Fahrenheit

User's Manual

for models:

Fahrenheit 64

Fahrenheit Pro64

ORCHID

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Introduction

Fahrenheit™ is a powerful 64-bit true color windows accelerator, which provides fast acceleration for your Windows, CAD and DOS applications. The Fahrenheit is an affordable graphics accelerator for VL-Bus, PCI and Pentium systems.

Two versions of Fahrenheit are available: *Fahrenheit 64* supports up to 2MB of Dynamic Random Access memory (DRAM). *Fahrenheit Pro64* supports up to 4MB of Video Random Access memory (VRAM). Operating at resolutions up to 1280x1024, Fahrenheit's architecture provides high-speed horizontal and vertical acceleration in *all* display modes, while providing true high resolution graphics and full VESA compliance. Fahrenheit also incorporates the VESA Display Power Management Signaling (DPMS) technology, which supports the Green PC specification.

In addition, Fahrenheit comes with a comprehensive range of software enhancements and utility programs. Orchid's customized Windows drivers incorporate Virtual Desktop and Switch-on-the-fly Magnify features.

Thank you for purchasing Fahrenheit. Care has been taken to ensure that it will provide you with years of trouble-free operation. We believe you will be pleased with your purchase.

About This Manual

This manual presumes that you are already familiar with your IBM PC compatible computer. While Fahrenheit has been 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.

This manual has been organized to help you set up and install Fahrenheit as quickly as possible. Each section is divided into short, easy to follow steps, to help you understand the installation and function of Fahrenheit.

Section 1: Hardware Installation

Whether you are a beginner or an experienced user, this section will give you important information on the proper installation of Fahrenheit.

Section 2: Software Installation

Here you will be given the information needed to install high resolution device drivers for popular software applications, and the Fahrenheit utilities.

Appendix A: Technical Help and Information

If you are experiencing installation difficulties or require troubleshooting information, this section will give you checkpoints to look at to ensure that your Fahrenheit is operating properly. Appendix A also includes information on the technical specifications and features.

Appendix B: Power Management

Appendix B provides details on the VESA DPMS Power Management technology.

Important! - Before You Begin

This manual contains information for the products listed below. All references to "Fahrenheit" will refer to all these products, unless otherwise noted.

Fahrenheit 64-VLB

Fahrenheit 64-VLB provides very fast acceleration for Windows, CAD and DOS applications. There are two memory configurations: 1MB (upgradeable to 2MB) or 2MB standard DRAM display memory. The 64-bit graphics processing provides very high performance in all display modes. Display 16.8 million colors at 800x600 with 2MB and achieve resolutions as high as 1280x1024. Refresh rates up to 75Hz provide a stable, flicker-free display.

Fahrenheit 64-PCI

Fahrenheit 64-PCI is the PCI version of Fahrenheit 64.

Fahrenheit Pro64-VLB

Fahrenheit Pro64-VLB provides extremely fast acceleration for Windows, CAD and DOS applications. There are two memory configurations: 2MB (upgradeable to 4MB) or 4MB standard VRAM display memory. Fahrenheit Pro64's ultra fast VRAM combined with 64-bit graphics processing provides very high performance in all display modes. Display 16.8 million colors (true color) at 1024x768 and achieve resolutions as high as 1280x1024. Refresh rates up to 120Hz provide a stable, flicker-free display.

Fahrenheit Pro64-PCI

Fahrenheit Pro64-PCI is the PCI version of Fahrenheit Pro64.

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

When you see the Magnifying Glass, it means the text is referring 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 to property.

Common Names

DPMS	Display Power Management Signaling
DRAM	Dynamic Random Access Memory
PC	Refers to the family of IBM PC, PC/XT or PC/AT compatible computers
PCI	Peripheral Component Interconnect
SVGA	Super VGA
VESA	Video Electronics Standards Association
VFC	VESA Feature Connector
VGA	Video Graphics Array
VL-Bus	VESA Local Bus
VRAM	Video Random Access Memory

INSTALLING FAHRENHEIT

Fahrenheit is designed to be easy to use and easy to install. There are no jumpers or switches to set. There are three fundamental steps to the installation.

Step 1: Preparing your Computer

You will need to take the cover off your computer and prepare an expansion slot for your Fahrenheit.

STATIC!

Before handling the Fahrenheit, be sure to guard against electrostatic discharge. Be properly grounded by touching the power supply housing, or you may want to buy a Ground strap from your local computer store.

Step 2: Preparing your Fahrenheit

There are no switches or jumpers to set for Fahrenheit. If you want to add memory to Fahrenheit now or later, this step gives you details on the memory required.

