

CL-GD542X Display Drivers
and Utilities

User Guide

Product: GDS542X-X-D141P

Software revision: 1.41

Document release date: January 10, 1994

Document revision: 1.41

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Introduction

This manual provides operating instructions for user utilities and installation instructions for the display drivers supplied with your CIRRUS LOGIC VGA.

The CIRRUS LOGIC VGA graphics system is 100% VGA compatible. The utilities and drivers supplied with your CIRRUS LOGIC VGA provide support for additional features of your CIRRUS LOGIC VGA, such as greater speed, higher resolution, and more available colors.

Before you begin

The following instructions assume that the user is familiar with DOS and certain DOS commands. Please review the associated DOS commands before performing the installation.

Notational conventions

Throughout this manual, the term 'DOS' refers to both MS-DOS and PC-DOS, except when noting features that are unique to one or the other.

Table 1 shows the typographic conventions that are used throughout this manual:

Type Style	Description
User Input	This text must be typed exactly as it appears. Text within brackets indicates certain keyboard keys (such as [Enter], [F10], etc.).
Bold	System output. Any message that is displayed by the computer.
ALL CAPITALS	Directory names, files and acronyms.

Table 1: Notational conventions

Easy installation

The installation utility is provided to facilitate the smooth installation of the display drivers and utility software. The installation program is menu-driven and allows you to select and

install only those display drivers for software and applications currently in use.

It is important to note that some display drivers need to have the associated vendor's application program already installed on the system prior to loading the CIRRUS LOGIC VGA display drivers. In other cases, the loading of the display driver may be an integral part of the vendor's product installation process. Please review the driver product section below for specific instructions prior to running the installation program.

The installation utility is located on the diskette labeled Disk 1. To install the desired display drivers and utilities, insert the diskette into the A: drive, type

```
A: [Enter]  
INSTALL [Enter]
```

Follow the instructions on the screen to install the listed display drivers. At any time you may press [Esc] to abort the installation process and go back to DOS.

Selected drivers are simply copied to the specified disk and directory. Applications may require additional installation as described in the Display drivers section of this manual.

Technical support

If you need technical support, the telephone number for CIRRUS LOGIC technical support is (510)226-3650, Monday through Friday, 8:30am to 5:30pm Pacific Standard Time. If you get a voice mail greeting, most likely the line is busy. In that case, leave a message and your call will be returned within 24 hours.

Software upgrades

CIRRUS LOGIC releases new drivers and utilities about 3 times a year. You can get the latest releases of software two ways. The first way is to call the CIRRUS LOGIC BBS (see below). The second way is to call the CIRRUS LOGIC Software Upgrade Service. The phone number for upgrades is 1-800-764-7200, Monday through Friday, 8:00am to 5:00pm Pacific Standard Time. The upgrade service is provided by an outside contractor, so they cannot provide any technical support or answer any questions. If you do require

technical support, please refer to the previous section. When calling them, you should tell them that you need the GD542X upgrade kit and that your current software is version 1.41. The upgrade kit includes the latest version of all software and a new user guide. There is a twenty-five dollar charge for the kit, plus shipping and handling charges. The twenty-five dollar charge covers the telephone call as well as the production costs for the kit.

CIRRUS LOGIC BBS

If there are any newer versions of the software provided with your VGA adapter, they will be available on the CIRRUS LOGIC BBS. It is a WILDCAT! BBS. The phone number is (510) 440-9080. It can handle modems running up to 9600 baud. The modem should be set to NO parity, 8 data bits, 1 stop bit. Before you are able to download software, you must join the conference(s) for the product(s) that you are interested in.

Installation

Installing the CIRRUS LOGIC VGA adapter

To install CIRRUS LOGIC VGA, you may need some or all of the following tools:

- medium size flat blade screwdriver,
- medium sized phillips head screwdriver,
- a 3/16 inch nutdriver or wrench.

Preparation

The CIRRUS LOGIC VGA adapter may or may not be shipped with the zero-wait-state jumper installed. If so, the zero-wait-state jumper will be set to not assert the zero-wait-state line. You may achieve better performance in some systems by installing this jumper. If any problems are encountered with zero-wait-state enabled, remove the jumper to disable this feature.

PC, XT and compatible users

The CIRRUS LOGIC VGA card requires a 16-bit expansion slot. This means that it is not compatible with PC, XT and other 8 bit compatible systems.

IBM AT and AT compatible system users

The IBM AT, IBM XT-286 and compatible computers use a program typically called Setup to tell the computer what equipment is installed in your system. The Setup program is usually part of the package of programs provided with your AT or AT compatible computer. The 'Guide To Operations' (or equivalent manual) will explain the use of the Setup program. After the VGA adapter is installed, Setup will need to be run to configure the computer for proper operation with the CIRRUS LOGIC VGA card.

Open the computer system

Before opening the system, be sure that the power to the computer

system unit and all devices connected to it is off. Disconnect the cables from the back of the system in order to give more room to work. Note how all cables are connected prior to disconnection.

In a typical IBM AT compatible computer all cover mounting screws are located on the back of the computer. Remove these screws.

Carefully remove the cover. On most computers the cover will slide forward or backward, or tilt off.

Choose an expansion slot for the CIRRUS LOGIC VGA adapter card.

Your VGA adapter must use a 16-bit expansion slot. Do not insert it into an 8-bit slot.

Installing the VGA adapter in your computer

Check that the power is turned off.

If necessary, remove a system expansion slot cover by removing its retaining screw and lifting it out. Save the screw.

Hold the CIRRUS LOGIC VGA adapter by its top corners and slide it into the system unit. Make sure that it is correctly seated in the expansion slot.

Secure the VGA card with the screw that you removed in the step above.

Are the computer system's switches and jumpers correctly set? Check the user's manual for your computer for any additional configuration instructions.

Replace and secure the system cover.

Plug a VGA compatible or multi-frequency display into the 15 pin 'D' shaped video connector at the back of the CIRRUS LOGIC VGA adapter.

Important note: If you are using a multi-frequency monitor, you may need a special 15 pin PS/2 compatible adapter cable, and you will need to make sure that your multi-frequency monitor is configured properly for a PS/2 compatible analog VGA signal. Some multi-frequency displays have a switch to select 'TTL' or 'analog' operation; set this switch for 'analog'. Check the manual that came with your monitor for additional information on configuring it.

IBM AT and AT compatible users

After the VGA card is installed in the AT compatible system, use the Setup program supplied with the system to tell the computer about the equipment installed. When using AT and compatible Setup programs with the CIRRUS LOGIC VGA adapter, please follow these steps.

Run Setup to configure the computer. Sometimes this utility comes on a disk, sometimes it is built in to your system's ROM BIOS. When you arrive at the part of the program where video support is specified, the program may ask you if the monitor you are looking at will be the primary monitor, answer yes. If you are presented with a list of video options, select the option for VGA .

If no option for VGA is listed, select support for EGA. The CIRRUS LOGIC VGA adapter will look to many systems like an EGA card. If you don't see an option for EGA, try the option for NO MONITOR, RESERVED or SPECIAL. These will usually work. If not, see your equipment dealer. At the conclusion of the Setup program, the computer will restart as if you had just turned on the power.

Operation

If you have followed the installation instructions in this manual, you are now ready to use your CIRRUS LOGIC VGA equipped computer system. Most software that is compatible with IBM's Personal System/2, VGA or EGA will run automatically on your system using the VGA Card. Just turn on your computer system and install your application package for PS/2 model 50, 60 or 80 video, VGA, or EGA as instructed by the software manufacturer.

FCC information

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

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and, (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice to user: Changes or modifications to this product not approved by the party responsible for FCC compliance could void your authority to operate this equipment.

In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables must be used for the connection of any devices external to this product.

Utility software

Several utility programs are supplied with you CIRRUS LOGIC VGA. The following section describes these utilities and how to use them.

CLMode is a program supplied with your CIRRUS LOGIC VGA to configure it's various options.

SetRES lets the user change the operating resolution and the number of colors from within Windows.

CLMode

The CLMode utility allows the user to configure the panel options, define the type of monitor attached, and set the video modes supported by the CIRRUS LOGIC VGA.

USING CLM ODE'S MENU-DRIVEN INTERFACE

At the DOS prompt type: `CLMODE [Enter]`

The main popup window consists of a number of buttons. Each button represents a different option or menu. The underlined letter of a button name specifies the hot key combination for that item. For example, press the `[Alt]` and the underlined letter keys simultaneously or just the underlined letter key to select an option. Note that to use a mouse, a mouse driver should be installed prior to running the CLMode utility in order to use the mouse pointer for button selection.

Choosing the attached monitor type

Selecting the proper monitor type will allow the CIRRUS LOGIC VGA to display the highest quality output that it is capable of with the attached monitor. The monitor type determines what video modes will be available to your system. It will also determine the vertical refresh rates available. Generally, the higher the refresh, the better the screen will look. A description of the available monitor types is given in the table at the end of this section.

Select the **Monitor Type** button. The **Monitor Type** setup window will be displayed. The current monitor type will be highlighted initially. Use the cursor keys or the mouse to choose the type of monitor attached. Selecting the **Advanced monitor type** will enable you to customize the monitor timings for the monitor you are using.

To customize the monitor timings, use the mouse or the tab key to select the gray **Set Advanced** button. It will only be available if the **Advanced monitor type** is selected. This will bring up a new dialog box with drop down menus for each available resolution. Select the desired refresh rate for each resolution. Consult the manual for your monitor to discover the correct rate. When all of the settings are correct, select the **OK** button. If there are any problems or you change your mind, select the **Cancel** button.

Before saving the new monitor type, you may want to select the **Verify** button to view each of the new video timings that you have selected to verify that they are compatible with your monitor. After each test screen is displayed, press [Enter] or the left mouse button to see the next video mode. If there is a problem, press [Esc] or the right mouse button will return you to the **Monitor Type Setup** dialog box. Try a slower setting for the resolution that did not work and try verifying your choices again.

Once you are sure that everything is correct, press the **Save** button to set the new monitor type. Press the **Cancel** button to discard any changes. Press the **Help** button to get a detailed explanation on the monitor types and the VGA refresh rates.

On some systems the monitor type will be remembered from one session to the next. To test this, select a monitor type and exit the CLMode program. Turn the computer off for ten seconds. After rebooting the computer, run CLMode and verify whether or not the monitor that you selected is still enabled. If it is, it should not ever need to be set again in normal use. If the monitor type was not kept then you should select the option to have CLMode save the monitor type in your AUTOEXEC.BAT file. You will be given this choice after selecting the Save button.

Available video modes

Select the Video Modes button. The **Video Modes Preview** window displays all the modes supported according to the monitor type attached and the amount of video memory present. This list of video modes will tell you which are available in your current configuration for use with extended resolution drivers. To see what different video modes look like on your monitor, select the **Preview** button. After each test screen is displayed, press [Enter] or the left mouse button to see the next video mode. If you don't want to see any more video modes press [Esc] or the right mouse button will return you to the **Video Modes Preview** window.

CENTERING ADJUST

Centering is available while in **Video Modes Preview** (only for extended Graphics modes 58h and greater). While in **Preview**, you have the option to use the Right/Left/Up/Down arrow keys to adjust your screen accordingly. The screen adjustments have predefined

limits, and in some cases, the limit for the right side adjustment for some modes will have already been reached when entering the **Preview** mode. In that case, no right side adjustment will be allowed. Once a mode has been adjusted, the new values for horizontal and/or vertical positioning are saved within CLMode. When exiting from CLMode, you are prompted on whether you want to save these new parameters to TSR (CENTER.COM). If you choose to do this, the values to be used for the adjusted modes are stored in CENTER.COM on exit. CENTER.COM can then be loaded outside of CLMode. Once this is accomplished, all the modes which you have adjusted will be the active modes set when that mode request is made. To unload CENTER.COM, you must change the MONTYPE currently set in CLMode. This will unload CENTER.COM and uninstall all centering adjustments previously redefined. To save new centering adjustments for a different MONTYPE, repeat the above procedure as before. Your new adjustments will be written into CENTER.COM over the previously defined adjustments.

