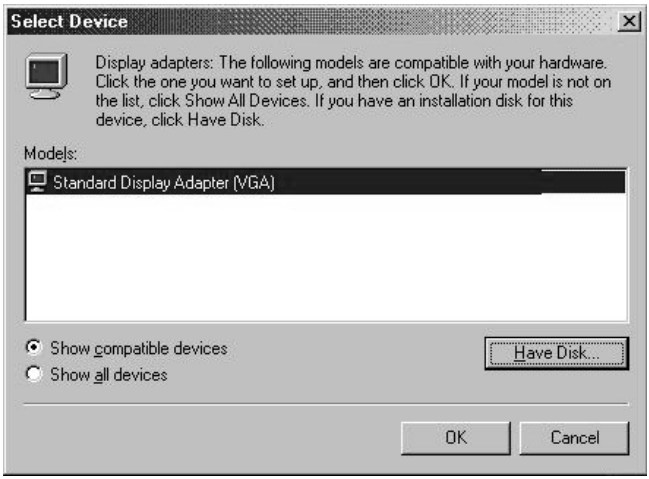
Step 2: In Windows® 98, click on the **Start** Menu.

Step 3: Choose **Settings,** then open **Control Panel.**

Step 4: Double click on **Display** Icon.

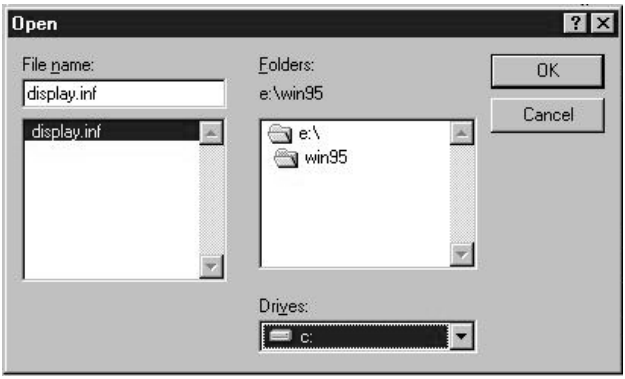
Step 5: Choose **Settings** and then click on the **Advanced Properties.**

Step 6: Choose **Change.**



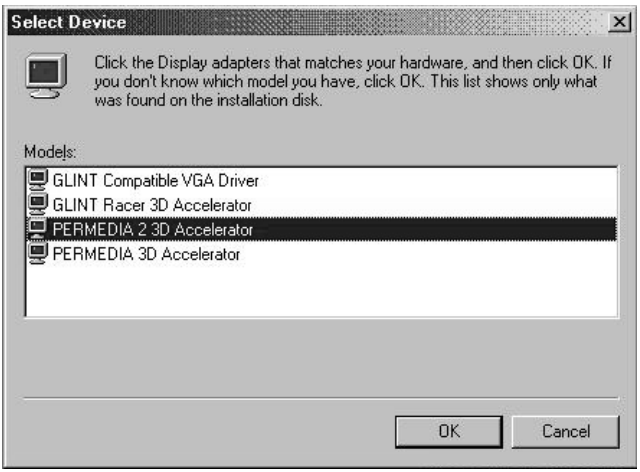
Step 7: Choose **Have Disk.**

Step 8: Choose **Browse.**



Step 9: Look for CD-ROM drive and search for **E:\Win95.** Then, click **OK.**

Step 10: Choose **OK.**



Step 11: Select **PERMEDIA 2 3D Accelerator,** then click **OK.**
It will start copying the necessary files.

Step 12: Click on the **Apply** button, then **OK**.

Step 13: Click on the **Apply** button.

It will then prompt you to restart Windows™.

Step 14: Click on the **Yes** button.

1.4 Install Enhance Drivers For IBM® OS/2

Follow the procedure listed below to install the OS/2 display driver. If you are installing OS/2 for the first time, install the OS/2 for VGA first and reconfigure the driver later.

To install MS-4415 Enhance Drivers, follow the steps below:

Step 1: Open an OS/2 Window.

Step 2: Insert the CLAGP_DRV CD into CD-ROM drive: and click OK.

Step 3: Change to the CD-ROM drive.

Step 4: At the CD-ROM prompt type

OS/2\SETUP C

where 'C' signifies your boot drive, then press[Enter].

Step 5: From the Display Driver Install dialogue box, check Primary Display and click OK.

Step 6: Next, verify the correct Source Directory and click Install to begin the installation process.

Step 7: From the Display Driver Install information box, click OK to proceed.

Step 8: The Setup Program will take you back to the OS/2 Window once the driver has been copied to your bootable drive. Type

EXIT

at the prompt and click OK.

Step 9: Remove the driver form the CD-ROM drive:

Step 10: Shutdown to restart OS/2 with your newly installed OS/2 driver.

Configuring the OS/2 Driver:

To configure your OS/2 driver once it is installed, follow the procedure listed below.

Step 1: Click on the System icon in the System Setup folder.

Step 2: Select the Screen tab to display resolutions and screen refresh rates on page one of the System Settings dialog box.

Step 3: Select the resolution and refresh rate you want and follow the on-screen prompts.

Step 4: Shutdown and restart your system for these changes to take effect.

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