
Kelvin Video64
User's Manual



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Introduction

Thank you for choosing the Kelvin Video64®. The Kelvin Video64 features 64-bit graphics, digital video acceleration and full motion video playback. You can scale MPEG, AVI and other digital video files to full screen at resolutions up to 1024x768, and maintain 30 frames per second playback. For awesome sound and music, complement your high-speed graphics with a high-fidelity Orchid sound card.

Kelvin Video64 is multimedia-ready for your PCI or Pentium system and is available with 1MB or 2MB of DRAM memory. Installation is simple and all configuration settings are under software control.

You can display resolutions up to 1600x1200, color depths up to 16.7 million colors and high refresh rates. Kelvin Video64 supports the leading graphics standards like VESA Video BIOS Extensions and Display Data Channel (DDC). For energy efficiency, full support is provided for the Green PC specification using VESA's DPMS (Display Power Management Signaling) standard.

In addition, Kelvin Video64 provides customized Windows and CAD drivers. These drivers improve performance and functionality and come with user-friendly utilities such as the Kelvin Video64 control panel, Virtual Desktop and the XingMPEG Player for digital video playback.

Care has been taken to ensure that Kelvin Video64 will provide you with years of trouble-free operation. We believe you'll be pleased with your purchase.

About This Manual

While Kelvin Video64 is designed to be easy to install, we recommend that you refer to your computer's reference manual when terminology or installation steps are unfamiliar to you.

Section 1: Hardware Installation

How to properly install the Kelvin Video64.

Section 2: Software Installation

How to install the device drivers and utilities.

Section 3: Using the Utilities

How to configure your video display and information on other useful utilities.

Section 4: CAD Drivers (for DOS)

How to configure the customized MasterCAD display drivers.

Section 5: Technical Information

Help to ensure that Kelvin Video64 is operating properly.

Appendix A: Technical Specifications

Kelvin Video64's technical specifications.

Appendix B: Power Management

Details on the DPMS Power Management technology.

Appendix C: Digital Video Scaling

Information on the digital video scaling feature of Kelvin Video64.

Appendix D: MPEG Video

Information on the playback of MPEG digital video files.

Before You Begin

This manual will familiarize you with the features, installation and use of your Kelvin Video64. There are several symbols and conventions used throughout this manual to help draw your attention to a feature or to focus on important information:



When you see the Magnifying Glass, it refers to something you should take a closer look at before proceeding further.



When you see the Exclamation Mark, it gives important information on avoiding damage.

Common Names

AVI	Audio/Video Interleaved
DCI	Display Control Interface
DDC	Display Data Channel
DPMS	Display Power Management Signaling
DRAM	Dynamic Random Access Memory
MPEG	Motion Picture Experts Group
PCI	Peripheral Component Interconnect
VESA	Video Electronics Standards Association
VFC	VESA Feature Connector
VGA	Video Graphics Array

Section

1

Installing Kelvin Video64

Whether you are a beginner or experienced user, Kelvin Video64's simplified design allows you to get up and running quickly. This section gives you help on how to properly install the Kelvin Video64 and how to add additional memory.



STATIC!

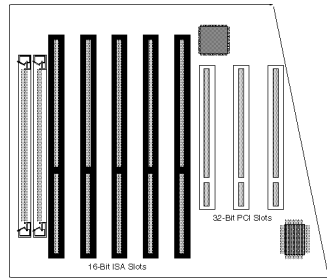
Before handling the Kelvin Video64, be properly grounded by touching the power supply housing.



If you want to add memory to your Kelvin Video64 before installing it, see "Adding Memory" in this section.

Hardware Installation

1. Turn off the power to your computer and remove the computer cover.
2. Select a PCI expansion slot for Kelvin Video64. Most computers accommodate both PCI and ISA slots. The PCI slots are usually the smaller slots (see the example). Please refer to your computer's reference manual for more information.



3. Remove the rear slot cover bracket if it is present and save the screw.
4. Now remove the Kelvin Video64 from its anti-static packaging.
5. Carefully hold Kelvin Video64 by the top edges and lower it into the PCI expansion slot. Ensure that Kelvin Video64 seats firmly into the slot.
6. Secure Kelvin Video64 in place by fastening its metal bracket with the screw you saved.

Section 1: Hardware Installation

7. Replace the cover of the computer.
8. Connect your monitor cable to the 15-pin monitor connector on Kelvin Video64 (see Figure 1.1).

You are now ready to install the Kelvin Video64 software. Refer to Section 2: Software Installation.



For pin-out information on the 15-pin VGA connector, see Appendix A.

Kelvin Video64 Diagram

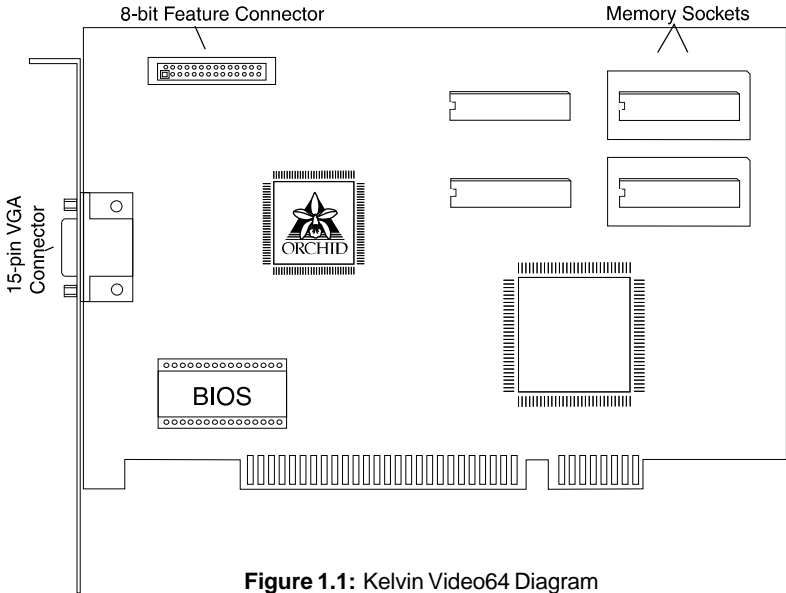


Figure 1.1: Kelvin Video64 Diagram

NOTE:

- 15-pin VGA connector (see Appendix A)
- 8-bit VESA feature connector (see Appendix A)
- Memory sockets are available for two memory chips (see Section 1: Adding Memory)

Adding Memory

If your Kelvin Video64 comes configured with 1MB of DRAM memory, you can easily upgrade to 2MB. The additional memory is automatically detected by Kelvin Video64 and must meet the following specifications:

- 256K x 16 DRAM
- Operate at 60 nanoseconds access time or faster. The access time is usually indicated on the chip as follows:

-6 = 60 nanoseconds access time

- We recommend the following certified DRAM memory:

Micron - MT4C16257DJ-60

NEC - uPD424210ALE-60



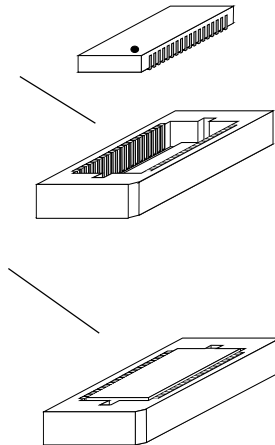
Avoid electrostatic discharge when handling the memory chips. Be properly grounded by touching the power supply housing.

