mach64 Graphics Accelerator Help

Welcome to the *mach64* Graphics Accelerator help system. If this is the first time you've installed a *mach64* product, you may want to take a few minutes to review this system to familiarize yourself with the features and functions of the card.

***mach64* Features**

Reference Topics

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mach64 Features

- **Color Correction**
- **DeskScan**
- **DPMS**
- **FlexDesk+**
- **Screen Adjustment**
- **WinSwitch**

Reference Topics

mach64 Graphics Accelerator Help

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mach64 Features

Reference Topics

- **Diagnostics**
- **Troubleshooting**
- **Specifications**

DeskScan Control Panel

DeskScan lets you control your Virtual Desktop by using the keyboard keys. The display image on the screen is a "window" showing only a portion of the entire virtual desktop. When you have selected a Desktop Size in the FlexDesk+ Control Panel that is larger than your Screen Size, the Virtual Desktop feature is enabled.

You can use the DeskScan panel to assign the six hot keys to the Panning Functions, which let you move around the desktop, and Zooming Functions, which let you enlarge areas of the desktop.

Note: The panning and zooming functions are active only when Windows applications are active. These functions will not work in a DOS box.

Related Topics

Assigning Key Sequences

Assigning Key Sequences

1. **Clear any unwanted information from one of the Panning and Zooming boxes by hitting Ctrl**

2. **Hit the keys you wish to assign to the function.**

   For example, to assign ZoomIn to Ctrl+Shift+Home, hit the Ctrl, Shift and Home keys in the **Zoom In** box .

   Note: If you hit a single key, DeskScan will insert **Ctrl+Alt** infront of it. For example hitting "H" only while in a DeskScan field will result in the Hot key **Crtl+Alt+H.**

   The allowable keys are:

   - Left Arrow, Right Arrow, Up Arrow, Down Arrow keys
   - Home, End
   - F1 through F24
   - A through Z
   - 0 through 9
   - Space

3. **Repeat steps 1 and 2 for each function.**

   When assigning hot keys, try to use key combinations not already used in any of the applications you're currently using.

Control Panel Buttons

The control buttons, located at the bottom of the control panel, perform the following functions:

Defaults Assigns the following default keys to DeskScan:

Pan Up	Alt+ Up Arrow
Pan Left	Alt + Left Arrow
Pan Right	Alt + Right Arrow
Pan Down	Alt + Down Arrow
Zoom In	Alt + Home
Zoom Out	Alt + End

Help Displays Help information on DeskScan.

OK Accepts key assignments as shown and exits.

Cancel Discards all changes and exits.

Panning Functions

When using a Virtual Desktop, these functions will allow you to move to areas of the desktop not displayed on the screen. The new key sequence assignments take effect right away (before closing the ATI DeskTop). You can also click the Defaults button to reset all assignments to standard defaults.

Pan Up Moves the "window" upward with a user defined key sequence, e.g. < Alt > + < >

Pan Left Moves the "window" to the left with a user defined key sequence, e.g. < Alt > + < ← >

Pan Right Moves the "window" to the right with a user defined key sequence, e.g. < Alt > + < → >

Pan Down Moves the "window" downward with a user defined key sequence, e.g. < Alt> + < ↓ >

Note: Do not assign the same key sequence to more than one function. You should also avoid using the same key sequence for a DeskScan function as for a WinSwitch function. If you do, the DeskScan function will take precedence.

Zooming Functions

These functions let you enlarge an area for easier reading, or shrink the display to view more of the desktop. The new key sequence assignments take effect right away (before closing the ATI DeskTop). You can also click the Defaults button to reset all assignments to standard defaults.

Zoom In Makes the screen image larger with a user defined key sequence, e.g. < Alt > + < Home>.

Zoom Out Displays more of the virtual desktop with a user defined key sequence, e.g. < Alt > + < End >.

Note: Do not assign the same key sequence to more than one function. You should also avoid using the same key sequence for a DeskScan function as for a WinSwitch function. If you do, the DeskScan function will take precedence.

DPMS Control Panel

VESA DPMS-compliant monitors conserve electrical energy by powering down during periods of inactivity when the DPMS feature is enabled.

Auto-shutdown occurs after a defined period of keyboard and mouse inactivity. There are three stages for reduced power consumption: Standby, Suspend and Off. The amount of power that is saved at each stage is determined by the manufacturer of the monitor.

Monitors that do not support VESA DPMS can be damaged by activation of the DPMS feature.

Related Topics

Setting Up DPMS Parameters

Setting Up Parameters

1. Enter time values **into the Standby, Suspend, and Off boxes**

Or use the **Defaults** button to reset to standard defaults.

These time values represent the duration of inactivity before each stage is entered. For example, assume the following settings:

Standby	15
Suspend	30
Off	60

The monitor will be placed into Standby mode after 15 minutes of inactivity; into Suspend mode after 30 minutes of inactivity; and into Off mode after 60 minutes of inactivity.

If you omit a time from any of the boxes, that mode will never be entered. Leaving all boxes blank will leave DPMS disabled.

When you confirm the DPMS Panel with the **OK** button, the new settings will take effect right away (even before closing the ATI DeskTop).

Notes:

 Your Windows DPMS settings will not be in effect while you are in a full-screen DOS box.

