

software guide

Viking Series

**MONITERM**

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# Viking

## Software Guide

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# VIKING SOFTWARE

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## Introduction

A variety of software drivers for the Viking product line have been written by Moniterm Corporation for many of the popular software packages that are on the market today. Moniterm is not only committed to manufacturing and supporting high quality hardware products, but to support those products with matching software.

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## Performance Optimization

A great deal of time and effort has been spent rewriting and optimizing the software drivers to make full use of the graphics coprocessor, the Hitachi HD63484, on the Viking controller boards. Moniterm was the first company to take the existing Microsoft Windows and Ventura drivers, that were written exclusively for bit mapped displays such as the Hercules Display board, and rewrite them to take full advantage of a graphics coprocessor.

When working on a Viking 1 19" display, for example, screen updates are performed several times faster than bit mapped displays that have only 1/8 the resolution (e.g. IBM Color Graphics Adapter). In addition, since the screen updates are performed in parallel by the graphics coprocessor with the main CPU (e.g. 8088), full utilization of the higher speed CPUs, such as a 20 MHz 80386, is achieved.

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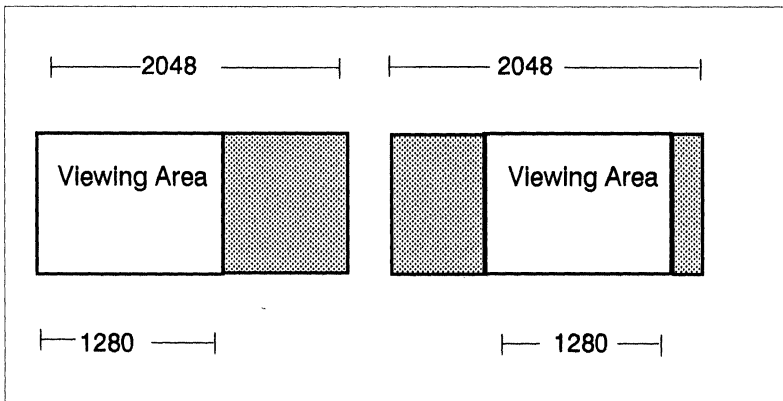
## Extended Viewing Area

The resolution of the Viking monitors have been carefully engineered to produce the finest and clearest display using the latest CRT technology. Specific attention has been given to make sure pixels are not smeared or overlapping which can occur when the electrical resolution is set beyond the picture tube's capabilities.



In the case of the Viking 1 19" monitor, the resolution is 91 dpi (dots per inch) both horizontally and vertically. On a 19" monitor, at 91 dpi, the resulting resolution is 1280 pixels horizontally by 960 pixels vertically.

The Viking Graphics Controllers have the ability to display 2048 pixels horizontally in addition to the 960 pixels vertically (landscape version). To make use of this feature, Moniterm provides special versions of the Windows and Ventura drivers. These drivers horizontally scroll the larger display memory (2048 pixels) through the 1280 pixel viewing area. The location of the viewing area is controlled by the movement of the graphics cursor. The concept of the display memory and the viewing area is illustrated below:



Horizontal Scrolling on Viking 1 or Viking 2400 "Wide" Screen.

With the extended display area, the effective viewing area is horizontally increased from 14" (1280 pixels/91 dpi) to 22.5" (2048/91). With this viewing area, 3 pages of text may be viewed side by side at their actual size. Or an entire B size page may be viewed without having the software application perform the scrolling (not usually as fast as moving the cursor). The extend viewing area also allows the user to run several applications simultaneously (e.g. under Microsoft Windows) without overlapping windows.

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## Additional Font Support

A significant use for the Viking product line is with applications where a large number of fonts are required or desired. Moniterm Corporation has taken the lead in font support and is distributing the Bitstream Fontware package with each Viking system.

With the Bitstream Fontware package, high quality fonts, such as Dutch, Swiss, Centry Schoolbook, Cooper, ITC Garamond, and many others, may be created for both the Viking monitors and a large set of printers. These fonts are created specifically for either Microsoft Windows, Ventura Publisher, or the Moniterm Viking C Interface Library.

The user builds specific points sizes for the printer and the Viking monitor using the Fontware Installation Utility. These fonts are created at the exact resolution for the Viking monitor (91 dpi for the Viking 1 19" monitor) so that text is displayed at actual size. This is important for proper alignment between text and graphics (e.g. a labeled bar chart).

Moniterm's extra effort in customizing its Viking software drivers will be experienced by the user, not just occasionally, but continuously, as complicated tasks are accomplished using sophisticated software packages such as Microsoft Windows and Ventura Publisher.

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# Viking Setup Program, VSETUP

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## System Overview

The VSETUP program was created to provide an easy way for customers to install software packages which utilize Moniterm displays. It is to be used in conjunction with additional disks containing the various screen driver programs, supplied by Moniterm, for Windows, Ventura, etc. In most cases, following the instructions on the display is all that will be needed to install the various applications.

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## Installation

To install VSETUP place the disk containing VSETUP.EXE into disk drive A. Type 'SETUP' and press the ENTER key. This will cause DOS to load and execute the VSETUP.EXE program.

*Note:*

*The first thing VSETUP does is to scan the disk in drive A for any files named: VBIOS.EXE, VBIOSP.EXE or VBIOS10.EXE. These programs allow the normal DOS screen output to appear on the Viking Landscape (VBIOS), Portrait (VBIOSP) or Color (VBIOS10) displays. Usually, only one type of VBIOS program will be present on the SETUP disk, depending on the type of screen it was prepared for. If a VBIOS program is found it will be loaded into memory and started automatically, causing VSETUP's output to appear on the Viking display. Otherwise, if no VBIOS files were found, VSETUP continues with its output appearing on the normal DOS screen.*

At this point, the first page of the main selection menu should be displayed with the top entry highlighted. You may move the highlight bar up and down, over each of the menu items, by pressing the up-arrow or the down-arrow direction keys. Each selection page holds a maximum of ten items. Menu pages may be skipped ahead with the PgDn (page down) key or backwards with the PgUp (page up) key. The following or previous menu page will be displayed when the highlight bar is moved off the top or bottom of the current menu page.

To perform an installation, move the highlight bar to the desired item and press the Enter key. The screen will clear and the selected installation procedure will begin. Remember, VSETUP may be exited at any time by pressing Ctrl-C (hold down the Control key and then press the letter C key). Whenever Ctrl-C is sensed the message 'Do you really want to quit Viking Setup (Y/N)?' will appear on the top line of the screen. To quit, press Y and VSETUP will terminate. Otherwise, press N and VSETUP will resume at the point where it left off.

As a final note, it is recommended that VSETUP be run on a 'clean' system. Where 'clean' indicates a system without any Terminate and Stay Resident programs (e.g. Borland SideKick) installed. This is because VSETUP may load one of the Viking VBIOS programs, then load a selected software package's SETUP program, which may then attempt to allocate memory for its own use. Overall, the software installation process requires, and appreciates, the full memory space when operating.

# Microsoft Windows 1.0

The Microsoft Windows software package is a graphics operating system that provides a universal foundation for running a full range of applications from word processing and desktop publishing to 3-dimensional graphics drawing. The tables below list the different versions of the Windows 1.0 drivers and pertinent information about each driver.