An additional adjustment for monitor SYNC POLARITY is also available while centering is active. To adjust the polarity of the current mode, simply press the PgUp or PgDn keys (while in **Preview**) to cycle through the available options, (Vertical Sync Polarity/Horizontal Sync Polarity):

+/, +/-, -/+, -/-

Note: Centering will not be allowed if CENTER.COM has been loaded. You must unload CENTER.COM before attempting to save new adjustments.

Limitations: You may only adjust and save 16 modes at a time to CENTER.COM. You must use BIOS version 1.30 or greater or centering will not be made available.

Retrieving the current VGA controller status

The information in the main window displays the VGA controller type, the BIOS version number and the amount of video memory present.

Getting help

CLMode provides Help for the following items: Configuration, Monitor Type, Video Modes, Mouse, Keyboard and About CLMode. The Configuration help window explains the flat panel configuration options. The Monitor Type help window explains the different capabilities of each monitor type. The Video Modes help window defines the information given in the Video Mode window. The Keyboard and Mouse help windows explain how to use the keyboard and the mouse to make selections. The About window displays the CIRRUS LOGIC copyright message and the CLMode version number.

Exiting the CLMode

To exit CLMode at any time, press the [Alt] and [F4] keys simultaneously, or click the left mouse button on the system button of the main window (i.e., the top left corner button of the window which is shown as a dot), or select the **Exit** button. When the CLMode utility exits, the current video mode, monitor type, and VGA refresh rate will be displayed.

USING CLMODE'S COMMAND LINE OPTIONS

When command line options for CLMODE.EXE are given at the DOS prompt, the menu-driven windows will not be displayed. Instead, configuration, monitor type, video mode and refresh rate will be set at the DOS prompt. The command line options for CLMODE.EXE are listed below:

```
CLMODE {modenum} {m{montype} | {s n}
} [Enter]
```

Where:

{modenum} mode number

{montype} monitor type

Monitor Type	Examples	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Display Resolutions
0	IBM 8512, 8513, 8503	31.5	60	640x480
1	IBM 8514, 8515	31.5 35.5	60 43.5 - interlaced	640x480 1024x768
2	NEC 2A	31.5 35.2	60 56	640x480 800x600
3	NEC II	31.5 35.2 35.5	60 56 43.5 - interlaced	640x480 800x600 1024x768
4	NEC 3D	31.5 37.8 37.8	60 60 43.5 - interlaced	640x480 800x600 1024x768
5	Sony CPD- 1304, NEC 3FGx, Nanao 9065S, 9070U	31.5 48.0 48.0 48.0	60 72 60 43.5 - interlaced	640x480 800x600 1024x768 1280x1024
6	NEC 4D, 4FG, Nanao T240i	31.5 48.0 56.0 48.0	60 72 70 43.5 - interlaced	640x480 800x600 1024x768 1280x1024
7	NEC 5D, 5FG, 6FG, Nanao T550i, T560i, T660i, F550i, F750i,	31.5 48.0 58.3 48.0	60 72 72 43.5 - interlaced	640x480 800x600 1024x768 1280x1024

Table 2: Monitor type examples

SetRES

The SetRES utility runs under Windows 3.1 and allows the user to change the screen resolution, number of available colors, and to select either large or normal size fonts and system resources.

After new options have been selected, the user can either immediately restart Windows, in which case the new resolution will take effect immediately, or continue working in the current resolution, in which case the new resolution will take effect the next time Windows is started.

This application assumes that the Windows drivers have been correctly installed and configured using **Windows Setup**.

Installation

- Start Windows.
- In the **Program Manager**, choose **File Run**.
Specify the diskette drive where the Windows Drivers and Utilities Diskette is inserted, and run the install program. For instance if the floppy is in drive A:, type
A:\INSTALL[Enter]
- When prompted, specify the Windows directory.
- Install and configure the actual Windows driver following the instructions in the Windows 3.1 section of this manual.

SetRES may now be run by selecting the **SetRES** icon. The first time that you run SetRES, the settings for the current driver won't be correct, but go ahead and set them once, and they will be correct from then on.

If you are unsure what resolutions and colors your video card can support, refer to the section of this manual on CLMode for information on how to determine available resolutions.

For help on the SetRES utility, select **Help** from the program menu.

Power management screen saver

About the screen saver

The Display Power Manager for Windows 3.1 provides a mechanism to control the amount of power used by a computer's monitor. It provides a total of 5 levels of power savings.

The first level is a conventional screen saver that turns the screen black and bounces a logo around. The black screen provides substantial power savings and the animation lets you know that the computer is still active.

The other four levels of power savings are...

Reduced on mode - Reduced on mode is an optional power saving state that allows the computer to use some power savings while still fully operational. Currently this is limited to some portable computers that can lower the power usage on their LCD displays. This causes some degradation of display quality.

Stand by mode - Stand by mode is an optional power saving state that gives minimal power savings, but provides the fastest recovery time. It is enabled by blanking the screen and lowering the horizontal rate to less than 10 Hz with less than a 25% duty cycle. There is no change to vertical timing.

Suspend mode - Suspend mode is a mandatory state in which substantial power savings are achieved by the display. The trade off is that recovery times are longer than from stand by mode. It is enabled by blanking the screen and lowering the vertical rate to less than 10 Hz with less than a 25% duty cycle. There is no change to horizontal timing.

Off mode - Off mode provides the highest level of power savings and the longest recovery times. With this mode the display is actually turned off so that recovery times are equivalent to switching the monitor on. It is enabled by blanking the screen and lowering both the horizontal and vertical rates to less than 10 Hz with less than a 25% duty cycle.

They match the power saving modes defined by the VESA VBE/PM (see below) standard. As you move down from one mode to the next, the amount of power being saved is greater, but so is the amount of time that it takes for a monitor to recover and be ready to

display data.

The screen saver will cycle through all of the selected power saving modes one after another until the maximum selected power saving mode has been reached. The number of minutes that is specified for each level is the number of minutes after the previous mode has been enabled. It is not the total time before entering that mode.

Please refer to your Windows Users Guide for information on how to install screen savers in Windows.

PM.EXE

BIOS versions prior to v1.40 do not include the function calls required to fully support the Display Power Management screen saver. To use these BIOSs with power management software requires that PM.EXE be executed before starting Windows 3.1. To run PM.EXE type

```
C:\WINDOWS\PM[Enter]
```

Where C:\WINDOWS is the directory where Windows 3.1 is installed on your computer. For convenience, PM.EXE may be put into your AUTOEXEC.BAT file.

Special considerations

Some of these power saving modes are intended for specific display types, so not all of them are available on all video controllers. On some controllers, only the animated logo will be available.

For the power saving modes to have any effect beyond just blanking the screen, the monitor being used must have specific power saving features.

Note that if the screen saver is in any of the power saving modes, moving the mouse will not wake it up. This is different from normal screen savers and is used to keep the monitor from waking up because of accidents such as bumping the desk that the computer is sitting on. This is especially important if the password option is enabled, since once the password dialog box pops up, it stays there until the user turns it off. This is a limitation of the Windows 3.1 screen saver interface.

Using the screen saver

When the screen saver is started, it will initially display a bouncing logo on a black background. To enable additional levels of power savings, select them from the **Screen Saver Mode** section of the **Setup** dialog box.

Screen saver mode

The **Screen Saver Mode** section has four check boxes in it. They are , , and . The screen saver detects the type of graphics controller that is being used and the types of power savings that it is capable of.

If the text immediately to the right of any of the check boxes is grayed out, that option is not available. If a power saving mode is available, then the text immediately to the right of the check box is black. If the box is selected with the mouse or the keyboard, the rest of the fields on the line will also turn black. If the check box is deselected, the other fields will turn gray.

The minutes field for each line can be changed only if the check box for that line is selected. The amount of time can be set for any number between 1 and 60. The number can either be typed directly, or by clicking on the up or down arrow next to the number. Holding the mouse button down on the arrow will quickly increase or decrease the minutes field.

The number of minutes that is specified for each level is the number of minutes after the previous mode has been enabled. It is not the total time before entering that mode.

Screen saver animation speed

The scroll bar controls how fast the animation moves. The checkbox controls whether or not a bouncing sound will be played whenever the logo hits an edge of the screen.

Password options

If the password checkbox is enabled, then the screen saver will prompt the user for a password before it quits. The password is the same one that is used for other Windows 3.1 screen savers.

The Energy Star program

Energy Star is a program created by the EPA to promote energy efficiency. The goal of this program is to lower electricity usage by making computers and related hardware more energy efficient.

Computers currently use an estimated 5% of commercial electricity consumption. If no actions are taken, this could rise to 10% by the year 2000. Ironically, much of this electricity is wasted. Research shows that the vast majority of time personal computers are on, they are not actively in use. Additionally 30% - 40% are left running at night and on weekends.

Electricity generation accounts for 35% of all U.S. emissions of carbon dioxide - the most prevalent greenhouse gas. It also accounts for 75% and 38% of all U.S. emissions of sulfur dioxide of nitrogen oxides respectively - the two pollutants most responsible for acid rain.

By using more energy-efficient equipment in our homes, offices and factories, we can reduce this pollution - while saving money.

The Energy Star logo is used to mark computers, peripherals and software that have adopted the EPA's power saving guidelines.

For more information on the Energy Star program contact

Linda Latham, Manager

Energy Star Computers

U.S. EPA (6202J)

Washington, DC 20460

Phone: (202)233-9230

Fax: (202)233-9578

VESA VBE/PM

The VESA VBE/PM is a software interface to the VESA (Video Electronics Standards Association) DPMS (Display Power Management Signalling) standard. For more information on VESA and these specifications contact them at:

VESA

2150 North First Street

San Jose, Ca 95131-2029

Phone: (408)435-0333

Fax: (408)435-8225

Display drivers

The CIRRUS LOGIC video controller is 100% VGA compatible. The display drivers described in this manual are supplied to improve the resolution for each supported software application package.

It can support improved text resolution, providing greater readability when using the supplied drivers in text-based word processing programs. It also supports higher graphics resolutions, providing greater detail when using the supplied drivers in graphics-based programs.

In each application section, there will be a brief introduction describing the application and the revision level of the application supported by the supplied display drivers.

The installation instructions for each display driver will follow the introduction section. Follow the instructions carefully to be sure that each display driver is correctly installed. All of the installation instructions assume that the CIRRUS LOGIC Driver Diskette is located in drive A:. If drive B: is used, the instructions should be changed appropriately.

The installation utility (INSTALL.EXE) should be used to copy display drivers directly to the appropriate application directories where they may be configured by the application software.

Before you begin

It is assumed that the user is familiar with DOS and certain DOS commands. Please review the installation instructions and the associated DOS commands before attempting the actual installation.

Not all video modes will be available on all systems. If an extended mode driver is installed for a video mode that is not available, the application program will not function properly. There are a number of things that determine the list of available video modes. Some of these include the current monitor type, the amount of installed memory, and the revision of the VGA controller. To determine which modes are available before beginning the driver installation, it is recommended that the user run the CLMode program and examine the list of available video modes.

Microsoft Windows 3.1

Before upgrading from a previous release

Before installing the new drivers you should use Windows Setup to select the VGA or SUPERVGA video driver so that when you install the new drivers, there is no chance of overwriting the driver that Windows is using to control your screen. Next go to the system directory, and find a file that is named 'OEM?.INF' where the question mark is a number. There may be more than one of these. They (it?) are the different OEMSETUP.INF files that have been used to configure Windows for different devices. Using a text editor, such as Notepad or Edit, look at them until you find the one that is for the previous version of the CIRRUS LOGIC video drivers and delete it. This is not completely necessary, but if you don't delete old files the drop down box for Setup soon becomes very cluttered with different versions of the same files. Also, in many cases the old files have been overwritten by newer ones, so no longer exist anyway.

Installing Windows 3.1 display drivers

If you haven't already installed the SetRES utility program, these instructions will install a single driver for a single resolution. If you want to be able to easily switch between different resolutions, you should install SetRES before this procedure.

