
3D XPRESSION

User's Guide

Version 1.0 CD

© Copyright 1996, by ATI Technologies Inc.

All rights reserved, including those to reproduce this guide or parts thereof, in any form without the express written permission of ATI Technologies Inc.

Features and specifications are subject to change without notice. Trademarks and/or registered trademarks are the properties of their respective owners:

ATI, *mach64*, 3D XPRESSION, 3D RAGE, ATI DeskTop, FlexDesk+, DeskScape, WinSwitch — ATI Technologies Inc.; AutoCAD, AutoShade, 3D Studio — Autodesk Inc.; MicroStation — Bentley Systems Inc.; Pentium, Pentium Pro — Intel Corporation;
IBM, PC, VGA, OS/2 — International Business Machines Corp.; Windows 3.1x, Windows 95, Windows NT, Video for Windows — Microsoft Corp.; MultiSync — NEC Technologies Inc.; VL-Bus, VESA — Video Electronics Standards Association.

Disclaimer

The manufacturer (MFR) reserves the right to make changes to this document and the products which it describes without notice. The MFR shall not be liable for technical or editorial errors or omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

The MFR makes no representation that the interconnection of products in the manner described herein will not infringe on existing or future patent rights, nor do the descriptions contained herein imply the granting of license to make, use or sell equipment constructed in accordance with this description.

The PCI *mach64* accelerators have been designed to support the PCI local bus standards. Some computers use proprietary local bus circuitry and therefore may not be fully compatible with the MFR's local bus cards. Although tested successfully in a wide variety of computer systems, the MFR cannot be held responsible for any incompatibilities which may occur between this card and the system configuration you plan to use. We recommend that you check with the dealer or distributor for your computer system before installing your card.

Table of Contents

Getting Started	1
What is 3D XPRESSION?	2
What's in the Package?	3
System Requirements	3
Using this Guide	4
Other Sources of Information	4
Hardware Installation	5
Preparing Your Computer	6
Installing the Hardware	7
Installing ATI's Enhanced Drivers	11
Installing Enhanced Drivers for Windows 95	12
Installing Software MPEG for Windows 95	13
Installing Enhanced Drivers for Windows NT	14
Installing Enhanced Drivers for Windows 3.1x	15
Using Software MPEG with Windows 3.1x	17
Installing Enhanced Drivers for OS/2	18
Installing Enhanced Drivers for AutoCAD	20
Installing Enhanced Drivers for MicroStation	22
Using VESA BIOS Extensions	24
Special Features	25
Adding ATI's TV Tuner	26
Adding ATI's Hardware MPEG	26
Reference	27
Running Diagnostics	28
Troubleshooting Tips	29
ATI Multimedia Channel	32
Specifications	33
Video Mode Table	34
Compliance Information	35



CHAPTER 1

Getting Started

Welcome to the exciting world of 3D! This new technology adds a new dimension to your computer experience.

ATI's 3D XPRESSION brings games to life with stunning graphics and screaming fast action previously available only on gaming consoles. Its features will transform your computer into a high performance multimedia workstation.

This guide provides all the information you need to install the 3D XPRESSION. Enjoy the new dimension!



IN THIS CHAPTER...

- What is 3D XPRESSION?
- What's in the Package?
- System Requirements
- Using this Guide
- Other Sources of Information

What is 3D XPRESSION?

The 3D XPRESSION is a 3D games and multimedia accelerator card. It uses ATI's 3D RAGE accelerator chip to provide advanced 3D support, accelerated 2D graphics, and TV quality video.

Games and software applications that support the 3D RAGE run with fluid motion and in brilliant color. Graphics are smooth and highly detailed.

The 3D XPRESSION's advanced features support the next generation of 3D capabilities:

- Mip maps
- Gouraud shading
- Lit and video textures
- Alpha blending and fog effects
- Six levels of texture mapping
- Perspectively correct texture mapping

The 3D XPRESSION is a part of ATI's legendary *mach64* family of graphics accelerators. Your existing 2D games and applications will snap to life with 64-bit acceleration and faster, more vibrant colors.

Viewing full-screen, full-motion video is now possible with the 3D XPRESSION's superior MPEG and video playback. The TV quality video playback is the best available today.

For future expansion, you can use the ATI Multimedia Channel to blend the entertainment of your TV with the intelligence of your PC. ATI's TV tuner and hardware MPEG player are add-in cards designed to work with the 3D XPRESSION. (For more information, see *Special Features* on page 25.)

What's in the Package?

Your package includes the following hardware, software, and documentation:

- 3D XPRESSION accelerator card
- ATI's Installation CD-ROM
- User's Guide

If any components are missing or damaged, please contact your dealer.

System Requirements

- **Computer System** — 486/Pentium[®]/Pentium Pro[®], or compatible systems with PCI Local Bus
- **Expansion Slot** — 32-bit PCI Local Bus
- **Operating System** — DOS 5.0 or higher, Windows 95[®], Windows 3.1x[®], Windows NT[®], or OS/2
Software MPEG playback is currently supported in Windows 95 and Windows 3.1x.
- **Monitor** — VGA, supporting minimum 640x480 resolution.
A Plug-and-Play monitor which supports VESA's Display Channel specifications (DDC1 or DDC2b) is required to take advantage of the DDC1/DDC2b features.
- **Display Drivers** — Any standard VGA or VESA drivers
For best performance, install ATI's mach64 enhanced drivers that are supplied in this package.

