

FlexDesk 2.3

January 12, 1994

Contents

Introduction	1.0	Introduction, Features and Bug Reporting
Feature Summary	1.1	
Bug Reporting	1.2	
Files	2.0	Distribution Files
Requirements	3.0	Requirements for Driver Operation
Installation	4.0	How to manually install
Problems	5.0	Special problem notes
Configuration	6.0	Configuration file settings
Errors	7.0	Error messages

1.0 Introduction

This is Version 2.3 of the FlexDesk Windows Driver.

FlexDesk is a very advanced Windows Driver. It supports the ATI mach8 (38800) chipset with 512KB or more of memory. 16 and 256 color modes are supported in resolutions of 640x480, 800x600 and 1024x768. 16 color modes are supported in 1280x1024.

Full palette manager functions are supported in 8 bpp modes. A more unusual feature is that the drivers palette manager can be disabled for an additional 3/3/2 color mode.

FlexDesk will only work with Windows in 386 Enhanced Mode. To use the mach8 on a 286 based processor, or in Windows Standard Mode, use the supplied Microsoft 8514/A driver.

1.1 Feature Summary

This table summarizes the features that are in the current driver.

Multiple Pixel Depths

16 and 256 color support.

Multiple Resolutions

640x480, 800x600, 1024x768 and 1280x1024.

Control Panel

Easy to use Windows application control most driver features.

Crystal Fonts

Support for anti-aliased ATI Crystal Font technology to permit accurate screens for Desktop Publishing.

Palette Manager

FlexDesk has the ability to optionally disable the 8 bpp palette manager, for an additional fixed color mode. When enabled, full palette control is provided to applications in 8 bpp (256 color).

Field Configurable

In case bugs are found in the driver, major sections can be enabled or disabled to provide a customer work-around until a real solution can be found. This provides a safety net for users.

1.2 Reporting Bugs

When reporting problems with this driver, please reference the driver build number. When in doubt about the build number, call up the FlexDesk Control Panel, and select About... in the HELP Pull-down menu. If the Control Panel does not indicate the version number (NA), then

- (a) You may not be running the FlexDesk driver. Check that one of the MACH-??.DRV files is referenced in the display.driv line of SYSTEM.INI.
- (b) Your bug may be preventing the Control Panel from reading the driver build number. Try restarting Windows, and if this does not remedy the problem, report the Date, Time and Size of the driver (MACH.DRV file).
- (c) You may be using BitStream Facelift 2.0. If you are using this Typeface Manager, report the Date, Time and Size of the driver (MACH.DRV file).

2.0 Files

The following files are placed in the WINDOWS\SYSTEM and WINDOWS sub-directories by the ATI INSTALL program after installing the ATI Windows drivers:

mach.drv	main driver
mach.3gr	grabber
mxxpanel.exe	flexdesk control panel
mxxpanel.hlp	help for flexdesk control panel
oemm32.inf	win 3.1 installation
lharc.exe	archive utility for gsfonts.lzh
mach-40.drv	4 bpp color resource, 120 ldpi front-end
mach-46.drv	4 bpp color resource, 96 ldpi front-end
mach-48.drv	4 bpp color resource, 128 ldpi front-end
mach-80.drv	8 bpp color resource, 120 ldpi front-end
mach-86.drv	8 bpp color resource, 96 ldpi front-end
mach-88.drv	8 bpp color resource, 128 ldpi front-end
mach-30.drv	8 bpp 332 color resource, 120 ldpi front-end
mach-36.drv	8 bpp 332 color resource, 96 ldpi front-end
mach-38.drv	8 bpp 332 color resource, 128 ldpi front-end
mach-g0.drv	8 bpp crystal font color, 120 ldpi front-end
mach-g6.drv	8 bpp crystal font color, 96 ldpi front-end
mach-g8.drv	8 bpp crystal font color, 128 ldpi front-end
gsfonts.lzh	crystal fonts

The following files are from Microsoft Window 3.1 distribution.