To install the Windows 3.1 drivers from the DOS prompt, proceed as follows:

- Insure that Windows 3.1 is already installed on your computer.
- From your Windows directory, at the DOS prompt, type `SETUP [Enter]` to run the Windows SETUP.EXE program. Follow the instructions on the screen. When you come to the screen which lists the hardware and software components such as display adapter (e.g. VGA, CGA, etc.), keyboard type, mouse type, etc., go to the **Display** selection by using cursor keys to move the highlighted bar and press `[Enter]`.
- From the next menu listing of display options, scroll to the bottom of the list, and highlight the following text:
Other (Requires disk provided by a hardware

manufacturer)

Press [Enter], and when prompted, insert the Windows Display Driver diskette into drive A:\ or B:\ and type A:\ or B:\ [Enter].

- You will see the list of drivers and their associated resolutions, such as:

CIRRUS 54xx v1.4, 1280x1024x16

CIRRUS 54xx v1.4, 1024x768x16

CIRRUS 54xx v1.4, 640x480x16

CIRRUS 54xx v1.4, 640x480x256

CIRRUS 54xx v1.4, 640x480x64K

CIRRUS 54xx v1.4, 800x600x16

CIRRUS 54xx v1.4, 800x600x256

- Highlight the desired choice by moving the cursor to the correct display driver, and then press [Enter].
- If you are using the Japanese Windows driver disk, please reference the system directory. For example, type the following:
A:\SYSTEM [Enter]

- Continue with the remainder of the setup procedure.

To install the Windows 3.1 drivers from within Windows, proceed as follows:

- Insure that Windows 3.1 is already installed on your computer and start Windows.
- From the **Main** window of the Program Manager run the Windows 3.1 Setup program.
- Select **Change Systems Settings...** from the **Options** menu of Setup.
- Click on the down arrow at the right side of the **Display:** line. Scroll to the end of the list of available display drivers and select **Other display (Requires disk from OEM)...**
- Insert the Windows display driver diskette into drive A: and type A:\ [Enter] as the pathname, then click on **OK**.
- You will see the list of available drivers and their associated resolutions, such as:

CIRRUS 54xx v1.4, 1280x1024x16

CIRRUS 54xx v1.4, 1024x768x16

CIRRUS 54xx v1.4, 640x480x16

CIRRUS 54xx v1.4, 640x480x256

CIRRUS 54xx v1.4, 640x480x64K

CIRRUS 54xx v1.4, 800x600x16

CIRRUS 54xx v1.4, 800x600x256

- Highlight by moving the cursor to the desired display driver, and then click on **OK**.
- If you are using the Japanese Windows driver disk, please reference the system directory. For example, type the following:
A:\SYSTEM [Enter]
 - Continue with the remainder of the setup procedure. The changes will not take effect until Windows is restarted.

For Japanese Windows drivers:

When changing color, resolution, or font size from Windows setup, you must type in the path after you have selected a particular driver option. For example: type A:\SYSTEM (the CIRRUS LOGIC Japanese driver disk has to be in drive A:, and this is the first time you install this option).

or

Type C:\WINDOWS\SYSTEM (this display option has been installed previously and you want to use it now).

Installing Windows NT display drivers:

1. Start Windows NT.
2. From the **MAIN** window of the **Program Manager** run the Windows NT Setup program.
3. Select **Change Systems Settings** from the **Options** menu of **Setup**.
4. Click on the down arrow at the right side of the **DISPLAY:** line. Scroll to the end of the list of available display drivers and select **OTHER** display (requires disk from hardware manufacturer).
5. Insert the Windows NT display driver diskette into drive A: and type A:\ [Enter] as the pathname, then click on **OK**.
6. You will see the list of available drivers, their associated resolution and monitor refresh rates, such as:

GD5422/24 v1.0 640x480, 16 colors 60Hz/72Hz

GD5422/24 v1.0 640x480, 256 colors 60Hz/72Hz

GD5422/24 v1.0 800x600, 16 colors 56Hz/60Hz/72Hz

GD5422/24 v1.0 800x600, 256 colors 56Hz/60Hz/72Hz

GD5422/24 v1.0 1024x768, 16 colors 60Hz/70Hz/72Hz

GD5422/24 v1.0 1024x768, 16 colors Interlaced

GD5422/24 v1.0 1024x768, 256 colors 60Hz/70Hz/72Hz

GD5422/24 v1.0 1024x768, 256 colors Interlaced

GD5422/24 v1.0 1280x1024, 16 colors Interlaced

7. Highlight by moving the cursor to the desired display driver, click on **OK**, and then click on **Close**.

8. Continue with the remainder of the setup procedure. The changes will not take effect until the computer is restarted.

9. After you have installed the Windows NT driver, to select another display resolution, follow steps 2 and 3 above, then click on the down arrow on the right side of the DISPLAY: line to select the desired resolution from the list of available display drivers.

- These Windows NT drivers for the GD542X only support systems or video adapters with 1MB of DRAM or more.

Autodesk - ADI 4.2

The ADI 4.2 driver provided with your CIRRUS LOGIC VGA is the TurboDLDClassic display list driver from Panacea. It has only two purposes:

- To speed up AutoCAD REDRAWs, PANs, and ZOOMs
- To provide a more productive, user-friendly, interface to AutoCAD (via the features described later in this manual).

The driver is memory-resident and inserts itself between AutoCAD and the graphics board. It has no other effect on AutoCAD's operation besides speeding the program up; it runs with AutoShade 2 with RenderMan and 3D Studio to provide enhanced rendering support, but does not affect the speed of these programs, since they do not support Display Lists.

Installing TurboDLDClassic does not change any of the AutoCAD program files or alter any of the drawing files stored on disk. TurboDLDClassic was designed to be an easy-to-use, feature-filled product that makes using AutoCAD faster and more productive, not one that makes AutoCAD more complicated and difficult to use.

How does TurboDLDClassic make AutoCAD run faster? There are three things the driver does to speed operation:

- AutoCAD stores drawings in a hierarchical structure, with simple elements intermixed with complex ones. Every time the screen is updated, AutoCAD must decode this structure. TurboDLDClassic works differently. While you are working, it translates the normal hierarchical structure into a Display List, a series of vectors or polygon fills. When you pan or zoom, TurboDLDClassic uses the Display List, then writes the resulting vectors to the video board hardware. Since the hierarchical structure does not have to be decoded, drawing proceeds very quickly.
- TurboDLDClassic also maintains a Drawing Cache. The Drawing Cache is a compressed list which contains the current contents of a viewport. This pre-scaled portion of the Display List allows for even faster pans and zooms and redraws.
- TurboDLDClassic gives you numerous new user-interface features, such as the bird's eye view. (via the features described later in this manual).

By how much does TurboDLDClassic increase the speed of

AutoCAD? PANS and ZOOMs, aided by only the Display List, run from two to twelve times faster than a non-display list driver. The Drawing Cache further speeds things up to the point that REDRAWs can be up to twenty-five times faster with TurboDLDClassic, compared to the graphics drivers shipped with AutoCAD.Features

The features provided by TurboDLDClassic include:

- Bird's eye view.
- Accelerated redraws, pans, and zooms.
- Easy to use - no new commands or special menus to learn.
- Protected-mode ADI 4.2 driver - completely compatible with AutoCAD Release 12, Release 11/386, 3D Studio and AutoShade 2 with RenderMan.
- No memory conflicts. Works with AutoCAD's built-in Virtual Memory Manager
- Includes CustomColors™, which lets you interactively customize your logical and physical colors from within AutoCAD.
- Completely compatible with all Autodesk ADI 4.2 compatible third party software.
- Supports all AutoCAD Release 12 features, including rendering to viewports and 31-Bit regen space.

TurboDLDClassic requires a '386, '486 or Pentium based PC which supports AutoCAD Release 12, 11/386, AutoShade 2 with RenderMan, or 3D Studio V1.x/2.x. Additional extended memory is recommended for optimal performance.

Quick start guide

This section summarizes the basics of installing and using TurboDLDClassic. Please read the rest of the manual for details.

What does it do?

TurboDLDClassic's main function is to speed up AutoCAD pans, zooms and redraws. The driver accomplishes this by creating and maintaining a Display List - a fast-displaying object list of the current drawing - dramatically increasing performance on pans and zooms.

In addition to offering display list speed enhancement, TurboDLDClassic provides a bird's-eye view to allow you to move

around large drawings.

What's the catch?

The only resource used by TurboDLDClassic is memory. The driver actively uses about 300Kbytes of RAM from extended memory for its operation. This memory is drawn from AutoCAD's memory pool and therefore does not affect normal DOS operation. The driver is loaded by AutoCAD at AutoCAD load time and is unloaded when AutoCAD is exited.

Additionally, the Display List size can vary from one tenth to three times the size of the current drawing file, particularly when using AutoCAD 12's 31-bit regen space.

You may wish to purchase and install additional RAM before installing TurboDLDClassic, since it shares memory with AutoCAD. If AutoCAD is using a lot of memory, TurboDLDClassic may not have enough. If there is significant hard disk activity while you are using TurboDLDClassic, it may be an indication that you should add more memory to your system.

Installation

Insert the CIRRUS LOGIC drivers diskette into Drive A: (or B:). Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the Autodesk/AutoCAD drivers and specify the drive and directory where you want them copied to (such as C:\ACAD\DRV).

Since the start-up is a little bit different for AutoCAD Release 12 than it is for older versions, please follow the instructions for the version of AutoCAD you will be using TurboDLDClassic with.

To configure AutoCAD 12

Begin AutoCAD with the reconfigure switch by typing

```
ACAD -R[Enter]
```

Choose option 3, **Configure Video Display** from the AutoCAD configuration menu.

Type **Y** at the **Do you want to select...** message to display the available video options for AutoCAD.

Select **TurboDLD Classic by Panacea Inc.** from the list of display

options.

- If you chose to install TurboDLDClassic into a sub-directory other than ACAD\DRV, be sure to modify the ACADDRV environment variable to include that sub-directory. Otherwise, the TurboDLDClassic selection will not appear in the list of available drivers.

To configure AutoCAD 11/386

Run the FASTACAD.BAT that was copied to the TurboDLDClassic sub-directory by typing:

```
C:\TURBODLD\FASTACAD[Enter]
```

The above example shows that TurboDLDClassic was installed on drive C: in the TURBODLD sub-directory.

Start AutoCAD and reconfigure it to use TurboDLDClassic by selecting option 5, **Configure AutoCAD** from the AutoCAD main menu. From the next menu, select option 3, **Configure Video Display**. Choose Item 1, **P386 ADI 4.0/4.1 (R11)** as your display device. (For more information, see your AutoCAD 'Installation and Performance Guide.')

TurboDLDClassic configuration

After selecting the proper display device, the TurboDLDClassic driver configuration menu will appear.

Set-up of TurboDLDClassic requires configuration of its various operating parameters. These parameters have been logically grouped into menus based on their interaction with AutoCAD. A quick trip through each menu will complete the configuration process. Context sensitive help can be obtained by typing [?] at any menu option. Please note that the DLDSETUP.HLP file must be present in order for help to appear. If you get an error message, be sure that the file DLDSETUP.HLP is in the ACAD\DRV sub-directory (R12), or in the TURBODLD sub-directory (R11).

If at any point during the configuration process you want to change an item on a previous screen, just press the [ESC] key to back up. Selecting **NO SAVE, EXIT** at the main configuration menu will return you to the AutoCAD configuration menu without making any changes.

At a minimum, a graphics board and screen resolution must be

chosen from the **Select Graphics Board/Resolution** menu. If no display options are configured, the driver will be automatically configured for Generic VGA, 640 x 480 resolution at 16 colors.

The first menu, **Select Graphics Board/Resolution**, configures TurboDLDClassic for the graphics board, and display and rendering resolutions to be used. Prior to configuring TurboDLDClassic, run the CLMode utility and check the first screen to determine which CIRRUS LOGIC chip and how much memory is on your VGA adapter.