 Certain DPMS configurations may not allow arbitrary time values for the DPMS settings. In these cases, your entered values will be rounded up to the nearest acceptable value.

 Do not use a screen saver when DPMS is enabled. The screen saver will intercept keyboard/mouse activity and not pass on to the DPMS for proper operation.

FlexDesk+ Control Panel

The FlexDesk+ Control Panel is used to configure your *mach64* Graphics Accelerator for Windows. It contains slider controls for setting the Color Depth, Screen Resolution and Desktop Size.

You will be able to select only those Screen Resolutions which have been previously installed using the INSTALL Program.

Changes in screen or Desktop size will come into effect immediately and will remain in effect in all subsequent Windows sessions. However, changes in color depth or font size will require a restart of Windows to take effect.

Related Topics

- **Setting Up Your Display**
- **Using Slider Controls**
- **Using the Visual Guides**
- **Using Advanced Settings**
- **Using the Test Mode**
- **Working with Settings Files**

Setting Up Your Display

1. **Adjust the position of the slider controls.**

   As you move the sliders the sample monitor and palette will change to reflect your changes. The red ticks on the sliders indicate their Default positions. more

2. **Use the Test button to try out your settings.**

   The display will change to display the current settings. more

3. **If you're happy with the changes click OK, if not click Cancel and readjust the sliders**

Optional

Menu Bar

The FlexDesk+ Control Panel menu bar contains **File**, **Features** and **Help** sub-menus.

File Menu:

Command	Function
Open	Opens an existing Settings file.
Save	Saves the current settings to the active Settings file.
Save As	Saves the current settings to an alternate Settings file which you can rename.
Exit	Exits the FlexDesk+ control panel. To exit without saving, use the Cancel button or Esc.

Feature Menu:

Command	Function
Defaults	Restores all FlexDesk+ settings back to their factory defaults.
Advanced	Accesses the FlexDesk+ Advanced Settings panel.
Test	Switches the display to the mode selected for 10 seconds.

Help Menu:

Command	Function
Contents	Accesses FlexDesk+ Control Panel help.
About	Displays product version information.

See also:

Working with Settings Files

Using Visual Guides

The **Sample Color Palette** and **Sample Monitor** provide visual feedback as you adjust the Colors, Screen Size and Desktop Size sliders.

Sample Color Palette

The Sample Color Palette approximates the available colors as you adjust the Colors slider.

Sample Monitor

The Sample Monitor allows you to visualize your Screen Size and Desktop Size slider selections using your current Windows desktop as a reference. For example, when you increase your Screen Size, the sample monitor will grow and display more of your Windows desktop.

When the Desktop Size is larger than the Screen size, the Windows desktop will stretch beyond the sample monitor's frame. With this setting you would have a Virtual Desktop - a desktop larger than your screen size.

Note: It's not possible to have a Desktop Size smaller than the Screen Size. If necessary, the sliders will 'snap' to the nearest setting to avoid this.

Control Panel Buttons

OK

Accepts any changes to the settings, and exits. When you press OK on the FlexDesk+ Control Panel, the changes are saved to SYSTEM.INI, and to the settings file you were editing (if any) .

Cancel

Exits without saving changes.

Help

Brings up the FlexDesk+ Control Panel help.

Defaults

Selects default settings. This provides a convenient way to return to factory settings.

Using Test Mode

When you click the Test button, your monitor will switch to the selected mode without exiting the panel, for 10 seconds or until you click the End Test, Ok, or Cancel button. All other panel buttons and sliders will be inactive during the test.

If you're satisfied with the new settings, click the OK button. FlexDesk+ will exit with the new mode (i.e. screen and desktop size) in effect. However, if you've changed color depth or font size you'll need to restart Windows to implement changes.

If you wish to revert to the old mode, click the End Test button and the display will switch back to its original state. Click the Cancel button to exit FlexDesk+ without changing the display.

Note: The Test Button is only enabled when:

when Winswitch is off - only if there is a resolution change
when WinSwitch is on - all tests are available.

Using Slider Controls

At the bottom of the FlexDesk+ Control Panel, there are three sliders - **Colors**, **Screen Size** and **Desktop Size**. These sliders are used to adjust the display settings you wish to use.

The slider positions indicate the settings that will be in effect the next time you start Windows. The current settings are indicated by the red tickmark on each slider. (These will also change if you use the WinSwitch Control Panel or DeskScan Control Panel to change modes.)

Desktop Size and Screen Size sliders

As you move the sliders, you will notice that they will gray out at certain color/resolution settings. This is because your selection is not possible in combination with the other sliders at their current settings. If you release a slider while it is grayed out, the other sliders will 'snap' to positions that will allow your selection. The availability of Screen Resolutions, Desktop Sizes and Color Depth depend on the capabilities of your graphics card.

Note: The **Desktop Size** must be at least as large as the Screen Size. So you may find that adjusting the **Screen Size** will automatically also adjust the Desktop Size.

Color Slider

Using the **Colors** slider, you can select 256 colors, 32K colors, 65K colors, or 16.7M colors. These determine the number of colors that may be simultaneously displayed on your screen.

