Notices

--- Note

Before using this information and the product it supports, be sure to read the general information under Appendix B, "Notices" in topic B.0.
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This book describes the installation of the device drivers for a computer with one of the following XGA subsystems installed:

- XGA subsystem on the system board
- XGA Display Adapter/A
- XGA-2 subsystem on the system board
- XGA-2 Display Adapter/A

Several device drivers and files are discussed in detail in this publication.

- The Display Mode Query and Set (DMQS) files provide information about the display connected to an XGA-2 subsystem on the system board or an XGA-2 Display Adapter/A.
- The XGA DOS Adapter Interface device driver allows 8514/A Adapter Interface or XGA DOS Adapter Interface application programs to be run.
- The XGA Windows device driver allows Microsoft Windows Version 3.1 to be run using XGA features.
- The XGA device driver for AutoCAD runs application programs for AutoCAD Release 11 or Release 12.

Subtopics
PREFACE.1 Who Should Read This Book
PREFACE.2 Related Publications
This book is intended for those who have an XGA subsystem installed in their computer and who will install and configure the device drivers for that subsystem.
Related Publications

In addition to this book, you might want to refer to the following:

- IBM Personal System/2 Video Technical Reference, part number 42G2193.
- The original documentation that came with your computer.

Technical publications are available for purchase from IBM Authorized Dealers and through the IBM Technical Directory.
Product Description
The IBM PS/2 XGA Device Drivers Diskette (Version 2.00 or later) in this package contains the following device drivers and files:

- Display Mode Query and Set (DMQS) files
- Device driver for the XGA (*) DOS Adapter Interface
- Device driver for Microsoft (**) Windows** Version 3.1
- Device driver for AutoCAD** Release 11 or 12

AIX* support for the XGA video subsystem is an integral part of AIX PS/2*. No device drivers for AIX are supplied in this package.

OS/2* support for the XGA video subsystem and Windows application programs is an integral part of OS/2 2.0. No device drivers for OS/2 support are supplied in this package.

Notes:
1. The device drivers and instructions in this package should not be used with OS/2 2.00.1 or later unless stated otherwise.
2. Support for the following features requires a computer that has OS/2 2.00.1 or later preinstalled which supports XGA-2. Service Pak # XR06050 is required to upgrade OS/2 2.0 to support XGA-2. The Service Pak can be obtained by calling 1-800-3-IBMOS2 (1-800-342-6672).

- Use of IBM* 95xx displays
- Use of 64K color mode
- Use of WIN-OS/2* support
- Display of 1024 x 768 noninterlaced mode with a non-IBM display
- Display of 800 x 600 mode

Descriptions of the device drivers and files follow:

- The Display Mode Query and Set (DMQS) files
  These files are required only with the XGA-2 subsystem on the system board or the XGA-2 Display Adapter/A. It is not necessary to install this option for use with an XGA Display Adapter/A or XGA subsystem on the system board.
  Install the XGA DMQS Display program first to take full advantage of the XGA-2 video subsystem on the system board or an XGA-2 Display Adapter/A, (refer to "Changing the XGA-2 Display Configuration" in topic 4.0).

  Note: Additional information about the XGA DMQS Display program can be found in the README file in the \DIFINST directory of the IBM PS/2 XGA Device Drivers Diskette.

- The XGA DOS Adapter Interface device driver
  The XGA DOS Adapter Interface device driver is used if you want to run DOS applications that are written for the 8514/A Adapter Interface or XGA DOS Adapter Interface.
  Do not install this device driver if you intend to install one of the XGA Windows device drivers. This device driver can be used in a OS/2 2.0 DOS full-screen session.

  Note: Additional information about the XGA DOS Adapter Interface can be found in the README file in the \XGAPCDSO directory on the IBM PS/2 XGA Device Drivers Diskette.

- Microsoft Windows device driver
  If you are installing the XGA device driver for Microsoft Windows Version 3.1:
  - You might need your Windows diskettes, even if the Windows program is already installed.
  - You will need to know the resolutions your display can support. Refer to the documentation that came with your display to determine the resolution.

  Note: More information about the Windows Version 3.1 device driver can be found in the README file in the \WINV31 directory on the IBM PS/2 XGA Device Drivers Diskette.