Installing the memory chips:

To add 1MB of memory to your Kelvin Video64, you'll need to install two 256K x 16 DRAM chips into the empty sockets. *NOTE:* Before you begin check the memory chip orientation. Most chips have dots on them that specify a certain direction in which to install the chip.

Follow the steps below for proper installation:

1. To install a memory chip, position it over the empty socket.
2. Place the memory chip down into the socket.
3. Evenly press each side of the memory chip down into the socket. You will hear a small "snap" as the chip is fully installed.
4. You are now ready to install your Kelvin Video64. Go to the Hardware Installation section.



Section

2

Software Overview

Once you complete the hardware installation, you can begin the software installation. This section gives you instructions for installing the Kelvin Video64 software and drivers for DOS, Windows 3.1x and Windows 95 operating system environments.



This manual presumes you are already familiar with the basics of Microsoft Windows. Please refer to the Microsoft manual when terminology or installation steps are unfamiliar to you.

High resolution device drivers are included for popular software applications. The software drivers that come with Kelvin Video64 are:

Windows 3.1x	Windows 95
Microstation	3D Studio ADI
AutoCAD ADI	WordPerfect 5.1
Xing MPEG Player	

Other drivers are available through Orchid Technical Support, or may be downloaded from the Orchid Bulletin Board System or CompuServe.

DOS

Software Installation

If your computer is used for DOS applications only, you can install the Kelvin Video64 software from the DOS command line. You can install drivers for your CAD applications, wordprocessor and the Kelvin Video64 screen utilities.

1. Insert the Kelvin Video64 Disk 1 into your floppy drive and type:

A:\SETUPDOS



The screen on the following page appears:



The Kelvin Video64 installation program should not be run from inside Windows. Please exit Windows before running SETUPDOS.

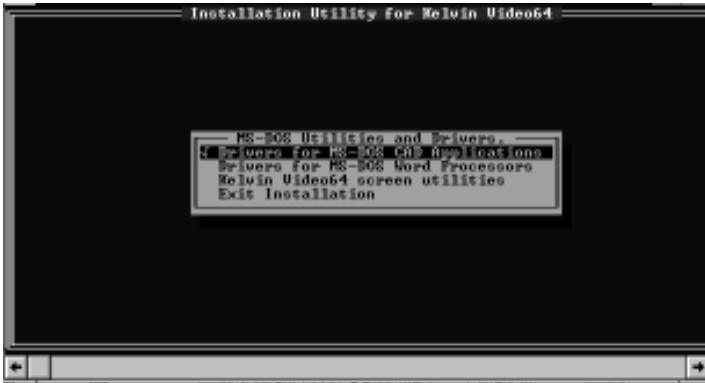


Figure 2.1: DOS Main Menu Screen

2. Choose your option by using the $\uparrow\downarrow$ arrow keys and press ENTER to select.
3. Proceed through the installation as instructed by the program.
4. After you return to the main menu, you can make another selection or quit the installation program.

Configuring Your Video Display

Refer to the KvPanel Monitor Setup (for DOS) utility in Section 3 for instructions on configuring your video display.

Windows 3.1x

Before You Begin

Before installing the Kelvin Video64 high resolution drivers for Windows, you must configure Windows to start up with the standard VGA driver. Follow the steps below to select the standard VGA driver:

1. From DOS, change to your Windows directory. The Windows Setup screen is displayed by typing:

SETUP 

2. Highlight the Display option and press ENTER. From the menu select the VGA video display driver and press ENTER.
3. Save your configuration and exit to DOS.

Software Installation

1. Start Microsoft Windows 3.1.
2. From the Program Manager File menu, choose Run.
3. Insert the Kelvin Video64 Disk 1 into your floppy drive.
4. Type the floppy drive letter, then SETUP, e.g., A:\SETUP. Click on OK.
5. The Kelvin Video64 Welcome screen appears. Click on Next to continue with the setup program. The screen on the following page appears:

Section 2: Software Installation



Figure 2.2: Windows 3.1 Main Menu Screen

5. Click on the option of your choice, then click on Next to continue. The following screen appears:



Figure 2.3: Destination Location Screen

6. Type in a destination directory or select the default directory. Click on Next to continue.
7. Proceed through the installation as instructed by the program.
8. After you return to the main menu, you can make another selection or quit the installation program.

Configuring Your Video Display

Refer to the Kelvin Video64 Setup utility in Section 3 for instructions on configuring your video display.

Windows 95

Software Installation

1. Start Microsoft Windows 95. *NOTE:* If you receive a Display error message, click on CANCEL to bypass the hardware installation wizard.
2. From the Windows 95 desktop, click on the Start button and select the Run option.
3. Insert the Kelvin Video64 Disk 1 into your floppy drive.
4. Run A:\ or B:\SETUP. Click on OK.
5. The Kelvin Video64 Welcome screen appears. Click on Next to continue with the setup program. The following screen appears:



Figure 2.4: Windows 95 Main Menu

6. Click on the option of your choice, then click on Next to continue. The screen in Figure 2.5 appears.

Section 2: Software Installation



Figure 2.5: Destination Location Screen

7. Type in a destination directory or select the default directory. Click on Next to continue.
8. Follow the instructions as prompted by the program for installation of the drivers. After the installation, you can return to the main menu to make another selection or exit the installation program.
9. From the Windows 95 desktop, click your right mouse button in any open space on the desktop.
10. From the pop-up menu, click on properties. The Display Properties menu will appear.
11. Click on the Settings option.
12. Click on Change Display Type and select Adapter Type.
13. Click on Change and select Orchid Kelvin Video64. Click on OK.
14. When prompted, insert the Kelvin Video64 Disk 1 into your floppy drive and type in the path of the disk (e.g., A:\).
15. After the software installation is complete, click on Close.
16. From the Display Properties menu, click on Apply.
17. When prompted, answer Yes to restart your system.