		Color Depth			
Resolution		**256**	**32K**	**65K**	**16.7M**
640x480	Yes	Yes	Yes	Yes	
800x600	Yes	Yes	Yes	Yes	
1024x768	Yes	Yes	Yes		
1152x864	Yes				
1280x1024		Yes			

Yes = supported on both 2MB and 4MB cards

Using Advanced Settings Panel

The Advanced button in the FlexDesk+ control panel accesses the FlexDesk+ Advanced Settings panel. The panel allows you to configure the following settings:

- **Environment Settings**
- **256 Color Palette Settings**
- **Dithering Control Settings**

Note: Some features and options may be unavailable (displayed grayed out), depending on the Screen Size , Desktop Size and color selected in the Main Panel, or the combination of settings selected in the Advanced Panel. (For more information on these restrictions, see information for each attribute.)

Environment Settings

Use the Environment Check boxes to specify your display's Logical Dots Per Inch (LDPI). These are logical, not physical dots. The actual physical dots per inch will depend on your monitor's size and the selected resolution.

If you leave the Automatic checkbox checked, then this setting is chosen for you according to Screen Size: Small Font for 640x480 and 800x600, and Large Font for all other sizes.

If you find small fonts difficult to read, use Large Font or DTP settings, even at lower screen sizes. Or, if you need to see more text on the screen at one time, use Small Font even at higher screen sizes.

Small Font - (96 LDPI, VGA Standard)
Large Font - (120LDPI, 8514 Standard)
DTP - (128 LDPI, Desktop Publishing)

256 Color Palette Settings

This option is only available when you select 256 color mode from the main panel. When set to Off, the hardware color palette is fixed. When set to On, the palette can be modified by application programs. Windows runs faster when 256 Color Palette is turned off.

On- Allows the application to define the selection of colors used in the palette.

Off- Application to choose colors from a fixed palette.

Dithering Control Settings

This selection controls the process of putting together two colors to produce the illusion of a third color. The 256 Color Palette must be set to ON to use dithering. Two options are available:

On- Provides standard VGA meshing of colors and color selection boxes.

Off- Provides smooth dithering which results in faster performance than VGA Standard.

Using 256 color mode with 256 Color Palette set to On results in fast VGA. VGA Standard dithering is slower, but it may produce more attractive colors.

Working with Settings Files

Settings Files are used to save a particular set of options for quick recall. For example, if your favorite image editor works best in 16M color mode, but you usually work in 256 color mode, you could save two settings files: NORMAL.FLX, and IMAGE.FLX. To switch between these settings, you would open the FlexDesk+ Control Panel. Use File Open, from the Menu bar, to open NORMAL.FLX or IMAGE.FLX, and then click the OK button for the changes to take effect.

Note: When you have no specific settings file opened, you are actually editing the settings in your SYSTEM.INI file.

Advanced Settings

1. Click the Advanced button

In the panel that appears you can choose the size of your display fonts, or activate/deactivate the dithering control and 256 palette. more

More...

Setting Up Your Display
Using Slider Controls
Using Visual Guides
Using the Advanced Button
Using Test Mode

Color Correction Control Panel

The Color Correction control panel allows you to correct tone discrepancies between the real color value and the way your monitor displays it. Color discrepancies can be caused by a variety of sources, including lighting conditions in the work environment and monitor color shifts. This Color Correction feature is extremely handy when running 24bpp applications that require a true color representation.

Related Topics

- **How to Calibrate Your Screen's Color**
- **Setting Up the Color Correction Control Panel**
- **Saving Color Settings**

Color Mini Views

The three areas displaying the curves representing the saturation of Red, Green and Blue.

Color Editor

The color editor features three mini views of the current RGB values and a large window for editing the selected color. For each color curve, the horizontal axis represents the input value (i.e., the tone value of the original). The vertical axis represents the output value (i.e., the tone value of the display). The curve represents all the values of the color component (R, G or B) with the value of 0 representing the darkest tint (in the lower left corner) and the value of 255 representing the lightest tint (in the top right corner).

Each color curve can be easily modified by adding, moving or removing control points. These control points anchor the curve to represent the relationship between input and output intensities. By adding or removing control points, you harshen or smoothen the gradation of that tone respectively.

Moving Control Points

1. **Move the mouse cursor over the control point and press the left mouse button.**
2. **While holding the button down, drag the control point to its new location.**

Notes:

Points cannot be dragged past another adjacent point of the curve.

The left most end point cannot be dragged up from the bottom edge.

The right most end point cannot be dragged down from the top edge.

Adding & Removing Control Points

To Add a Control Point:

Hold down the <Shift> key while clicking the mouse cursor at the desired position on the curve.

To Delete a Control Point:

Hold down the <Ctrl> key while clicking the mouse cursor over the point to be deleted.

By adding, removing or moving control points, you harshen or smoothen the gradation of a tone.

Saving Color Settings

1. **Once you've adjusted the RGB curves to a desired setting, click on the Save button in the control panel.**

   The **Save** command can also be accessed through the menu bar. The **Save Color Control** dialog box will appear.

2. **In the box type in the name and path of the GAM file.**

3. **Click on OK**

   Your settings will be saved under the name and directory you specified. Different sets can be saved for use with different monitors or lighting conditions, for example, ambient light at different times of day.

A specific table may be loaded by selecting the **Load** button and choosing the desired gamma file.