Using this Guide

The organization of this guide is as follows:



Hardware Installation contains step by step instructions to help you place your card in your computer.



Installing ATI's Enhanced Drivers describes how to install display driver software.



Special Features explains how you can take advantage of the extra add-in features.



Reference contains troubleshooting tips and specifications about your card.

Other Sources of Information

If you need additional help or require information that is not included in this guide, see the following sources of information:

Readme File

This file contains the latest information about your 3D XPRESSION.

To view the Readme file in DOS

- 1 Insert ATI's Installation CD-ROM into the CD-ROM drive.
- 2 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 3 Type **README**.

Online Help

If you require additional information, you can refer to the online help available under Windows 3.1x and Windows 95 for more information about using ATI's *mach64* enhanced drivers.

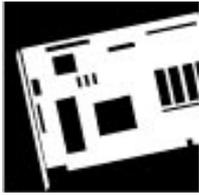
CHAPTER 2

Hardware Installation

Installing your 3D XPRESSION consists of two easy steps.

- **Placing the card in your computer**
- **Installing ATI's *mach64* enhanced display drivers**

This chapter explains how to place your card in your computer.



IN THIS CHAPTER...

- Preparing Your Computer
- Installing the Hardware



Discharge your body's static electric charge by touching a grounded surface — e.g., the metal surface of the power supply — 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.

Damage to system components, the accelerator card, and injury to yourself may result if power is applied during installation.

Preparing Your Computer

If you are using an operating system other than Windows 95, you may need to do the following before installing your card:

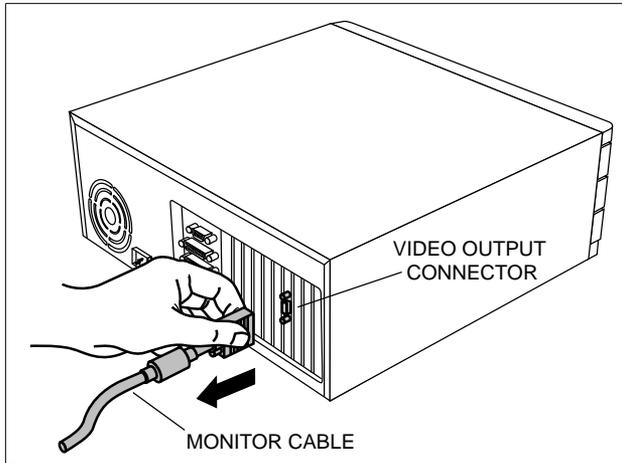
- If your current system configuration uses special drivers that are not 640x480 VGA, you may encounter conflicts with the card. We recommend that you first reconfigure your operating system to use a **standard VGA** driver before installing the card. For more information about changing your operating system configuration, see your operating system documentation.

Installing the Hardware

Now that you have prepared your computer, you are ready to install your 3D XPRESSION.

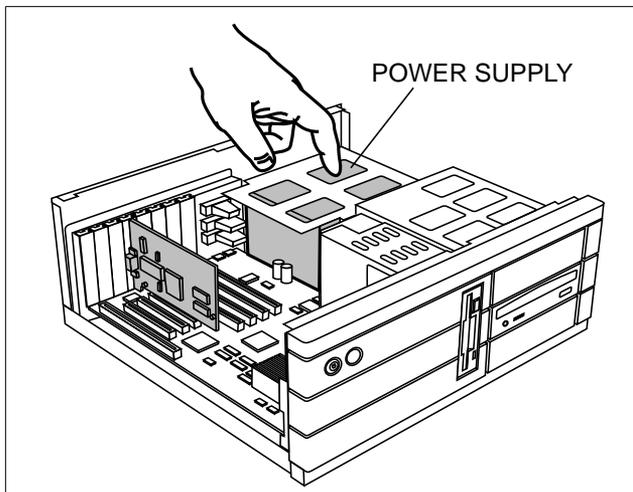
To install your 3D XPRESSION

- 1 Power off the computer and monitor, then disconnect the monitor cable from the back of your computer.



- 2 Remove the computer cover. If necessary, consult your computer system manual about removing the cover.

Remember to discharge your body's static electricity by touching the metal surface of the computer chassis.

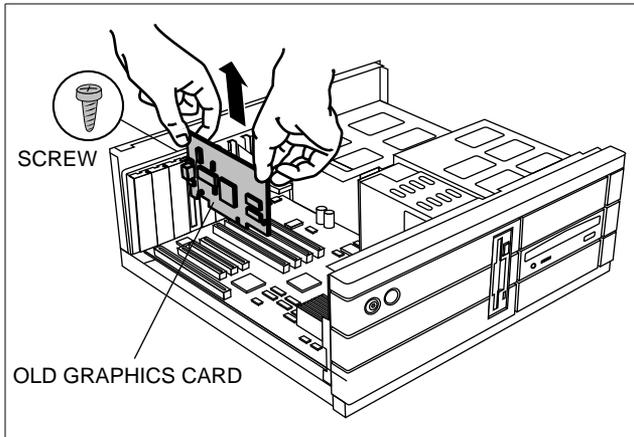


8 Hardware Installation

- 3 If there is an existing graphics card, remove it from your computer.