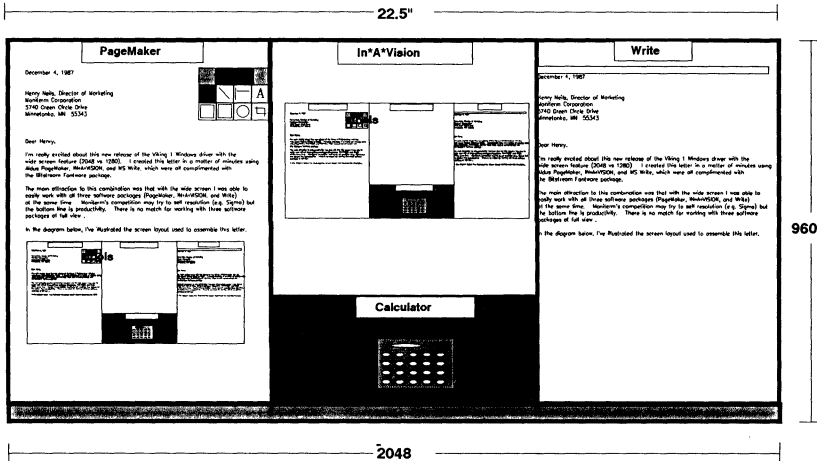
## Viking 1

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1280 x 960	91	14" x 10.5	No
19"	Landscape	2048 x 960	91	22.5" x 10.5"	Horizontal
19"	Portrait	960 x 1280	91	10.5" x 14"	No
19"	Portrait	960 x 2044	91	10.5" x 22.5"	Vertical
24"	Landscape	1280 x 960	72	17.7" x 13.3"	No
24"	Landscape	2048 x 960	72	28.4" x 13.3"	Horizontal

## Viking 10

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1024 x 768	72	14.2" x 10.6"	No
19"	Landscape	1024 x 988	72	14.2" x 13.7"	Vertical

The drawing below illustrates one use of the extended viewing area with the Viking 1 19" Landscape monitor at 2048 by 960 when running Windows 1.0. The software packages Aldus PageMaker, Micrografx In\*A\*Vision, and Microsoft Write may be run side by side with each package receiving a letter size page of viewing area at actual size.



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Running multiple applications, at actual size, on the Viking I Wide Screen

## Bitstream Fontware Support

The installation of fonts created by Bitstream Fontware is fairly straight forward. The user will create the desired fonts using the Fontware Install Utility for Microsoft Windows. After the Fontware utility has completed, the new fonts will reside in the user's Windows directory. The WIN.INI file will have been updated by the Fontware Installation Utility to indicate to the Windows software that additional fonts are available.


Due to the wide variety and large number of fonts that may be created with the Fontware Utility, unforeseen limitations have been experienced with Windows 1.0. These limitations are, for the most part, not severe, and most likely, will only be experienced by a small number of users. The list of limitations is given at the top of the next page.



## Limitations:


1. The font data for a particular font (e.g. Dutch Roman, 12 point) may not consume more than 64K bytes. This restriction, a Windows 1.0 limitation, will usually not be experienced at the smaller font sizes. At font sizes such as 60 points and above, the Fontware Utility will insure that the font data does not exceed 64K bytes by eliminating characters in the font.

2. In the Windows software, the font printed or displayed is the font that best matches the user's desired font. For example, the user may request that a certain piece of text to be Dutch Roman 12 point. That font may be available for the printer but not for the display. The Windows software may then use some other 12 point font such as Swiss Roman for the display.



There may be times when another font will be used for the display even though the exact font requested is available. The rules that the Windows software follows for picking fonts is unclear, but the occurrence of this type of problem may be reduced by creating a matching set of fonts for both the printer and the display.

In addition, many times the Windows application will ignore the larger display fonts to save memory space, and instead double or triple the size of a smaller font, or use a vector font. Most Windows applications, such as Aldus PageMaker, have a method of allowing the user to specify the point at which vector fonts are used or smaller fonts are expanded. Please refer to the application's documentation or contact the manufacturer's Technical Support Department about this option.





3. The Windows 1.0 software has a limit to the number of fonts that it will internally keep track of. It is, therefore, possible to install a font, either by the Fontware Utility or the Windows Control program but find it not available in an application. This number appears to be 256 fonts whereby a font is one typeface of a certain style at one point size (e.g. Swiss Bold 6 point - Swiss is the typeface, Bold is the style, and 6 point is the size).

# Microsoft Windows 2.0

Microsoft Windows 2.0 is the second major release of Windows. The operation and functionality is almost identical to Windows 1.0 with the exception of overlapping, variable size applications windows. The table below lists the Windows 2.0 Viking 1 drivers. At this time, the Viking 10 Windows 2.0 drivers have not been released.

## Viking 1

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1280 x 960	91	14" x 10.5"	No
19"	Landscape	2048 x 960	91	22.5" x 10.5"	Horizontal
19"	Portrait	960 x 1280	91	10.5" x 14"	No
19"	Portrait	960 x 2044	91	10.5" x 22.5"	Vertical
24"	Landscape	1280 x 960	72	17.7" x 13.3"	No
24"	Landscape	2048 x 960	72	28.4" x 13.3"	Horizontal

## Bitstream Fontware

A version of the Bitstream Fontware Utility that produces font files compatible with Windows 2.0 is currently not available. Please contact Moniterm's Technical Support Department for up-to-date information.

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# Ventura Publisher 1.1

Ventura Publisher is a desktop publishing package based on a version of the Digital Research GEM operating system. It is a stand-alone package dedicated to laying out text and graphics and has become one of the leading software packages for the PC. The tables below list the different Viking drivers that support Ventura Publisher 1.1.

## Viking 1

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1280 x 960	91	14" x 10.5	No
19"	Landscape	2048 x 960	91	22.5" x 10.5"	Horizontal
19"	Portrait	960 x 1280	91	10.5" x 14"	No
19"	Portrait	960 x 2044	91	10.5" x 22.5"	Vertical
24"	Landscape	1280 x 960	72	17.7" x 13.3"	No
24"	Landscape	2048 x 960	72	28.4" x 13.3"	Horizontal

**Note:**

*There are special versions of the above drivers which have a software fix for a hardware problem that occurs with the Viking M-PC/AT coprocessor when installed into a very high speed system such as 12 MHz 286's or 16 MHz 386's. These drivers are noted by a "HS", for High Speed, when installing the Viking driver for Ventura 1.1.*

*Not every system that runs at these speeds will induce the problem. It is suggested that the user only install the HS version of the driver if unusual problems, such as system lockups, occur while running Ventura 1.1 with a Viking high resolution display system.*

## Viking 10

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1024 x 768	72	14.2" x 10.6"	No
19"	Landscape	1024 x 988	72	14.2" x 13.7"	Vertical

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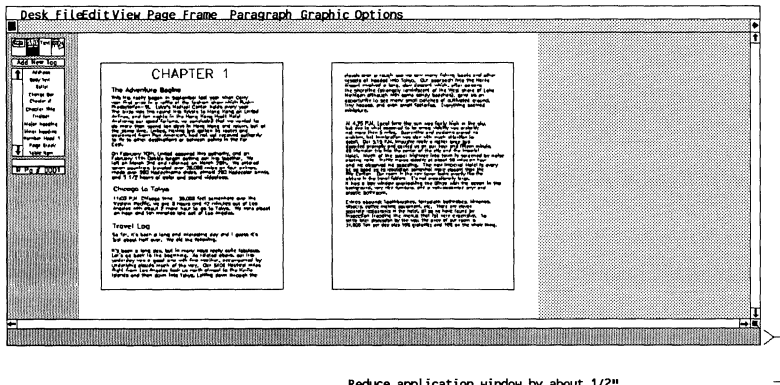
### Facing Pages View

Ventura Publisher has the ability to display two pages, side by side, as when reading a book. Ventura Publisher refers to this as "Facing Pages View" in the VIEW pull-down menu. To show two pages side by side may require Ventura Publisher to scale down the size of the two pages, as is the case with the Viking 19" monitors.

When scaling down the pages, not only is the graphic information scaled down, but so is the text. In doing so, Ventura may choose a point size for the text which is a fractional number, such as 10.345. Since a 10.345 point font is not available, Ventura will take, for example, a 10.0 font and scale it up to 10.345. The end result is text that is barely readable, which is sometimes called "greeked" text.