- **Select Graphics Board** - Selects the graphics chip being used
- **Select Display Resolution** - Selects AutoCAD, 3D Studio and AutoShade main display screen resolutions
- **Select Rendering Resolution** - Selects AutoCAD 12, 3D Studio and AutoShade rendering resolutions
- When configuring TurboDLDClassic's display options, the Rendering Board/Resolution options described below will automatically appear ONLY when configuring AVE Render, 3D Studio or AutoShade. Otherwise, the Display Board/Resolution options will be the only menu choices available.

Basic Configuration options set AutoCAD screen characteristics, number of text lines in the command-line area, font size and dual screen mode.

- **AutoCAD Text Lines** - Selects number of lines in AutoCAD command prompt area. The default is 3 lines, but values from 1 to 10 can be specified. A number larger than 3 might be useful if you are using this driver in a high resolution mode with small fonts, eliminating the need to frequently swap back and forth between the text and graphics screens.

If you do not want any lines of text at the bottom of the display, use AutoCAD to disable the command area (see the AutoCAD 'Interface, Installation and Performance Guide' for more information). Press [Return] to continue with font selection.

- **Font Size** - Selects AutoCAD display screen font or font file to be used. Choose the Font Size you would like to use for your AutoCAD menus, pull-downs, and dialog boxes: 8x8/8x14/8x16/12x20/12x24. For resolutions over 800x600 we recommend the 12x20 or 12x24 fonts. The default is the 8x14 font.

- **Dual Screen Mode** - Enables or disables dual screen operation of AutoCAD.

User Interface options include the parameters for maneuvering within AutoCAD. Using these options, the Big Picture, Panacea's bird's-eye view, can be configured to suit your needs or allow for better differentiation within a complex drawing.

- **Double Click** - The Double Click option allows you to set the delay for TurboDLDClassic's Big Picture pop-up. This time represents the largest amount of time that can elapse between the release of the digitizer button and the subsequent press of the same button in order to detect a double click and display the Big Picture. Setting this number too low will result in the computer seeing two separate clicks, while setting the time too high may slow down response time for single button presses. Values between 10 and 30 are recommended.

The Double Click time is measured in hundredths of seconds. PC systems have a timing resolution of 5/100ths of a second, therefore, the entered time is rounded by the driver to the most closely approximate nearest multiple of 5. This means that a time setting of 23 is the same as a setting of 27, both of which get rounded to 25 (or one-quarter of a second). In simplest terms, when adjusting the timing value, it is best to use multiples of 5.

- **BP Button** - Sets mouse/digitizer button to use for Big Picture. With the BP Button option, TurboDLDClassic gives you the flexibility to use a double click on an available digitizer/mouse button as a Big Picture pop-up button. On the BP Button menu line, enter the number of any available digitizer button other than button 1 - button 1 is reserved as the pick button. Within AutoCAD, simply double click the chosen button to invoke the Big Picture.

- **BP Highlight Mode** - Controls how the Big Picture will appear on the screen. Patt Line will display the Big Picture using dotted lines to form the outer bounding box and the zoom crosshairs. XOR Rect will use a contrasting rectangle to display the Big Picture. The Both option will use a combination of Patt Line and XOR Rect to distinguish the Big Picture.

- **BP Refresh** - In it's fastest mode, TurboDLDClassic does not refresh the Big Picture until a DLDREFRESH command is issued. Depending on a drawing's complexity, in this mode, the Big Picture could become confusing, displaying vectors that are now actually erased, and no longer part of the drawing. To configure the Big Picture to be updated as objects are drawn or

erased, enable the BP Refresh. If speed is a major concern, disable it.

- **BP Cache** - Enables or disables TurboDLDClassic's internal memory cache for Big Picture functions. This cache will speed up Big Picture operations on some graphics platforms, primarily on TIGA-based graphics boards. For this reason, the BP Cache is normally disabled. As a reference, on VGAs, the performance benefit of the BP Cache is as little as 1%. With a TIGA-based graphics board, however, the performance benefit of the BP Cache is as high as 400%.

The **Expert Configuration** menu sets the function of TurboDLDClassic itself. This menu allows for customization of the driver for speed or to adjust for memory constraints.

- **Display List** - Enables or disables the display list feature of TurboDLDClassic. This option should always be set to enable, disabling the Display List will cause TurboDLDClassic to run as an ordinary non-display list driver.

- **Drawing Cache** - Enables or disables TurboDLDClassic's internal drawing cache, a compressed list of the current viewport, which speeds up pans zooms and redraws. As in the Display List option, **Drawing Cache** should normally be enabled. In low memory situations, it may be desirable to disable the Drawing Cache. Disabling the drawing cache will free-up memory for AutoCAD but may or may not have a visible effect on your ZOOM and PAN performance. For example, on VGAs, the performance benefit of the drawing cache is as little as 5%. With a TIGA-based graphics board, however, the performance benefit of the drawing cache is as high as 400%.

- **AutoCAD Logical Drawing Space** - Using AutoCAD 31-Bit Space, configures TurboDLDClassic for use with AutoCAD R12's 31-Bit logical drawing space. When set to Yes, the driver will use AutoCAD's extended 31-Bit drawing space. Selecting No, will use a 15-Bit drawing space, similar to that of AutoCAD R11.

The 31-Bit logical space allows you to extend your Regen-less zooming ability by a factor of several million, at the cost of more memory. Additional memory is used by AutoCAD for the drawing space, and by TurboDLDClassic for the Display List. 31-Bit zooming and panning is about 10%-20% slower than for

15-Bit logical space. The Use AutoCAD 31-Bit Space setting is ignored for AutoCAD R11 installations.

- **Internal Command Echo** - The echo of TurboDLDClassic internal commands can be enabled or disabled with the **Internal Command Echo** option. If you would like to see TurboDLDClassic's internal commands display at the AutoCAD command line as they are executed, enable this option.

- **Big Picture Zoom Mode** - Sets the Big Picture (BP) zoom definition area display options. In a zoomed view of the static BP, as the current viewport is zoomed or panned, Float mode causes the image in the BP to move around within the bird's-eye window, keeping the zoomed viewport area fixed in the center of the bird's-eye. Freeze mode will lock the current BP contents into place to provide a better overall frame of reference.

- **Regen Mode** - As a convenience feature, a **Regen Mode** option has been added to TurboDLDClassic. A Fast Regen will store the AutoCAD drawing until the Display List has been created, and then display it, all at once. The Incremental mode displays the drawing in 'chunks' as the display list is created. The Fast mode causes Regens to process approximately 5%-10% faster than the incremental. Neither mode changes memory requirements.

After all options have been set, use the arrow keys to scroll down to the **Save and Exit** option and then press the [Enter] key to continue.

Next, configure the AutoCAD screen display characteristics and then type [Y] to accept the changes.

Exit to the AutoCAD drawing editor to begin using TurboDLDClassic.. If you are reconfiguring AutoCAD, and currently have a drawing loaded you must exit the drawing, and reload the drawing.

The last step in setting-up TurboDLDClassic is to configure the colors for AutoCAD. From the AutoCAD Command Line, type DLDCOLOR [Enter], to start CustomColors, TurboDLDClassic's color configuration utility. Make any desired color changes and then **Save** the new color palette and then **Exit** to return to the drawing editor.

Verifying your TurboDLDClassic installation

To verify that TurboDLDClassic is running and installed correctly, follow one of these two simple tests.

- If you have the AutoCAD side menu enabled, look for the Panacea Logo in the lower right-hand corner.
- If you are running AutoCAD without a side menu, type `DLDVER[Enter]` at the AutoCAD command prompt. If TurboDLDClassic is loaded and running, this command should return your current version, and serial number.

Reconfiguring TurboDLDClassic

To reconfigure TurboDLDClassic follow the instructions below for your version of AutoCAD, Release 12 or Release 11.

AutoCAD Release 12

If you need to make changes to your Release 12 TurboDLDClassic configuration, type `CONFIG[Enter]` at the AutoCAD command prompt or use `ACAD -R[Enter]` when starting the program. Select option 3, **Configure Video Display**. Answer `No[Enter]` to the **Select a new videodriver ...** prompt to start the TurboDLDClassic configuration program. Make the desired changes to the driver and then **Save and Exit** to continue to the AutoCAD drawing editor.

AutoCAD release 11

To change a Release 11 configuration, select option 5, **Configure AutoCAD** from the AutoCAD main menu, and then from the configuration menu, select option 3, **Configure Video Display**. Answer no to the **Select a new video driver ...** prompt to start the TurboDLDClassic configuration program. Change the desired driver options. Save and Exit to return to the AutoCAD configuration menu. Open or begin a new drawing.

To completely reconfigure TurboDLDClassic using Panacea's defaults, delete `DLDSETUP.DAT` from either the `\ACAD\DRV` sub-directory (R12) or the `TURBODLD` sub-directory (R11) and then follow the Driver Configuration instructions earlier in this chapter.

Configuring an AutoCAD 11 environment

During the TurboDLDClassic installation process, a FASTACAD.BAT file is created and placed into the TURBODLD sub-directory. FASTACAD.BAT contains four lines that set four separate environment variables: DLDCFG - used by TurboDLDClassic to find all of its configuration files; and DSPADI, RCPADI, RDPADI - used by AutoCAD, 3D Studio and AutoShade 2 w/RenderMan, respectively, to find the driver file. FASTACAD.BAT must be run prior to starting AutoCAD R11 and only needs to be run once per system boot. For automatic loading of the environment variables, FASTACAD.BAT may be added to the AUTOEXEC.BAT file or an AutoCAD start-up batch file.

To add FASTACAD.BAT to your AUTOEXEC.BAT file, insert the line

CALL D:\TURBODLD\FASTACAD

anywhere in the file. The above example assumes that FASTACAD.BAT resides in a sub-directory on drive D: called \TURBODLD.

If you don't wish to put FASTACAD in your AUTOEXEC.BAT file, you may put it in a batch file which also starts AutoCAD, or simply remember to run the file before starting AutoCAD.

If you get the message **Out of Environment Space** when you run FASTACAD.BAT, you will need to enlarge your system's environment. This is accomplished by adding the following line,

SHELL=C:\COMMAND.COM /P /E:768

to your CONFIG.SYS file. The **/E:768** specifies an environment size of 768 bytes. Change this number as appropriate. You will need to reboot after modifying your CONFIG.SYS file, in order for the changes to take effect.

Configuring AutoShade, 3D Studio and AVE Render

AutoShade

To configure AutoShade v2.0 to use TurboDLDClassic, first run the FASTACAD.BAT file from your TurboDLDClassic sub-directory to set the AutoShade environment variables. Next, start AutoShade

with `SHADE /R[Enter]`, which will allow you to reconfigure AutoShade. For the display device, select **P386 Autodesk Device Interface display driver**, and for the rendering display select the **P386 Autodesk Device Interface rendering driver**. If you are running the display and rendering screen on the same monitor (i.e. single monitor), make sure to tell AutoShade this. A single monitor approach will require a redraw of the display screen after a rendering screen.

Next, follow the same installation steps that were used to select the graphics board and display and rendering resolutions for AutoCAD.

3D Studio release 1.X & 2.X & 3.X

Configuring 3D Studio requires three steps. First, you need to set the environment variables for 3D Studio by running the `PANA3DS.BAT` file that was copied into your `TurboDLDClassic` sub-directory. Next, edit the `3DS.SET` file, located in your `3DS` directory. The following three lines may be changed to use the RCPADI rendering driver. Locate the lines that begin with

```
RENDER-DISPLAY  
MAIN-DISPLAY  
MATERIAL-DISPLAY
```

and change them to read

```
RENDER-DISPLAY=RCPADI  
MAIN-DISPLAY=RCPADI  
MATERIAL-DISPLAY=RCPADI
```

Make sure to remove the ';' or any spaces that may be present at the beginning of the line.

It is only necessary for the **RENDER-DISPLAY** line to be set to RCPADI in order to render at high resolution. If you do not need a high resolution main display screen or if you will not be using the materials editor, you may keep **MAIN-DISPLAY** and **MATERIAL-DISPLAY** set to their defaults.

- For 3D Studio 1.x, there is no **RENDER-DISPLAY** line. The corresponding line is **DEFAULT-DISPLAY** and should be changed to read

```
DEFAULT-DISPLAY="RCPADI"
```

The quotes around RCPADI must be used for this version of 3D Studio.