Configuring Your Video Display Driver

1. From the Windows 95 desktop, click on the Start button, select Setting, then select Control Panel.
2. From the Control Panel group, double-click on Display. The Display Properties menu appears. This menu will allow you to configure the Kelvin Video64 screen resolution, color depth, refresh rate and other options.
3. To configure the resolution and color depth, click on the Settings tab. The following screen appears:



Figure 2.6: Settings Configuration Screen

4. Make your selections. When you are finished making your selections, click on OK to save your settings.
5. To configure the refresh rate, cursor color, enable or disable the Virtual Desktop feature, enable or disable the font cache and adjust your display, click on the Orchid Setup tab. The screen on the following page appears:

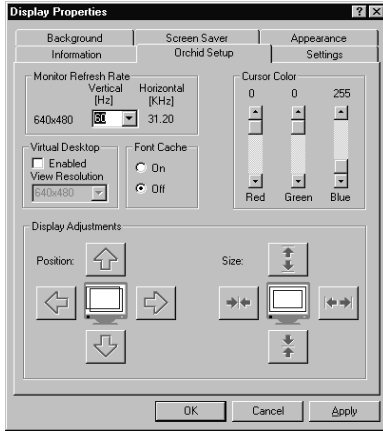


Figure 2.7: Orchid Setup Screen

6. Make your selections. When you are finished making your selections, click on OK to save your settings.

Graphics Information

The Display Properties menu also provides a visual way of obtaining graphics information on the Kelvin Video64. Click on the Information tab to display the following screen:



Figure 2.8: Kelvin Video64 Information Screen

XingMPEG Player

The XingMPEG Player utility allows you to control the playback of MPEG files. It features: VCR-style controls for playing MPEG files, flexible display modes and Diagnostic and Benchmark tools. Also included is the XingMPEG Saver, a Windows-compatible screen saver that prevents monitor burn-in by playing MPEG files.

Windows 3.1x

Software Installation

1. Start Microsoft Windows.
2. From the Program Manager File menu, choose Run.
3. Insert the XingMPEG Player disk into your floppy drive and type: A:\SETUP.EXE. Click on OK. The following screen appears:



Figure 2.9: XingMPEG Player Options Screen

The XingMPEG Driver is required to play MPEG files from any application. The XingMPEG Player allows you to play an MPEG file. The XingMPEG Saver is needed only if you want to use the MPEG screen saver.

4. Select the options to install and click on OK.

Section 2: Software Installation

5. Type the software installation location or accept the default.
6. The installation program copies the program files to the selected directory location.

Windows 95

Software Installation

1. Start Microsoft Windows 95.
2. From the Windows 95 desktop, click on the Start button and then click on Run.
3. Insert the XingPlayer disk into your floppy drive and type: A:\SETUP.EXE. Click on OK.
4. The installation program copies the program files to your hard drive and updates your system files.
5. Once the installation is complete, the XingMPEG Player item is installed in the Program group.

Section

Using the Utilities

3

Kelvin Video64 Setup *(for Windows 3.1x)*

The Kelvin Video64 Setup control panel provides you with an easy way to setup your video display. Use your mouse to select your display type, resolution and colors. You'll be up and running in no time. The following features are available from the control panel:

Display

You can use the Display utility menu to select your display type, resolution and colors, and enable or disable the Virtual Desktop feature.

The Kelvin Video64 supports Display Data Channel (DDC). This standard allows your Kelvin Video64 to automatically detect your monitor's capabilities for automatic identification. You must have a DDC compliant monitor to utilize this feature.

Virtual Desktop

By using the Virtual Desktop option from the Display menu, you can change the look of your desktop by creating a larger desktop workspace.

Power Management

Use this utility for power savings on your Green PC monitor while your monitor is inactive.

Alignment

The Alignment utility allows you to center your display horizontally and vertically.

Preferences

You can use the Preferences utility to select a desktop font, cursor color, font size and enable or disable the font cache.

Configuration Name

This option allows you to save multiple configuration settings by name. You can save your settings from the Display, Power Management, Alignment and Preferences menus. You can also create multiple configurations with unique names that allow you to change configurations on-the-fly as you change tasks.

Graphics Information

The control panel provides a visual way of obtaining information on the Kelvin Video64. This information is available from each menu screen.

Using the Control Panel

Display

Use the Display utility to select your display type, resolution and colors, and enable or disable the Virtual Desktop feature.

1. Double-click on the Kelvin Video64 Setup icon and the Display menu screen appears:



Before selecting the values for your monitor, consult your monitor's reference guide for the resolutions and vertical refresh rates available.

Figure 3.1: Display Menu Screen

2. Select your monitor colors and resolution.
3. Select the vertical frequency (Hz) for your monitor. The horizontal frequency (KHz) will automatically change once you select the vertical frequency. The Graphics Display information will display your monitor type, maximum refresh rate, resolution and colors available.
4. If you have a DDC compliant monitor, the specifications for your monitor are automatically identified. The Graphics Display information will display the DDC version and the maximum horizontal frequency (KHz) available.
5. If you want to enable the Virtual Desktop option, see the Virtual Desktop section.
6. Before saving your Display menu selections, you can also make selections from the Power Management, Alignment and Preferences menus (see the following sections for details on these features).
7. After making your selections, you can choose to save your configuration settings with or without a configuration name. To save your settings with a configuration name, refer to the section Configuration Name. To save without a configuration name, click on OK. You can click on Cancel to discard any changes made.



The desktop size is determined by the resolution you choose.

Virtual Desktop

You can use Virtual Desktop option to create a larger desktop workspace. With Virtual Desktop, your mouse movement automatically pans the desktop to give you access to any part of your document or window without resizing or using scroll bars.

This is an ideal solution for spreadsheet or desktop applications. A large area of display can be panned and viewed by simply moving your mouse. Virtual Desktop doubles your workspace by transforming your standard VGA monitor into a virtual display with the maximum resolution available.

1. From the Display menu screen, click on the Virtual Desktop box to enable the option (*the selections are grayed out until you do so*).
2. The Virtual Resolution box will display the highest resolution available. You can change this resolution to be equal to or greater than your display resolution.
3. Choose Zoom In, Zoom Out and Pan Lock Hot-Key combinations from the pull-down boxes. Use the Zoom In option to magnify a portion of your document. Use the Zoom Out option to see all of your document at one time.

The Pan Lock selection allows you to lock the display, which prevents the Window from moving even if you move your mouse. Select your Hot-Key combination at any time by pressing the ALT key plus the number chosen. The Pan Lock Hot-Key toggles between Pan Lock and Unlock.

4. After making your selections, save your settings with a configuration name (refer to the section Configuration Name) or click on the OK button to save your settings. Once you exit the Kelvin Video64 Setup utility the Hot-Key is enabled.

Power Management

Use this utility for power savings on your Green PC monitor while your monitor is inactive. When Power Management is on, your monitor displays a blank screen.

1. Double-click on the Kelvin Video64 Setup icon and the Display menu screen appears. Click on the Power Management tab. The following screen appears:



To ensure reliable performance, verify that your monitor supports the DPMS standard. Consult your monitor's reference documentation.



Figure 3.2: Power Management Menu

2. Click on the Screen Saver pull-down box to select one of the screen savers provided with Windows 3.1x. *NOTE:* If None is selected, the screen saver is disabled.
3. Click on the Setup button to configure the settings for the screen saver. Click on OK to save the settings.
4. Click on the Test button to test the screen saver.
5. Set delays for the Power Management modes. Select the delays by clicking on the arrows to increase or decrease the number. Click on the Test buttons to test the Standby, Suspend and OFF DPMS modes. *NOTE:* If the Power Management feature is disabled, you can still use the screen saver selection.
6. Save your settings with a configuration name (refer to the section Configuration Name) or click on the OK button to save your settings.