If the old graphics card sticks, rock it gently from end to end.

Remember to save the screw.

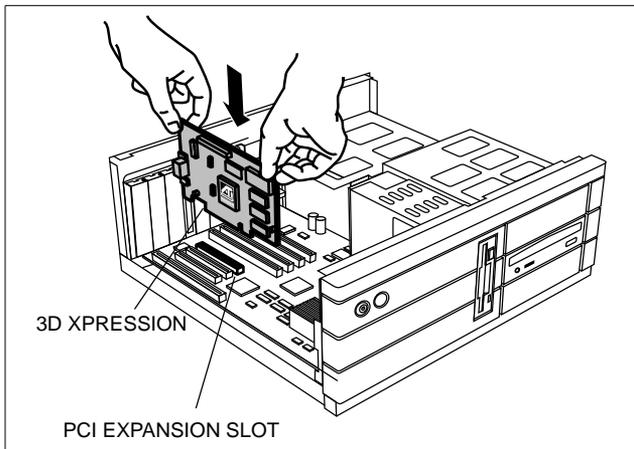


or

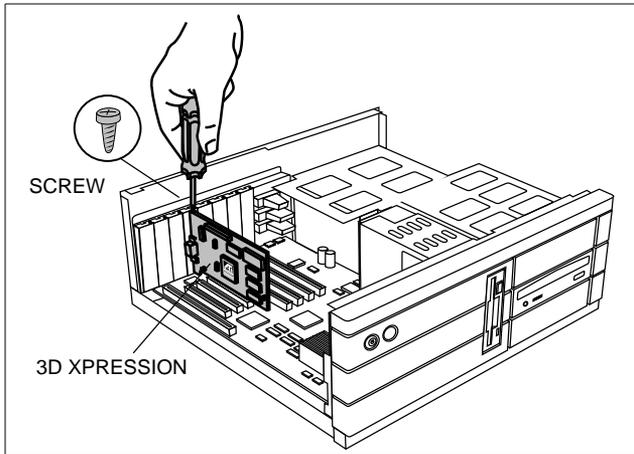
If your computer has any on-board graphics capability, you may need to disable it on the motherboard. For more information, see your computer documentation.

- 4 Align your card with an empty PCI expansion slot and gently insert it into place. You may need to remove the cover from the rear of the PCI expansion slot that you selected.

Grasp the card by the top edge and carefully seat it firmly into the PCI slot.

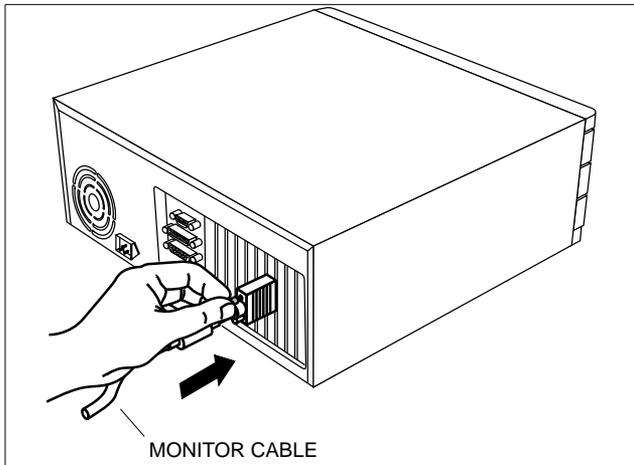


- 5 Replace the screw to fasten the card in place, and replace the computer cover.



- 6 Plug the monitor into your card, then turn on the computer and monitor.

Make sure your monitor cable is securely fastened.



You are now ready to proceed to Chapter 3 and install ATI's *mach64* enhanced drivers.

CHAPTER 3

Installing ATI's Enhanced Drivers

Your computer uses programs called graphics drivers to display information on the screen. ATI's *mach64* enhanced drivers give you more features than standard VGA drivers, such as enhanced speed, resolution, color depth, and graphic utilities.

This chapter explains how you install ATI's *mach64* enhanced drivers.



IN THIS CHAPTER...

- Installing Enhanced Drivers for Windows 95
Installing Software MPEG for Windows 95
- Installing Enhanced Drivers for Windows NT
- Installing Enhanced Drivers for Windows 3.1x
Using Software MPEG with Windows 3.1x
- Installing Enhanced Drivers for OS/2
- Installing Enhanced Drivers for AutoCAD
- Installing Enhanced Drivers for MicroStation
- Using VESA BIOS Extensions



Select an enhanced driver from the following list:

- Windows 95, see below
- Windows NT, see page 14
- Windows 3.1x, see page 15
- OS/2, see page 18
- AutoCAD, see page 20
- MicroStation, see page 22

Installing Enhanced Drivers for Windows 95

After placing your card in the computer, Windows 95 will automatically detect a change to your hardware configuration and install a standard VGA display driver.

You need to install ATI's *mach64* enhanced driver for Windows 95 to take advantage of your card's higher performance, resolutions, and special features not available using the standard VGA display driver.