There is a method on the Viking 1 19" Landscape monitor to show facing pages without the text being greeked. This method will work on the 1280 x 960 version of the Ventura 1.1 driver but works better when the 2048 by 960 version of the Viking 1 19" driver is installed.

The idea behind this solution is to set the size of the Ventura application window such that the resulting text in the page is scaled to a non-fractional point size (e.g. 10.0 point). To change the size of the Ventura application window, move the cursor to the lower righthand corner of the display. In the corner will be the ends of the scroll bars which are noted by the right and down arrows. In the very corner is a small marker which is a rectangle with a little arrow. Set the tip of the cursor over the marker. By depressing and holding holding down the left button of the mouse, the size of the Ventura application window may be changed. Reduce the vertical size of the Ventura application window by about 1/2" as shown in the figure below.



After reducing the application window, Ventura will repaint the page and use non-fractional fonts (based on facing pages of 8 1/2" by 11"). The resulting text on the scaled down pages will not be greeked if fonts for the display with the corresponding point sizes are available.

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## **Bitstream Fontware**

The installation of fonts created by Bitstream Fontware is straight forward with one exception. Ventura Publisher requires that a set of Dutch and Swiss fonts be installed, and it will not mix fonts of different resolutions. Since the standard set of fonts shipped with Ventura Publisher have a different resolution than the Viking monitors, a set of Dutch and Swiss fonts for the Viking monitor must be first installed before the Bitstream fonts may be used.

Moniterm provides a solution to the above problem by supplying a base set of Dutch and Swiss display fonts as shipped with Ventura Publisher but at the Viking monitor's resolution. Please contact Moniterm's Technical Support Department for up-to-date information on the availability of these fonts and installation instructions.

# Digital Research GEM

Digital Research Corporation's GEM operating system is similar to Microsoft Windows in that it is a graphics operating system that provides a foundation for running applications such as drawing packages and desktop publishing packages. The tables below list the different versions of the GEM drivers for the Viking products.

## Viking 1

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1280 x 960	91	14" x 10.5	No
19"	Portrait	960 x 1280	91	10.5" x 14"	No

## Viking 10

Size	Orientation	Resolution	DPI	Area	Scrolling
19"	Landscape	1024 x 768	72	14.2" x 10.6"	No
19"	Landscape	1024 x 988	72	14.2" x 13.7"	Vertical

*Note: There are special versions of the above drivers which have a software fix for a hardware problem that occurs with the Viking M-PC/AT coprocessor when installed into a very high speed system such as 12 MHz 286's or 16 MHz 386's. These drivers are noted by a "HS", for High Speed, when installing the Viking driver for GEM.*



*Not every system that runs at these speeds will induce the problem. It is suggested that the user only install the HS version of the driver if unusual problems, such as system lockups, occur while running GEM with a Viking high resolution display system..*

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# Lotus 123

## Installation Guide

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### Introduction

This guide explains what Phoenix drivers do, and tells you how to install the drivers so that you can display Lotus text and graphics on the Moniterm Viking Monitor.

The audience for this section is all 1-2-3 release 2.0 and 2.01 and Symphony release 1.1 and 1.2 users who have installed a Moniterm monitor and adapter on IBM (R) PC (TM) or PC-compatible computers.

This guide describe various features of Lotus software, Moniterm hardware, and DOS. The notes assume you are familiar with 1-2-3 or Symphony Getting Started manual, the Moniterm Installation Guide and the DOS user manual

- Section 1 explains what drivers are, how drivers work, and what drivers are on your Phoenix diskette.
- Section 2 explains how to prepare your monitor and how to add drivers to Lotus 1-2-3 or Symphony.
- Section 3 describes how to troubleshoot problems, and where to turn for help.

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## Section 1

### Phoenix Drivers

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#### Overview

Section 1 provides you with information on the function and purpose of Phoenix drivers. This section describes how Phoenix drivers work and which drivers are on your Lotus screen drivers diskette.

Phoenix drivers are software programs that allow you to customize 1-2-3 or Symphony so that you can display text and graphics on the Viking Monitor.

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#### How Do Phoenix Drivers Work?

Phoenix drivers contain information that tells 1-2-3 or Symphony how to send data to the Viking Monitor. Phoenix provides Text Drivers that display text, such as spreadsheets or documents and Graphics Drivers that display graphics, such as charts or graphs.

Text drivers display text that consists of characters from the "Lotus International Character Set" (LICS). The Viking monitor can display all LICS characters when used with Phoenix drivers, and displays 142 columns by 73 rows of characters.

Graphics drivers display graphs by breaking down a graph into screen dots called pixels, similar to the way newspapers print photographs. The more dots a graph contains, the higher the

resolution and quality of the graphics. The Viking monitor displays 1,280 columns by 960 rows of pixels.

The three kinds of Phoenix graphics drivers are:

- Combined drivers that display text and graphics at the SAME time on the SAME monitor with Symphony only. Combined drivers may not be used with 1-2-3.
- Separate drivers display text and graphics on the SAME monitor, but NOT at the SAME time. Separate drivers work with 1-2-3 and Symphony.
- Dual drivers display text on one monitor and graphics on another. Dual drivers work with 1-2-3 or Symphony.

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### Which Drivers Are On Your Diskette?

Your Phoenix diskette contains 1 text driver and 3 graphics drivers (combined, separate, and dual).

The following table lists text and graphics drivers and the display modes for each type.

<b>Driver Type</b>	<b>Driver Name</b>
TEXT	VIKNG-B1.DRV
GRAPHICS	
SEPARATE	VIKNG-C1.DRV
DUAL	VIKNG-D1.DRV
COMBINED	VIKNG-E1.DRV

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## **SECTION 2**

# **CUSTOMIZING LOTUS SOFTWARE**

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### **Overview**

Section 2 describes the tasks you must perform to modify your drivers and check your Viking monitor, and tells you how to customize 1-2-3 or Symphony so that you can display Lotus text and graphics.

Customizing Lotus software is the process of adding new drivers to the master library and selecting drivers to produce the displaying features you want.

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### **Preparing Hardware and Software**

To prepare hardware and software for new drivers, you must make sure that your Moniterm monitor is working correctly and that 1-2-3 or Symphony is ready to accept new driver files. To complete the preparation procedure you need:

- Viking hardware and Installation Guide
- Lotus software (access to 1-2-3 or Symphony directory on your fixed disk)
- The Lotus screen driver diskette.

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### **Check Hardware Configuration**

To check the hardware configuration, you must ensure that your Viking monitor works properly with your computer. If you have not installed your Viking monitor and controller board correctly, you will not be able to display Lotus text and graphics. Make sure you have installed the monitor according to the Viking Installation Guide.

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## Check 1-2-3 or Symphony for SINGLE.LBR

Whenever you add new drivers to 1-2-3 or Symphony, Lotus creates a library file, SINGLE.LBR, that contains all of the new driver files.

If you have 1-2-3 release 2.0, or Symphony release 1.1 and a current version of SINGLE.LBR exists when you add new drivers, you will not be able to use 1-2-3 or Symphony with the Viking monitor.

To correct this situation, delete SINGLE.LBR, if the file exists in your Lotus directory, BEFORE you add the Phoenix drivers.

To delete SINGLE.LBR, follow the instructions in "Procedure for deleting SINGLE.LBR."

*Important: It is not necessary to delete SINGLE.LBR if you have any version of 1-2-3 other than 2.0 or any version of Symphony other than 1.1*

Proceed directly to Copy Driver Files.

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## Procedure for deleting SINGLE.LBR

The following lists the steps to check for and, if necessary, to delete SINGLE.LBR.

### Step 1

Change directories to your Lotus directory, or insert your Lotus diskette into drive A and select drive A .