8514oem.fon	8514sys.fon	8514fix.fon	
vgaoem.fon	vgasys.fon	vgafix.fon	
cga40850.fon	cga40woa.fon	cga80850.fon	cga80woa.fon
ega40850.fon	ega40woa.fon	ega80850.fon	ega80woa.fon
dosapp.fon			
modern.fon	roman.fon	script.fon	
coure.fon	courf.fon		
serife.fon	seriff.fon		
smalle.fon	smallf.fon		
sserife.fon	sseriff.fon		
symbole.fon	symbolf.fon		
vgacolor.2gr			

The Crystal Fonts feature can use Windows 3.1 TrueType fonts and ATI GSF format fonts. The GSF format is required under Windows 3.0, which does not support TrueType. To use GSF fonts requires that the Crystal Fonts be placed in a directory. The Crystal Fonts are in an archive to save space. Set the environment variable GSFONTS to the directory the fonts are in prior to running the driver.

gsfonts.lzh:

gsfonts.ini			
system04.pfm	system05.pfm	system06.pfm	system07.pfm
font3004.gsf	font3004.pfm		
font3005.gsf	font3005.pfm		
font3006.gsf	font3006.pfm		
font3007.gsf	font3007.pfm		
font3104.pfm	font3105.pfm	font3106.pfm	font3107.pfm

3.0 Requirements

FlexDesk requires an ATI 38800 (mach8) based video controller. The driver is designed to work with Windows 3.1.

A minimum of 512KB of Video Memory is required for FlexDesk operation.

Video Memory Required:

	16 color	256 color
640x480	512K	512KB
800x600	512K	512KB
1024x768	512K	1MB
1280x1024	1MB	N/A

FlexDesk uses Video Memory for Character and Bitmap cacheing, so more memory will result in greater performance. The above table is the minimum memory needed to run the given mode.

For unsupported configurations, we recommend that you use the Microsoft 8514/A driver.

4.0 Installation

Manual installation of the FlexDesk driver is not recommended. Use the ATI INSTALL utility to initially install the driver, and then use the FlexDesk Control Panel to make modifications to the setup. This section serves to document the various changes that are made to the SYSTEM.INI and WIN.INI files. For more information on the [Mach] settings, see the Configuration section.

Copy all files EXCEPT

mxxpanel.exe mxxpanel.hlp

to the WINDOWS\SYSTEM directory. Copy the above listed files files to the WINDOWS directory.

Modify WINDOWS\SYSTEM.INI.

```
[boot]
386grabber=mach.3gr
oemfonts.fon=8514oem.fon
fixedfon.fon=8514fix.fon
fonts.fon=8514sys.fon
display.driv=mach-80.driv

[boot.description]
aspect=100,120,120
display.driv=ATI FlexDesk Driver

[386Enh]
display=machvdd.386
device=mach.386
```

Add a section to WINDOWS\WIN.INI.

```
[Mach]
PixelDepth=8
DesktopSize=1024
ScreenSize=1024
```

This sets the driver up for 1024x768, 8 bpp, 120 ldpi. To use other pixel depths and ldpi settings, change the settings as appropriate. Select the [boot] display.driv from this table:

	4 bpp	8 bpp	8 bpp	8 bpp
	no palette	palette	crystal	
96 ldpi	MACH-46.DRV	MACH-36.DRV	MACH-86.DRV	MACH-G6.DRV
120 ldpi	MACH-40.DRV	MACH-30.DRV	MACH-80.DRV	MACH-G0.DRV
128 ldpi	MACH-48.DRV	MACH-38.DRV	MACH-88.DRV	MACH-G8.DRV

When changing ldpi, select the fonts and aspect ratio used:

	Large Font 120 ldpi	DTP 128 ldpi	Small Font 96 ldpi
[boot]			
oemfonts.fon=	8514oem.fon	8514oem.fon	vgaoem.fon
fixedfon.fon=	8514fix.fon	8514fix.fon	vgafix.fon
fonts.fon=	8514sys.fon	8514sys.fon	vgasys.fon
[boot.description]			
aspect=	100,120,120	100,128,128	100,96,96

Each of the shell drivers (MACH-??.DRV) has suggested Windows default colors. In order to make use of these colors, you can delete the entries in the WIN.INI [colors] section. This will prevent inadvertently selecting colors that make the menu entries disappear.

5.0 Problems

DOS Boxes

Modes 14, 16 and 18 cannot be entered while in a DOS Window. This causes failure of the Microsoft HCT test procedure. When in DOS Full Screen, this is not a problem. If you see garbage lines on the Windows screen after starting a Dos Box, try setting "High Graphics" in the PIF file.

Crystal Fonts

The speed has been improved in many cases, however in some cases the mouse cursor may become jerky.

PaintBrush in 16 colors

The erase function does not always operate correctly in this color depth. A workaround is to use 256 colors.

Large character font files

Some character font files are larger than 64 Kb in size and will cause the driver to GPF. The Augsburg Initials Font is one example.