Control Panel Buttons

The main color correction editor has a series of buttons that allow you to choose which curve you are editing. By clicking on the smaller preview curves to the right of the main curve, you select that color. You may then move to the main window to edit the curve for the selected color component.

Down the right side of the main window are a series of push buttons:

Setup
: Invokes the Color Correction Setup dialog box, which lets you set up the start values for color gradations.

Undo
: Discards changes made to the current curve and restores the previous settings.

Save
: Saves the RGB color settings to the current GAM file.

Save As
: Saves the current RGB color settings to a new GAM file.

Load
: Loads an existing GAM file to be used.

Help
: Displays on-line help on color correction and controls.

OK
: Accepts the current values and exits.

Cancel
: Discards the current changes and restores the hardware to the values before this dialog was invoked.

Color Correction Setup

1. **In the White Points section, adjust the each of the R, G, B sliders**
   more

2. **In the Black Point section adjust the three sliders**

3. **Adjust the target gamma Slider**
   more
   As you adjust the slider the curve will change to reflect your adjustment.

White and Black Points

The White Point and Black Point sliders control how black is black and how white is white. By moving the white point down from its maximum value (255), you can cause the entire display to become more saturated (brighter), as more colors for a component are mapped to saturated values. Similarly, moving the black point up from its minimum value (0) causes the display to become less saturated.

Target Gamma

Target Gamma is used to calibrate the color brightness and contrast of an image for display on a monitor. This control panel provides six intensity values, 1.0 being flat (unmodified). A higher value represents a screen with higher contrast and brightness. The settings are 0.8, 1.0, 1.2, 1.8, 2.0 and 2.2.

Menu Bar

The Color Correction Menu Bar offers the following options:

File Menu:

Command	Function
Open	Opens an existing color settings file.
Save	Saves settings to a .GAM file.
Save As	Saves settings under a different file name or location
Exit	Exits the control panel.

Edit Menu:

Command	Function
Setup	Accesses the Color Correction Setup dialog box.
Undo	Reverses your last action.

Help Menu:

Command	Function
Contents	Accesses help on the control panel.
About	Accesses version information for the application you running.

True Color

A true color is a tint selected from a palette of 16.7 million colors, composed of 1 out of 256 intensities of red, 1 out of 256 intensities of green and 1 out of 256 intensities of blue. The color of each pixel on your monitor is determined by such red, green and blue values.

How to Calibrate Your Screen's Color

You'll need the following to calibrate your screen's color:

 A graphics application that incorporates a professional Color Matching Palette.

 A photographic print of which you also have a 24bpp scanned image file.

 To calibrate the screen color:

1. **Open the graphics application and load the scanned image**
2. **Activate the Color Correction Control Panel**
3. **In the panel, select one of Red, Green or Blue colors by clicking on its mini view.**
4. **Using the Color Editor, adjust the color.** more

   Your goal here should be to match the colors of the scanned image to the photographic print.

   You could also match the colors in the applications palette to a Color Matching palette.

5. **Repeat steps 3 and 4 for each of Red, Green and Blue curves.**

More..

Calibrating Screen Color
Setting Up the Control Panel
Moving Control Points
Adding & Removing Control Points
Saving Settings

Glossary

C

Color Depth
Command Line
CTRL+Drag

D

Desktop / Virtual Desktop
Display Memory
Dithering
DPMS

G

Graphics Card

H

Hot Keys

I

INSTALL Program

K

K
KB
Key Sequence

L

Logical Dots Per Inch (LDPI)

M

M
MB
Motion Video Acceleration Driver

P

Palette
Pan
Pixel

R

S

T

V

W

Z

Anti-Aliasing

A technique of displaying characters in which sharp black-to-white edges are smoothed using shades of gray. This improves readability of the characters.

Color Depth / bpp

The number of colors that are available, or color depth, is determined by the number of bits associated with each pixel to represent its color. This is specified as the bits per pixel, or 'bpp' setting. Common values are:

8 bpp	gives 256 colors
15 bpp	gives 32K colors
16 bpp	gives 65K colors
24 bpp	gives 16.7M colors.

Command Line

Every program run under Windows has a 'command line'. This consists of the full pathname of the program to be run, plus any parameters, such as the filename to edit, or any switches that the program understands.

CTRL+ Drag

This is a technique in Program Manager in which a program icon can be copied to make a new program icon. Press the Ctrl key, then drag (click and hold) the icon to the desired new location, then release the mouse button. The new icon will initially have all the same properties as the original icon.

Desktop / Virtual Desktop

The Windows work area is known as the Desktop. When the Desktop is larger than the Screen Resolution , it is known as a Virtual Desktop. With a Virtual Desktop, only a portion of the Desktop is visible on the screen at one time.

Display Memory

The memory on your graphics card. You may have 2MB or 4MB of display memory.

Dithering

This is a technique in which colors that cannot be displayed exactly are simulated by patterned mixtures of other colors.

DPMS

Display Power Management Signaling - an industry standard for reduction of energy usage by video monitors.

Dynamic / Dynamically Switching

The process of changing settings, such as Screen Size (i.e. resolution) or Colors, without needing to Restart Windows.

Graphics Card

The card (or 'board') within your computer that controls your monitor. Different cards have different capabilities. Graphics accelerators specialize in speeding up graphical environments, such as Windows.