Step 3: Installing your Fahrenheit

Once the Fahrenheit has been securely seated in the computer and the cover replaced, the Fahrenheit is ready to operate.
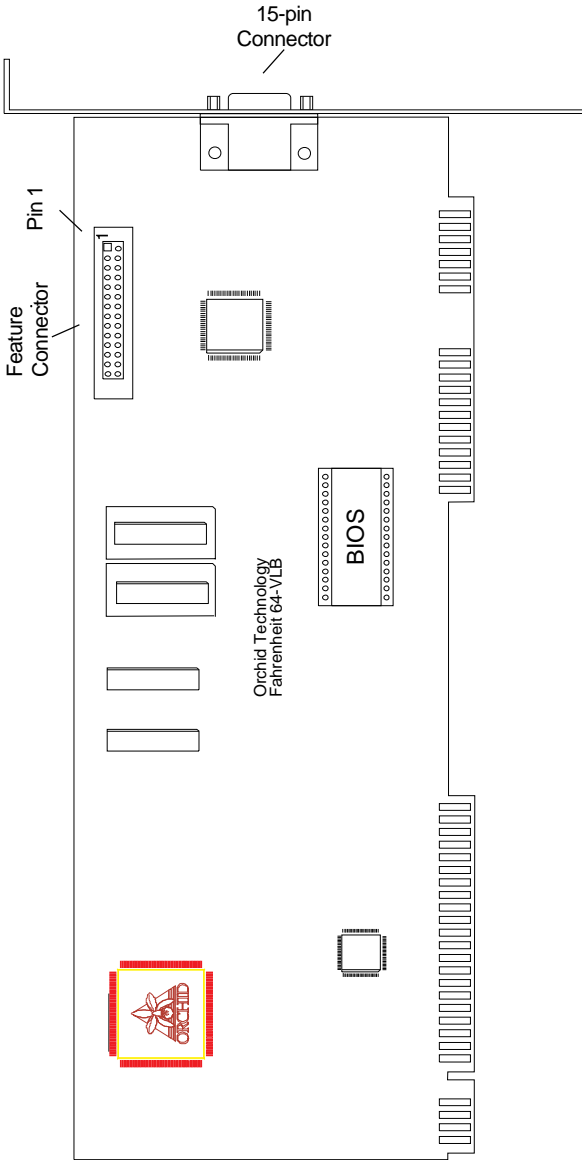
Figure 1.1: Fahrenheit 64-VLB Diagram
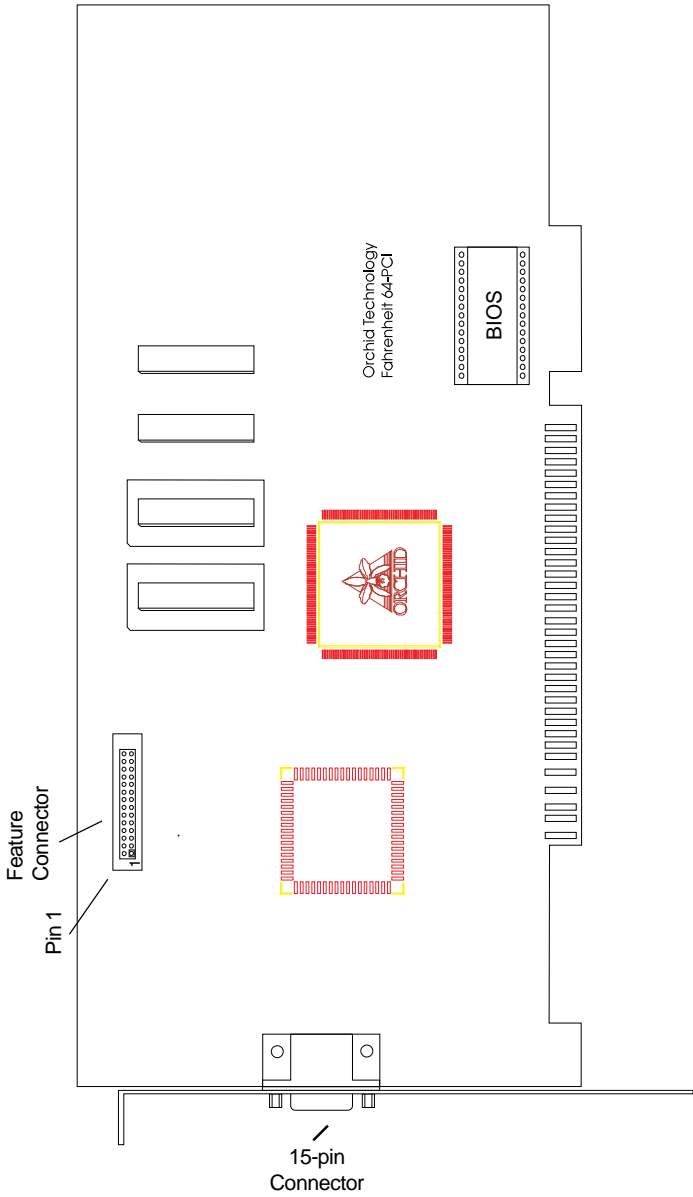
Figure 1.2: Fahrenheit 64-PCI Diagram