### Step 2

Type DIR SINGLE.LBR and press ENTER

### Step 3

If DOS reports "File not found," you are ready to copy files. Go to "Copy Driver Files."

### Step 4

If DOS finds the file, Type DEL SINGLE.LBR and press ENTER

1-2-3 or Symphony is now ready to accept new drivers. Proceed to "Copy Driver Files".

If you are using your Viking monitor to emulate an IBM or Hercules monitor, and will execute INSTALL on the Viking, you must read Section 3 before running the INSTALL program. There you will learn how to make the INSTALL program compatible with the Viking monitor. Return here after reading Section 3.

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## **Procedure for Adding Drivers**

The following procedure lists the steps you must follow to install new drivers.

### Step 1

Type INSTALL.

Result: the INSTALL main menu appears.

### Step 2

Select Advanced Options from the main menu.

Result: Lotus presents a list of tasks to do.

### **Step 3**

Select Add New Drivers to Library.

Result: Lotus prompts you to make sure driver files are available, then adds the drivers to the library and returns you to Advanced Options menu.

### **Step 4**

Select Modify Current Driver Set.

Result: INSTALL displays a list of driver types.

### **Step 5**

Select TEXT DISPLAY to add a text driver.

Result: INSTALL displays a list of Text drivers.

### **Step 6**

Select the Viking text driver.

Result: INSTALL returns you to the list of driver types.

### **Step 7**

Select GRAPH DISPLAY to add a graphics driver.

Result: INSTALL displays a list of graphics drivers.

### **Step 8**

Select the Viking graphics driver you want (see "Configuration Modes" in Section 1).

Result: INSTALL returns you to the list of driver types.



### Step 9

Select Return to menu.

Result: INSTALL returns you to the list of driver types.

### Step 10

Select Save Changes.

Result: INSTALL saves the changes you made.

*Important: After you install your drivers, you should run Symphony or 1-2-3 to verify that the drivers display text or graphics on your Viking monitor.*

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## SECTION 3

### Solving Problems

This section provides you with help during the installation of the Phoenix Drivers.

#### INSTALL

*The Lotus INSTALL program will not work properly if you attempt to use it on a Viking monitor running IBM CGA emulation. This problem occurs because although the Viking monitor is a black and white monitor INSTALL will try to use color text.*

*If you have a standard monitor in addition to the Viking, make sure DOS is executing on that monitor before running INSTALL. However, if the Viking is your only monitor, you will have to replace the video drivers that INSTALL uses. See "Replacing UTIL.SET" below to learn how to do this.*

#### TRANS VIEW TUTORIAL

*The Lotus translate utility (TRANS), the 1-2-3 tutorial (a VIEW of 1-2-3), and the Symphony tutorial will operate correctly only on 80 column video monitors. These programs use the same video drivers as 1-2-3 and Symphony. Therefore, if you have already installed your Viking drivers these programs will not work correctly because the Viking monitor provides 142 columns of text.*

*If you attempt to execute the tutorials on a Viking monitor which is emulating the IBM CGA display the graphs won't look quite right because the Viking monitor is a black and white display and some of the graphs displayed in the tutorials are color graphs.*

*To get around these problems you can run Lotus INSTALL, reconfigure for standard video drivers, and run TRANS or the tutorials on a standard monitor. You can also build a new driver ".SET" file containing drivers for a standard monitor and use it when executing TRANS or the tutorials (see your Lotus manuals for instructions).*

*Another way to replace the video drivers that TRANS and the tutorials use is to replace the "UTIL.SET" file and use that when executing these Lotus utilities. Instructions on how to do this appear next. By using the new UTIL.SET file you can even run these Lotus programs on the Viking monitor, in emulation mode.*

### Replacing UTIL.SET

To avoid video problems while executing *INSTALL*, *TRANS*, and the Lotus tutorials on the Viking 1, you can replace the *UTIL.SET* file with one supplied on your Lotus diskette. *UTIL.SET* is a file containing drivers that are used by Lotus utility programs such as *INSTALL*. The replacements for *UTIL.SET* found on your Phoenix driver diskette contain video drivers that will work correctly on a Viking monitor running in emulation mode. *TRANS* and the tutorials do not normally use *UTIL.SET*, but they will if you enter "UTIL.SET" on the command line when executing them.



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# Moniterm Viking Video BIOS V1.8

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## Overview

The Viking Video BIOS (VBIOS) is a Terminate and Stay Resident PC-DOS program which replaces the PC's original Interrupt 10 handler in the ROM BIOS. Interrupt 10 is concerned with updating the screen. With VBIOS loaded, screen updates occur on a Viking screen instead of an old-style monitor driven by a Monochrome or Color Graphics display adapter.

VBIOS has several operating parameters which can be changed "on-the-fly" once it is running. Operating parameters are set via command line arguments to the VBIOS program.

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## Installation

Included on the Viking Setup Diskette is a program to copy VBIOS to a fixed disk. Regular users of VBIOS will want to edit their AUTOEXEC.BAT files so that VBIOS is run automatically each time the system is loaded. Since you never know when and where you may want to change VBIOS's operating parameters once it is running, the Setup program will place VBIOS in the root directory.

## Running VBIOS

To run VBIOS simply type the program name and touch ENTER at the DOS prompt. There are three versions of the program, one for each of the three types of Viking hardware. Each version has a unique name as shown in the table below. Of course you are free to rename or copy the program to any name that you prefer. Once running, VBIOS will display a sign-on/help message and from that point on any screen updates called for via Interrupt 10 will appear on the attached Viking screen.

VBIOS's default mode displays a full screen of black characters on a white background. The number of full screen columns and lines depends upon the Viking system in use

SYSTEM	NAME	COLUMNS	LINES
Viking 1, 2400	VBIOS	160	60
Viking 1 Portrait	VBIOSP	120	80
Viking 10	VBIOS10	128	48

In all cases the number of columns and lines available in the VBIOS full-screen mode are substantially greater than the 80 columns by 25 lines available with the Monochrome or Color Graphics display adapters.

Programs will fall into one of the following categories when dealing with the increased number of lines and columns:

1. Programs that don't care how big the screen is.

PC-DOS and most programs with a command line Interface do not care how big the screen is. They write characters to the screen through DOS which in turn calls interrupt 10. The original Interrupt 10 knew there were only 25 lines, but it has been replaced by VBIOS's Interrupt 10 which knows there are more lines.

2. Programs that have options to take advantage of increased screen size

WordPerfect is a prime example of this case. WP /s will invoke WordPerfect in Setup mode which allows, among other things, the number of columns and lines on the screen to be set. Most VBIOS/WP users will want to increase their screen size to be able to see much more of a document at a time than before.

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## Setting VBIOS Operating Parameters

As mentioned above, typing VBIOS (or VBIOSP or VBIOS10 as appropriate) at the DOS prompt and touching ENTER will install VBIOS and display a sign-on/help message. If this is done when VBIOS is already installed, the help message will be repeated. The help message explains how command line arguments can be passed to the VBIOS program to change the way VBIOS operates.

The following command line arguments are available:

**HELP** - Displays a message explaining which operating parameters can be changed and how to do so.

**REMOVE** - Restores the original Interrupt 10 and removes VBIOS from memory.

**BLOCK** - Toggles the cursor from an underline to a somewhat easier to see block shape. By "toggles" we mean the BLOCK command is used to go from an underline to a block shaped cursor



and the BLOCK command is used again to go from a block to an underline shaped cursor.