Hot Key

Alphanumeric key used in conjunction with **<Alt>**, **<Ctrl>** or **<Shift>** to perform some user-defined action.

Usually used to provide a quick means of performing a common function that would otherwise require an inconvenient combination of menu/dialog actions.

INSTALL Program

The *mach64* INSTALL Program is included on Disk #1 of your *mach64* installation disks. Use INSTALL to perform the following tasks:

 Install *mach64* **Utilities** (including the INSTALL Program) onto your hard disk

 Set **monitor type** and hardware **parameters** for optimized performance

 Run **diagnostics** on your *mach64* graphics card

 Install **enhanced display drivers**

For more information on the INSTALL Program, refer to your mach64 User's Guide.

K

K = thousand

KB

KB = kilobyte (1,024 bytes)

Key Sequence

A set of one or more keys that are to be pressed at the same time to activate a function. The special keys Ctrl, Alt, and Shift may be combined with any of Left Arrow, Right Arrow, Up Arrow, Down Arrow, Home, End, F1 through F24, A through Z, 0 through 9, Space, or Del to define a key sequence.

Logical Dots Per Inch (LDPI)

Applications use Logical Dots Per Inch to calculate the size of objects that must be an exact physical size on the display. For example, if an application needs to display a box one inch high, and the Logical Dots Per Inch is 120, then the box is drawn 120 pixel high.

M

M = million

MB

MB = megabyte (1,048,576 bytes)

Motion Video Acceleration Driver

A component of the Mach64 Graphics Accelerator that accelerates Microsoft Video for Windows playback.

Palette

In 256 color mode, a 'palette' is required to define the actual color that appears on the screen for each of the 256 possible pixel bit combinations. Some applications require the ability to change the entries in the palette, for example to display realistic images.

Pan

The Pan feature is enabled only when there is a Virtual Desktop . To view portions of the virtual desktop not visible on the screen, you 'pan' them into view by moving the cursor to the edge of the screen in the direction you wish to view. Keyboard keys may also be assigned to the functions of panning left, right, up, and down.

Pixel

A pixel is one 'dot' on your display. Each pixel can be a different color - the number of possible colors is determined by color depth.

RGB Mode

When in 65K color mode, colors are represented by 16 bits per pixel . RGB Mode refers to the allotment of these 16 bits to each of the three colors: red, green, and blue. The notation used is a number in the form R/G/B, where R represents the number of bits for red; G the number of bits for green; and B the number of bits of blue.

Screen Resolution

Screen Resolution is the number of pixels displayed on your screen, expressed as a number in the form WxH, where W is the number of pixels displayed horizontally (width) and H is the number of pixels displayed vertically (height). Typical screen resolutions include 640x480, 800x600, 1024x768, 1152x864 and 1280x1024.

Settings Files

Settings files allow you to save and re-call FlexDesk+ Control Panel settings. Settings files require a '.FLX' file extension.

Switches

Some programs accept command line parameters known as switches, which usually start with '/' or '-'.

SYSTEM.INI

The Windows system initialization file (usually in \WINDOWS). The [Macx] section of SYSTEM.INI contains the FlexDesk+ settings.

Time Values

Time values are entered in minutes (e.g. 5 for five minutes) or minutes and seconds (e.g. 2:30 for two and a half minutes).

VESA

Video Electronics Standards Association - developers of the DPMS standard.

Windows Restart

Restarting Windows means that all applications will be closed, Windows will go away and then automatically come back. If there are unsaved changes in any of the applications that you currently have open, the applications will prompt you as to whether you want to save the changes. If you cancel any of these prompts, Windows will not be restarted.

Zoom

The Zoom feature allows dynamic changes to screen resolution, so that you can see more or less of the Desktop on the screen at one time. When Zoomed Out, you can see *more* of the Virtual Desktop, so characters appear *smaller*. When Zoomed In, you see *less* of the Virtual Desktop, but the characters appear *larger*.

VDIF

A VESA Display Information File (VDIF) contains all the necessary parameters for getting optimal resolution and refresh rate operation from the specified monitor.

WinSwitch Control Panel

WinSwitch allows you to define up to four 'hot keys', Key 1 to Key 4, for dynamically switching from the current Windows session to different settings of Colors, Screen Size and Desktop Size, without restarting Windows.

When enabled, WinSwitch is actually operating in 24bpp mode (i.e., all other color depths and resolutions are emulations). As such, graphics performance across various color depths will be practically identical to that of 24bpp (16.7 million colors). Therefore, WinSwitch should be used only when color depth changes are desired.

For maximum performance in 256 or 65,000 color modes, you should disable WinSwitch.

Related Topics

- **Setting Up WinSwitch**
- **Assigning Key Sequences**
- **Using Slider Controls**

Setting Up WinSwitch

1. **Activate the Winswitch Enabled buttton**

   This button must be active to enable dynamic switching between color settings.

2. **Select a radio button to define a WinSwitch setting.**

3. **Do the following in any order:**

   Adjust any or all of the sliders.more

   Define the hot key for the setting combination by hitting the keyboard keys while in a **Key** box. more

4. **Select the WinSwitch Enabled box.**

5. **Click OK.**

The new key settings will take effect immediately. However, changes in color settings require a Windows restart.