To install the *mach64* enhanced driver for Windows 95

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.

If Windows 95 runs the ATI INSTALLATION CD-ROM automatically, proceed to step 5.

- 2 Click Start.
- 3 Select Run.
- 4 Type the following:

D:\ATISSETUP

(If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter.)

- 5 Click on Display Drivers.
- 6 Follow the online screen instructions to complete the installation.

Installing Software MPEG for Windows 95

Now that you have installed ATI's *mach64* enhanced driver for Windows 95, you can install the ATI VIDEO PLAYER—a software MPEG player.

The ATI VIDEO PLAYER provides full-motion, full-screen MPEG video playback with excellent color quality.

You must install ATI's *mach64* enhanced driver before installing the ATI VIDEO PLAYER. For the best playback quality, the recommended requirement for the ATI VIDEO PLAYER is a Pentium system.

To install the ATI VIDEO PLAYER for Windows 95

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.

If Windows 95 runs the ATI INSTALLATION CD-ROM automatically, proceed to step 5.

- 2 Click Start.
- 3 Select Run.
- 4 Type the following:

D:\ATISSETUP

(If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter.)

- 5 Click ATI VIDEO PLAYER.
- 6 Follow the on-screen instructions to complete the installation.

To open the ATI VIDEO PLAYER for Windows 95

- 1 Click Start.
- 2 Select Programs.
- 3 Select ATI Multimedia.
- 4 Click ATI VIDEO PLAYER.

For information about using the controls of the ATI VIDEO PLAYER, see the online help.

Installing Enhanced Drivers for Windows NT

After installing your graphics card, Windows NT will default to standard VGA mode (640 x 480, 16 colors). The procedure below describes how you install ATI's *mach64* enhanced driver for Windows NT 3.5, and 3.51.

To install the *mach64* enhanced driver for Windows NT

- 1 Boot Windows NT.
- 2 Double-click the Main icon.
- 3 Double-click the Control Panel icon.
- 4 Double-click the Display icon.
- 5 Click Change Display Type.
- 6 Click Change.
- 7 Click Other.
- 8 Insert ATI's Installation CD-ROM into your CD-ROM drive.

For Windows NT 3.5, type the following:

D:\NT35 (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter), then click OK.

For Windows NT 3.51, type the following:

D:\NT351 (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter), then click OK.

- 9 Select ATI Graphics Accelerators.
- 10 Click Install.
- 11 Click Yes to change your system configuration.
- 12 Click Continue to confirm the full path name.
- 13 After the files have been copied to your computer, click OK.
- 14 Reboot Windows NT.

After reboot, the Invalid Display Settings window appears.

- 15 Click OK.

The Display Settings dialogue box appears.

- 16 Select a desired display mode. For more detailed information about changing your display mode, click Help.

Installing Enhanced Drivers for Windows 3.1x

To install ATI's *mach64* enhanced drivers for Windows 3.1x, you use the INSTALL program. This program checks the system for possible conflicts and installs the *mach64* enhanced display driver.

The INSTALL program is a DOS application and cannot be run inside a Windows DOS box.

To install the *mach64* enhanced driver for Windows 3.1x

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 2 Pull-down the File menu in the Program Manager.
- 3 Select Run.
- 4 Type the following:
D:\ATISETUP
(If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter.)
- 5 Click on Display Drivers.
- 6 Follow the online screen instructions to complete the installation.

The ATI DeskTop

The INSTALL Program automatically creates the ATI Desktop Program Group when you install the *mach64* enhanced driver for Windows.

For correct resolution and refresh rate operation, you need to select a monitor using Screen Adjustment. **Please refer to the online help for more information about how to use the ATI DeskTop.**

Your ATI DeskTop includes the following features:

- **Flexdesk+** — allows you to change the color depth, screen size, and desktop size attributes of the driver within Windows.
- **DPMS** — allows your DPMS compatible monitor to save up to 80% energy and extend monitor life.
- **DeskScape** — allows you to pan across an off-screen work space and zoom in for more detail when using smaller monitors.
- **WinSwitch** — switches display modes instantly. You can toggle between modes without having to quit Windows.
- **Color Correction** — enables you to adjust the screen color to match a printed copy in 256 color mode.
- **Screen Adjustment** — enables you to adjust the screen size, centering, refresh rate, and monitor configuration within Windows.

Using Software MPEG with Windows 3.1x

Now that you have installed ATI's *mach64* enhanced driver for Windows 3.1x, you can install the ATI VIDEO PLAYER—a software MPEG player.

The ATI VIDEO PLAYER provides full-motion, full-screen MPEG video playback with excellent color quality.

You must install ATI's *mach64* enhanced driver before installing the ATI VIDEO PLAYER. For the best playback quality, the recommended requirement for the ATI VIDEO PLAYER is a Pentium system.

To install the ATI VIDEO PLAYER for Windows 3.1x

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 2 Pull-down the File menu in the Program Manager.
- 3 Select Run.
- 4 Type the following:
D:\ATISSETUP
(If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter.)
- 5 Click ATI VIDEO PLAYER.
- 6 Follow the on-screen instructions to complete the installation.