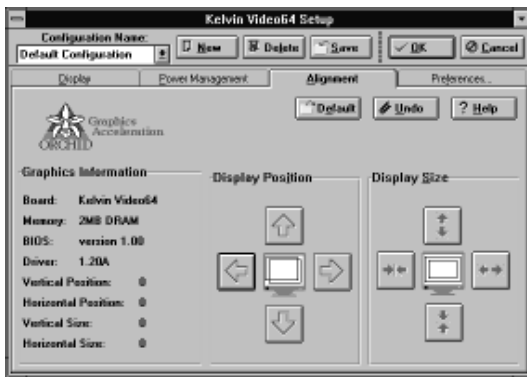


For more information on the Power Management feature, refer to Appendix B.

Alignment

The alignment utility allows you to center your display horizontally and vertically. You can use the alignment utility or your monitor's centering controls to center your display. *NOTE:* You shouldn't attempt to adjust your monitor both ways.

1. Double-click on the Kelvin Video64 Setup icon and the Display menu screen appears. Click on the Alignment tab. The following screen appears:



If you center the screen off the side of the display, press ESC to restore the screen back to normal.

Figure 3.3: Alignment Menu

2. The Display Position option allows you to adjust the screen horizontally or vertically. Use your mouse pointer to adjust the display.
3. The Display Size option allows you to increase or decrease the picture size. Use your mouse pointer to adjust the display.
4. The Default button can be used to restore the default system settings. Click on the Undo button to restore your previously saved settings.
5. Save your settings with a configuration name (refer to the section Configuration Name) or click on the OK button to save your settings.

Preferences

Use the Preferences utility to select a desktop font size, cursor color, icon font and enable or disable the font cache.

1. Double-click on the Kelvin Video64 Setup icon and the Display menu screen appears. Click on the Preferences tab. The following menu appears:

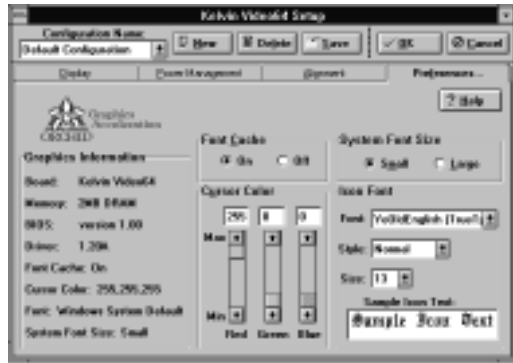


Figure 3.4: Preferences Menu

2. The Font cache can be turned ON or OFF. When the font cache selection is ON, a reserved section of system memory is used to store font information. The maximum memory usage is about 400KB.
3. You can use the default cursor color for your mouse pointer or choose a new color. The colors available can be selected by adjusting the red, green and blue sliders.
4. Choose a System Font Size. The size selected will affect the size of your desktop fonts, desktop control buttons and other system dependent resources.
5. Select a font, font style and size for your icon names. The Sample Icon Text box shows what the font will look like.
6. After making your selections, save your settings with a configuration name (refer to the Configuration Name section) or click on the OK button to save your settings.

Configuration Name

Configuration Name is an optional selection that allows you to save multiple configuration settings by name. You can save your settings from the Display, Power Management, Alignment and Preferences menus.

You may find you prefer 800x600 for wordprocessing, 1024x768 for working with spreadsheets and 640x480 for games. Configuration Names allow you to set up multiple configurations such as different resolutions, fonts and monitors types, for individual tasks such as spreadsheets, desktop publishing and wordprocessing. Creating multiple configurations with unique names allows you to change configurations on-the-fly as you change tasks.

1. After making your selections, click on the pull-down menu to select the Default Configuration name or create a new configuration name.
2. To create a new configuration name, click on the New button. When the dialog box appears, type the new configuration name. Click on OK.
3. You can have a maximum of ten configuration names. Click on the Delete button to delete configuration names you no longer want. NOTE: The Default Configuration name can't be deleted.
4. Once you have selected a configuration name, click on Save to save the configuration.
5. Click on OK to save your settings and exit.
6. To launch a different configuration, open the Kelvin Video64 Setup control panel, select the configuration name and click on OK to load the new settings.



The Configuration Name selection is available from any menu.



You can only use alphanumeric characters in your specified configuration name.

Using the XingMPEG Player (for Windows 3.1x and Windows 95)

Open the XingMPEG Player program group. Double-click on the XingMPEG Player icon. The following screen appears:



Click on Help at any time for details on the XingMPEG Player utility.



Figure 3.5: XingMPEG Player Screen

Opening a File

1. From the File menu, click on Open.
2. Select the drive and directory where the file is located.
3. Click on the List Files Of Type box and choose a file format.
4. Select a filename and click on the OK button.
5. After opening an MPEG file, use the ► button to begin playback. To stop playback, click on the || button.
6. To play a file in a continuous loop, select the Auto Repeat Option from the Playback Settings menu.

Setting the Playback Options

You can control several playback options through the Settings menu. The options are:

Audio - controls the volume of the file.

Playback - opens the Playback options menu.

Diagnostics - opens the Diagnostics options menu.

KvPanel Monitor Setup (for DOS)

The KvPanel control panel provides you with an easy way to setup your video display from the DOS prompt. Use the KvPanel utility to select your display type, number of colors and the refresh rate. KvPanel is installed using the DOS software installation program (refer to Section 2: Software Installation).

Because it is a DOS-based utility, do not run KvPanel from inside other programs, such as Windows. From the DOS prompt type:

C:\CD ORCHID 

then

KVPANEL 

The following menu appears:



If you don't have a mouse driver loaded in DOS, or if you prefer using the keyboard, use the TAB key to move around the menus.

Figure 3.6: KvPanel Menu

KvPanel displays a list of video resolutions. The refresh rates available are selectable from the drop-down menu of each resolution. The Configure buttons allow you to display and test the selected mode.



Before selecting the values for your monitor, consult your monitor's reference guide for the resolutions and vertical refresh rates available.

Your Monitor

You can select your monitor from the pull-down menu of this option. If you have a mouse driver loaded, you can use the mouse to make your selection, otherwise use the $\uparrow\downarrow$ arrow keys to make your selection, and use the TAB or Shift + TAB keys to navigate.

If you choose the Custom configuration, you can manually select your desired values. Before you continue make sure you have the correct settings for your monitor. If you have a mouse driver loaded, use the mouse to select your desired values, otherwise use the $\uparrow\downarrow$ arrow keys to make your selection, and use the TAB or Shift + TAB keys to navigate.



If your display appears distorted, it is likely that the values you selected are inappropriate for your monitor. Press ESC and select other values.

Testing Your Selection

Once the values have been defined, you can test the values and center the display.

1. To test the defined values, click on the Configure button. If the display appears distorted, press the ESC key to return to the main menu. If the display appears OK, use the $\leftarrow \rightarrow$ arrow keys to center horizontally and the $\uparrow\downarrow$ arrow keys to center vertically.
2. When the selected mode is displayed, a test pattern appears with a description of the controls.
3. After making your selections, click on Save to save your settings. Your new configuration is available every time you power on your system. Run the KvPanel program whenever you want to change your configuration.