The **MATERIAL-DISPLAY** should only be configured for RCPADI when BOTH the Display AND Rendering Resolutions of TurboDLDClassic are configured for 256 color resolutions. An unpredictable Materials Editor screen will appear if anything other than 256 colors is selected. If you are unsure about the function of the Materials Editor screen, use the Materials Editor as VGA, you should not have any problems at all. Please note too, that the use of the Materials Editor will not give you any more colors to choose from.

Save the above changes and start 3D Studio to begin the last part of the configuration procedure.

From your 3D Studio directory, delete the file 3DADI.CFG by typing

```
DEL 3DADI.CFG[Enter]
```

This will cause 3D Studio to start in its reconfiguration mode. Start 3D Studio by typing 3DS[Enter] .

During the 3D Studio reconfiguration start-up, you are prompted with a series of questions. After the first 3D Studio question appears and is answered, the TurboDLDClassic configuration program will appear. Select a graphics board and display and rendering resolutions as you would for AutoCAD use.

Because RCPADI device drivers, by definition, are combined display and rendering devices, during 3D Studio reconfiguration, you will be brought to the TurboDLDClassic configuration menu more than one time, once each for Display and Rendering. It is not necessary to select display and/or rendering resolutions a second time. Simply press the [Enter] key to remove the help screen and then highlight **Save and Exit** to continue to the next question. Also if FASTACAD.BAT is used instead of PANA3DS.BAT to define the AutoCAD operating environment, the TurboDLDClassic configuration menu will also appear for RDPADI and DSPADI devices if they are present.

3D Studio v3.X

Panacea's TurboDLDClassic drivers will run with 3D Studio release 3.X. Please use 3D Studio's default RCPADI VIBRANT GRAPHIC DRIVER CONFIGURATION. Follow the Vibrant Graphics Configuration Program Setup Procedures that are found in your 3D Studio 3.X Installation Manual for ADI 4.2 Drivers.

From your TurboDld Subdirectory run PANA3DS.BAT to set the 3D Studio environment settings.

Run 3DS VIBCFG.

During Configuration for Vibrant Graphics there will be four categories, Main-Display, Materials-Display, Render-Display, and Flic Playing. For these four categories set **RCPADI**.

When Vibrant Graphic settings are complete click **OK** to exit and save settings. The Setup for TurboDld Classic Drivers will then commence. Follow the menus to Setup Display and Rendering Screen. Save and Exit to 3D Studio.

Please note that the out of the box CIRRUS LOGIC drivers that are supported in 3D Studio release 3.X are supplied and maintained by Autodesk.

- TurboDLDClassic only provides still rendering support for 3D Studio. TurboDLDClassic will not play back rendered .FLI or .FLC files. This is a limitation of 3D Studio. The Mapping Icon colors, which are usually yellow and green, will appear as black when using any external ADI driver. Also, 3D Studio has problems with large fonts. It is recommended that you use the default font settings.

AVE Render

AutoCAD 12's AVE Render uses TurboDLDClassic's rendering capabilities to render objects and drawings. If AVE Render has never been configured, when you first select the AutoCAD render command, you will be forced to run through the configuration process. You will be prompted as follows.

- Select a **Rendering Display Device**. Since TurboDLDClassic is a combined display/rendering device, choose item 1, **P386 ADI Combined Display/Rendering Driver** from the available choices.
- Configure the **Rendering Graphics Board and Resolution**. Here the TurboDLDClassic configuration program will appear on the screen. Press the [Enter] key to continue past the help screen and display the **Rendering Configuration** menu. Choose **Select Graphics Board/Resolution** to display graphics board and resolution menu selections. First, choose **Select Render Graphics Board** to select the graphics board to be used for renderings. Next, choose **Select Render Resolution** to select the desired rendering resolution from the list of available

choices. Select **Return to Previous Menu** and then select **Save** and **Exit**.

- Select **Render Mode**. Then select the rendering mode for *TurboDLDClassic*. Select either **Render to Viewport** or **Render to Screen** depending on how you wish to view your renderings. Note that in order to render to a viewport you must be using a display resolution of at least 256 colors. Otherwise, AVE Render will not allow a render to viewport selection.
- Select a **Render Hard Copy Device**. If you are using a render hard copy device select your device type from the list of choices. If you are not using a hard copy device, accept the default of **NULL**.

After configuring AVE Render, you will return to the drawing to render the current drawing.

If you have previously configured AVE Render, type `RCONFIG[Enter]` at the AutoCAD command prompt to manually display the **Render Configuration** menu. Follow these steps to re-configure AVE Render.

- Select option 2, **Configure Rendering Device** to choose a new rendering driver. Answer `[Yes]` to the **Select Different Rendering Device** question.
- Select option 1, **P386 Combined Display/Rendering Driver**.
- Configure the rendering graphics board and resolution. Here the *TurboDLDClassic* configuration program will appear on the screen. Press the `[Enter]` key to continue past the help screen and display the **Rendering Configuration** menu. Choose **Select Graphics Board/Resolution** to display graphics board and resolution menu selections. First, choose **Select Render Graphics Board** to select the graphics board to be used for rendering. Next, choose **Select Render Resolution** to select the desired rendering resolution from the list of available choices. Select **Return to Previous Menu** and then **Save** and **Exit**.
- Select the rendering mode for *TurboDLDClassic*. Select either **Render to Viewport** or **Render to Screen** depending on how you wish to view your renderings. Note that in order to render to a viewport you must be using a Display resolution with at least 256 colors. Otherwise, AVE Render will not allow a render to viewport selection.
- Select **Exit to the Drawing Editor** from the **Render**

Configuration menu and then type [Y] to keep the changes you've just made. Press the [F1] key to change to the graphics screen if necessary.

Changing colors

Included with TurboDLDClassic is the CustomColors color configuration utility. What is so unique about CustomColors is that it gives you the ability to modify all of your changeable AutoCAD colors, including menu colors, text colors, dialog box colors, and even drawing colors, while running AutoCAD.

CustomColors simulates an AutoCAD screen, complete with all possible objects. At the AutoCAD drawing editor command line, type DLDCOLOR[Enter] to edit the color configuration. Once you enter the utility, you are provided with the following configuration menu at the bottom of the screen:

(O)bject,
(D)rawing,
(P)hysical,
(A)DI reset,
(V)GA reset,
(L)oad,
(S)ave,
(E)xit

The menu items perform the following functions.

•**Object** - Selecting this option will allow you to change the color of any AutoCAD screen object, such as the graphics area background color, the menu area text color, or the border line color.

Select the object whose color you want to change by moving the highlight box around with the left and right cursor control keys and pressing [Enter] when you have highlighted the desired object. Note that a one line description of the object type is displayed at the top of the screen as you move the box around.

Once you have selected the object, another highlight box will appear around the color boxes nearest to the bottom of the screen. These are the physical colors that the video board supports. Use the left and right cursor keys to select the physical

color to be used for the object you have selected and press [Enter]. The screen will quickly redraw with the new color selection for the object you have chosen, and you will be back at the start of object selection in case you want to change the color of another object.

Note that at any time during color configuration, you can press the [Esc] key once or twice and return to AutoCAD. Also, pressing the question mark [?] key will provide you with context sensitive help.

•**Drawing** - This option allows you to modify AutoCAD drawing colors 0, 8 and 9, in a fashion similar to the way you change object colors.

When this option is selected, a highlight square appears in the drawing color area of the simulated AutoCAD display. The square can be manipulated using the four cursor keys. You may notice that the drawing color portion of the display is laid out just like the CHROMA drawing supplied with AutoCAD. When you press [Enter], the highlight moves down to the 16 physical colors, just as it does during the object color selection. Using the arrow keys, pick the physical color you want to represent the selected drawing color. Press [Enter] to have your selection take effect.

•**Physical** - choosing the Physical option from the menu allows you to alter the red, green, and blue components of the physical colors. A highlight box will appear in the row of 16 physical colors at the bottom of the screen.

Use the arrow keys to select the color you wish to edit and press [Enter]. Three sliders will appear near the bottom of the display, with the horizontal position of the slider for each of the color components (red, green, or blue - RGB) indicating the relative intensity of the component. You can use the left and right arrow keys to move the slider for the selected component, or type in a number from 0 to 255.

Many graphics boards do not support 255 different intensities for each color component. Therefore, when you enter an intensity, Custom Colors will round it to the nearest intensity which your graphics board supports. For example, VGAs support 64 intensities per RGB color component. This means intensities increase in multiples of 4 ($256/64$), therefore an intensity of 0 is the same as an intensity of 3.

The up and down arrows allow you to select which component

you want to alter. As you manipulate the sliders, all objects on the display that are of the same color as the selected physical color will change in hue. This way you can visually determine the most appropriate setting for your display. Pressing [Enter] will set the RGB values you have selected for the physical color you were modifying.

- **ADIReset** - constructs a default ADI color palette, as defined in the Autodesk Device Interface Driver Development Kit.

- **VGAreset** - constructs a default VGA color palette in the first 16 color entries. The remaining palette colors remain identical to those used for ADI devices.

- **Load** - reloads the color information from the file DLDCOLOR.DAT. It will be loaded from the directory pointed to by DLDCFG (AutoCAD R11), or from the AutoCAD R12 \DRV directory. If DLDCOLOR.DAT cannot be found, an error message will be displayed.

This command is useful because it allows you to go back to your previously edited color configuration in case you have made some mistakes in configuring your colors that you want to undo.

- **Don't Accidentally Wipe Out Your Changes.** Selecting **ADIReset**, **VGAreset**, or **Load** will irrevocably wipe out any current color changes you may have made, unless you have just saved your new setting, so use them only when you really need to, such as when you have made so many color changes that you can't seem to get back to a reasonable place and just want to start over.

- **Save** - Saves the current color palette to DLDCOLOR.DAT. It will be saved to the directory pointed to by the DLDCFG environment variable in FASTACAD, or to the \ACAD\DRV (R12) directory if FASTACAD is not used.

- **Exit** - Exits CustomColors. If you have made palette changes, but not saved them, you will be asked if you want to save your changes before exiting.

When running at more than 8 bits-per-pixel (256 colors), setting physical colors via DLDCOLOR will have no visible effect until a **SAVE** and **EXIT** occurs.

TurboDLDC*lassic* commands

TurboDLDC*lassic* offers AutoCAD users many features and productivity options. This section alphabetically lists the basic

commands found in TurboDLDClassic and provides the correct syntax for their usage. For a brief summary of TurboDLDClassic commands type DLDHELP at the AutoCAD command prompt.

The most important feature of TurboDLDClassic is the addition of a world view called The Big Picture™ or BP for short. Bringing up the BP allows you to view where in the current drawing you are currently located in your active viewport, and it also gives you the ability to dynamically move to another part of the drawing without having to exit the function you're currently executing.

DLDBIGPIC

To call up the Big Picture, at the AutoCAD command line, type DLDBIGPIC [Enter], or double click the right mouse button or button 2 on your digitizer puck. (if you haven't redefined your BP Button double click). This will bring up the BP on the display. You will see cross-hairs and a highlighted section indicating which part of the whole drawing you're currently viewing - the size of the image will be determined by the AutoCAD logical drawing space being used, 15-Bit or 31-Bit. The selection or pick box will have an 'X' through it. Move the mouse/digitizer around to locate your pick box. If you can't see a small box moving, click the left mouse button (the pick button) to size down the pick area. In size mode, the pick box will have a right pointing arrow in it ('-->'). If the contents of the BP are too small to work with, you may increase the size of the image in the window by pressing the [+] key on your numeric keypad this performs an incremental zoom within the BP. Likewise, pressing the [-] key will reduce the size of the contents of the BP. Pressing the [Home] and [End] keys will put the BP into its smallest and largest size, respectively. The smallest BP size is defined as being exactly the same view as that in the viewport referenced by the BP. The largest BP size is defined as the largest image possible without causing a Regen.