To open the ATI VIDEO PLAYER in Windows 3.1x

- 1 Start Windows.
- 2 Double-click on the ATI DeskTop Program Group.
- 3 Double-click on the ATI DeskTop icon.
- 4 Double-click on the ATI VIDEO PLAYER icon.

For information about using the controls of the ATI VIDEO PLAYER, see the online help.

Installing Enhanced Drivers for OS/2

To install ATI's *mach64* enhanced drivers for OS/2 2.1 or OS/2 Warp, you use the INSTALL program. This program checks the system for possible conflicts, sets the monitor type, and installs the *mach64* enhanced display driver.

To run the INSTALL Program

- 1 Start OS/2.
- 2 Check that OS/2 is using a standard VGA driver and no other applications are running. For more information, see your OS/2 documentation.
- 3 Double-click the OS/2 System folder.
- 4 Double-click the Command Prompts folder.
- 5 Double-click the OS/2 Full Screen object.
- 6 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 7 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 8 Type **CD UTILITY**.
- 9 Type **OS2INST**.
- 10 Select Utilities Installation from the Main Menu.

This copies the utilities onto your hard drive.

- 11 Press ENTER to select the default destination directory.
- 12 When prompted, let the INSTALL program make changes to your Autoexec.bat file.
- 13 Select QUICK SETUP

*You need to select **QUICK SETUP** to specify a monitor. Proper monitor selection is necessary for correct resolution and refresh rate operation.*

- 14 Select your monitor from the list.

or

If you do not see your monitor listed, see *Custom Monitor Configuration* on page 31.

After you select a monitor, you are ready to copy the enhanced driver files.

To copy the *mach64* enhanced driver files

- 1 Select Drivers Installation from the Main Menu.
- 2 Select IBM OS/2 from the list of applications.
Select Read Installation Notes for help and tips.
- 3 Select Install for the correct version of OS/2.
- 4 Press ENTER to select the default destination directory.
or
Specify a destination directory for the OS/2 driver files.
- 5 After the files have been copied, press any key.
- 6 Press ESC to exit.

You are now ready to install the enhanced driver for OS/2.

To install the *mach64* enhanced driver for OS/2

- 1 In the OS/2 full-screen command prompt, type **DSPINSTL**.
- 2 When the Display Driver Install panel appears, select Primary Display. Click OK to bring up the driver selection list.
- 3 Select the latest ATI *mach64* enhanced driver version from the list, and click OK.
- 4 In the Monitor Configuration Selection Utility, select Install Using Defaults for Monitor Type, then click OK.
- 5 When the source directory panel appears, choose Change and specify the location of the *mach64* driver. (The default location is C:\MACH_OS2.)
- 6 Click SET.
- 7 Click INSTALL.
- 8 Type **EXIT** to close the OS/2 full screen command prompt.
- 9 Shut down OS/2.
- 10 Re-start OS/2. It will default to 640 x 480 in 256 colors. To change screen resolution and/or color depth, see your OS/2 User's Guide.
- 11 Refer to the README.OS2 file in the C:\MACH_OS2 directory for *mach64* configuration details.

Installing Enhanced Drivers for AutoCAD

To install the *mach64* enhanced driver for AutoCAD R10 386, R11, R12, or R13, you use the INSTALL program. Before installing the driver, run AutoCAD to ensure that it is properly installed on your system.

The INSTALL program is a DOS application and cannot be run inside a Windows DOS box.

To run the INSTALL program

- 1 Note the location of the AutoCAD program files before you start the INSTALL program. You will need this information later.
- 2 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 3 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 4 Type **CD UTILITY**.
- 5 Type **INSTALL**.
- 6 Select Utilities Installation from the Main Menu.

This copies the INSTALL program and utilities onto your hard drive.

- 7 Press ENTER to select the default destination directory.

or

Type a new destination directory.

- 8 When prompted, let the INSTALL program make changes to your Autoexec.bat file.
- 9 Select QUICK SETUP

You need to select QUICK SETUP to specify a monitor. Proper monitor selection is necessary for correct resolution and refresh rate operation.

- 10 Select your monitor from the list.

or

If you do not see your monitor listed, see *Custom Monitor Configuration* on page 31.

After you select a monitor, you are ready to install the mach64 enhanced driver for AutoCAD.

To install the *mach64* enhanced driver for AutoCAD

- 1 Select Drivers Installation from the Main Menu.
- 2 From the list of applications, select AutoCAD.
- 3 Type in the source drive and directory.

When the menu appears, select Read Installation Notes for help and tips on the installation.

- 4 Follow the on-screen instructions to install the enhanced driver.
- 5 When driver installation is completed, press ESC.

Two documents called MANUAL.TXT and README.DLD are copied to your AutoCAD Drivers directory. You can read or print these files using any word processor.

If you are using AutoCAD R10 or R11, run ADIACAD.BAT to set the necessary driver parameters.

ADIACAD.BAT was created by the INSTALL program for your convenience. The parameters it sets must be in the DOS environment before you start AutoCAD.

Tip: If you are already using a batch file to start AutoCAD, add the contents of ADIACAD to your batch file.

- 6 Start AutoCAD and reconfigure AutoCAD to use the new enhanced display list driver. Please refer to your AutoCAD manuals for information on how to select/change a video driver.