15-pin
Connector

BIOS

Orchid Technology (c) 1994   Fahrenheit Pro64-VLB
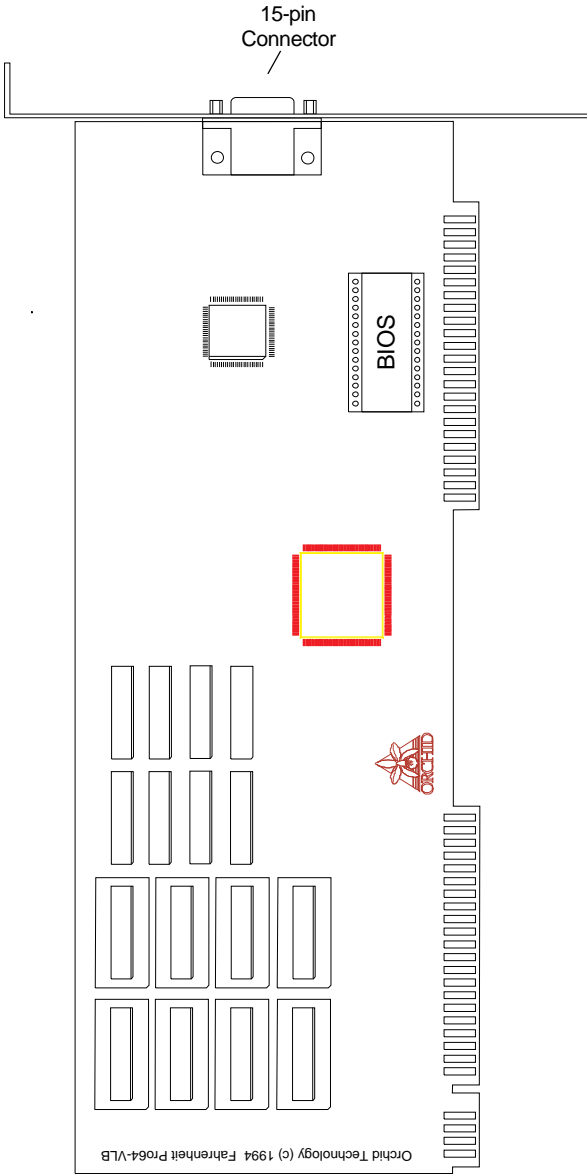
Figure 1.3: Fahrenheit Pro64-VLB Diagram

Orchid Technology Fahrenheit Pro64-PCI

BIOS

15-pin
Connector
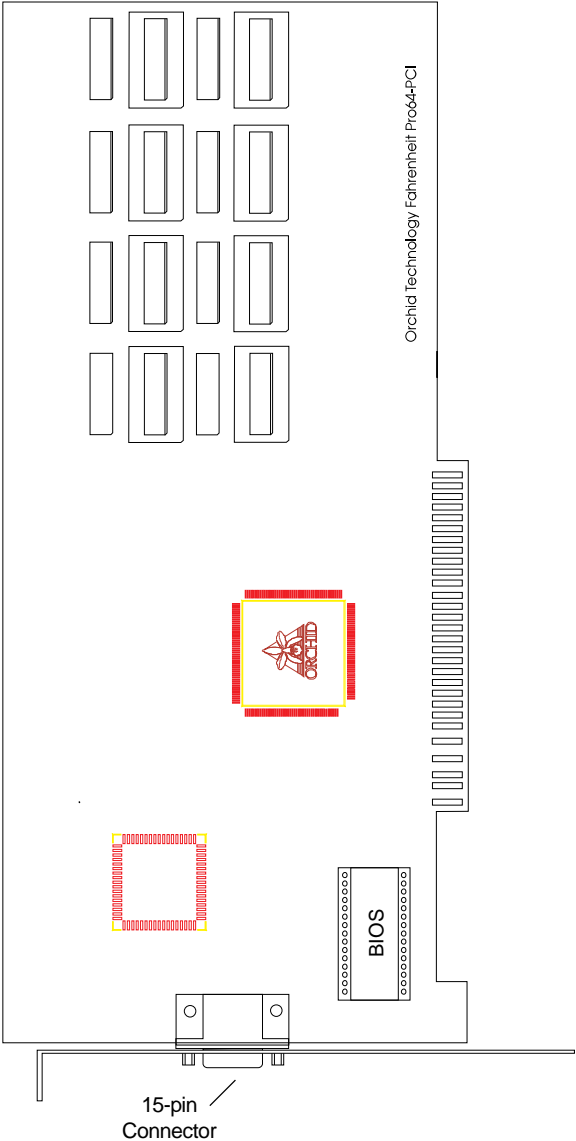
Figure 1.4: Fahrenheit Pro64-PCI Diagram

Step 1: Preparing Your Computer

1. Turn off the power to your computer and disconnect all of the power cords and cables from the computer.

2. Remove the screws that secure the computer chassis cover. Slide the cover off and keep the screws in a safe place.

3. Make sure your system is configured for color display. Consult your computer user's manual for more information.

Step 2: Preparing your Fahrenheit

There are no switches or jumpers to set for Fahrenheit. If you are *not* adding memory at this time, skip to Step 3.

Adding Memory

Fahrenheit 64 comes configured with 1MB of DRAM and is easily upgraded to 2MB. Fahrenheit Pro64 comes configured with 2MB of VRAM and is easily upgraded to 4MB. The additional memory is automatically detected and must meet the following specifications:

Fahrenheit 64

• 256K x 16 DRAM
• Operate at 70 nanoseconds access time or faster.

Fahrenheit Pro64

• 256K x 8 VRAM
• Operate at 70 nanoseconds access time or faster.

NOTE: The access time is indicated on the chip as follows:

-7 = 70 nanoseconds access time

Step 3: Installing your Fahrenheit

Once you have prepared your Fahrenheit, you are ready to install Fahrenheit and connect your monitor.