TSRFONT (for DOS)

A Terminate and Stay-Resident (TSR) utility program that loads a RAM resident copy of the 8x14 font. Programs such as DOSSHELL, Norton and some DOS games use the graphics card BIOS to write 8x14 characters.

If you run a program that requires the 8x14 font, you may see unrecognizable characters on the screen. If that occurs, running TSRFONT before launching the 8x14 program should solve the problem.

To install the TSRFONT program:

1. Insert the Kelvin Video64 Disk 1 into your floppy drive and type:

A:\SETUPDOS



2. From the installation program menu, select Kelvin Video64 Screen Utilities.
3. Highlight the TSRFONT.COM selection and press ENTER. Proceed through the installation as prompted by the program.

NOTE: If you frequently use programs that require the 8x14 font, place the TSRFONT.COM line in your AUTOEXEC.BAT file:

For example: C:\ORCHID\TSRFONT.COM



Because TSRFONT is a RAM resident program, load it as the last line in your AUTOEXECBAT file.



Kelvin Video 64's on-board EEPROM retains data until it is erased.

RESETEEP

Use this utility to reset the Kelvin Video 64's EEPROM. If your video frequency or centering is distorted and you cannot manually correct it, run this utility from the DOS session. RESETEEP is installed using the DOS software installation program (refer to Section 2: Software Installation).

1. From the DOS prompt type:

C:\CD ORCHID

then

RESETEEP.EXE

2. The program will display a message indicating that the EEPROM is being erased. This process will take about 30-60 seconds.
3. After the process is completed, the program will return to the DOS prompt.

For Windows 95

1. During system bootup, press the F8 key for a list of bootup options.
2. Select Command Prompt Only. From the command prompt type:

C:\CD ORCHID

then

RESETEEP.EXE

3. The program will display a message indicating that the EEPROM is being erased. This process will take about 30-60 seconds.
4. After the process is completed, the program will return to the command prompt.

Uninstalling Kelvin Video64

(for Windows 95)

Kelvin Video 64's unique uninstall feature makes it easy to remove its drivers and software. The uninstall program can delete program files, icons and program group created by the install program.

To ensure that you remove all of Kelvin Video64's drivers and software, go to the Display Properties menu and set your display to VGA. Follow the steps below to run the uninstall program:

1. From the Windows 95 desktop, click on the Start button and select Program.
2. Select Uninstall Kelvin Video 64.
3. Select Yes to continue with the uninstall and the following screen appears:



Figure 3.7: Uninstall Software Screen

Section

4



For details on the MasterCAD display drivers, refer to the MasterCAD text file on the Kelvin Video64 disk.

Configuring the CAD Drivers

Kelvin Video64 comes with customized MasterCAD DOS display drivers for AutoCAD ADI, 3D Studio ADI and MicroStation applications. The drivers are installed using the DOS software installation program (refer to Section 2: Software Installation).

AutoCad Release 11

1. From the \ACAD directory, type ACAD.
2. Select Configure AutoCAD.
3. Select Configure Video Display.
4. Select ADIP386 v4.0/4.1 display. The MasterCAD for Kelvin configuration menu is displayed.
5. Choose a resolution mode.
6. Select the menu colors for the menu screen.
7. Select the display list options desired.
8. Enable and select the Erase-buffer size if "flash-less" redrawing is needed for editing.
9. Choose the sensitivity setting for the Page-Alarm.
10. Enable or disable the Edge-pan option.
11. Enable the Bird's-eye feature and select a size. The size is the percentage of the total screen size.
12. Configure the digitizer or mouse button to use for entering commands. It is recommended to use the transparent Bird's-eye command "aqbird." This will allow you to change the location inside a drawing while in the middle of an AutoCAD command.

13. Exit the Configuration Menu.
14. Configure the pointer (mouse or tablet), printer and plotter as needed.
15. Return to the AutoCAD Main Menu and save the configuration.

AutoCad Release 12/13

1. After the driver is installed, the following statement will be added to your AUTOEXEC.BAT file:

```
Set ACADDRV=C:\ACAD12\DRV
```

2. From the \ACAD12 directory, type ACAD -r.
3. Select the MasterCAD for Kelvin video display driver. The Kelvin configuration menu is displayed.
4. Choose a resolution mode from the menu.
5. Select a font from the fonts list.
6. Select the menu colors for the menu screen.
7. Select whether or not you wish to use the Flip Screen feature. If enabled, this feature allows the AutoCAD text screen to appear in the center of the graphics screen, and eliminates the modeswitching delay common to most multifrequency monitors. If you're using a TSR product that pops up into the screen during AutoCAD sessions (such as a calculator or plot spooler) you shouldn't use this option.
8. Choose the Display List options desired.
9. Enable and select a size for the erase-buffer if you wish to have "flash-less" redrawing when editing your drawings.

10. Choose a sensitivity setting for the Page-Alarm.
11. Enable or disable the Edge-Pan feature. Later changes to the Edge-Pan setting can be made within AutoCAD.
12. Enable the Bird's-eye feature and select a size. The size is the percentage of the total screen size.
13. Configure the digitizer or mouse button to use for entering commands. It's recommended to use the transparent Bird's-eye command "aqbird." This will allow you to change the location inside a drawing while in the middle of an AutoCAD command.
14. Exit the Configuration Menu.
15. Configure the pointer (mouse or tablet), printer and plotter as needed.
16. Return to the AutoCAD Main Menu and save the configuration.



We recommend that you install the *TSRFONT* utility for use with 3D Studio. Refer to Section 3 for information on *TSRFONT*.

3D Studio 2.0/3.0/4.0

1. From the \3DS directory, edit the 3DS.SET file.
2. Change the line that reads:
`DEFAULT-DISPLAY = VGA320X200`
to read
`DEFAULT-DISPLAY = RCPADI`
3. Change the line that reads:
`MAIN-DISPLAY =`
to read:
`MAIN-DISPLAY = RCPADI`

Section 4: CAD Drivers

Delete any leading semicolon (;) that may be present.

4. Change the line that reads:

```
MATERIAL-DISPLAY = VGA320X200
```

to read:

```
MATERIAL-DISPLAY = RCPADI
```

5. Save the file and exit the editor.
6. From the \3DS directory, delete the 3DADI.CFG file, if present.
7. Start 3D Studio by typing 3DS.
8. Select a resolution mode for the ADI Main Display. This is the mode that will be used for 2D Shaper, 3D Loftter, 3D Editor and Keyframer. There's no benefit to selecting a very high resolution mode, as these screens will not use any more than 16 colors.
9. Select a resolution for the ADI MEDIT. This must be a 256 color mode. Use of a resolution greater than 640 x 480 will not increase the usefulness of the Materials Editor.
10. Respond NO to the question: Will RDPADI render to a separate screen?
11. The first time you try to render a drawing or view an image, you are asked to select a resolution for the Rendering Device. If you select the 32768 or 65535 color modes, you are asked if you wish to enable the Band-Free mode. This allows the best color quality possible in 15 or 16 bit modes. Select Low, Medium or High.
12. Respond to the question: Will RCPADI render to a separate screen? If using the driver for an 8514/A, respond YES, for all others, respond NO.