Excessive dithering and incorrect colors in 8 bpp PaletteManager=off

When running in 8 bpp non palette manager mode, the available colors are very different from those found in the fixed palette of the VGA. This is because the 3/3/2 palette (3 bits of red, 3 of green and 2 of blue) does not have exact matches for the standard VGA colors. This can result in dithering in many places where it is unattractive. This can be partially avoided by setting new desktop color settings for this palette that use exact match colors. There are several good reasons to leave this mode in:

- 1 - 256 non dithered colors to choose from.
- 2 - Fast, very good dithering
- 3 - Fast, somewhat accurate translation of true color dibs. This allows the use of true color files as wallpaper without palette translation.
- 4 - Good image quality without the slow annoying redraws when displaying multiple 256 color images.

GDI DCT Color Tests

There are some variances in the MS DTA Brush Color Tests between the display and the Smart Prompting Box. These are the same as will occur with the MS VGA driver.

Changing Pixel Depth and Colors

When changing pixel depths and PaletteManager mode, there may be inappropriate color choices made (especially when using Windows Standard Colors). This can manifest in Clock when updating the time, and in Menu items not being highlighted. To fix this, delete the color entries from the WIN.INI [Colors] section. Windows will re-read the suggested colors from the driver, and the problem will be resolved. You can also use the Windows Control Panel to adjust

FlexDesk 2.3

January 12, 1994

your system colors.

386MAX

If using the FlexDesk driver on a system running Qualitas 386MAX, the 386MAX.PRO file must be modified to remove the "VGASWAP" flag. The VGA area is used to provide aperture services by the driver, and thus cannot be moved by 386MAX.

WorkGroup for Windows

Microsoft WorkGroup for Windows will not install if the FlexDesk driver is active. The Windows for Workgroups Install runs in Standard mode. Select the VGA driver prior to installing this product, and then reselect the FlexDesk driver after the installation is complete.

Video Overlay Boards

A switch has been added VGADAC=on (off). When set to off, only the 8514/A DAC registers are set. Some Video Overlay boards will require this switch to be set on, because they do "DAC snooping" to show correct colors.

Lotus AMI Pro 3.0

This word processor must be run with Small Font mode (96 ldpi) selected in the FlexDesk Control Panel. Not all screen buttons are positioned correctly if Large Font mode has been selected.

WordPerfect for Windows

When using this word processor with Crystal Fonts enabled, modify the startup command line (File Properties), and add the /FL switch. This is required to allow Crystal Fonts to work correctly. Note that when Crystal Fonts are enabled, the WordPerfect Equation Editor does not work correctly. To use this feature, disable Crystal Fonts.

Word for Windows

The Microsoft Word Equation Editor does not function correctly with Crystal Fonts enabled. To use this feature, disable Crystal Fonts.

Norton MicroFish Screen Saver

When using the Norton MicroFish Screen Saver, the fish may change color when they turn around.

Calendar

The CALENDAR application supplied with Windows exhibits a problem at 1280x1024 resolution. When CALENDAR is maximized, the restored, the CALENDAR window will be blank. This is a problem with CALENDAR.

PIZZAZ PLUS 4.0

The PIZZAZ PLUS 4.0 screen capture utility will cause a GPF if run in 256 color mode with 256 Color Palette disabled (Advanced Panel). We are working with the application vendor to remedy the problem.

6.0 Configuration

WIN.INI [Mach] Entries

The [Mach] section of WIN.INI has many switches which can be tailored to change FlexDesk. Most of the switches are alterable via the FlexDesk Control Panel, and this is the preferred way to change them.

CrystalFonts = on | off Default off

When set on, enables the Crystal Font feature. When Crystal Fonts is enabled, the palette is fixed in 8 bpp non-programmable mode. 5 gradients of red, blue and green (125 colors) are available in the palette. Also the usual 20 Windows system colors are supported, and 16 shades of gray (including black and white). The remainder of the palette is unused.

Dithering = on | off Default on

Allow for disabling color dithering. This results in faster performance, at the expense of color fidelity.

EngineBlt = on | off Default on

ErrorFatal = on | off Default on

When set on, all startup errors are treated as fatal, and will result in returning to the DOS prompt. When set to off, a message is displayed and the user is invited to press <D> to return to the DOS prompt, or <I> to ignore the error and continue.

GSFonts = <path: c:\gsfonts> Default NONE

If this entry is specified, the directory path is used to search for the Crystal Font outlines. If not specified (normal), the environment variable GSFONTS is used instead.