1. Turn off the power to your computer and disconnect all of the power cords and cables from the computer.

2. Remove the screws and slide the cover off.

3. Select an expansion slot for Fahrenheit. *Depending on what card you have, select a VL-Bus slot for the Fahrenheit VLB version, or a PCI slot for the Fahrenheit PCI version (refer to Figures 1.1-1.4).*

4. Remove the rear slot cover bracket if present.

5. Carefully hold Fahrenheit by the top edges and lower it into its expansion slot. Ensure that Fahrenheit seats firmly into the slot.

6. Secure Fahrenheit in place by fastening its metal bracket to the computer backplane.

7. Reconnect previously removed cables and power cords and replace the cover of the computer.

8. Connect your monitor cable to the 15-pin monitor connector on Fahrenheit (see Figure 1.5).

Fahrenheit hardware installation is complete.
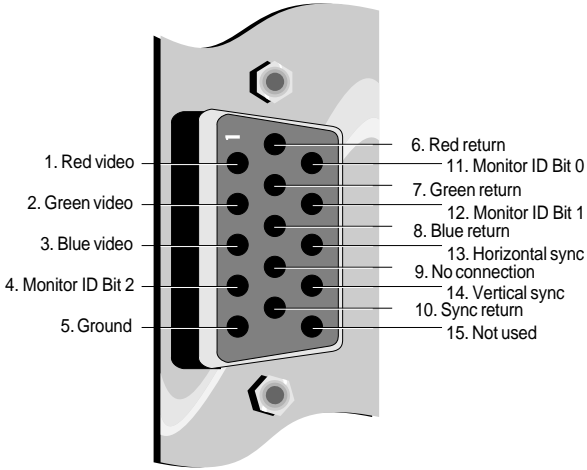
Figure 1.5: Standard 15 pin D-shell Connector

SOFTWARE OVERVIEW

Fahrenheit comes with software device drivers for popular software applications and a comprehensive range of utility programs. Fahrenheit provides register-level VGA mode compatibility. Software programs can be operated in this mode using drivers supplied by the software manufacturer. The high resolution drivers available are:

Windows 3.1	**Windows for Workgroups**
Windows NT	**WordPerfect**
Word	**Lotus**
AutoShade	**AutoCAD**
3D Studio	**OS/2**

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

Some software programs may already include software drivers for Fahrenheit. Check with the manufacturer for verification.

Before You Begin

If you install drivers for a resolution that your monitor is not capable of producing, the results will probably be unsatisfactory and may damage your monitor.

Before installing any of the Fahrenheit high resolution drivers, verify the capabilities of your monitor. If you use Windows, you should set Windows to use the standard VGA driver before beginning the Fahrenheit driver installation. To set up the standard VGA driver, follow the instructions below:

1. Change to your Windows directory. The Windows Setup screen is displayed by typing:

   SETUP   `Enter ←`

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

The following instructions assume you are using a floppy drive designated as Drive A:, and a hard drive designated as drive C:. Please substitute the correct drive letter if your computer is configured differently.

There are two ways to install the Fahrenheit software drivers and utilities. You can automatically install the software to your hard drive through Windows or DOS. Both installation programs are the same; use the one most convenient for you.

All references to Windows apply to both Windows 3.1 and Windows for Workgroups.

Microsoft Windows Software Installation

1. Make sure Windows is set up to use the standard VGA driver *(see "Before You Begin" on the previous page)*.

2. Start Microsoft Windows.

3. Insert the Fahrenheit software disk into your floppy drive.

4. From the Program Manager File menu choose Run. Type the floppy drive letter, then type SETUP, e.g., A:\SETUP. The following menu appears:

```
┌─┬──────────────────────────────────────────────┐
│ ═│  Please select an option or press [ESC] to Cancel. │
├─┴──────────────────────────────────────────────┤
│                                                  │
│                  Menu Choices                    │
│                                                  │
│  Windows / Windows for Workgroups drivers and utilities │
│  MS-DOS utilities and Application drivers        │
│  Exit Installation                               │
│                                                  │
│                                                  │
│                  ┌──────────┐                    │
│                  │    OK     │                    │
│                  └──────────┘                    │
│                                                  │
└──────────────────────────────────────────────────┘
```
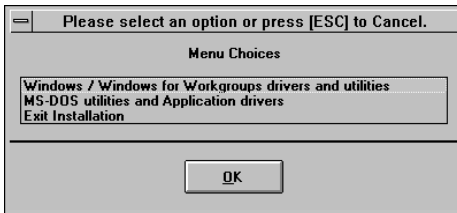
Figure 2.1: Main Menu Screen

5. Select your option and proceed through the installation as prompted by the program.

6. Once you return to the main menu, you can make another selection or quit the installation program.

7. After the software is installed, the Orchid program group appears on the desktop. You are now ready to select a resolution and refresh rate for your display.

DOS Software Installation

1. Insert the Fahrenheit software disk into your floppy drive and type:

    A:**INSTALL**   `Enter ←`

    The menu in Figure 2.1 appears.

2. Select your option and proceed through the installation as prompted by the program.

3. Once you return to the main menu, you can make another selection or quit the installation program.

The Fahrenheit software drivers and utilities are now installed. Once you launch Windows, all Fahrenheit Windows applications are installed in the Orchid program group.

Network Considerations

The Orchid icon will appear only on workstations that have a Fahrenheit installed.