13. Select a resolution mode for the Rendering RCPADI Device. If you select the 32768 or 65535 color modes, you will be asked if you wish to enable Band-Free mode. This allows the best color quality possible in 15 or 16 bit modes. Select Low, Medium or High.

MicroStation 5.1

1. From the \USTATION directory, type USCONFIG.
2. Highlight the Display Adapters option. Press the ENTER key to display the Right Screen Graphics Adapter menu.
3. From the list of available display drivers, highlight Vendor Supplied Driver and press ENTER. Next highlight panaStation from the list of vendor supplied drivers. Press ENTER to continue to the Left Screen Graphics.
4. If you're configuring a single monitor system, highlight No Second Adapter and press ENTER to display the Virtual Swap Screen dialog box. When using panaStation, MicroStation's Virtual Swap Screen feature is available. On graphics cards using dual page memory switching, the page swap is done using the graphics card hardware. On all other graphics cards, the page swap is simulated by panaStation.
5. Respond Y or N to the question: Do you want to disable the virtual graphics page? Once the Swap Screen question has been answered you will return to the Main Configuration menu.
6. If you're configuring a dual monitor system, highlight Vendor Supplied Driver from the list of available display drivers. As with the Right Screen

Section 4: CAD Drivers

Graphics Adapter, highlight panaStation, by Panacea, Inc. from the list of vendor supplied drivers. Press ENTER to return to the main configuration menu.

7. At the main menu, highlight Exit and Save to exit the USCONFIG program and return to the DOS prompt. The panaStation drivers are now installed on your computer.
8. Restart your computer for the changes to take effect.
9. From the \USTATION directory type USTATION to start MicroStation. The welcome screen should appear. If it doesn't, be sure you have properly selected panaStation from the list of vendor supplied drivers and that you have restarted your computer.
10. From the welcome screen press any key to continue to the Left Screen Main Configuration menu. You will need to configure panaStation for use with your Kelvin Video64 card and select the resolution under which to run MicroStation.
11. Highlight Select Graphics Board/Resolution and press ENTER to display the Select Graphics Board/Resolution menu.
12. The Select Graphics Board/Resolution menu configures panaStation settings for graphics card/type, display and rendering resolutions. Choose Select Graphics Board to manually select the Kelvin Video64 graphics card. A list of options is given, based on the findings of panaStation's built-in graphics platform detection utility. Use the PgUp and PgDn keys to scroll through the list and highlight Kelvin Video64. Press ENTER to accept your choice and return to the Select Graphics Board/Resolution menu.



Before selecting a Display or Rendering resolution, be sure to use only resolutions that your Kelvin Video64 memory configuration supports.

13. Choose Select Display Resolution to configure the display/rendering resolution of your MicroStation screen. Use the PgUp and PgDn keys to scroll through and highlight the resolution and color option you wish to use. Press ENTER to accept your resolution choice and return to the Select Graphics Board/Resolution menu.
14. The panaStation feature allows you to adjust the aspect ratio of your MicroStation screen. To change the default aspect ratio, select the Adjust Aspect Ratio menu and measure, in millimeters, the height and width of the Aspect Ratio dialog box. Enter the measured values in the corresponding height and width data boxes. Highlight Return to Previous Menu and press the ENTER key to return to the Main Configuration menu.
15. When configuring a dual screen MicroStation configuration, panaStation prompts you to select a monitor to display text and a monitor to display graphics. To designate a monitor for text, select the Dual Screen Configuration menu. Choose Left if you want text to appear on the monitor configured as MicroStation's Left screen, or choose Right if you want text to appear on the monitor configured as the Right screen. Highlight Return to Previous Menu and press ENTER to return to the Main Configuration menu.
16. When configuring a dual monitor system a Right Screen Main Configuration menu is displayed. Configure for the second screen as you did for the Left Screen above.
17. Once all panaStation parameters have been configured, select Save and Exit to save the configuration information. The configuration program will create PANACFG1.DAT for single screen configurations and PANACFG2.DAT for dual screen configurations and store the files in the

\USTATION directory. After the PANACFG files have been created, MicroStation will start with the newly selected panaStation resolution.

If panaStation has already been configured, MicroStation will ask whether you would like to reconfigure. Enter Y to go to the panaStation Main Configuration Menu or N to start MicroStation. If you start MicroStation from a directory other than \USTATION, PANACFG files will be created in that directory.

Section

5

Technical Information Overview

Orchid Technology is known for its responsiveness to its customers. This section gives you a list of helpful tips for troubleshooting your Kelvin Video64. You're also given information on how to contact Technical Support and how to receive advice and support via our on-line services.

Troubleshooting Kelvin Video64

To help you diagnose problems you may have with the Kelvin Video64, we've presented the following helpful hints in a symptom and solution format. This format serves a twofold purpose:

You may be able to fix your problem . . .

or

if these steps don't help you solve your problem, they will most certainly give you a better handle on what to tell Technical Support once you contact them.

Operation

Symptom	Solution
Computer doesn't power-up or respond when turned on. The screen is completely blank. Computer gives an error of 1 long beep and 2 short beeps at power up. Kelvin Video64 works well in another brand computer, but not at all in mine.	(1) Verify that your computer and monitor are plugged in. Check the power cables. (2) Make sure the Kelvin Video64 is properly installed in the slot. The edge connector must be inserted all the way into the expansion slot. (3) Verify whether there's another video display adapter in your system. If it's an on-board display adapter, make sure it's disabled. If it's an add-in card other than a standard monochrome display adapter, remove it from your computer. (4) Your computer may not be set up correctly for the Kelvin Video64. Refer to your computer's reference manual for information on setting up your computer.
The Kelvin Video64 icon doesn't appear in the Windows Control Panel.	(1) Check to make sure that you installed the Kelvin Video64 Windows drivers into the correct directory. (2) Memory managers can prevent icons from appearing. Refer to your memory manager documentation for details on using a memory exclusion statement.
Kelvin Video64 runs correctly under normal conditions but fails when playing video sequences.	(1) Verify that the proper video codec is installed for the video format (such as MPEG or Video for Windows) of the file you're trying to play. In Window 3.1x, open the Control Panel, double-click on the Drivers icon and select the driver. In Windows 95, open the Control Panel and double-click on the Multimedia icon. Click on Advanced and select the driver.