The BP pick box is always proportioned to the proper aspect ratio for the current viewport. Clicking the pick button again will put you back into the pick box move mode ('X'). This operation is very similar to using the **Zoom Dynamic** feature of AutoCAD. Once you have positioned the pick box on the area you would like displayed in the active viewport, click any button other than the pick button to initiate the zoom, or press the [Enter] key. If you want to abort the operation, just hold any button down, other than the pick button,

until the BP disappears. You can also hit any key on the keyboard, other than [Enter], to cancel the BP. Note that the BP is updated with new drawing commands, but that moves or erases will not update the image unless BPREFRESH is enabled. A DLDREFRESH or a REGEN will manually update the BP with the current drawing changes.

DLDBPCACHE*

Enables or disables TurboDLDClassic's internal cache for BP features. This cache speeds up TurboDLDClassic's Big Picture functions. DLDBPCACHE is normally disabled. Performance benefits of the BP Cache will vary from one graphics platform to the next. For example, on VGAs, the performance benefit of the BP Cache is as little as 1%.

DLDBPDIM

Resizing and repositioning the BP can be accomplished by typing this command at the AutoCAD prompt. DLDBPDIM allows you to tell the driver where you want the BP placed and how large you want it to be. The size is limited to being between one-quarter and one-half the width of the display. This command functions like the pan/zoom selection box in the BP, as far as positioning and dimensioning goes. To abort, hold the right mouse button, or any other digitizer button, down until the moving box disappears.

DLDBPFREEZE

Sets the Big Picture (BP) zoom definition area display options. DLDBPFREEZE toggles the Big Picture Zoom Mode parameter in TurboDLDClassic's Expert Configuration Menu.

In a zoomed view of the static BP, as the current viewport is zoomed or panned, Float mode causes the image in the BP to move around within the bird's-eye window, keeping the zoomed viewport area fixed in the center of the bird's-eye. Freeze mode will lock the current BP contents into place to provide a better overall frame of reference.

DLDBPHILIGHT*

Changes the highlight used to display the Big Picture among three modes, Patt Line, XOR Rect, and Both. Patt Lines will use dotted

lines to outline the Big Picture pick box. XOR Rect will use a contrasting rectangle to highlight the pick box, and Both will use a combination of Patt Lines and XOR Rect.

DLDBPREFRSH*

This convenience feature of TurboDLDC*Classic*, toggles the Big Picture update mode. If disabled, the BP is updated manually by issuing a DLDREFRESH command. When enabled, DLDBPREFRSH will cause the BP to refresh automatically when an object is drawn or erased. The BP operations therefore will be slower with DLDBPREFRSH enabled.

DLDBPSTATIC

Toggles the BP to stay on the screen at all times. Use this command if you want the BP on the screen in order to conveniently move into it whenever you want to zoom or pan. Typing DLDBPSTATIC will put up the BP at the position you set with DLDBPDIM. Note that the static BP will disappear when other menus pop-up on the screen, and it will also disappear if you draw any objects which may overwrite the BP. With these exceptions, the BP will remain on-screen until you either exit the drawing screen or you type DLDBPSTATIC again.

DLDCOLOR

Invokes CustomColorsTM, Panacea's color configuration program.

DLDCOMPACT

Forces a manual garbage collect of Display List memory thereby returning unused display list memory back to the AutoCAD memory pool.

DLDDCACHE*

This command toggles the TurboDLDC*Classic* drawing cache on and off. The Drawing Cache is a compressed form of the current viewport which speeds pans, zooms and redraws

DLDDLIST*

This command toggles the display list function of TurboDLDC*Classic* on and off.

- Please note that if the display list is turned off, you will be running AutoCAD as though you were using a standard non display list driver - pans, zooms and redraws will be MUCH slower with DLDDLIST disabled.

DLDECHO*

Toggles internal TurboDLDClassic command echoing at the AutoCAD command line. When TurboDLDClassic commands are executed via the digitizer or pop-up menus, they generate internal commands which will be displayed at the AutoCAD command line if DLDECHO is enabled. Disable DLDECHO to simplify the command line.

DLDHELP

Provides a list of TurboDLDClassic commands with one-line description of each, within AutoCAD. It's recommended that you flip to the text screen by pressing the [F1] key to view the output.

DLDREFRESH

Refreshes the Big Picture to reflect the most current changes to a drawing. If the static BP is up, it will be updated. If not, the next time the BP is brought up, it will contain a current representation of your drawing, provided no changes were made between the DLDREFRESH command and the DLDBIGPIC command. For Automatic update of the Big Picture, see the DLDBPREFRSH command above.

DLDSTAT

Displays the current TurboDLDClassic status. A listing of the current TurboDLDClassic parameters will be displayed at the AutoCAD command line. A flip to the graphics screen is recommended for this command.

DLDUSAGE

Use DLDUSAGE if you want a to-the-byte breakdown of how memory is being used, specifically for display list processing. DLDUSAGE returns information regarding the memory each viewport is occupying. Since AutoCAD supports multiple viewports, it is possible to have multiple display lists.

DLDVER

Displays the TurboDLDClassic version, serial number and registered user's name at the AutoCAD command line.

DLDVISREGEN*

Toggles between the Fast and Visible Regen modes of TurboDLDClassic. A Fast Regen will create the display list and then display the drawing all at once. A Visible Regen will display the drawing in chunks as the display list is created. This command is a dynamic form of the Regen Mode parameter in the Expert Configuration Menu. Since TurboDLDClassic's Fast Regen mode is faster than AutoCAD's, we highly recommend its use.

- Please note that the commands above with a '*' following them, when issued within AutoCAD, will override the selections made during TurboDLDClassic configuration, for the current drawing session only. Exiting AutoCAD and subsequently restarting will cause all feature settings to revert back to those selected in the TurboDLDClassic configuration menu. If you wish to make the current changes permanent, reconfigure TurboDLDClassic.

Memory usage and lists

TurboDLDClassic shares extended memory with AutoCAD via the PharLap Virtual Memory Manager. This means that TurboDLDClassic will automatically page to disk if it uses up all the RAM that AutoCAD has left for its use. See the AutoCAD 'Installation and Performance Guide' for more information on Virtual Memory Management.

Please note that if you start seeing excessive hard disk accesses during PANs, REDRAWs, and ZOOMs while using AutoCAD with TurboDLDClassic, try using the DLDCOMPACT command. If this doesn't affect the amount of disk access it's probably time to add more memory to your system. Contact your AutoCAD dealer for assistance in upgrading your memory.

Regarding display list memory, it's important to realize that TurboDLDClassic speeds up AutoCAD operations by creating a Display List in memory, and sending that list to the graphics board for pans, zooms and redraws. But a display list takes up memory.

How much memory?

For production use, we recommend that at least 1 megabyte is available for TurboDLD*Classic*. To determine how much memory AutoCAD is using, use the status command while in AutoCAD (refer to the AutoCAD 'Installation and Performance Guide' for more information). The Display List for a simple drawing like the shuttle Columbia might only require 20 Kbytes for the Display List. Complex drawings may require several megabytes. We have seen Display Lists for a drawing range from one-tenth the size of the drawing file to three times the size; in general, the Display List averages about the same as the DWG file size. This means that you should count on the Display List generally taking up as much as twice the DWG file size. Also, complex objects such as circles and text “expand” when translated into display list format, so a drawing with a lot of complex objects and text will have a larger Display List than a simpler drawing.

Keeping the Display List small

Text takes up a disproportionate amount of space in the Display List. To keep the list small, put text in its own layer of the drawing. Then don't display the text layer when editing the rest of the figure. This will keep memory consumption down and speed up PANs, REDRAWs, and ZOOMs.

Read the AutoCAD manuals

The AutoCAD manuals have an excellent section on performance, concentrating on memory usage. To get the most performance out of the program, read the appropriate sections of those manuals as well as this one.

Tips and tricks

Upgrading from older Panacea DLD drivers

Be sure to remove any reference to previous DLD driver commands (FASTACAD calls or SET parameters) or sub-directories that may be in your AUTOEXEC.BAT file or in AutoCAD start-up batch files. Such references could cause AutoCAD and TurboDLD*Classic* to look in the wrong place for setup information.

If you have been using a previous Panacea DLD driver and wish to use the color palette you customized for it with *TurboDLDClassic*, you may copy the DLDCOLOR.DAT file from your older DLD's sub-directory to the sub-directory you specified during the *TurboDLDClassic* installation process.

Maneuvering Through AutoCAD

Zooming

When zooming into an image, be aware of your AutoCAD grid snap setting. If you are zoomed extremely far into a drawing and you are having trouble moving your digitizer cursor, you may be snapping to a point which is not part of the zoomed viewport. If the cursor only moves to a single point, or is not on screen at all, turn the grid snap off.

TurboDLDClassic and Paper Space

TurboDLDClassic features do not work in AutoCAD's Paper Space. The execution of any *TurboDLDClassic* command in Paper Space will result in an error message at the command prompt.

Zoom Dynamic

We do not recommend using ANY *TurboDLDClassic* features while in the Zoom Dynamic mode of AutoCAD. Because *TurboDLDClassic* cannot determine when Zoom Dynamic has been initiated, unpredictable results will occur. Use the Big Picture feature of *TurboDLDClassic* to accomplish the same task as Zoom Dynamic, in a much more efficient fashion.

Switching Color Modes

When switching color modes, (i.e. from 16 to 256 or vice versa) the DLDCOLOR command should be run in order to reconfigure your color palette for the number of colors selected. A black cursor and disappearing crosshairs are both symptoms of a color palette problem.

AutoCAD R12's CONFIG command

Configuring *TurboDLDClassic* in the middle of a drawing session using the CONFIG command is a bit like exiting and re-starting AutoCAD. If are using the static Big Picture, you will have to re-initialize it after returning from the **Configuration** menu.

Sticky Cursors

Sometimes, when using the Big Picture, the digitizer cursor will appear to stick to the edge of the bird's-eye. This is normal and is the result of the digitizer puck responding to the whole screen area while the Big Picture only occupies a small portion of the screen. Because of the difference in resolutions between the screen and the digitizer, when the screen cursor enters the Big Picture area, the digitizer puck has more drawing area to cover in order to get to the same location as the screen cursor.

Using AutoCAD Commands

Since TurboDLDClassic is totally transparent to users with respect to using normal AutoCAD commands to REDRAW, PAN, and ZOOM, you still have to suffer from some of AutoCAD's nuances. One of these nuances is that ZOOM ALL and ZOOM EXTENTS both force a REGEN, because AutoCAD does not keep track of various boundaries necessary to avoid the REGENs. And REGENs are rather time-consuming and don't use any display list processing to speed themselves up. One way around this problem is to use another of AutoCAD's built-in features, namely the VIEW command.

When you first load your image and see the whole drawing on the screen at once, just type `VIEW Save ALL[Enter]`, which will save the display position you see under a view named 'All'. Then, after you've done some detailed editing and want to return back to the big picture, type `VIEW Restore ALL[Enter]`, instead of `ZOOM All[Enter]` or `ZOOM Extents[Enter]`, and the full drawing will be restored to the display at display list speeds, without a REGEN.

Another nuance of AutoCAD's is that if you zoom in too far or pan over too far, you may inadvertently cause a REGEN. AutoCAD again provides a very simple solution: the REGENAUTO command. Just type `REGENAUTO Off[Enter]` at the AutoCAD command prompt, and automatic REGENs will be disabled. The REGENAUTO setting is also saved as part of your drawing file, so you only need to execute it once per drawing. You may even want to set REGENAUTO off in your ACAD.DWG drawing template so that all your drawings are created with REGENAUTO set off.

Third-Party Software

If you are having trouble with TurboDLDClassic and third-party AutoCAD applications, be sure that the third-party application

supports ADI 4.2. In order to use the ADI 4.2 specification, third-party applications require new T-Drivers and therefore must be revised. If an application does not specifically say that it is ADI 4.2 compatible, it probably is not. Check with the manufacturer to be sure.

If your third-party application is ADI 4.2 compatible and you are having trouble using *TurboDLDClassic*, try running AutoCAD without the third-party application to try to isolate the problem. Also, try the third-party application with the VESA compatible driver shipped with AutoCAD, this will also help to isolate the source of the problem.