Installing Enhanced Drivers for MicroStation

To install the *mach64* enhanced drivers for MicroStation 4.0 or 5.0, you use the INSTALL program. Before installing the driver, run MicroStation to ensure that it is properly installed on your system.

The INSTALL program is a DOS application and cannot be run inside a Windows DOS box.

To run the INSTALL program

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 2 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 3 Type **CD UTILITY**.
- 4 Type **INSTALL**.
- 5 Select Utilities Installation from the Main Menu.

This copies the INSTALL program and utilities onto your hard drive.

- 6 Press ENTER to select the default destination directory.

or

Type a new destination directory.

- 7 When prompted, let the INSTALL program make changes to your Autoexec.bat file.
- 8 Select QUICK SETUP

You need to select QUICK SETUP to specify a monitor. Proper monitor selection is necessary for correct resolution and refresh rate operation.

- 9 Select your monitor from the list.

or

If you do not see your monitor listed, see *Custom Monitor Configuration* on page 31.

After you select a monitor, you are ready to install the mach64 enhanced driver for MicroStation.

To install the *mach64* enhanced driver for MicroStation

- 1 Select Drivers Installation from the Main Menu.
- 2 From the list of applications, select MicroStation.
- 3 Type the source drive and directory information.

When the menu appears, select Read Installation Notes for help and tips.

- 4 Follow instructions on the screen to complete the installation.
- 5 When driver installation is completed, press ESC to exit.
- 6 A MicroStation driver reference document and an information file called README.USD are copied to the MicroStation Drivers directory on your hard disk. You can read or print these files using any word processor.

Using VESA BIOS Extensions

The VESA BIOS Extensions (VBE) feature supports software using modes compatible with VESA standards.

To ensure that VBE works correctly, you can load a DOS TSR (terminate-and-stay-resident) program called M64VBE. If your software and/or games conform to the VBE standard, you should load M64VBE first.

You must have ATI's *mach64* utilities installed on your computer to load M64VBE.

To install ATI's *mach64* utilities

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 2 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 3 Type **CD UTILITY**.
- 4 Type **INSTALL**.
- 5 Select Utilities Installation from the Main Menu.
- 6 Press ENTER to select the default destination directory.
- 7 When prompted, let the INSTALL program make changes to your Autoexec.bat file.
- 8 Press ESC to exit the INSTALL program.
- 9 Restart your computer.

You are now ready to load M64VBE.

To load M64VBE

- 1 At the command prompt, type **M64VBE**.

To remove M64VBE from your system

- 1 At the command prompt, type **M64VBE U**.
 - For more information, see your DOS documentation for conditions on unloading TSRs.

CHAPTER 4

Special Features

You can take advantage of the special add-in features that your 3D XPRESSION has to offer.



IN THIS CHAPTER...

- Adding ATI's TV Tuner
- Adding ATI's Hardware MPEG

Adding ATI's TV Tuner

ATI's TV tuner (sold separately) is an intelligent TV tuner add-in board that you connect to your card.

ATI's TV tuner accepts a full range of video/audio input from just about any video source: TV, antenna/cable, VCR, video camera, laser-disc, and video games.

You can use ATI's TV tuner to do the following:

- Watch TV on your computer as you work
- Watch a videotape or laser disk movie on your computer
- Capture, save, and print TV and video images
- Display and record closed-captioned text

ATI's TV tuner displays cable, broadcast television or full-motion video on the whole screen or in a window.

Please contact your dealer for availability.

Adding ATI's Hardware MPEG

ATI's hardware MPEG (sold separately) is a hardware MPEG add-in board that you connect to your card. ATI's hardware MPEG delivers spectacular performance only possible with hardware-assisted video playback.

- Full-screen MPEG-1 video decode and playback
- High resolution video all the way to 1280 x 1024 pixels
- Superior image processing scales to any resolution in any color depth without affecting frame rate
- Easy Plug and Play installation
- Rich 2-channel stereo audio, integrating seamlessly with your existing sound card

Please contact your dealer for availability.

CHAPTER 5

Reference

This chapter contains troubleshooting tips and specifications about your 3D XPRESSION.



IN THIS CHAPTER...

- Running Diagnostics
- Troubleshooting Tips
- ATI Multimedia Channel
- Specifications
- Video Mode Table
- Compliance Information

Running Diagnostics

You can run diagnostics to test the hardware on your card. All installed graphics modes can be viewed and tested. You cannot run the diagnostics program inside a Windows DOS Box.

To run the diagnostics program in DOS

- 1 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 2 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 3 Type **CD UTILITY**.
- 4 Type **M64DIAG**.
- 5 Select Diagnostics.
- 6 Type the number of times you would like to run the tests.

To run the diagnostics program in OS/2

- 1 Start OS/2.
- 2 Double-click the OS/2 System folder.
- 3 Double-click the Command Prompts folder.
- 4 Double-click the OS/2 Full Screen object.
- 5 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 6 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 7 Type **CD UTILITY**.
- 8 Type **OS2DIAG**.
- 9 Select Diagnostics.
- 10 Type the number of times you would like to run the tests.

Troubleshooting Tips

The following troubleshooting tips may help you if you experience problems. Contact your dealer for more advanced troubleshooting information.