Display

Symptom	Solution
Computer seems to boot up properly but there's no display.	<p>(1) Check the power cable to your monitor.</p> <p>(2) Your monitor cable may not be fastened securely and properly. Check both the connection at the monitor and at the Kelvin Video64 card.</p> <p>(3) Verify whether there's another video display adapter in your system. If it's an on-board display adapter, make sure it's disabled. If it's an add-in card other than a standard monochrome display adapter, remove it from your computer.</p> <p>(4) It's possible that your monitor cable is not the correct type for the Kelvin Video64. See Appendix A for the proper pin-out information to determine if your cable is correct.</p>
Display is no longer adjusted once a software program is opened.	<p>(1) If your monitor has a vertical hold adjustment, try adjusting the display.</p> <p>(2) Verify that your software is properly installed for your current application. Refer to Section 2 for display device driver information.</p> <p>(3) Your monitor may not be able to display the graphics mode you're using. Double check your monitor specifications for the graphics modes supported.</p> <p>(4) Your monitor may not be able to display the vertical refresh rate you're using. Double check your monitor specifications for the refresh rates supported. If a refresh rate is chosen that distorts the screen, use the DOS KvPanel utility to reset and test your selections.</p>
A garbled or scrolling display in Windows.	<p>(1) The vertical refresh rate is set too high. Use the KvPanel program to lower the refresh rate.</p> <p>(2) The resolution selected is too high for your monitor. To change the resolution:</p> <ul style="list-style-type: none">- Run SETUP from the Windows subdirectory- Select the VGA display driver- Start Windows- Open the Kelvin Video64 program group.- Double-click on the Kelvin Video64 Setup icon- Click on Display and select a resolution your monitor is capable of supporting

MPEG

Symptom	Solution
MPEG appears slow or jerky and there's no audio sync.	(1) The MPEG playback performance is directly related to processor speed, the current screen resolution and color depth. On most Pentium 75MHz or higher systems, the playback is smooth. Slower systems may exhibit slow MPEG video, or may not display MPEG digital video playback at full frame rate.

If You Need To Contact Us

Technical Support

If you've checked our troubleshooting tips and still require help, our Technical Support staff will be glad to assist you. Before calling please have the following information ready:

- The model name and serial number of your Orchid product.
- Your computer information such as CPU type, operating system, amount of installed memory and other peripherals installed in your computer.
- Call from the location of your computer. If you can't, please print out the information from your CONFIG.SYS and AUTOEXEC.BAT files.
- The version number of the Orchid product driver.

NOTE: For Return Material Authorization (RMA) purposes, please keep a copy of your product receipt.

In the United States:

Technical Support	(510) 661-3000
Technical Support Fax	(510) 651-6982
RMA Department	(510) 683-0428

In Europe:

France Technical Support	+33 14 780 7050
France Technical Support Fax	+33 14 782 5179
United Kingdom Technical Support	+44 1256 479898
United Kingdom Technical Support Fax	+44 1 256 64222
Germany Technical Support	+49 89 42 90 41
Germany Technical Support Fax	+49 89 42 95 17

Online Services

Bulletin Board System (BBS)

You can download updates and drivers for your product via our Bulletin Board System.

In the United States:

Technical Support BBS - 14400 baud rate, Parity=N, Data Bits=8, Stop Bits=1, YMODEM and ZMODEM (recommended file transfer protocols)

(510)651-6837

In Europe:

France Technical Support BBS + 33 14 784 7057

United Kingdom Technical Support BBS

+44 1256 63373

CompuServe

In addition to calling Orchid Technology, technical support is available through the CompuServe Information Service (CIS). You can also download drivers and get new product information. To find us on CompuServe, follow the instructions below:

1. Log onto CompuServe.
2. Type GO ORCHID to get immediate access to the Orchid section.

World Wide Web

You will find information on the latest technology, new product releases, customer service and other categories of information. Access the Internet and type:
<http://www.orchid.com>

Appendix

Technical Specifications

A

This appendix provides the technical specifications and features for Kelvin Video64.

Configuration

Kelvin Video64 - 1024K
- 2048K

Video Chipset:

Alliance 6410

BIOS:

8-bit

CPU Requirements:

80486 and Pentium-based Compatibles
32-bit Bus - PCI

Connectors:

15-pin D-Shell VGA
VESA 8-bit Feature Connector

Memory Address Segments:

RAM: A000-BFFF
ROM: C000-C7FF
I/O Address: 3B0-3DF (IBM standard)

Temperature:

Operating: from 0 to 50 degrees C
Storage: from -30 to 60 degrees C

Humidity:

Operating: from 15% to 90%
Storage: from 10% to 95%

Memory Address Setting

Kelvin Video64 uses the A000-C7FF memory address segment. Some memory manager programs may try to use this address segment. If you encounter a conflict, add an exclusion statement in your CONFIG.SYS file, to exclude the Kelvin Video64 address segment from being used. Refer to your memory manager user's manual for details on using a memory exclusion statement.

VESA Support

Kelvin Video64 is designed to support the VESA BIOS Extension (VBE) through its BIOS. Extended modes can be selected through the VESA option in the application you're running. The BIOS supports the VESA 1.2 specification.

Display Data Channel Support

Kelvin Video64 is designed to support the Display Data Channel (DDC) standard. This standard allows your Kelvin Video64 to automatically detect your monitor's capabilities for automatic identification. Kelvin Video64 is fully DDC 2b hardware and software compliant.

Resolutions and Refresh Rates

The tables below lists the resolutions and refresh rates for the standard VGA video graphics modes and video text modes.

Mode #	Resolution	Colors	Horz.	Vert.	Polarity	
04	320 x 200	4	31.5	70	-	+
05	320 x 200	4	31.5	70	-	+
06	640 x 200	2	31.5	70	-	+
OD	320 x 200	16	31.5	70	-	+
OE	640 x 200	16	31.5	70	-	+
OF	640 x 350	Mono	31.5	70	+	-
10	640 x 350	16	31.5	70	+	-
11	640 x 480	2	31.5	60	-	-
12	640 x 480	16	31.5	60	-	-
13	320 x 200	256	31.5	70	-	+

Table A1: VGA Graphics Modes

Mode #	Resolution	Colors	Horz.	Vert.	Polarity	
00	40 x 25	16	31.5	70	-	+
01	40 x 25	16	31.5	70	-	+
02	80 x 25	16	31.5	70	-	+
03	80 x 25	16	31.5	70	-	+
07	80 x 25	Mono	31.5	70	-	+

Table A2: Video Text Modes

*NOTE: Horizontal frequencies are in kHz.
Vertical frequencies are in Hz.*

Feature Connector Pin Outs

The standard VESA Feature Connector is located at the upper left corner of the Kelvin Video64 (see Figure 1.1). The feature connector permits third party add-on accessories to both share signals and share control of the VGA circuitry. The following table lists the feature connector's pin-out information.

Kelvin Video64 Feature Connector Pin-Outs							
Pin	Function	Pin	Function	Pin	Function	Pin	Function
Y1	Pixel Data 0	Y8	Pixel Data 7	Z2	Ground	Z9	Ground
Y2	Pixel Data 1	Y9	Pixel Clock	Z3	Ground	Z10	Ground
Y3	Pixel Data 2	Y10	Blanking	Z4	(See Note 1)	Z11	Ground
Y4	Pixel Data 3	Y11	Hor. Sync	Z5	(See Note 2)	Z12	No Connect
Y5	Pixel Data 4	Y12	Vert. Sync	Z6	(See Note 3)	Z13	No Pin (Key)
Y6	Pixel Data 5	Y13	Ground	Z7	No Connect		
Y7	Pixel Data 6	Z1	Ground	Z8	Ground		

Table A.3: VESA Feature Connector Pin-Outs

NOTES:

- (1) Low Enable External Pixel Data Input to the motherboard DAC.
- (2) Low Enable External Sync and Blanking Inputs to the motherboard DAC.
- (3) Low Enable External Pixel Clock Input to the motherboard DAC.