**SFG** - Shifts VBIOS into Software Frame Grabber mode. In SFG mode VBIOS closely emulates the MDA, Hercules or CGA card installed as the "primary" video controller. In this mode there are only 25 lines and 40 or 80 columns. Use of SFG mode allows the output of applications which bypass the BIOS Interrupt 10 such as SideKick and many text editors to be displayed on the Viking screen. Without the Software Frame Grabber this output would only appear on a monitor connected to the primary video adapter. There must be a MDA, Hercules or CGA card installed as a primary video controller for SFG mode to work. The primary controller need not have a monitor connected to it, however.

**NOTE:**

*On a Viking 1 Landscape system, characters are zoomed to twice their normal size so that the 80 columns by 25 lines fills nearly the entire screen. On Viking 1 Portrait and Viking 10 systems characters remain the same size in SFG mode as they are in full screen mode because zooming them is not practical. A message is issued on these other systems so the user can easily tell which mode, SFG or full screen, they have just selected. FULL - Shifts VBIOS back to full screen mode from SFG mode.*

**FG [on BG]** - Sets ForeGround and BackGround screen colors. Text and the cursor are displayed in the foreground color. The area "behind" a character or the cursor is displayed in the background color. What color names can be substituted for the "FG" and "BG" above depends on whether a monochrome Viking 1 or a color Viking 10 version of VBIOS is in use. With the monochrome version the only available colors are black and white. The background color is always set to the opposite of the foreground color and need not be specified. The available Viking 10 version colors are black, blue, green, cyan, red, magenta, yellow and white. Each of the eight colors can be either normal or bright for a total of 16

possible colors. The bright version of a color requested by capitalizing its name (e.g. Red vs. red). If a new background color is not specified, the foreground color is changed and the previous background color is retained.

VBIOS is run with command line arguments by typing VBIOS followed by a blank, followed by one or more of the command names above separated by blanks and then touching ENTER. If VBIOS is not installed, it will be installed before the commands are interpreted.

Assuming VBIOS is not yet installed, the Viking 1 VBIOS command:

**VBIOS SFG BLACK** will 1) install VBIOS, 2) Shift into **SFG** mode and 3) make VBIOS display black characters on a white background. The Viking 10 VBIOS command:

**VBIOS10 Yellow on red block** will change the screen format to bright yellow characters on a red (not bright red) background.

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## More On Software Frame Grabber (sfg) Mode

To achieve maximum performance, many applications bypass BIOS Interrupt 10 and update the screen by accessing video memory and the CRT controller chip directly. SideKick is one such application. By bypassing Interrupt 10 these programs also bypass VBIOS so their screen output is not displayed on the Viking monitor.

VBIOS has a mode which allows it to detect direct screen updates and echo them on the Viking display. This is Software Frame Grabber mode. The term Frame Grabber comes from a hardware option of the Viking 1 which allows the output of an older video adapter to be shown on the Viking screen. VBIOS can do the same thing only it does it via software. This mode is called Software Frame Grabber or SFG mode for short.

In SFG mode, VBIOS is still invoked to handle Interrupt 10 calls as usual, but it is also invoked periodically by the timer interrupt.

Timer interrupts occur about 18 times a second to increment counters which keep the current system time. Before it returns, the timer interrupt runs a user routine if one exists. In SFG mode, VBIOS installs itself as this user routine.

As the user routine, VBIOS is like a background task running concurrently with whatever program is running in the foreground. Each time VBIOS gets control (18 times a second) it does two things as quickly as it can and then returns control to the interrupted foreground program. VBIOS first compares the contents of its video buffer with that of the Monochrome, Hercules or Color Graphics display adapter installed as the "primary" display controller. This pin-points any characters and/or attributes which have changed in the primary video buffer due to the foreground program having bypassed Interrupt 10. VBIOS updates its video buffer to be identical to the primary adapter's and paints in their proper positions on the Viking screen only those characters and attributes which have changed. Next VBIOS does the same kind of a comparison between the cursor position and on/off state as reported by the primary adapter's CRT controller chip and VBIOS's internal cursor position and state variables. If the primary adapter's cursor status differs from the VBIOS cursor status, the VBIOS status is updated to match the primary adapter's

So, for the price of some added software overhead programs which were written to output only to the display adapters original available for PC's can output to the Viking. The software overhead is acceptable on PC/AT's and most programs run only moderately slower. On 4.77 MHz PC's, however, the overhead slows some programs to a crawl. Short of getting an AT, the only recommendation we can give is to use SFG mode sparingly on slow PC's. Try the application first in full screen mode. Only if some or all of the program's output fails to appear on the Viking screen do you need to use SFG mode.

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## Limitations

See the last paragraphs of the preceding section about Software Frame Grabber mode on slow (4.77 MHz) PC's.

The current version of VBIOS detects whether the primary display controller installed in your system is a Monochrome or Color Graphics adapter. In SFG mode VBIOS attempts to emulate the primary adapter exactly. For Monochrome adapters the emulation is complete. For Color Graphics Adapters all text mode features are properly emulated. This includes selection of 40 vs. 80 columns via the DOS MODE command and multiple text pages. The CGA graphics modes are not yet supported. Only the 16 color Viking 10 version of VBIOS can exactly emulate CGA. With the monochrome Viking 1 versions colors 0-7 are displayed as black and colors 8-15 are displayed as white.

Blinking characters do not blink. They are displayed in italics.

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## Application Notes

This section tells how to get the best performance from VBIOS when used with certain other application programs.

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### WordPerfect

As mentioned above, WP has setup options which allow it to take advantage of the increased number of columns and lines available in VBIOS full screen mode. Run WP in setup mode via the /s option to set the number of column and lines. The full screen column and line values vary according to the Viking system in use.

WP's default behavior is to update the screen quickly by bypassing Interrupt 10 and writing directly to video memory. Under VBIOS in full screen mode updates must go through Interrupt 10, however. WP has a No Flash option (/nf) which forces the program to use Interrupt 10 for all screen updates. The /nf option must be used when running WP. To invoke WP to edit the file TEXT.DAT use: WP /nf text.dat

WP can also be run under VBIOS in SFG mode. To do so WP must be setup for no more than 80 columns and 25 lines. The /nf option need not be used.

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### ANSI.SYS

ANSI.SYS 1) bypasses Interrupt 10 by reading the BIOS data areas directly and 2) thinks the screen has exactly 25 lines. For these reasons, this replacement console device driver can run under VBIOS only if VBIOS is in SFG mode.

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### SideKick

SideKick bypasses interrupt 10 and as such will only run under VBIOS if VBIOS is in SFG mode. Also, SideKick must be loaded after VBIOS has been loaded and placed into SFG mode.

# AutoCAD

## Using the Viking 10 AutoCad ADI Driver Version 3.20

The Viking AutoCad driver is a memory resident driver which is installed by executing the Viking ADI driver. Each time the ADI driver is executed, the memory it is using becomes unusable until the PC is rebooted. The VIKING ADI commands takes the following formats:

VIKING10 [Vxx] [Pyyy] [Qzzz] (Viking 10)

DSVIKING [Vxx] [Pyyy] [Qzzz] (Viking 1 or 2400)

The "Vxx" indicates that the driver should be connected to interrupt vector "xx", rather than the default (7A) interrupt vector.

The "Pyyy" indicates that the graphics controller has been reconfigured to (base) port address "yyy", rather than the default (3E0) port address.

The "Qzzz" indicates that the color registers have been reconfigured to (base) port address "zzz", rather than the default (100) port address (Viking 10 only).

Note that "xx", "yyy", and "zzz" are all hexadecimal numbers.

Examples:

(1) VIKING10

will install the driver using vector 7A for communications, port 3E0 for the graphics controller, and port 100 for the color registers.

(2) VIKING10 V7D

will install the driver using vector 7D for communications, port 3E0 for the graphics controller, and port 100 for the color registers.

## (3) VIKING10 V7D P1E0 q1d0

will install the driver using vector 7D for commands, port 1E0 for the graphics controller, and port 1D0 for the color registers. Note that either upper or lower case letters are valid.