Also note that any third-party TSR that needs to access the display may not work properly when using AutoCAD with any advanced ADI display driver, especially if the TSR switches graphics modes. Most TSRs will not support the same graphics platforms as *TurboDLDClassic* and therefore, will not be able to accommodate mode switching back and forth.

Command summary

This section alphabetically lists the basic commands found in *TurboDLDClassic*. Commands have been listed alphabetically.

DLDBIGPIC calls up the Big Picture - use digitizer clicks to define an area and zoom into it.

DLDBPCACHE enables or disables the Drawing Cache for *TurboDLDClassic* advanced features.

DLDBPDIM allows resizing and repositioning of the Big Picture.

DLDBPFREEZE toggles the Big Picture Zoom Mode between Float and Fixed modes.

DLDBPHILIGHT selects the highlight mode used to display the Big Picture.

DLDBPREFRSH enables and Disables the Big Picture automatic update mode.

DLDBPSTATIC toggles the Big Picture to stay on the screen at all times.

DLDCOLOR invokes CustomColors™, Panacea's color configuration program.

DLDCOMPACT forces a manual clean-up of Display List memory

returning any unused memory back to the AutoCAD memory pool.

DLDDCACHE toggles the TurboDLDC*lassic* drawing cache on and off.

DLDDLST toggles the display list function of TurboDLDC*lassic* on and off.

DLDECHO toggles internal TurboDLDC*lassic* command echoing at the AutoCAD command line.

DLDHELP provides a list of TurboDLDC*lassic* commands with one-line description of each, within AutoCAD. It's recommended that you flip to the text screen to view the output.

DLDREFRESH refreshes the Big Picture to reflect the most current changes to a drawing.

DLDSTAT displays a listing of the current TurboDLDC*lassic* parameters. A flip to the graphics screen is recommended for this command.

DLDUSAGE gives a to-the-byte breakdown of how memory is being used for display list processing.

DLDVER displays the TurboDLDC*lassic* version, serial number and registered user's name at the AutoCAD command line.

DLDVISREGEN toggles between the Fast and Visible Regen modes of TurboDLDC*lassic*.

GEM/3

Installing GEM/3 display drivers

To install the GEM drivers the first step is to build a GEM driver pak.

- In the following three steps, you create a disk known as the GEM DRIVER PAK. Using the standard DOS FORMAT utility, format a blank diskette by inserting it in drive A: and typing the following:

```
FORMAT A: /V [Enter]
```

The DOS format utility will then prompt for the volume label by displaying:

Volume Label? (11 characters max) Press Enter for none.

At this prompt, type the following volume-label name in upper case:

```
GEM DRIVRPK [Enter]
```

- Using the DOS COPY utility, copy the following files from the GEM/3 system master diskette (comes with GEM/3) to the newly formatted GEM DRIVRPK diskette. Type the following sample commands assuming that the GEM/3 system master diskette is in drive A: and the GEM DRIVRPK diskette is in drive B:

```
COPY A:GEMVDI.EXE B: [Enter]
```

```
COPY A:MDGEM?.SYS B: [Enter]
```

- Insert the CIRRUS LOGIC drivers diskette into Drive A:. Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the GEM/3 drivers and specify the drive and directory where you want them copied to (such as B:\). GEM/3 requires that the drivers be installed from the root directory of a floppy disk in drive A:. Be sure to install the drivers to the root of drive A: or drive B: and then place the diskette in drive A: before proceeding.

- Install GEM/3 (following the instructions provided in the product's manual), selecting the standard IBM VGA Color (IBM PS/2) driver.
- After successfully completing installation, insert the GEM/3

System Master Disk in drive A:.

- Move to drive A: by typing A: [Enter]. Please note that you must install from the A: drive.
- Then type GEMSETUP [Enter].

Follow the GEM/3 installation instructions up to the **CHANGE EXISTING CONFIGURATION** stage. When prompted for a screen driver choice, highlight:

OTHER (DRIVER PACK)

- When prompted to insert a screen driver into drive A:, insert the newly created GEM DRIVRPK diskette.
- Select one of the following:
CIRRUS LOGIC VGA 16 Color 800x600
CIRRUS LOGIC VGA 16 Color 1024x768
- Continue with the remainder of the installation.

Lotus 123 v2.x, Symphony, and Report Writer

To install a Lotus display driver, proceed as follows:

- Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the Lotus 123 and Symphony drivers and specify the drive and directory where you want them copied to (such as C:\LOTUS).
- From within the Lotus sub-directory type:
INSTALL [Enter]
- From the next menu, select **Advanced Options** for Lotus 123 v2.2 or **Change Selected Equipment** for Lotus 123 v2.3.
- For v2.2, select **Add New Drivers to Library** and go to step 3. For v2.3, select **Modify Current Driver Set** and go to step 6.
- From the next menu, select **Modify Current Driver Set**.
- From the next menu, select one of the display and resolution configurations.
- From the next menu, select **Return To Menu**.
- From the next menu, select **Save Changes**.
- Enter the name you have selected for the driver set. We recommend that the driver set name reflect or include the driver's resolution (e.g. 132x43) NOTE: The default driver set name assigned by the program is 123.SET.

You may create multiple driver sets with different display resolutions. To run Lotus 1-2-3 or Symphony with a specific driver set, type:

```
123 SETNAME [Enter] or  
SYMPHONY SETNAME [Enter]
```

where SETNAME is the name of the desired driver set.

Lotus 123 v3.X

To install a Lotus 3.0 or 3.1 display driver, proceed as follows:

- It is assumed that Lotus 1-2-3 v3.0 or 3.1 is already installed on your hard disk, using the standard Lotus installation utility. To install this driver, make the directory containing 1-2-3 v3.0 the current directory. For example, if 1-2-3 is in the directory named 123R3, then type the following command:

```
CD \123R3 [Enter]
```

- One of the files used in the driver installation is named INSTALL.DDF. This is a text file used by the 1-2-3 installation utility, containing information on each of the drivers and modes of operation. If you have been using a driver supplied with another graphics adapter, you may want to make a backup copy of the INSTALL.DDF file currently in your 1-2-3 directory.

```
COPY INSTALL.DDF INSTALL.BAK [Enter]
```

- Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the version of Lotus 123 that you are using and specify the drive and directory where you want them copied to (such as C:\123R3). If the INSTALL.DDF has been copied to a backup file (see step 2 above), answer YES to the prompt to confirm overwriting the file.

- Now run the Lotus installation utility by typing:

```
INSTALL [Enter]
```

- Select **Change selected equipment** from the list. Note: If you are currently using another driver supplied with a graphics board, it may be necessary to choose First-time installation.

- Select **Modify Current DCF**, or **Choose Another DCF** to modify, according to your preference. The following procedure is valid for either selection.

- Select **Change Video Display**. This will present you with a list of all the display types provided with the 1-2-3 distribution, with two additional choices. GD542x 100 Column Display (800x600 resolution) supports 100x31, 100x42, and 100x75 16 color modes. GD542x 128 Column Display (1024x768 resolution) supports 128x40, 128x54, and 128x96 16 color modes. Select a resolution that best meets your requirements.

□After you selection is made, choose the **Save Changes** option from the menu. Note that when some high-resolution modes are selected, a message may appear asking for the drive letter of the floppy disk. Before entering the drive letter, insert the disk that is requested in the floppy drive. After inserting the disk, you may enter the drive letter containing that diskette.

OS/2 2.0

The CIRRUS LOGIC OS2/2.0 16 color driver supports all GD542X chips. The 32-bit 256 color accelerated driver supports the GD5426 and GD5428 only. For other CIRRUS LOGIC GD542X chips such as the GD5424 you may use the 256 color driver that ships with OS/2 2.1 from IBM.

You will need the following programs for Installation.

CLMODE.EXE or Video Adapter Utility program to select monitor type. 256 Color accelerated Drivers can only be used with the OS/2 2.0 Corrective Service Pack which is an upgrade that can be purchased from IBM.

Installing the 16 color driver:

1. Edit OS/2's CONFIG.SYS file with the following settings.

search for the LIBPATH statement and add

```
"C:\OS2\DLL\CLDSP"
```

to the beginning of the LIBPATH statement.

For example:

```
LIBPATH=C:\OS2\DLL\CLDSP; .; .....  
set video_devices=vio_SVGA  
set vio_SVGA=device(bvhvga,bvhsvga)  
device=C:\os2\mdos\vsvga.sys
```

and remark (REM) the following statements:

```
REM set video_devices=vio_vga  
REM set vio_vga=device(bvhvga)  
REM device=C:\os2\mdos\vvga.sys
```

2. Bring up a DOS full screen session, run CLMODE.EXE utility that came in your video adapter Utilities Disk to set monitor type, then insert CIRRUS LOGIC's driver diskette in drive A: or B:, type A:SVGA.EXE ON[Enter] or B:SVGA.EXE ON[Enter] to create an SVGADATA.PMI file. Copy your SVGADATA.PMI file to your OS/2 subdirectory.

3. Shut down the system to boot up from the OS/2 2.0 Installation Diskette, then **ESC** out of Diskette One to run CLI1620.CMD.

Installing the 256 colors accelerated driver:

256 Color accelerated Drivers can only be used with the OS/2 2.0 Corrective Service Pack which is an upgrade that can be purchased from IBM and the CIRRUS LOGIC GD5426 or GD5428 chips.

1. Edit OS/2's CONFIG.SYS file with the following settings add

For example:

```
set video_devices=vio_SVGA
set vio_SVGA=device(bvhvga,bvhsvga)
device=C:\os2\mdos\vsvga.sys
```

and remark (REM) the following statements:

```
REM set video_devices=vio_vga
REM set vio_vga=device(bvhvga)
REM device=C:\os2\mdos\vvga.sys
```

2. Bring up a DOS full screen session, run the CLMODE.EXE utility that came in your video adapter Utilities Disk to set monitor type, then insert CIRRUS LOGIC's driver diskette in drive A: or B:, type A:SVGA.EXE ON[Enter] or B:SVGA.EXE ON[Enter] to create an SVGADATA.PMI file. Copy your SVGADATA.PMI file to your OS/2 subdirectory.

3. Shut down the system to boot up from the OS/2 2.0 Installation Diskette, then **ESC** out of Diskette One to run CLI25620.COM

Note:

When running Win-OS2 in Full Screen, Open Settings for **Win-OS2 Full Screen** and go to **Session**. Under **DOS Settings** go to **Video_Switch_Notification** and switch the default setting from OFF to ON. This setting must be changed so that when running Full Screen Win-OS2 the Virtual Device Driver (VSVGA.SYS) functions properly when switching between OS/2 Presentation Manager and Windows Program Manager.

OS/2 2.1

The CIRRUS LOGIC OS/2 2.1 256 color accelerated driver supports CIRRUS LOGIC's GD5426 or GD5428 chips. For other CIRRUS LOGIC GD542X chips such as the GD5424 you may use the 256 color driver that ships with OS/2 2.1 from IBM.

You will need the following programs for installation: CLMODE.EXE or Video Adapter Utility program to select monitor type.

IMPORTANT NOTE:

IBM's DISPINST.EXE calls SVGA.EXE to identify the SVGA chipset before proceeding with the installation of a display driver. The IBM SVGA.EXE shipped with OS/2 2.1 does not correctly ID the CIRRUS LOGIC Chipset. Running CLINST21.CMD will update SVGA.EXE with the new CIRRUS SVGA.EXE before calling DSPINSTL.EXE. This will help OS/2 identify the CIRRUS LOGIC Chipset correctly. If you are having trouble installing the CIRRUS LOGIC Drivers, manually rename the IBM SVGA.EXE to SVGA.IBM and copy the new SVGA.EXE file to your OS/2 subdirectory. During installation, the target file may have a newer date than the source file, select the **Yes** button when the installation program displays a dialog box to notify the user of this situation. Information about SVGA.EXE can be found in the OS/2 User Manual on Page 339.

The accelerated drivers for OS/2 2.1 require 1MB of memory on the driver card. If you have a card with 512K of memory, use the standard drivers that shipped with your copy of OS/2.