Assigning Key Sequences

1. **Clear any unwanted information from the Key boxes by hitting Ctrl**

2. **Hit the keys you wish to assign to the setting combination.**

   For example, to assign Key1 to Ctrl+Shift+Home, hit the Ctrl, Shift and Home keys in the **Key 1** box .

   Note: If you hit a single key, WinSwitch will insert **Ctrl+Alt** infront of it. For example hitting "H" only while in a WinSwitch field will result in the Hot key **Crtl+Alt+H.**

   The allowable keys are:


Left Arrow, Right Arrow, Up Arrow, Down Arrow keys


Home, End


F1 through F24


A through Z


0 through 9


Space

3. **Repeat steps 1 and 2 for each Key.**

   When assigning hot keys, try to use key combinations not already used in any of the applications you're currently using.

WinSwitch Enabled / Disabled Status

With the ATI *mach64* driver, it is always possible to dynamically switch to a different Screen Size or Desktop Size. However, for dynamic color switching, the driver must be started in 'color-switchable' mode. This is controlled by the WinSwitch Enabled checkbox in the WinSwitch Control Panel.

WinSwitch Disabled (i.e. the checkbox is empty)

When WinSwitch is disabled, you can use the WinSwitch and DeskScan hot keys, as well as the FlexDesk+ Control Panel, to dynamically change the Screen Size and DeskTop Size. However, changes to the Colors setting using FlexDesk+ will require a restart of Windows. (You will be prompted for this.)

This checkbox must be checked if you specify any WinSwitch hot keys with different Colors settings other than the current Colors setting. (You will be prompted to do this, if necessary.)

WinSwitch Enabled (i.e. the checkbox is marked)

When enabled, dynamic changes to the Colors setting are also possible using both the WinSwitch hot keys and the FlexDesk+ Control Panel. This is possible because Windows will actually be operating in 24bpp mode (i.e. all other color depths are emulations). Therefore, in this mode, graphics performance across various color depths will be reduced. For maximum performance in 256 or 65,000 color modes, you should disable WinSwitch. Use FlexDesk+ or DeskScan to dynamically change screen preferences.

You should also note that a change in the WinSwitch Enabled checkbox (from off to on, or vice versa) will require a Windows restart. (You will be prompted for this.)

Using Slider Controls

At the bottom of the WinSwitch Control Panel, there are three sliders - Colors, Screen Size and Desktop Size. These sliders are used to adjust the display settings you wish to use.

The slider positions indicate the settings that will be in effect the next time you start Windows. The current settings are indicated by the red tickmark on each slider.

As you move the sliders, you will notice that they will gray out at certain color/resolution settings. This is because your selection is not possible in combination with the other sliders at their current settings. If you release a slider while it is grayed out, the other sliders will 'snap' to positions that will allow your selection. The availability of Screen Resolutions, Desktop Sizes and Color Depth depend on the capabilities of your graphics card.

Colors

This slider control adjusts the available colors on your system. Using the Colors slider, you can select 256 colors, 32K colors, 65K colors, or 16.7M colors. These determine the number of colors that may be simultaneously displayed on your screen.

Screen Size

Using this slider control, you can select a standard screen resolution of 640X480, 800X600, 1024X768 or 1280X1024.

Desktop Size

Using this slider, you can select desktop sizes of 640X480, 800X600, 1024X768, 1152X864, 1280X1024 and 1600X1200.

Note: The Desktop Size must be at least as large as the Screen Size. So you may find that adjusting the Screen Size will automatically adjust the Desktop Size.

More..

Setting Up WinSwitch

Setting Up Key Sequences

Screen Adjustment Control Panel

The options in the Screen Adjustment control panel are the Windows equivalent of the DOS based install program's "Quick Setup" application. See the Install program help for more information on this application.

Using this control panel you can setup your monitor's display at different resolutions and refresh rates.

Related Topics

- **Adjusting Your Display**
- **Selecting a Monitor Type**
- **Selecting a Resolution**
- **Selecting a Refresh Rate**

Selecting a Monitor

To adjust your display, you must first choose your monitor type from the **Select Monitor** list. If the exact model number of your monitor is not on the list, you can select a compatible monitor type (for example select NEC if your monitor is a NEC monitor, but your exact model number is not listed).

When you select a specific monitor and hit **OK**, the **Resolution** and **Refresh Rate** option boxes will display their default settings.

If your monitor is not listed at all, select the **Custom** button. You can then choose from all the resolutions and refresh rates possible.

If your monitor came with a VDIF (Video Display Information File), you can use the **Load VDIF** button to load your monitor's specifications. Once loaded, your monitor's name and model will appear on the **Select Monitor** list.

Selecting a Resolution

Display resolutions are defined in *number of pixels displayed horizontally* x *number of pixels displayed vertically* . The resolution you choose will determine the size of graphics and text displayed on your monitor.

The **Resolution** option box lists all the resolutions available with the chosen monitor. If you selected a **Custom** monitor, the box will list all the resolutions possible. Not all resolutions may be supported by your monitor, so it's best to test your settings before exiting the control panel.

Selecting a Refresh Rate

The refresh rate determines how often your display is redrawn. The *Hz* value indicates how many times per second the screen is redrawn.