*NOTE: Some versions of AutoCAD may not allow the communication vector to be changed from 7A. You should try to change this in the AutoCAD configuration before using the "Vxx" argument to VIKING10.*

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## Special Keys

The Viking AutoCAD ADI Drivers interpret a special key sequence to perform a hardware zoom function. Repeatedly pressing the CTRL and A keys together will cause the driver to zoom in on the cursor location by powers of two; repeatedly pressing the CTRL and Z keys together will cause the driver to zoom out by powers of two. While in the ZOOM mode the drawing may be PANNed around on the display by simply moving the cursor. Pressing the CTRL and Q keys together will alternately "lock" and "unlock" the center point of the zoom; when "unlocked", the center point of the zoom is the current cursor location.

The Viking 1 AutoCAD ADI Driver interprets a special key sequence to change the background color of the graphics display. To execute this function, depress the T key while the CTRL, SHIFT, and ALT keys at the left of the keyboard, are depressed.

## Viking 10 Color Selection

Starting with version 3.20, you can customize the display colors. Included with this version is the default color file, VCOLOR.DEF, and a color customization program, VCOLOR.COM.

To customize your color set, first place a copy of VCOLOR.DEF either in the same directory from which you start the AutoCAD main program (ACAD) or in the root directory.

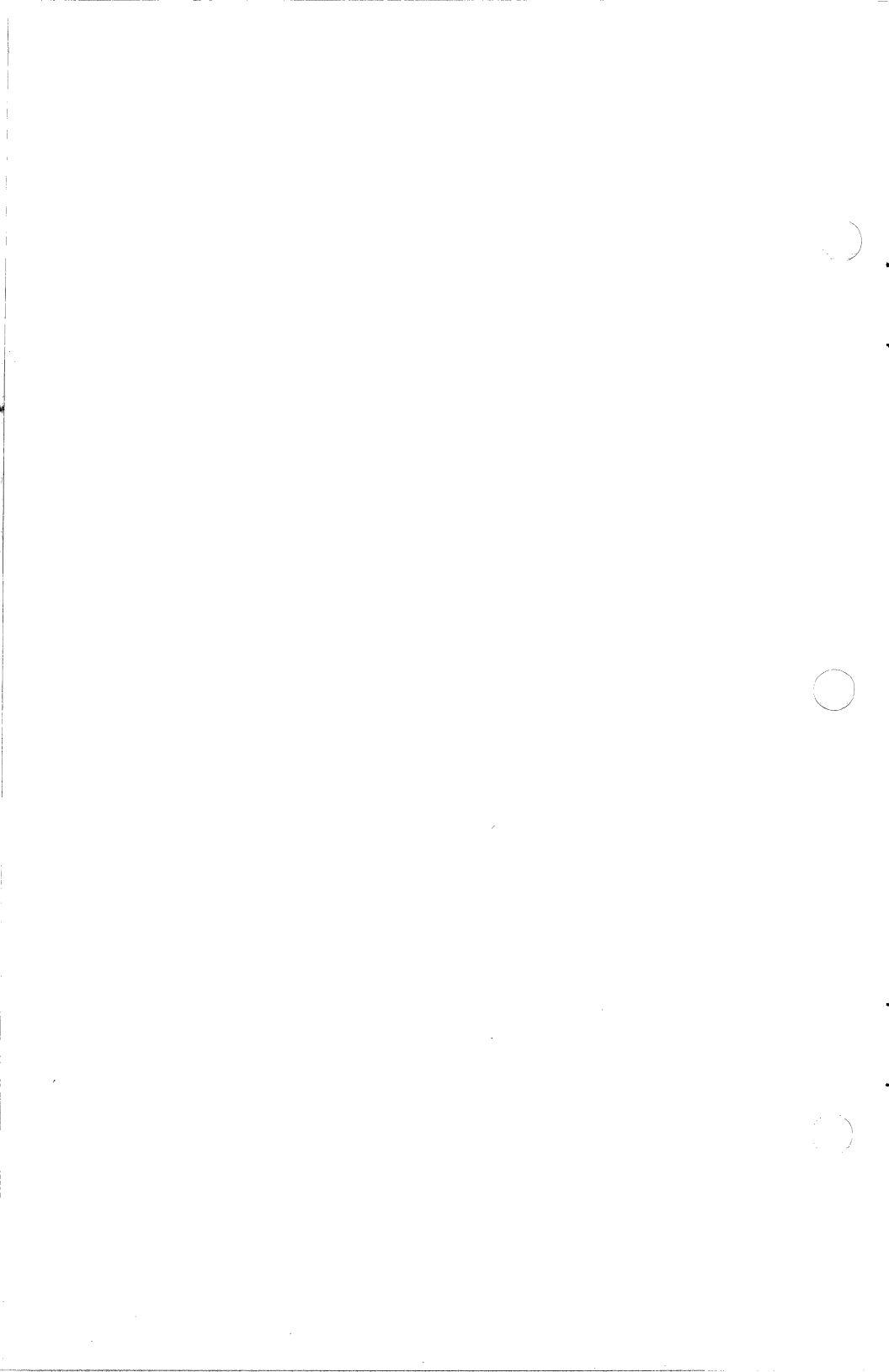
Second, bring up a display which contains ALL 16 colors (for example CHROMA.DWG). Then start the VCOLOR program from the same directory as VCOLOR.DEF.

VCOLOR will allow you to graphically change the intensity of the red, blue and green for each of the 16 colors. When you finish, VCOLOR will allow you to save the color setup you have defined. Subsequently, AutoCAD will use that color definition (VCOLOR.DEF) for ALL drawings on the Viking 10 color display.

If you fail to copy VCOLOR.DEF into your directory before using VCOLOR.COM, it will use a default color map which is considerably different from the standard AutoCAD color map.

If there is no VCOLOR.DEF file, VIKING10.EXE will use a built-in color map.





# Special Configurations

To aid in supporting the various systems in which the Viking Display systems will be installed, the Viking drivers for Microsoft Windows, Ventura Publisher, Digital Research GEM, the Viking BIOS Interface, and the Viking C Interface Library, all search for a configuration file on startup. This configuration file is used to modify default settings such as the I/O address of the Viking controller board.

The table below lists the keywords or letters which are used to control various options.

<i>Letter</i>	<i>Description</i>
<i>P</i>	<i>Port: used to specify the base I/O address of the Viking board.</i>
<i>T</i>	<i>Type: used to specify the type or revision of the Viking board.</i>
<i>D</i>	<i>Dual: indicates to the software that a Viking monitor and the standard monitor are being used (no frame grabber).</i>
<i>G</i>	<i>German (Ventura driver only)</i>
<i>~</i>	<i>[Special] - forces 8-bit bus interface to Viking board</i>

The configuration file options are described below in detail.

### **P - I/O Port Address**

This option specifies the base I/O address of the Viking controller boards. On the Viking M-PC/AT controller board, which includes the landscape and portrait 19" monochrome systems and the 24" monochrome system, the default base I/O address is 3E8 (hex). On the Viking A-PC/AT controller the default base I/O address is 3E0 (hex).

Although a corresponding hardware change to the Viking controllers is necessary to change the I/O address, the Viking software is notified of the new I/O address via this command.

To specify a new base I/O address, write the letter 'P' or 'p' followed by the three-digit hexadecimal address at the beginning of any line in the configuration file. For example, 'P2E0' would specify the base I/O address to be at 2E0 (hexidecimal).

For information regarding the hardware changes for either the Viking M-PC/AT or A-PC/AT controllers to change the base I/O address, please contact your local Moniterm dealer or Moniterm Technical Support Department.

Please note that the Port command must be used in all configuration files, whether or not the base I/O address of the Viking board has been modified. This requirement is used as a safeguard to ensure that some arbitrary file with the same name is not mistaken as a configuration file.