VGA Pin-Out Specifications

The 15-pin VGA connector on the Kelvin Video64 is the same as the standard 15-pin D-shell connector. **NOTE:** The Royal Blue color indicates that power is available on pin 9 in accordance with the DDC standard. The pin-outs are as follows:

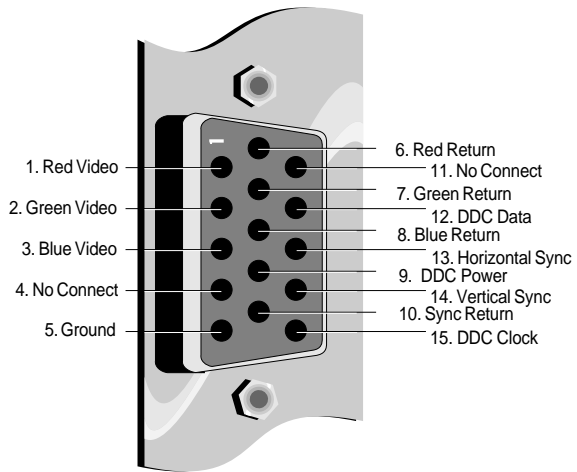


Figure A.1: Kelvin Video64 15-pin Connector

Appendix **Power Management**

B

Orchid stays on the cutting edge of technology while maintaining compatibility. With the Kelvin Video64, we use a power saving approach by incorporating VESA's Display Power Management Signaling (DPMS) technology.

Power Management Feature

The Power Management feature supports the Green PC specification and allows a computer system to be energy efficient. On computer desktop systems, monitors usually consume over 50% of the overall power used. Most monitors consume between 130-200 watts, even when idling.

Using a Green PC monitor and a Kelvin Video64 in conjunction, you can lower the power consumption to 30 watts when the monitor is idle. This power management feature is required by the EPA's Energy Star Program and is also required by all U. S. Government agencies.

A Green PC monitor and your Kelvin Video64 can be placed into one of four states: On, Standby, Suspend or Off. Here is an overview of VESA's DPMS signaling method:

<u>Monitor State</u>	<u>Power Savings</u>	<u>Recovery Time</u>
On	None	N/A
Standby	Minimal	Short
Suspend	Substantial	Longer
Off	Maximum	System-dependent

On Mode

This is a full operation state with both the HSYNC Active and VSYNC Active.

Appendix B: Power Management

Standby Mode

This is an optional state of minimal power reduction with the HSYNC Inactive and VSYNC Active.

Suspend Mode

This is a significant reduction of power consumption with the HSYNC Active and VSYNC Inactive.

Off Mode

This is the lowest level of power consumption with the HSYNC Inactive and VSYNC Inactive.

The VESA DPMS technology also implements the U. S. Governmental Protection Agency "Energy Star" and European Nutek standards. The Power Management feature makes Kelvin Video64 a complete cost-effective solution for the energy conscious.

Digital Video Scaling

C

With Kelvin Video64, a Windows digital video clip can be scaled and sized up to full screen. No longer will your video viewing be restricted to postage stamp-sized displays. You get smooth video playback without dropping frames. The scaling feature can be used in all resolutions except 640x480x16 colors and 800x600x16 colors.

Kelvin Video64 features both horizontal and vertical digital video scaling. The accelerated video hardware allows Kelvin Video64 to display AVI files to full screen while maintaining smooth motion and improving image quality.

By incorporating the new DCI standard, Kelvin Video64 can take on many of the tasks generally shared with the Windows display software. The DCI standard allows Kelvin Video64's accelerator hardware to act independently during scaling and displaying operations, and for implementing color-space conversion. These tasks are accomplished much more quickly using hardware methods and the resulting displays can then be scaled for full-screen playback.

Appendix ***MPEG Video***

D

MPEG is a full-motion video compression technology that allows you to play back high-quality video. It records changes between frames of data. Rather than storing information about each individual frame, only the changed data is stored during recording and reassembled during playback.

With Kelvin Video64 you can view MPEG, AVI and other digital video formats at up to 30 frames per second. Kelvin Video64 features the Xing Software MPEG codec for full-screen, full-motion playback of MPEG digital video. This codec algorithm attains the highest playback quality while optimizing file management. It also uses high-quality scaling and pixel interpolation algorithms.

The Kelvin Video64 uses your computer's CPU for MPEG decoding. MPEG playback performance is directly related to processor speed, the current screen resolution and color depth. We recommend a true 75MHz MPC III (Multimedia Personal Computer) system for optimum MPEG and AVI performance.

MPEG Video files can be played using the XingMPEG Player or any Windows MCI (Media Control Device) application. MCI is a standard control device for multimedia devices and files.

NOTE: The Kelvin Video64's MPEG feature is not compatible with CD titles written exclusively for the Sigma Designs RealMagic products.

FCC NOTICE

Kelvin Video64
Certified compliant with FCC Class B limits, part 15
To meet FCC requirements, shielded cables are required
to connect the unit to a Class B certified device

"This device complies with Part 15 of the 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."

This equipment generates and uses radio frequency energy and, if not installed and used properly in strict accordance with the manufacturer's instructions, may cause interference to radio or television reception.

This device has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. Only equipment (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this product.

If this equipment causes interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

1. Reorient the receiving antenna.
2. Relocate the computer with respect to the receiver.
3. Move the computer away from the receiver.
4. Plug the computer into an outlet which resides on a different circuit breaker than the receiver.
5. If necessary, consult your dealer, or an experienced radio or television technician for additional suggestions.

You may find the booklet [How To Identify and Resolve Radio-TV Interference Problems](#) helpful. It was prepared by the Federal Communications Commission and is available from the U.S. Government Printing Office, Washington, DC 20402. Refer to stock number: 004-000-00345-4.

Orchid Technology is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

Operation with non-certified equipment is likely to result in interference to radio and TV reception. The user must use shielded interface cables in order to maintain the product within FCC compliance.

DECLARATION OF CONFORMITY

Application of Council Directives 89/336/EEC.

Standards to which the conformity is declared:

EN55022 EN50082-1

Manufacturer's Name: Orchid Technology

Manufacturer's Address: 221 Warren Avenue
Fremont, California 94539
USA

Tel: (510) 651-2300

Fax: (510) 651-9450

Type of Equipment: Video Card

Model Name: Kelvin Video64

Tested By: BEMA Technology Corp.
4063 Clipper Court
Fremont, California 94538
USA

Tel: (510) 490-9215

Fax: (510) 490-5790

Test Engineer(s): Jagtar Sahota

I, the undersigned, hereby declare that the specified equipment conforms to the directives and standards listed above.



Ming Ming Hsu
Director of Technical Services
February 2, 1996

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