MinFontSize = <number: 0..255> Default 8

Minimum height of a font in pixels to be anti-aliased (Crystal Fonts). If a font renders to less than MinFontSize, it is not anti-aliased. This allows very small characters to remain legible.

PaletteManager = on | off Default on

Enable palette management when PixelDepth=8. This allows applications to control the physical palette, and permits applications such as After Dark to do palette cycling animation. When the PaletteManager is off, the color mode will use a fixed 332 (3 bits Red, 3 bits Green, 2 bits Blue) palette.

PixelDepth = 4 | 8 Default 8

Choose number of bits per pixel. 4 allows 16 colors and 8 allows 256 colors.

SlowDither = on | off Default off

When set on, selects VGA style dithering. When off, selects faster ATI style dithering. This setting only works in 256 color palette manager enabled mode.

SystemFont = Default HelveticaBold

Allows the Windows System Font to be specified when CrystalFonts=on. This font is used for Icon titles, menus, etc. This entry should be used with Windows 3.0 only, because Windows 3.1 allows changing the System font through its own mechanism.

TextGamma = <number: 20..300> Default 100

This setting controls the edge sharpness for the Crystal Fonts feature. Higher values lighten up the edge pixels, giving you "thinner" characters.

VGADAC = on | off Default on

Program VGA DAC in synch with 8514/A DAC registers.

7.0 Errors

All FlexDesk error messages are issued at startup. The error message is displayed, and the system speaker is beeped. The operator is invited to press a key to return to DOS. This behaviour can be modified to allow the operator to ignore the error and proceed (see the ErrorFatal switch).

ATI FlexDesk Windows Driver Error:

The ATI FlexDesk Windows Driver requires an ATI 38800 based video board or product.

Press a key to return to DOS.

The FlexDesk driver was started on a system without a mach8 based video product or a memory manager moved or compressed the Video ROM at address C000 to C7FF.

ATI FlexDesk Windows Driver Error:

The BIOS ROM cannot be accessed. Please refer to your owners manual for hardware setup assistance.

Press a key to return to DOS.

Calls to the mach8 BIOS ROM failed. Check for memory managers using the ROM address. Also run the Test portion of the INSTALL program to check the card.

ATI FlexDesk Windows Driver Error:

The ROM BIOS Query has returned a failure. Please ensure that the BIOS ROM is enabled, and that you have set up at least one video mode.

Press a key to return to DOS.

The mach8 BIOS ROM has not responded in a reasonable way to the QUERY service. This may be because the ROM is disabled (8514/ULTRA), or there may be no video modes. Run INSTALL and check the hardware power-up configuration.

ATI FlexDesk Windows Driver Error:

You have insufficient Video Memory to run a %1x%2/%3 video mode. Run Windows SETUP from DOS and select a lower resolution mode.

Press a key to return to DOS.

Not enough video memory. The numbers indicate X, Y and number of colors. For instance, 1024x768/256 is not possible on a 512K card. Use a text editor to modify the ScreenSize and/or the PixelDepth options in the [Mach] section of WIN.INI.

ATI FlexDesk Windows Driver Error:

The ATI FlexDesk Windows Driver requires that Windows be run in 386 Enhanced Mode. Select the Microsoft 8514/A Driver to use your video board with a 286 based processor, or to use Windows in Standard Mode. If necessary, Windows Enhanced Mode can be forced on a 386 based processor by starting Windows using the WIN /3 command. This is required on machines with less than 4 Mb of system memory.

Press a key to return to DOS.

The driver only runs in 386 Enhanced Mode.

ATI FlexDesk Windows Driver Error:

The %1x%2 mode cannot be started. Please ensure that you have installed the requested mode using the Mach8 or Mach32 INSTALL utility. Your selected monitor may not be capable of operating in the requested mode - if this is the case, run Windows setup from DOS and select a compatible mode.

Press a key to return to DOS.

This message is issued when you attempt to start FlexDesk in a mode which is not set up by INSTALL. This may happen because you have selected an inappropriate monitor and the mode is not available with the current monitor, or because you have not enabled the mode in custom installation.

ATI FlexDesk Windows Driver Error:

The ATI FlexDesk Windows Driver cannot be started. The BIOS ROM has failed to activate the requested mode. Please contact customer support services.

Press a key to return to DOS.

The mode was available in the BIOS and seems to have been installed correctly, but the BIOS ROM refused to switch to that mode. This usually indicates a fairly serious problem. Run the Video Adapter TEST program to check failure. Ensure that there are no memory manager device drivers or other installed devices interfering with the ROM.