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## T - Viking 10 Display System Type

This option is used to notify the Viking driver software of special or older revisions of the Viking controller hardware. At this time, this command only applies to the Viking A-PC/AT controller.

In an effort to maintain product costs, Moniterm has modified the Viking 10 Color monitor to be compatible with the graphics controllers for other product lines. To support this change, the Viking 10 monitor display timings have been slightly changed and the latest software drivers have been modified to support these new timings.

If the user installs a new Viking 10 driver, which results in the display area of the Viking 10 to be shifted an inch or more to the right, then this configuration command is used to correct the problem.

To specify the original Viking 10 monitor's display timings, insert into the configuration file the letters 'TA' at the start of a line. The 'A' following the 'T' indicates the original Viking 10 monitor. The letter 'B' would specify the new Viking 10 monitor.

Please note that the Port command must be used in all configuration files, whether or not the base I/O address of the Viking controller board has been modified.

An example configuration file with the Type command is given below.

```
P3E0
```

```
TA
```

## D - Dual screen support

With the Viking 1 display systems, a standard display controller (e.g. an IBM CGA card) is installed with the Viking M-PC/AT controller. In a normal installation, the output of the standard display controller is looped back into the Viking M-PC/AT controller board.

There are installations, though, where the output of the standard display controller is not looped back into the Viking M-PC/AT board, but connected to a standard monitor. In this situation, when the Viking 1 monitor is not in use, an unusual pattern is displayed on the Viking 1 monitor.

To remove this pattern from the Viking 1 monitor, insert the letter 'D' or 'd' (or 'Dual') at the start of a line in the configuration file. With this command in the configuration file, the Viking software will blank the Viking 1 monitor on exit of the corresponding software (e.g. after running MS Windows).

Please refer to the section "Special Initialization Software" for running a simple program from the AUTOEXEC.BAT file that will clear the Viking 1 monitor immediately after power-up or reset.

*Note*                      *The Port command must be used in all configuration files, whether or not the base I/O address of the Viking controller board has been modified.*

An example configuration file with the Dual command is given below.

P3E8

Dual

## G - German Ventura Publisher Support

For those German Ventura Publisher users, that require the German Double S to be displayed on the Viking systems, this configuration command is used. To invoke the display of the German Double S in the Viking Ventura Publisher drivers, insert the letter 'G' or 'g' (or 'German') at the start of a line in the configuration file.

Please note that the Port command must be used in all configuration files, whether or not the base I/O address of the Viking controller board has been modified.

An example configuration file with the German Ventura Support command is given below.

P3E8

German Ventura

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## ~ - Select 8-bit Bus Interface

There are some high speed AT clones on the market which do not operate properly with the Viking M-PC/AT controller board when installed into a 16-bit slot. An immediate solution to this problem is to install the Viking M-PC/AT board into an 8-bit slot of the AT clone.

If an 8-bit slot is not available, then this configuration command may be used to force the Viking software to only perform 8-bit transfers to the Viking controller board even though it is installed into a 16-bit slot.

To select the 8-bit mode, insert the character '~' into the configuration file at the start of a line. As with the other configuration commands, the Port command must be used to enable the 8-bit mode command. An example configuration file using the 8-bit mode command is given below.

```
P3E8
```

```
~
```

## Viking Configuration File Names

To support the possibility of installing more than one Viking system into one computer, a unique configuration file name has been assigned for the various Viking systems. The list of the configuration files names and the associated Viking systems is given below.

<b>File Name</b>	<b>Associated Viking System(s)</b>
VIKINGI.CFG	Viking 1 19" and 24" Display Systems
VIKINGIP.CFG	Viking 1 19" Portrait Display Systems
VIKING10.CFG	Viking 10 19" Color System

The above files are searched for in the root directory of the disk drive currently selected when the Viking driver is loaded. For example, if the user has a Viking 1 19" Landscape Display System and he or she is running dual monitors with the German version of Ventura Publisher which is installed on drive D:, then the Viking configuration file "VIKINGI.CFG" would be created in the root directory of drive D:. The example configuration file would contain the following:

P3E8

Dual

German



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## **Special Initialization Software**

If a Viking 1 display system is to be installed with either an I/O address change or with dual screens, it is recommended that the Viking initialization program, VKINIT.COM for the Viking 1 Landscape systems or VKPINIT.COM for the Viking 1 Portrait systems, be run soon after power-up or reset.

This initialization software simply initializes the Viking M-PC/AT controller and monitor, honoring the Viking configuration file commands, and then exits. It is primarily used on systems with dual monitors to blank the Viking 1 display, but may be used at time.

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## C Interface Library

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To aid in the development of software for the Viking product line, Moniterm Corporation provides a library of software routines designed to interface with the Microsoft C compiler. These routines allow the C programmer to quickly implement software packages that make full use of the Viking I's high resolution screen, 1280 (H) x 960 (V), and high speed graphics controller, the Hitachi HD63484.

Moniterm, in addition to supplying the C Interface Library itself, free of charge and without royalties, also provides the source code to the functions in the library. The majority of these functions are written entirely in assembly language and are highly optimized for the Viking I system. The availability of the source code for the C Interface Library functions allows the customer or OEM to easily adapt or create special applications that have a unique requirement. Like the library itself, the source code is available, free of charge and without royalties (with the exception of vikkbbit, whereby, it is copyrighted and its use restricted to Moniterm products only). It may be obtained from Moniterm's Electronic Bulletin Board [(612) 935-9013] or directly from Moniterm on floppy diskettes.





Libraries are available for the Viking 1 systems including the portrait and landscape monitors and for the 24" landscape version. The Viking 10, the 16 color display, is also supported. For each system, small, medium, compact, and large memory models are implemented.

The functions currently in the Viking C Interface Library are listed below with a brief description.


viktype()	Returns pointer to a Display Description Block which describes the display device characteristics.
vikinit(scncol)	Initializes Viking I board
vikcharmode()	Puts Viking I into "frame grabber mode"
vikgraphmode()	Puts Viking I into graphics mode
viktattr(attr,logop)	Sets character attributes such as underline, bold, italic, reverse video, dithered, rotation and drawing mode.
vikputch(c)	Function similar to putch(c). Character attributes defined by the viktattr function.
vikputchspc(c)	Identical to vikputch but control characters are output to the display as the corresponding character in selected font.
vikputchptr(row,col)	Sets the row and column pointer for the vikputch function (works with viktattr).

-  `vikputchxy(vx,vy)` Sets pointer for `vikputch`, `vikputchspc`, and `vikprintf` to an X,Y coordinate.
-  `vikprintf(fmt, args, ...)` `printf()` that outputs to the Viking screen. Character attributes defined by the `viktattr` function (`vikprintf` ends up calling `vikputch`)
- `viklgfnt(cmd)` Loads large font (25x32) into hidden area of video RAM. This font, once loaded, may be selected by the `viktattr` function and accessed via `vikputch` and `vikprintf`.
- `vikreloadfnt()` Used to reload the Normal and Half fonts back into the hidden area of video RAM.
-  `vikgattr(mode,fgcol, bgcol,style,pat,width)` Specifies the drawing attributes for `vikaline`, `vikapolyl`, `vikrpolyl`, `vikcircle`, `vikarect`, and `vikrrect` functions.
- `vikdclip(mode,vxl,vyt,vxr,vyb)` Specifies the clipping window and mode for all display functions (other than text and graphic cursors).
- `vikpixel(vx,vy)` Draws one pixel on the screen.
-  `vikaline(vxs,vys,vxe,vye)` Draws an arbitrary line with the attributes specified in `vikgattr` function.