The installation program offers standard and network installation options for Windows drivers. When using Windows in a Novell (or compatible) network, select the Network Server Installation option. The installer will ask for a directory name to install the drivers to. You must install the Fahrenheit Windows drivers to the *shared* Windows directory on the network server. Once the drivers are installed on the network server, the Orchid icon appears in the Windows Control Panel on each workstation, for individual driver customization.

WINDOWS UTILITIES

Orchid Control Panel

This easy-to-use setup menu allows you to config-
ure your Windows video display driver, configure
your monitor, center the display and enable the
power management feature. Whether you chose the
Windows or DOS installation, the Orchid Control
Panel can be accessed from the Windows Control
Panel window or from the Orchid Program group.

Display Centering is not available on all Fahrenheit models.

1. Double-click on the Orchid Control Panel icon
   and the following menu appears:
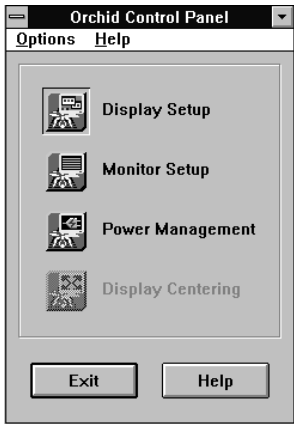
Figure 2.2: Orchid Control Panel Menu

2. Make your desired selections. Use this utility for
   any future changes to the Fahrenheit configura-
   tion.

Display Setup

Use this utility to select the resolution, text font size,
colors and font cache for your display. 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. The Fahrenheit Windows driver monitors its font caching efficiency. The driver will disable font caching if it detects inefficient use of resources. Font caching will not be turned back on until Windows is restarted.

In addition, when certain combinations of resolutions and colors are chosen, the menu displays the Virtual Desktop or Switch on-the-fly Magnify features. *(See the following sections for more information on these features.)*

1. From the Orchid Control Panel click on Display Setup. The following screen appears:
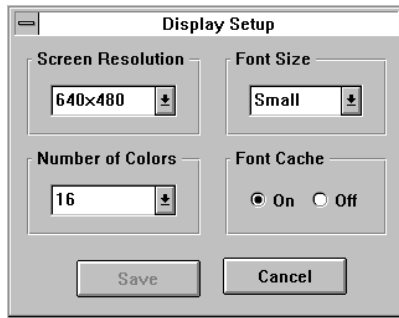
Figure 2.3: Display Setup Screen

2. Make your desired selections and click on the Save button to store your new values.

Virtual Desktop Feature

You can use the Virtual desktop feature to create a larger desktop workspace. With Virtual Screen, 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.

It's 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.

Virtual Desktop supports certain resolutions and colors. When these are selected, the Orchid Display Setup screen appears as follows:
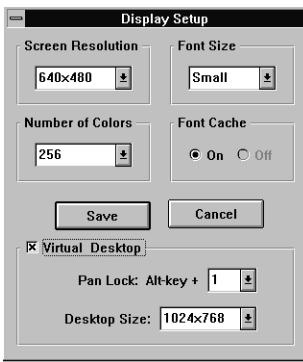
Figure 2.4: Virtual Desktop Feature

To enable Virtual Desktop:

1. Click on the Virtual Desktop box to enable the option *(the selections are grayed out until you do so)*.

2. Choose a Pan Lock (Hot-Key) combination from the pull-down menu to lock the display (prevent it from moving when your mouse reaches the edge).

3. Choose a Desktop Size from the pull-down menu.

4. After making your selections click on the Save button to store your new values.

Switch-on-the-fly Magnify Feature

Switch-on-the-fly Magnify can enlarge a portion of your document to its maximum size. This is ideal when you need a closer view of your screen. It

supports certain resolutions and colors. When these are selected, the Orchid Display Setup screen appears as follows:

Figure 2.5: Switch-on-the-Fly Magnify Feature

You can also configure a Hot-Key sequence to activate the following options:

Pan Lock. Use the Pan Lock command to turn off panning, which prevents the Window from moving even if you move your mouse. You can unlock the Window by using the Hot-Key combination.

Zoom In. Use the Zoom In command to magnify a portion of your document.

Zoom Out. Use the Zoom Out command to see all of your document at one time.

To enable Switch-on-the-fly Magnify:

1. Click on the Switch-on-the-fly Magnify box to enable the option *(the selections are grayed out until you do so).*

2. Choose a Hot-Key combination from the pull-down menus for the Pan Lock, Zoom In and Zoom Out options.

3. After making your selections, click on the Save button to store your new values.

Monitor Setup

Use the Monitor Setup utility to select the display parameters for your monitor. Make your monitor selection simply by clicking on the drop down list, or by selecting the Custom option and inserting your own values.

This utility displays a list of video resolutions. The vertical refresh rates available are selectable from the drop-down menu of each resolution.

1. From the Orchid Control Panel click on Monitor Setup. The following screen appears:
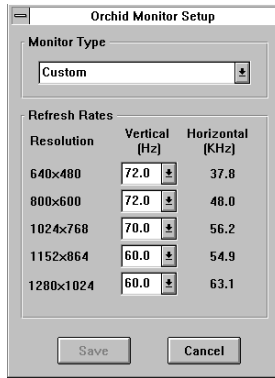
Figure 2.6: Monitor Setup Menu

2. Make your desired selections and click on the Save button to store your new values.

Power Management

Use this utility for power savings on your Green PC monitor while your monitor is inactive. When you use this utility with a Green PC monitor or other type of monitor, the screen saver will appear as a blank screen. You can access the Power Management utility from the Orchid Control Panel or from the Windows Control Panel Desktop utility.