- AutoCAD device driver
The XGA device driver for AutoCAD should be installed if you have installed AutoCAD Release 11 or 12.

**Note:** More information about the XGA Device Driver for AutoCAD can be found in the README file in the \ACAD directory on the IBM PS/2 XGA Device Drivers Diskette.

Contact your place of purchase if the IBM PS/2 XGA Device Drivers Diskette is missing or damaged.

(*) Trademark of the IBM Corporation.

(**) Microsoft and Windows are trademarks of the Microsoft Corporation and AutoCAD is a trademark of Autodesk, Inc.
2.0 Before You Begin

**Note:** If you will be using an XGA Display Adapter/A or an XGA-2 Display Adapter/A and have not yet installed it, refer to the installation instructions for that adapter. If you are installing this adapter in a computer that has no diskette drives (medialess), check with your Local Area Network (LAN) administrator for instructions about installing device drivers.

You must have at least one of the following:

- An XGA subsystem on the system board
- An XGA Display Adapter/A
- An XGA-2 subsystem on the system board
- An XGA-2 Display Adapter/A

Your operating system must be installed in your computer.

If you plan to install an XGA Windows device driver, be sure Microsoft Windows Version 3.1 is installed in your computer before you install the XGA Windows device driver.

If you plan to install the XGA AutoCAD device driver, be sure AutoCAD Release 11 or 12 is installed in your computer before you install the XGA AutoCAD device driver.

**Note:** The XGA subsystem is supported by DOS Version 3.3 and later.
3.0 Installing the DMQS Files
You must install the XGA DMQS Files first to take full advantage of the XGA-2 subsystem on the system board or an XGA-2 Display Adapter/A.

To install the files:

1. Turn on the computer.

2. Insert the IBM PS/2 XGA Device Drivers Diskette in drive A. At a DOS command prompt (usually the c:\ prompt), type a:install and press Enter.

3. At the DOS Installation Program for the XGA Device Drivers screen, select Install/Update XGA DMQS Display Information File(s). Do not press Enter.

4. If a diskette containing display identification information was not supplied with the display you attached to the XGA subsystem, continue with step 5.

   If a diskette containing display identification information was supplied, continue with step 6.

5. At the next menu, select Install all XGA DMQS Display Information Files.

   Press Enter and follow the instructions on the screen. Then continue with step 8.

6. Insert the diskette containing the display identification information in drive A.

7. At the next menu press the Down Arrow (↓) to move the X to Install specific XGA DMQS Display Information File(s).

   Press Enter and follow the instructions on the screen. Then continue with the next step.

8. Press F3 twice to exit from the DMQS Display Information File Installation Program.

9. Select Quit Installation Program

10. Remove any diskette from drive A.

11. Turn off the computer. The DMQS display information files are now installed.
4.0 Changing the XGA-2 Display Configuration

This selection allows you to override your display configuration. It should not be used with:

- XGA Display Adapter/A
- XGA subsystem on the system board
- An IBM PS/2 display attached to either an XGA-2 Display Adapter/A or an XGA-2 subsystem on the system board.

If you have an IBM PS/2 display, it will automatically be recognized and used to its best capability. Do not follow this procedure. If you do not have an IBM PS/2 display, this function will allow you to utilize the resolution capabilities of the IBM 63xx displays and most non-IBM displays. Refer to Appendix A, "XGA-2 Graphics Modes" in topic A.0 for more information.

To change your display configuration:

1. Turn on the computer.

2. Insert the IBM PS/2 XGA Device Drivers Diskette in drive A. At a DOS command prompt (usually the c:\ prompt), type `a:install` and press Enter.

3. At the DOS Installation Program for the XGA Device Drivers screen, select Install/Update XGA DMQS Display Information File(s). Do not press Enter.

4. Select Change XGA Display Configuration Profile. Press Enter and follow the instructions on the screen.

   **Note:** Overriding the default with a resolution that does not meet or exceeds the supported resolution, can yield unpredictable results.

   **Warning:** Some multisync displays might appear to function correctly; however damage might occur over time.

5. After selecting your configuration, press Enter and return to the XGA DMQS (Display Mode Query/Set) Display Information File Installation Program Main Menu.