Basic Troubleshooting Tips

- Check that the card is seated properly in its expansion slot. If the problem still exists, try a different PCI expansion slot.
- Ensure the monitor cable is securely fastened to the card.
- Make sure that the monitor and computer are plugged in and receiving power.
- Disable any built-in graphics capabilities on your mainboard. For more information, see your computer documentation.
- Make sure that you selected the appropriate monitor when you installed your enhanced driver.

Windows 95 Troubleshooting Tips

For Windows 95 troubleshooting tips, right-click the ATI icon in the taskbar and select Troubleshooting.

If you have problems during start-up, load Windows 95 in Safe Mode.

To load Windows 95 in Safe Mode

- 1 Turn on your computer.
- 2 Press the F8 key when **Starting Windows 95** appears on the screen.
- 3 Select Safe Mode.
 - Disable any programs that launch automatically when you start Windows 95.
 - Check that you have the correct monitor and display driver selected in the Display Properties. For more information, click on Help in the Start menu.
 - Check for the existence of memory managers and ensure they are configured properly.
 - Refer to additional information in the Windows 95 README file located in the WIN95 folder on ATI's Installation CD-ROM.

To remove the ATI VIDEO PLAYER

- 1 Click Start.
- 2 Select Settings.
- 3 Click Control Panel.
- 4 Double-click Add/Remove Programs.
- 5 Select **ATI VIDEO PLAYER** from the list.
- 6 Click on Add/Remove...
- 7 Click OK.

Windows NT Troubleshooting Tips

- If you are having trouble during start-up, select VGA mode in the Boot Menu.
- Disable any programs that launch automatically when you start Windows NT.
- Check that you have the correct monitor and display driver selected.
- Refer to additional information in the README files on the Windows NT driver disk.

Custom Monitor Configuration

If you are using the INSTALL program to configure your monitor for AutoCAD, MicroStation, OS/2 or VESA programs and your monitor is not in the list, you can do one of the following:

- a) If the specification in the HELP BOX is compatible with your monitor, select the compatible monitor.
- b) If your monitor is DDC1 compatible, select DDC1 MONITOR.
- c) If your monitor is DDC2b compatible, select DDC2b MONITOR.
- d) If you have a VESA Display Information Format file (VDIF) from the monitor manufacturer, select READ VDIF. Follow the on-screen instructions to complete the installation.

If these options are not applicable to your monitor type, then you must follow the procedure below to manually set up your monitor.

To run the INSTALL program

- 1 Check your monitor's maximum resolution, and horizontal and vertical frequencies for each available resolution. These values should be documented in the monitor's manual.
- 2 Insert ATI's Installation CD-ROM into your CD-ROM drive.
- 3 Type **D:** (If **D** is not your CD-ROM drive, substitute **D** with the correct drive letter).
- 4 Type **CD UTILITY**.
- 5 Type **INSTALL**.

To manually set up your monitor

- 1 Select Quick Setup from the Main Menu.
- 2 Select Custom.



An incorrect Monitor Type setting may damage your monitor. Review your monitor specifications before making a selection from the Monitor Selection Menu.

A scrambled screen indicates your monitor is not capable of the selected display mode. Immediately press **ESC** to exit.

If the monitor produces a scrambled display, try a lower refresh rate. If it is already at the lowest refresh rate, set that resolution to Not Supported.

- 3 Pick a resolution, and then a refresh rate.
- 4 Adjust the size and position of the box outline on the screen, and press ENTER to accept.
- 5 Repeat steps 3 and 4 until you are satisfied with the box outline for all the resolutions.
- 6 When finished, press ESC and save the settings.

*If you have not installed an enhanced driver on your system, see **Installing ATI's Enhanced Drivers** on page 11.*

ATI Multimedia Channel

The ATI Multimedia Channel (AMC) connects ATI's MPEG decoder, TV tuner, or video capture modules to the 3D XPRESSION card.

While the AMC provides VGA Feature Connector (VFC) compatibility, it also provides enhanced features for new multimedia devices including serial control and provision for audio.



The AMC connector shares the same footprint with the VFC but it adds pins for supporting additional multimedia modes. Great caution should be taken when connecting a ribbon cable to the AMC/VFC connector. Some of the pins carry power and any improper use can result in damage both to the graphics card and the upgrade board.

Specifications

System Requirements — 486/Pentium/Pentium Pro, or compatible systems with PCI Local Bus.

Operating Environments — one of:

- DOS 5.0 or higher, Windows 3.1x, Windows 95, or Windows NT
- OS/2 2.1 or OS/2 Warp

Video Display Buffer

- 3D XPRESSION — 2MB DRAM

Sync Signals

- Separate horizontal and vertical sync at TTL levels

Video BIOS

- PCI 2.1 compliant

Video Output Connector

- 15-pin D shell (Female), IBM standard.

AMC Connector

- 2x20 pin header. Shares the same footprint with the 2x13 pin VGA Feature Connector, VGA Out only, VESA standard.

Video interrupt (*Reserved for future use*):

- PCI — system auto-configurable.

Power

- +5V $\pm 5\%$, @ 1.3A typical.