The **Refresh Rate** option box lists all the available refresh rates for each resolution. When you select a monitor and resolution, this box will list all the refresh rates available at that resolution.

If you selected the **Custom** button, **None Selected** will appear in this box, allowing you to select any refresh rate supported by your monitor.

Consult you user's manual before adjusting refresh rates. Applying the wrong refresh rate may seriously damage your monitor.

Adjusting Your Display

1. **Select a monitor type by clicking on the Select Monitor button.**

   A window will appear listing all the monitor types and model numbers available.

   If your monitor type is not available, click on the **Custom** button. If your monitor came with a VDIF, select the **Load VDIF** button. more

   Once you've selected a monitor, click the **OK** button.

2. **In the main Screen Adjustment window, select a resolution from the Resolution list.**

   As you select a resolution, the default refresh rate will be highlighted in the **Refresh** list. more

3. **Select a refresh rate from the Refresh list.**

   The rates available will depend on the monitor type selected. more

4. **Adjust the position and size of the display by clicking the Preview/Adjust button.**

   In the Positioning Window that appears, use the two sets of direction arrows to adjust the display. more

   Note: The Preview/Adjust function will not be active unless you have selected both a refresh rate and a resolution.

5. **Adjust the synchronization of the display using the three buttons at the bottom of the panel.**

   Consult your monitor user's manual for the correct synchronization settings.

6. **Test your adjustments.**

   You can choose from a variety of colors and test patterns to display, which will show you the results of your selections, using the scroll buttons in the **Test Pattern** option box.

7. **Repeat steps 1 to 6 for each resolution you wish to use.**

8. Click OK

The Screen Adjustment dialog box will appear, listing all the resolutions you've adjusted.

Note: you must restart Windows in order for the changes to take affect.

Screen Adjustment dialog box

This box lists all the modes available for the selected monitor. The **Adjusted?** column indicates all the modes that have been changed. Use the box to keep track of the changes you've made before exiting the Screen Adjustment application.

Positioning Window

Using the Positioning window you can adjust the position and size of your display. The window is divided into four parts:

Adjustment

The four arrow under the **Position** heading will shift your display left, right, up, or down. The up and down arrows under the **Size** heading will increase/decrease the vertical size of your display. The left/right arrows will increase/decrease the horizontal size of the display.

Synchronization

These three buttons let you adjust the **Horizontal**, **Vertical** and **Composite** synchronization. Consult you monitor's specifications for the best setting.

Mode Information

The right side of the Positioning window shows you the specifications for the mode you're currently adjusting. The information listed is divided into the following headings:

Resolution
Displays the resolution you have currently selected.

Supported Color Depths
Displays the different color depths available at the selected resolution.

Pixel Clock
Shows the rate at which pixels are dropped on the display.

Horizontal Frequency
Displays the rate at which lines are drawn on the screen.

Vertical Frequency
Shows the rate at which the screen is redrawn.

Test Pattern

Once you've adjusted the size and position of the display you can test it by selecting a test pattern. The various patterns will show you how your display looks with different colors. Use the arrow keys to scroll through all the patterns available.

More...

Selecting a Monitor
Selecting a Refresh Rate
Selecting a Resolution

More...
Adjusting Your Display

Diagnostics

All installed graphics modes in the *mach64* accelerator can be viewed and tested, by running a diagnostics program called M64DIAG.EXE from the DOS prompt or by running the INSTALL program.

To run Diagnostics:

1. **In the INSTALL program, select Diagnostics from the Main Menu.**

   The **Video Card Diagnostics** menu has the following options:

   VGA Tests

   Accelerator Tests

   Any time you suspect there is a problem, especially during installation, run the above tests.

2. **Check the result in the Error Codes and Messages table.**

Troubleshooting

Because a typical computer system consists of many different parts, difficulties may arise from a combination of items, from software or hardware installation, to monitor compatibility. Listed below are several checks you can make to help define the problem.

System Lockup

If you are using a memory manager such as QEMM or 386MAX you need to modify the command line in the CONFIG.SYS file so that the address of the graphics card video BIOS, C000 - C7FF, is excluded. For example, add EXCLUDE = C000 - C7FF to the command line.

Remove all unnecessary boards.

Disable shadow RAM.

Ensure that the board is seated correctly and that the card has been installed using the proper utilities.

Try the card in a different system and reset to factory defaults using the INSTALL program. If the card works in another system, the problem is likely due to incorrect configuration.

Test Patterns OK; Applications Do Not Sync

The wrong monitor type has been selected. Change the settings in the INSTALL program.

Windows Driver Not Installing Properly

 Windows must be running in 386 Enhanced Mode. Incompatible memory managers may prevent Windows from starting in enhanced mode. If this occurs, remove the offending driver or memory manager.

AutoCAD Driver Not Installing Properly

 If using a 386, ensure that AutoCAD has been configured for the appropriate ADI driver. The protected mode driver requires extended memory.