6. Press F3 once to exit from the DMQS Display Information File Installation Program.

7. Select Quit Installation Program.
5.0 Installing the XGA DOS Adapter Interface Device Driver

To install the XGA DOS Adapter Interface device driver:

1. Turn on the computer.

2. Insert the IBM PS/2 XGA Device Drivers Diskette in drive A. At a DOS command prompt (usually the c:\ prompt), type
   \a:install and press Enter.

3. Select Install the DOS Adapter Interface Device Driver. Do not press Enter.

4. Follow the instructions on the screen.
6.0 Installing the XGA Device Driver for Microsoft Windows Version 3.1

Refer to the documentation that came with Windows Version 3.1 for information about installing the Windows Version 3.1 program. You might need your Windows diskettes, even if the program is already installed on your computer.

To install the XGA device driver for Windows Version 3.1:

1. Turn on the computer.
2. From a DOS command prompt in the directory you have chosen for Windows (for example \WINDOWS), type setup and press Enter.
3. When you see the panel that describes your system configuration, use the cursor keys to highlight the Display choice and press Enter.
4. You will see a list of display adapters. Use the cursor keys to highlight the Other (Requires disk provided by a hardware manufacturer) choice and press Enter.
5. When you are prompted to insert the display device driver diskette provided by the hardware manufacturer, change the command prompt area to a:\winv31. Insert the IBM PS/2 XGA Device Drivers Diskette in drive A and press Enter.
6. You are directed to select one resolution from a list similar to the following:
   - IBM XGA 640 x 480 256 Color
   - IBM XGA 640 x 480 65536 Color (XGA-2 only)
   - IBM XGA 800 x 600 256 Color (XGA-2 only)
   - IBM XGA 1024 x 768 Small Fonts
   - IBM XGA 1024 x 768 Large Fonts
   - IBM XGA 1024 x 768 Extra Large Fonts

   Select the resolution you desire, taking into account the capabilities of your display. The 800 x 600 option and the 65536 color option are only available on an XGA-2 subsystem on the system board or an XGA-2 Display Adapter/A. The 1024 x 768 Extra Large Fonts option should only be used for displays of 15 inches or smaller.
7. Follow the instructions on the screen.
8. Complete the installation by accepting the configuration information on the screen.

You have completed installing the XGA Device Drivers for Windows Version 3.1.
7.0 Installing the XGA Device Driver for AutoCAD Release 11 or 12
Refer to the documentation that came with the AutoCAD program for information about installing the program.

To install the XGA device driver for AutoCAD Release 11 or 12:

1. Insert the IBM PS/2 XGA Device Drivers Diskette in drive A. At the
   DOS command prompt type a:install and press Enter.

2. At the Main Menu, type the number to select the Install the
   TurboDLD-Lite AutoCAD Device Driver option.

3. Follow the instructions on the screen. (Make note of the drive and
   directory selected.)

4. At the MAIN MENU type the number to select the Quit Installation
   Program option.

5. Remove the IBM PS/2 XGA Device Drivers Diskette from drive A.

To configure the AutoCAD program:

1. Change the drive and directory to where the TurboDLD-Lite was
   installed.

2. At the DOS command prompt, type fastacad and press Enter.

3. For Release 12 only, add ;C:\TURBODLD to the end of the ACADDRV
   environment variable located in the ACADR12.BAT file which was created
   during AutoCAD installation. For example:

   SET ACADDRV=C:\ACAD12\DRV;C:\TURBODLD

4. Execute AutoCAD and go to the Configuration menu.

5. Type the number to select the Configure video display option; press
   Enter. When asked to select a different display, type Y; press Enter.

6. If you are using AutoCAD Release 11, type the number to select the ADI
   P386 v4.0/4.1 display option. If you are using AutoCAD Release 12,
   type the number to select the TurboDLD Lite by Panacea Inc. option;
   press Enter.

7. At the Panacea TurboDLD Lite Configuration menu, select the Select
   Graphics Board/Resolution option; press Enter.

8. Select the Select Display Graphics Board option; press Enter.

9. Select the XGA Graphics Board option; press Enter.

10. Select the Select Display Resolution option; press Enter.

11. Select the desired resolution and press Enter.

12. Select the Return to previous menu option; press Enter.

13. Select the Save and Exit option; press Enter. A series of questions
    are displayed. Press Enter repeatedly until the Configuration menu
    appears.