Ambient Temperature

- Operating — 50° to 122° F (10° to 50° C).
- Storage — 32° to 162° F (0° to 70° C).

Relative Humidity

- Operating — 5% to 90% non-condensing.
- Storage — 0% to 95%.

MTBF

- 120,000 hours.

Video Mode Table

Accelerator Mode Table[‡]

3D XPRESSION								
Display Screen Resolution	Refresh Rate (Hz)	Hor. Scan (kHz)	Pixel Clock (MHz)	Colors (Bits Per Pixel)				
				2MB Display Memory				
				4	8	16	24	*32
640x480	60	31.4	25.2	√	√	√	√	√
640x480	72	37.7	31.2	√	√	√	√	√
640x480	75	37.5	31.5	√	√	√	√	√
640x480	90	47.9	39.9	√	√	√	√	-
640x480	100	52.9	44.9	√	√	√	-	-
640x480	120	63.7	55.0	√	√	√	-	-
800x600	48 <i>int.</i>	33.8	36.0	√	√	√	√	-
800x600	56	35.1	36.0	√	√	√	√	-
800x600	60	37.8	40.0	√	√	√	√	-
800x600	70	44.5	44.9	√	√	√	-	-
800x600	72	48.0	50.0	√	√	√	-	-
800x600	75	46.8	49.5	√	√	√	-	-
800x600	90	57.0	56.6	√	√	-	-	-
800x600	100	62.5	67.5	√	√	-	-	-
1024x768	43 <i>int.</i>	35.5	44.9	√	√	√	-	-
1024x768	60	48.3	65.0	√	√	√	-	-
1024x768	70	56.4	75.0	√	√	√	-	-
1024x768	72	58.2	75.0	√	√	√	-	-
1024x768	75	60.0	78.8	√	√	√	-	-
1024x768	90	76.2	100	√	√	-	-	-
1024x768	100	79.0	110	√	√	-	-	-
1152x864	43 <i>int.</i>	45.9	65.0	√	√	√	-	-
1152x864	47 <i>int.</i>	44.8	65.0	√	√	-	-	-
1152x864	60	54.9	80.0	√	√	-	-	-
1152x864	70	66.1	100	√	√	-	-	-
1152x864	75	75.1	110	√	√	-	-	-
1152x864	80	75.1	110	√	√	-	-	-
1280x1024	43 <i>int.</i>	50.0	80.0	√	√	-	-	-
1280x1024	47 <i>int.</i>	50.0	80.0	√	√	-	-	-
1280x1024	60	63.9	110	√	√	-	-	-
1280x1024	70	74.6	126	√	√	-	-	-
1280x1024	74	78.8	135	√	√	-	-	-
1280x1024	75	79.9	135	√	√	-	-	-

*32 - 24bpp color data is processed using a 32bpp data format

[‡]Modes subject to change.

Compliance Information

FCC Compliance Information

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:

- Re-orient 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.
- The use of shielded cables for connection of the monitor to the graphics card is required to ensure 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.

Industry Canada Compliance Statement

ICES-003 This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B Respecte toutes les exigences du Règlement sur le matériel brouiller du Canada.

CE Compliance Information

EMC Directive 89/336/EEC and Amendment 92/31/EEC, Class B Digital Device

EN 50081-1, Generic Emissions Standard for Residential, Commercial and Light Industrial Products

(EN 55022/CISPR 22, Limits and Methods of Measurement of Radio Interference Characteristics Information Technology Equipment)
Warning: This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

EN 50082-1, Generic Immunity Standard for Residential, Commercial and Light Industrial Products

(IEC 801-2, IEC 801-3, IEC 801-4)

Directive EMC 89/336/CEE et amendement 92/31/CEE, dispositif numérique de Classe B

EN 50081-1, Norme sur les émissions génériques pour les produits domestiques, commerciaux et industriels légers

(EN 55022/CISPR 22, Limites et méthodes de mesure des caractéristiques d'interférences radiophoniques, Matériel des technologies de l'information) *Mise en garde: ceci est un produit de Classe B. Il risque produire des interférences radiophoniques dans un environnement domestique auquel cas l'utilisateur peut se voir demandé de prendre des mesures adéquates.*

EN 50082-1, Norme sur l'immunité générique pour produits domestiques, commerciaux et industriels légers.

(CEI 801-2, CEI 801-3, CEI 801-4)

EMC Richtlinie 89/336/EEC und Änderung 92/31/EEC, Digitale Gerat der Klasse B

EN 50081-1, Allgemeiner Emissions-Standard fur Haushalt- und kommerzielle Produkte sowie Erzeugnisse der Leichtindustrie

(EN 55022/CISPR 22, Beschrankungen und Verfahren der Messung von informationstechnischen Ausrustungen mit Funkstormerkmale)

Warnung: Dies ist ein Erzeugnis der Klasse B. Dieses Erzeugnis kann Funkstorungen im Wohnbereich verursachen; in diesem Fall konnen entsprechende Manahmen seitens des Benutzers erforderlich sein.

EN 50082-1. Allgemeiner Unempfindlichkeits-Standard fur Haushalt- und kommerzielle Produkte sowie Erzeugnisse der Leichtindustrie

(IEC 801-2, IEC 801-3, IEC 801-4)