WARNING!
Selecting the incorrect values may damage your monitor. Consult your monitor's reference guide for the vertical refresh rates available.

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

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

Make sure your monitor supports the Green PC standard before selecting the options. Consult your monitor's reference guide or monitor manufacturer.

To configure Power Management:

1. From the Orchid Control Panel click on Power Management. The following menu appears:

Figure 2.7: Power Management Menu

2. Click on the Screen Saver box to enable the option *(the selections are grayed out until you do so).*

3. Set delays for the different Power Management modes. Select the delays by clicking on the arrows to increase or decrease the number.

4. Test the delays you set for each mode.

5. If you desire a password for the screen saver, click on the Password Protected box.

6. Click on Set Password and enter your password.

7. Click on OK to save the settings.

Display Centering

Display Centering is not available on all Fahrenheit models. This utility is designed to be used with monitors that do not have their own centering controls. If your monitor does have centering controls you do not need to use this utility. To use this utility follow the steps below:

1. From the Orchid Control Panel click on Display Centering. The following menu appears:

Figure 2.8: Display Centering Menu

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

2. Once you have centered the display, click on the Save button to store your new values. For other display modes, use the Display Centering utility again if required.

System Information

This option provides a visual way of obtaining relevant information about your system configuration. The information on this menu screen will be very helpful if you need to call Technical Support. You can access the System Information option from the Orchid Program group or from the Windows Control Panel window.

To access System Information:

1. From the Orchid Control Panel, click on the Help option and select System Information. The following menu appears:

Figure 2.9: System Information Menu

DOS UTILITY

MONSET Monitor Setup

MONSET is the DOS version of the Windows Monitor Setup. If you are satisfied with the Windows version there is no need to use this one. There are two advantages to using the DOS version: (1) You can try all the modes available without exiting and reentering the program; (2) You can center the screen using the same utility program.

Display Centering is not available on all Fahrenheit models.

To install MONSET, copy it to your hard drive by selecting the MS-DOS Utilities and Application Drivers selection, from the installation menu of the Fahrenheit driver disk. Because it is a DOS-based utility, do not run MONSET from inside other programs, such as Windows. From the DOS prompt, type:

CD\FAHR64 Enter ←

then

MONSET Enter ←

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

The following menu appears:
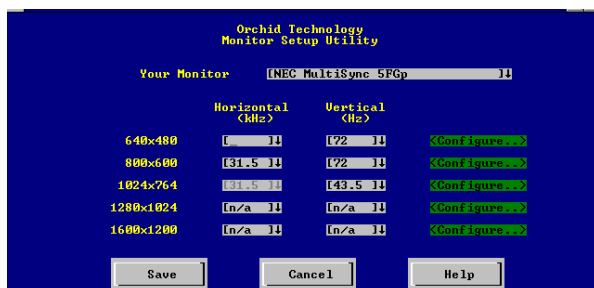
Figure 2.10: MONSET Menu

The Monitor Setup utility 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.

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 ↑↓ 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 ↑↓ arrow keys to make your selection, and use the TAB or Shift+TAB keys to navigate.

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 ← → arrow keys to center horizontally and the ↑↓ arrow keys to center vertically.

2. When the selected mode is displayed, a test pattern appears with a description of the controls. Press ENTER to save the setting.

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 MONSET program whenever you want to change your configuration.

WARNING!
Selecting the incorrect values may damage your monitor. Consult your monitor's reference guide for the vertical refresh rates available.

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

Appendix TECHNICAL HELP

A

Orchid Technology is known for its responsiveness to its customers. This section gives you helpful hints for troubleshooting Fahrenheit.

CompuServe

In addition to calling Orchid Technology, technical support is now 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 MULTIBVEN to get into the Multimedia Vendor Forum B. Once you are in this forum, select Message Section #10. The message and library sections are labeled Orchid. . .

All commands can be typed in lower or upper case letters.

<center>or</center>

You may type GO ORCHID to get immediate access to the Orchid section.

Troubleshooting the Fahrenheit

The following information will help you diagnose problems you may have with the Fahrenheit. Following these simple steps serves a twofold purpose:

You may be able to fix your problem and avoid having to contact the Orchid Technology Technical Support Department,

<center>or</center>

if these steps do not help you solve your problem, the results will most certainly give you a better handle on what to tell Technical Support once you do contact them.

The information provided here is in symptom/response form. That is, a symptom is given, and a check point response is provided for you.

Symptom 1

The computer does not power-up or respond when powered on. The screen is completely blank. There is no familiar boot up (POST test) beep.

Check

1. Is the Fahrenheit properly installed in the slot? Is the edge connector inserted all the way into the expansion slot? Is the Fahrenheit properly aligned with the motherboard's backplane?

2. Is there another display adapter in your system? If it is an on-board video display adapter, make sure it is disabled. If the video display adapter is other than a standard MDA video adapter, remove it from the system.

3. Is the computer set up correctly for the Fahrenheit? Refer to your computer's reference manual for information on setting up your computer.