14. If you are using AutoCAD Release 11, type the number to select Exit to
    main menu; press Enter. If you are using AutoCAD Release 12, type the
    number to select the Exit to drawing editor option; press Enter

15. When asked, Keep configuration changes?, type Y and press Enter.

The file, FASTACAD.BAT, has been created in the directory you selected for
the device driver installation. This file must be started to set
environment variables for the protect mode device driver each time you
start AutoCAD. If you want the computer to automatically load FASTACAD,
add the following line to your AutoCAD startup batch file.

    CALL C:\TURBODLD\FASTACAD

Refer to the documentation that came with your operating system for more
information about editing your AUTOEXEC.BAT file.
A.0 Appendix A.  XGA-2 Graphics Modes
The table on the following page illustrates examples of the resolutions
that are available with the XGA-2 subsystem on the system board or the
XGA-2 Display Adapter/A.

The software supplied with the XGA-2 subsystem on the system board or the
XGA-2 Display Adapter/A automatically drives IBM PS/2 displays at the best
resolution and refresh rate for the display attached.

Subtopics
A.1 XGA-2 Display Support
A.2 Original Equipment Manufacturer Displays
<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frame Rate (Hz)</th>
<th>Line Rate (KHz)</th>
<th>I/NI</th>
<th>IBM Display Support (Model)</th>
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<td>60</td>
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<td>72</td>
<td>37.8</td>
<td>NI</td>
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<td>35.2</td>
<td>NI</td>
<td></td>
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<tr>
<td>800 x 600</td>
<td>60(2)</td>
<td>37.9</td>
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<td>6312, 6314, 6319</td>
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<tr>
<td>800 x 600</td>
<td>72(1)</td>
<td>48.1</td>
<td>NI</td>
<td></td>
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<td>1024 x 768</td>
<td>43.5</td>
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<tr>
<td>1360 x 1024</td>
<td>45</td>
<td>48.9</td>
<td>I</td>
<td></td>
</tr>
</tbody>
</table>

(1) Video Electronics Standards Association (VESA) Standard
(2) VESA Guideline
I = Interlaced
NI = Noninterlaced

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A.1 XGA-2 Display Support

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IBM PS/2 XGA and XGA-2 Diskette Package
XGA-2 Display Support

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Copyright IBM Corp. 1992
A.2 Original Equipment Manufacturer Displays

Supported resolutions (table on previous page) which are not available on IBM displays, are available using some non-IBM original equipment manufacturer (OEM) displays. These displays range in capability from low cost/low function to high cost/high function. Most of these displays, including the IBM 63xx, respond as an IBM 8514 display when queried by the software supplied with the XGA-2 subsystem on the system board or an XGA-2 Display Adapter/A. As a result, IBM 8514 resolutions and refresh rates are used as default.

The software supplied with the XGA-2 Display Adapter/A or a computer with the IBM XGA-2 subsystem on the system board, allows you to override the default screen resolution. Overriding the default with a resolution that does not meet or exceeds the supported resolution, can yield unpredictable results.

Warning: Some multisync displays might appear to function correctly; however damage might occur over time.

Notes:

1. You must select only resolutions that are suitable for the display attached to the XGA-2 subsystem on the system board or XGA-2 Display Adapter/A.

2. The use of the resolution override should be avoided if the display attached to the XGA-2 subsystem on the system board or XGA-2 Display Adapter/A is to be changed frequently with displays of varying characteristics.

3. If the display type must be changed after initial use of the resolution override, follow the procedure for changing the display configuration profile before changing the display attached to the XGA-2 subsystem. Failure to do so can yield unpredictable results.

The IBM XGA-2 subsystem on the system board (or the XGA-2 Display Adapter/A) and certain IBM displays, computers, and some software have been certified to meet the International Organization for Standardization (ISO) standard 9241/3. IBM cannot guarantee that all OEM displays attached to the XGA-2 subsystem on the system board or an XGA-2 Display Adapter/A will provide acceptable display quality or meet other health and safety standards.
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Subtopics
B.1 Trademarks and Service Marks
### B.1 Trademarks and Service Marks

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<th>IBM</th>
<th>OS/2</th>
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<td>WIN-OS/2</td>
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<td>XGA</td>
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<table>
<thead>
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<th>Autodesk, Inc.</th>
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<td>Microsoft</td>
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