<code>vikrpolyl(vx,vy,cnt,segptr)</code>	Draws a polyline from a list of relative line segment coordinates with the attributes specified in the <code>vikgattr</code> function.
<code>vikapolyl(cnt,segptr)</code>	Draws a polyline from a list of absolute line segment coordinates with the attributes specified in the <code>vikgattr</code> function.
<code>vikcircle(vx,vy,rad)</code>	Draws a circle (not filled) at the given origin with the given radius with the attributes specified in the <code>vikgattr</code> function.
<code>vikarect(vxs,vys,vxe,vye)</code>	Draws a rectangle (not filled) from two absolute coordinate pairs with the attributes specified in the <code>vikgattr</code> function.
<code>vikrrect(vx,vy,dx,dy)</code>	Draws a rectangle (not filled) from the given corner coordinate with the given dimensions with the attributes specified in the <code>vikgattr</code> function.
<code>vikelparc(vxc,vyc,r1,r2,sangle,eangle)</code>	Draws circles, circular arcs, ellipses, and elliptical arcs. Works with the attributes specified in <code>vikgattr</code> and the clipping window set by the <code>vikdclip</code> function.


-  `vikfill(ffcblkptr)` Flood fills.
-  `viksetgcur(cmcmd,cfcmd, cswth, cshgt, cxhot, cyhot, curcol, mskptr, formptr)` Defines the graphics cursor and attributes.
- `vikgcuroff()` Turns graphics cursor off.
- `vikgcuron()` Turns graphics cursor on.
- `vikgcurmove(vx,vy)` Moves graphics cursor to new location.
- `vikmouse()` Provides an interface to the Microsoft mouse software (MOUSE.COM) which can be used in conjunction with the graphics or text cursor routines.
-  `viksettcu(blink,delay, cmcmd,cfcmd,cswth, cshgt,cxhot,cyhot,curcol, mskptr,formptr)` Defines the text cursor and attributes.
- `viktcuroff()` Turns text cursor off.
- `viktcuron()` Turns text cursor on.
- `viktcurm(vx,vy)` Sets text cursor position.
-  `viktcurlnk()` Links the text cursor routines into the system timer interrupt to support blinking.

<code>viktcurlk()</code>	Unlinks the text cursor routines from the system timer interrupt.
<code>vikbbt(cblkptr)</code>	Bit blit functions such as pattern paint, video RAM to video RAM copy, main memory to video RAM.
<code>vikzmpan(xfac,yfac,xptr,yptr)</code>	Handles zooming and panning.
<code>vikimageblt(lmptr)</code>	Highly optimized routine for copying a full screen image (1280x960) from main memory to video RAM.
<code>vikssaveinit(cmmd)</code>	Defines the areas of hidden video RAM that may be used by <code>vikscnsave</code> function.
<code>vikscnsave(vx,vy,dx,dy)</code>	Copies portion of screen to hidden area in video RAM. The purpose of this function is to save the screen data behind a pull-down menu or dialog box.
<code>vikscnrestore(shandle)</code>	Copies back screen data saved by the <code>vikscnsave</code> function.
<code>vikrline(mptr,vy)</code>	Copies one scan line from video RAM to main memory. This function, due to the way the video RAM data is copied into main memory, is used exclusively with the <code>vikimageblt</code> function.
<code>viksline(mptr,vy)</code>	Copies one scan line of data from main memory to video RAM. Highly optimized for image applications (clipping not installed).



vikvline(mptr,vx)

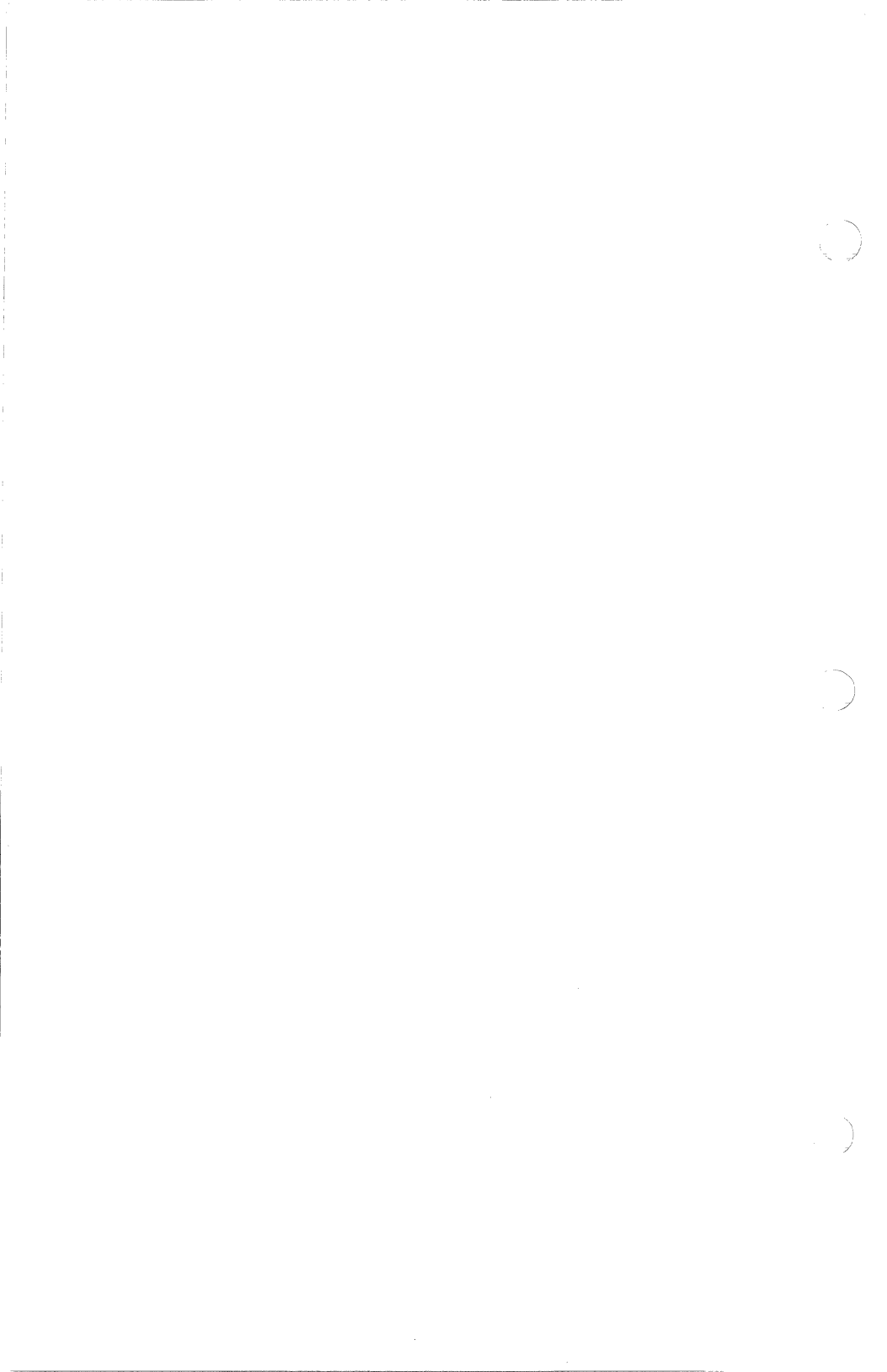
Copies a block of data oriented as left to right, top to bottom onto the display vertically (rotated 90 degrees - left to right becomes bottom to top, top to bottom becomes left to right). This function is provided for those camera interfaces that digitize bottom to top, left to right rather than the CRT raster method of left to right, top to bottom



vikstrblt(scblkptr)

Paints a string of characters on the display using the font supplied by the application (Bitstream Fontware fonts). Attributes supported include reverse video, dithering, X and Y scaling, rotation, non-proportionally and proportionally spaced fonts, intercharacter and interword spacing (justification).





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