4. Are your computer and monitor plugged in? Check the power cables to your computer and monitor.

Symptom 2

The computer gives an error of 1 long beep and 2 short beeps at power up.

Check

1. Take a look at the check points for symptom 1, steps 1 through 4.

Symptom 3

The computer seems to boot up properly but there is no display.

Check

1. Is your monitor plugged in? Check the power cable to your monitor.

2. Is your monitor cable fastened securely and properly? Check both the connection at the monitor and at the Fahrenheit card.

3. Is your monitor cable the correct kind for the Fahrenheit? Check Section 1 for the proper pin-out information to determine if your cable is correct.

4. Is there another display adapter in your system? If it is an on-board video display adapter, make sure it is disabled. If the video display adapter is other than a standard MDA video adapter, remove it from the system.

Symptom 4

The display loses synchronization once it gets into a graphics program.

Check

1. Is the vertical hold on your monitor properly set? Is your software properly installed for your current application? Check Section 2 for device driver information.

2. Is your monitor able to display the graphics mode you are using? Double check your monitor specifications to determine if you are operating in a graphics mode that your monitor simply cannot handle.

3. Are you using the correct vertical refresh rate for your monitor? Double check your monitor specifications for the refresh rates supported.

Symptom 5

The Fahrenheit works well in another brand computer, but not at all in mine.

Check

1. Take a look at the check points for symptom 1, steps 1 through 4. It is a pretty good guess that the problem is not the Fahrenheit if it is working properly in another system.

Symptom 6

The Orchid icon does not appear in the Windows Control Panel.

Check

1. Check to make sure that you installed the Fahrenheit Windows drivers into the correct directory.

2. Memory managers can prevent icons from appearing. See the section "Memory Address Setting" in this Appendix for details about using memory manager programs.

Technical Specifications

This section covers the technical specifications and features for all Fahrenheit products.

Configuration
Fahrenheit 64   - 1024K
                   2048K

Fahrenheit Pro64   - 2048K
                   - 4096K

Video Chipset:
S3 Vision 864 - Fahrenheit 64
S3 Vision 964 - Fahrenheit Pro64

Computers Supported:
486 and compatibles (with VL-Bus or PCI connector)
Pentium-based systems

Interface Speed
Up to 50MHz

BIOS:
8-bit

Connectors:
32-bit Bus - VLB versions
32-bit Bus - PCI versions
15-pin D-Shell VGA
VESA Feature Connector *(Fahrenheit 64 only)*

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

Temperature:
   Operating: from 0 to 40 degrees C
   Storage: from -25 to 90 degrees C

Humidity:
   Operating: from 15% to 90%
   Storage: from 0% to 90%

Fahrenheit Features:

Fahrenheit 64
   Up to 75Hz Vertical Scan Refresh Rate

   1280 x 1024 x 256 colors*

   1024 x 768 x 65,536 colors *

   800 x 600 x 16.8 million colors *

Fahrenheit Pro64
   Up to 120Hz Vertical Scan Refresh Rate

   1280 x 1024 x 65,536 colors **

   1024 x 768 x 16.8 million colors **

 * *Requires 2MB DRAM*
 ** *Requires 4MB VRAM*

Memory Address Setting

Fahrenheit 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 Fahrenheit address segment from being used. Refer to your software program user's manual for details on using an exclusion statement.

VESA Support

All Fahrenheit models support the VESA BIOS Extension (VBE) regardless of their bus interface type.

Fahrenheit is designed to support the VESA BIOS Extension (VBE) through its BIOS. The VESA BIOS Extension standard is a separate standard from VESA Local BUS (VLB). Extended modes can be selected through the VESA option in the application you are running. The BIOS supports the VESA 1.2 specification.

Fahrenheit 64-VLB and Fahrenheit 64-PCI are designed to support the VESA Local Bus (VL-Bus) standard. The local bus design provides 32-bit data transfer between the video card and the CPU for incredibly fast graphics.

Fahrenheit 64 Resolutions and Refresh Rates

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: IBM VGA Video 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	-	+
54	132 x 43	16	31.5	70	+	-
55	132 x 25	16	31.5	70	-	+

Table A2: Video Text Modes

Horizontal frequencies are in kHz
Vertical frequencies are in Hz

Mode #	Resolution	Colors	Horz.	Vert.
100	640 x 480	256	31.3	70
101	640 x 480	256	31.3	60
			38.0	72
			37.6	75
102	800 x 600	16	35.3	56
			37.8	60
			48.1	72
			47.4	75
103	800 x 600	256	35.3	56
			37.8	60
			48.1	72
			47.4	75
104	1024 x 768	16	35.1	43.5 (I)
			48.1	60
			56.2	70
			59.8	75
105	1024 x 768	256	35.1	43.5 (I)
			48.1	60
			56.2	70
			59.8	75
106	1280 x 1024	16	47.7	43.5 (I)
107	1280 x 1024	256	47.7	43.5 (I)
			63.1	60
			77.7	72
			79.7	75
110	640 x 480	32K	31.4	60
			37.8	72
			37.2	75
111	640 x 480	64K	31.4	60
			37.8	72
			37.2	75

Table A3: VESA Standard Video Graphics Modes

(I) indicates interlaced mode
Horizontal frequencies are in kHz
Vertical frequencies are in Hz