Install from floppy diskette:

1. Insert OS/2 display driver disk (must have volume labeled "DISP 1") into a floppy drive.
2. Invoke an OS/2 window session or an OS/2 full screen session.
3. Change to the floppy drive with the display driver disk, e.g.
a: [Enter].
4. Run CLINST21.CMD from the floppy drive, e.g.
clinst21 c [Enter].
5. Check the **Primary Display** check box from the **DISPLAY**

DRIVER INSTALL dialog box.

6. Select **CIRRUS LOGIC Blitter Driver** from the **PRIMARY DISPLAY ADAPTER TYPE** dialog box.

7. The **MONITOR CONFIGURATION/SELECTION UTILITY** dialog box will appear. Click **OK** for default monitor settings (which is monitor type 3) or select **Display Adapter Utility Program** and run your display adapter utility program to set your monitor type.

For example:

```
c:\utils\clmode.exe m5
```

CLMODE.EXE comes in your CIRRUS LOGIC Utilities Disk.

8. Select the display resolution of choice from the **SELECT DISPLAY RESOLUTION** list box.

9. Click the **Install button** in the **SOURCE DIRECTORY** dialog box and follow prompts.

Install from the hard drive:

1. Xcopy display driver disk one to the hard drive, target directory must be named DISP_1, e.g. xcopy

```
a: c:\disp_1.
```

2. Invoke an OS/2 window session or an OS/2 full screen session.

3. Change to \disp_1 directory, run CLINST21.COM, e.g.
clinst21 c[Enter].

4. Check the **Primary Display** check box from the **DISPLAY DRIVER INSTALL** dialog box.

5. Select **CIRRUS LOGIC Blitter Driver** from **PRIMARY DISPLAY ADAPTER TYPE** dialog box.

6. The **MONITOR CONFIGURATION/SELECTION UTILITY** dialog box will appear. Click **OK** for default monitor settings (which is monitor type 3) or select **Display Adapter Utility Program** and run your display adapter utility program to set your monitor type.

For example:

```
c:\utils\clmode.exe m5
```

CLMODE.EXE comes in your CIRRUS LOGIC Utilities Disk.

7. Select the display resolution of choice from the **SELECT DISPLAY RESOLUTION** list box.
8. Click the **Change** button in the **SOURCE DIRECTORY** dialog box, type
 `c:\disp_1`
 in edit box and follow prompts.

To install Windows 3.0 drivers for OS/2 2.0:

Instruction for installation 256 Color Drivers for Windows 3.0 Drivers for CIRRUS LOGIC Chipsets GD542x. Note that you should not use the 65,536 or 16 million color Windows 3.1 drivers with OS/2.

1. Run Full Screen Win-OS/2.
2. Select **File** from drop-down menu.
3. Select **Run**, and then Browse A: or B: drive, wherever your Windows/OS/2 Driver Disk resides.
4. For OS/2 2.0 go to Win30 subdirectory and run install.exe.
5. Use SetRES Utility to change resolution.

Note: It is recommended that the resolution you choose corresponds with the resolution you are running in OS/2.

About Seamless Windows 3.0 support

Seamless Windows support is the ability to execute MS Windows 3.0 applications in one or more windows on the OS/2 2.0 Workplace Shell Desktop, simultaneously with OS/2 applications. The Seamless Windows support that is provided in this driver kit for the 256 color Windows driver runs with the 32-bit Presentation Manager Display (PMD) driver 1.00b or later. It requires OS/2 service pack (XR06055) to be installed. This Seamless Windows driver does not support WIN-OS/2 3.1 that accompanies OS/2 2.1 beta.

Installation procedures:

1. Modify the SYSTEM.INI file in \os2\mdos\winos2 sub-directory.

Original		New
---		-----

[boot]		[boot]
...		...
;driver for full screen Windows session		
Change the display lines as shown below:		
display=vga.drv		display=256_1024.drv
;driver for Seamless Windows session		
sdisplay=swinvga.drv		sdisplay=256_768s.drv

Add these lines to the bottom of the SYSTEM.INI file as shown below:

```
[CLVGA]
cursor=1
dpi=96
videomode=96 ; 1024x768x256
;videomode=92 ; 800x600x256
;videomode=95 ; 640x480x256
```

When selecting a video mode to run in Win3.0\OS/2 2.0 Program Manager you must select the same resolution you are running in OS/2 Presentation Manager. For example, if you are running 640 x 480 x 256 color OS/2 Presentation Manager, you must also use 640 x 480 x 256 color for Win 3.0\OS/2 2.0.

3. Invoke 'Migrate Applications' from the 'System Setup' folder to install MS Windows applications on the Workplace Shell desktop. The MS Windows applications will be placed in the 'Windows Programs' and the 'Additional Windows Programs' folders.

4. Double click on an MS Windows icon to run in Seamless Windows mode.

Note : Support for Seamless SetRES is not available. You still need to go to full screen Windows to change video resolutions.

To install Windows 3.1 drivers for OS/2 2.1:

Installation for full screen 256 color accelerated drivers for

Windows 3.1 for CIRRUS LOGIC chipsets GD5426 and GD5428 only. Note that you should not use the 65,536 or 16 million color Windows 3.1 drivers with OS/2.

1. Run Full Screen Win-OS/2.
2. Select **File** from drop-down menu.
3. Select **Run**, and then Browse A: or B: drive, wherever your Windows/OS/2 Driver Disk resides.
4. For OS/2 2.1 go to Win31 subdirectory and run INSTALL.EXE.
5. Use SetRES Utility to change resolution which resides in the Control Panel.
6. To use Power Management Screen Saver

Go to **Control Panel**

Select **Desktop**

Select **Screen Saver**

Select **Display Power Mangement**

Select **SETUP** to setup the Power Management Screen Saver

Note: It is recommended that the resolution you choose corresponds with the resolution you are running in OS/2. When installing new CIRRUS LOGIC OS/2 PM Drivers the standard CIRRUS Win-OS/2 Driver will be installed for Full Screen Windows 3.1. You must use the SetRES Utility to install the CIRRUS LOGIC Full Screen accelerated driver. Seamless support will still use the standard OS/2 CIRRUS Driver.

Problems running SVGA.EXE in DOS

If you encounter problems using SVGA.EXE in Windowed DOS or Full Screen DOS, follow the procedures below:

1. Have a DOS Boot Disk available and boot with the DOS operating system in drive A:.

If you are running an older BIOS prior to v1.30 and you need to run the new BIOS TSR, load the TSR at this time.

ex: VGA22.EXE

2. Run CLMODE.EXE to set monitor type.

ex: CLMODE M5

3. Insert the CIRRUS OS/2 Installation Disk in Drive A:.

4. Run SVGA.EXE.

ex: SVGA ON DOS

This will create an SVGADATA.DOS file on your diskette.

5. Copy this file to your OS/2 subdirectory in your hard drive.

ex: copy a:\SVGADATA.DOS c:\os2\SVGADATA.PMI

6. Remove disk from drive A: and reboot OS/2 operating system.

Anytime SVGA.EXE will not run in DOS W INDOWED or DOS FULL SCREEN, repeat this procedure.

Ventura Publisher

Installing Ventura Publisher display drivers.

To install the Ventura Publisher driver, proceed as follows:

- Install Ventura Publisher V2.0 as instructed in the product's manual, specifying the Hercules driver.
- Insert the CIRRUS LOGIC drivers diskette into Drive B:. Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the Ventura Publisher drivers and specify the drive and directory where you want them copied to (such as A:\). Ventura Publisher requires that the drivers be installed from the root directory of a floppy disk in drive A:. Be sure to install the drivers to the root of drive A: or drive B: and then place the diskette in drive A: before proceeding.
- Change to drive A: by typing A: [Enter].

After the A: prompt appears, run the VPDRV2_0.EXE program by typing VPDRV2_0 [Enter]. Note that VPDRV2_0.EXE can only be executed from the A: drive.

Follow the step-by-step installation procedure as it appears on the screen and select one of the following drivers when prompted:

CIRRUS LOGIC VGA 800x600 16 of 256K colors or grays.
CIRRUS LOGIC VGA 1024x768 16 of 256K colors or grays.

Ventura Publisher V2.0 is now configured for the selected screen resolution and 16 color graphics.

Microsoft Word

The high resolution Microsoft Word 5.0 display driver supplied with your CIRRUS LOGIC VGA supports both high resolution text and graphics. When using a Microsoft Mouse with the driver, please ensure that your mouse driver version level is 7.0 or above.

Installing Word display drivers

To install the Word high resolution text driver supplied with your CIRRUS LOGIC VGA, follow these instructions:

- If you have not already done so, install Microsoft Word onto your computer system. Follow the instructions supplied with Word. When asked for a screen display type, choose IBM Video Graphics Array (VGA).
 - Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the Microsoft Word drivers and specify the drive and directory where you want them copied to (such as C:\WORD5).
 - To use the new drivers they must be installed to the same directory as Word. Otherwise, they must be copied to the Word directory before they can be used.
 - INSTALL.EXE will copy two screen drivers:
 - SCREEN8.VID - for 800x600 graphics resolution
 - SCREEN.VID - for 1024 x768 graphics resolution
- The driver to be used must be named SCREEN.VID. When a file is renamed this, it will overwrite the existing display driver. If you wish to preserve the original, it should be renamed or copied prior to installation of the new drivers.
- The new driver is now installed, and to use it, run Word as you normally would. To view and change the screen resolutions, select **Options**, move the cursor to display mode, and press [F1]. Choose the desired screen resolution from the list presented.
 - A sub-menu will appear, listing all the choices of resolutions supported by the CIRRUS LOGIC text driver. Select the desired resolution.

WordPerfect 5.1, 6.0

WordPerfect 6.0

To use high resolution modes with WordPerfect 6.0, install the VESA driver that comes with WordPerfect and configure the program to use one of the VESA high resolution graphics modes.

Wordperfect 5.1

The high resolution WordPerfect version 5.1 driver supplied with your CIRRUS LOGIC VGA supports both high resolution text and graphics. WordPerfect allows graphics and text drivers to be set up separately, so be sure to install both of these drivers.

Installing WordPerfect 5.1 display drivers

To install the WordPerfect high resolution text driver supplied with your CIRRUS LOGIC VGA, follow these instructions:

- If you have not already done so, install WordPerfect onto your computer system. Follow the instructions supplied with WordPerfect.
- Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the WordPerfect drivers and specify the drive and directory where you want them copied to (such as C:\WP51).
- Start WordPerfect, and go into **SETUP** by typing [Shift-F1].
- Choose Display [2], then text screen type by pressing [3].
- Move the cursor to where GD542X appears on the list, and choose **SELECT**.
- A sub-menu will appear, listing all the choices of resolutions supported by the CIRRUS LOGIC text driver. Select the desired resolution.

To install the WordPerfect high resolution graphics driver supplied with your CIRRUS LOGIC VGA, follow these instructions:

- If you have not already done so, install WordPerfect onto your computer system. Follow the instructions supplied with

WordPerfect.

- Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the WordPerfect drivers and specify the drive and directory where you want them copied to (such as C:\WP51).
- Start WordPerfect, and go into **SETUP** by typing [Shift-F1].
- Choose Display [2], then graphics screen type by pressing [2].
- Move the cursor to where CIRRUS LOGIC VGA appears on the list, and choose **SELECT**.
- A sub-menu will appear, listing all the choices of resolutions supported by the CIRRUS LOGIC graphics driver. Select the desired resolution.

WordStar

The WordStar display drivers support both WordStar version 5.5 and 6.0 and above and WordStar 2000 version 3.5.

Installing WordStar drivers

To install the WordStar high resolution text driver supplied with your CIRRUS LOGIC VGA, follow these instructions:

- If you have not already done so, install WordStar onto your computer system. Follow the instructions supplied with WordStar.
- Run the CIRRUS LOGIC installation program (INSTALL.EXE), and choose the option for the WordStar drivers and specify the drive and directory where you want them copied to (such as C:\WS).
- Using a text editor enter the file FONTID.CTL in the WordStar directory and change the CRT_TYPE line to read:
`CRT_TYPE=CL800.WGD`
- When WordStar is executed, the display driver will be used for page preview mode.

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