Mode #	Resolution	Colors	Horz.	Vert.
112	640 x 480	16.8Mil	31.4	60
			37.8	72
			37.5	75
113	800 x 600	32K	37.8	60
			48.0	72
			47.2	76
114	800 x 600	64K	37.8	60
			48.0	72
			47.2	76
115	800 x 600	16.8Mil	37.8	60
116	1024 x 768	32K	35.2	43.5 (I)
			48.1	60
			56.2	70
			60.0	75
117	1024 x 768	64K	35.2	43.5 (I)
			48.1	60
			56.2	70
			60.0	75
201	640 x 480	256	31.3	60
			38.0	72
			37.6	75
203	800 x 600	256	36.1	56
			37.8	60
			48.1	72
			47.4	75
205	1024 x 768	256	35.1	43.5 (I)
			48.1	60
			56.2	70
			59.8	75
207	1152 x 864	256	54.9	60
208	1280 x 1024	16	47.7	43.5(I)
			63.1	60
			77.9	72
			79.7	75

Table A4: Graphics Modes (cont.)

Modes 201-208 are Enhanced Graphics Modes

Fahrenheit Pro64 Resolutions and Refresh Rates

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 A5: IBM VGA Video 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	-	+
54	132 x 43	16	31.5	70	+	-
55	132 x 25	16	31.5	70	-	+

Table A6: Video Text Modes

Horizontal frequencies are in kHz
Vertical frequencies are in Hz

Mode #	Resolution	Colors	Horz.	Vert.
100	640 x 400	256	31.5	70
101	640 x 480	256	31.5	60
			37.5	72
			37.1	75
			47.0	90
			57.0	110
			61.9	120
102	800 x 600	16	35.2	56
			37.9	60
			48.1	72
			46.9	75
103	800 x 600	256	35.6	56
			37.9	60
			48.1	72
			46.9	75
			57.2	90
104	1024 x 768	16	35.3	43.5 (I)
			48.1	60
			56.1	70
			59.9	75
105	1024 x 768	256	36.8	43.5 (I)
			48.1	60
			56.1	70
			59.9	75
			67.3	85
107	1280 x 1024	256	47.9	43.5 (I)
			63.7	60
			78.8	75
11A	1280 x 1024	64K	48.1	43.5 (I)
			66.7	60

Table A7: VESA Standard Video Graphics Modes

(I) indicates interlaced mode
Horizontal frequencies are in kHz
Vertical frequencies are in Hz

Mode #	Resolution	Colors	Horz.	Vert.
110	640 x 480	32K	31.5	60
			37.5	72
			37.1	75
			47.0	90
			57.0	110
			61.9	120
111	640 x 480	64K	31.5	60
			37.5	72
			37.1	75
			47.0	90
			57.0	110
			61.9	120
112	640 x 480	16.8Mil	31.5	60
			37.9	72
			37.5	75
			47.0	90
			54.4	110
			60.8	120
113	800 x 600	32K	35.2	56
			37.9	60
			48.1	72
			46.9	75
			57.2	90
114	800 x 600	64K	35.2	56
			37.9	60
			48.1	72
			46.9	75
			57.2	90
115	800 x 600	16.8Mil	35.2	56
			37.9	60
			48.1	72
			46.9	75
			56.8	90

Table A8: Graphics Modes (cont.)

Mode #	Resolution	Colors	Horz.	Vert.
116	1024 x 768	32K	35.3	43.5 (I)
			48.1	60
			59.9	75
			67.3	85
117	1024 x 768	64K	35.3	43.5 (I)
			48.1	60
			59.9	75
			67.3	85
118	1024 x 768	16.8Mil	35.3	43.5 (I)
119	1280 x 1024	32K	48.1	43.5 (I)
			66.7	60
201	640 x 480	256	31.5	60
			37.5	72
			37.1	75
			47.0	90
			57.0	110
			61.9	120
203	800 x 600	256	35.6	56
			37.9	60
			48.1	72
			46.9	75
			57.2	90
205	1024 x 768	256	36.8	43.5 (I)
			48.1	60
			56.1	70
			59.9	75
			67.3	85
207	1152 x 864	256	54.9	60

Table A9: Graphics Modes (cont.)

Modes 201-207 are Enhanced Graphics Modes

Feature Connector Pin Outs (VESA Standard)

The VESA standard Feature Connector (or Auxiliary Video Connector as it is sometimes called) is located at the top of the Fahrenheit 64 (see Figures 1.1 and 1.2).

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.

Fahrenheit 64 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.10: 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.

Appendix

B

POWER MANAGEMENT

Orchid stays on the cutting edge of technology while maintaining compatibility. With the Fahrenheit, we took 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 Fahrenheit 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 Fahrenheit can be placed into one of four states: On, Standby, Suspend or Off. Here is an overview of VESA's DPMS signaling method:

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

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

FCC NOTICE

> FCC# DDS7EF0694-94-F8V *
>
> Fahrenheit 64-VLB
> 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.

For Fahrenheit 64-VLB. For Fahrenheit 64-PCI the FCC number is DDS7EF0694-94F8P. For Fahrenheit Pro64-VLB the FCC number is DDS7EF0594964-FVL. For Fahrenheit Pro64-PCI the FCC number is DDS7EF0594964-PCI.

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