Error Codes and Messages

Problems and solutions for some common errors found by the test program (see *Diagnostics*) are provided for your reference as follows:

Problem	Solution
EEPROM BIOS failure	Try re-installing or run the diagnostics using the /F switch. This will return the card to factory settings: **M64DIAG/F <Enter>**
Memory aperture test failure orDiagnostics program locks orReboots during aperture test	If you receive an error message indicating that the memory aperture location is conflicting with your system memory, restart the INSTALL program as follows: **INSTALLAPMAP<Enter>**. Now when you enable Memory Aperture, you must select a location *above but not overlapping* System Memory (S), BIOS (B) or Reserved (R) locations. Not applicable for ISA cards or PCI cards.
Desired resolution is disabled and displayed in gray	A mode displayed in gray means that the BIOS has been told the mode is unavailable, based on the card configuration. Re-install using custom monitor selection.
Menu item is disabled and displayed in gray	The test program has determined that the mode or test is not available under the current configuration. Aperture tests are not available if the aperture is disabled, and CRT mode and pixel depth are determined by: the current installation, DAC type, memory size, and memory type.
Adapter not detected	This message should only occur when a *mach64* ASIC is not detected. If this message occurs and a *mach64* board is present, it may indicate an I/O conflict (conflicts between the Extended Memory Manager (EMM) and the video ROM). Try removing all other boards from the system and booting from a plain DOS disk. Alternately, try excluding the video BIOS address (C0000-C7FFF) from the memory manager. Refer to the documentation furnished with the memory manager software for information.
Any FIFO test error	The effects of a bad command FIFO should be visible. (e.g., the screen does not come up, or it displays garbage.)

Quick memory test error	Run the Detailed RAM Test to confirm the error and identify the address of the error.
Detailed memory test error.	Run the Detailed RAM Test several times to confirm the error and take note of any messages and error codes.
DAC LUT test failure.	An error has occurred while testing the DAC LookUp Table. The problem should be visible on the top color bar of any 8bpp mode.
ROM checksum error.	An error has been detected in the ROM.
Draw sequence failure.	An error has occurred in the draw engine. If the error is intermittent, it might indicate a marginal RAM failure. The effects of this failure may not be immediately apparent.

Specifications

System Requirements Intel 386/486/Pentium or compatible computer system (8086/8088/286 not supported) with one of:

16-bit ISA (or EISA) Bus.
32-bit VESA Local Bus. (up to 33MHz)
32-bit Intel PCI Local Bus.

Operating System one of:
DOS 5.0 or Windows 3.1.
Windows NT or OS/2 2.1.

Video Display Buffer
GRAPHICS PRO TURBO 2MB & 4MB VRAM
GRAPHICS XPRESSION 1MB & 2MB DRAM
WINTURBO 2MB VRAM
WINBOOST 1MB & 2MB DRAM

Sync Signals
Separate horizontal and vertical sync at TTL levels.

Video Memory Address
A000 - BFFF plus the memory aperture address enabled through the INSTALL program.

Video BIOS Address
C000 - C7FF.

Video Port Address
102, 1CE, 1CF, 2E8, 2EC - 2EF, 3?4, 3?5, 3?8 -3?B, 3C0 - 3CA, 3CC, 3CE - 3CF, 3DC, and all aliases; 46E8.
(?=B for monochrome, ?=D for color operation)

Video Output Connector
15-pin D shell (Female), IBM standard.

VGA Feature Connector
26-pin header, VGA Out only, VESA standard.

Video interrupt (Reserved for future use):
ISA 2, 3, 5 or 10, jumper selectable.
VLB 2, 3 or 5, jumper selectable.
PCI system auto-configurable.

Power

+5V ±5%, @ 1.3A typical.

Environment
Ambient Temperature:
50× to 122× F (10× to 50× C) operation.
32× to 162× F (0× to 70× C) storage.
Relative Humidity:
5% to 90% non-condensing operation.
0% to 95% storage.

MTBF
120,000 hours.

Diagnostics

All installed graphics modes in the *mach64* accelerator can be viewed and tested, by running a diagnostics program called M64DIAG.EXE from the DOS prompt or by running the INSTALL program. See page 2-4. In the INSTALL program, select Test Graphics Adapter from the Diagnostics ... option of the Main Menu. The Test Graphics Adapter menu has the following options:

VGA Tests ...
Accelerator Tests ...

Any time you suspect there is a problem, especially during installation, run the above tests. The information provided in this appendix will enable you to solve most problems. For assistance, please contact your vendor.

Troubleshooting

Because a typical computer system consists of many different parts, difficulties may arise from a combination of items, from software or hardware installation, to monitor compatibility. Listed below are several checks you can make to help determine what the problem is.

System Lockup

If you are using a memory manager such as QEMM or 386MAX you need to modify the command line in the CONFIG.SYS file so that the address of the graphics card video BIOS, C000 - C7FF, is excluded. For example, add EXCLUDE = C000 - C7FF to the command line.

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Try the card in a different system and reset to factory defaults using the INSTALL program. If the card works in another system, the problem is likely due to incorrect configuration.

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The wrong monitor type has been selected. Change the settings in the INSTALL program.
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If using a 386, ensure that AutoCAD has been configured for the appropriate ADI driver. The protected mode driver requires extended memory.

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Problems and solutions for some common errors found by the test program (see *Diagnostics*) are provided for your reference as follows:

Problem	Solution
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Desired resolution is disabled and displayed in gray	A mode displayed in gray means that the BIOS is told this mode is not available, based on the card configuration. Re-install using custom monitor selection.
Menu item is disabled and displayed in gray	The test program has determined that the mode or test is not available under the current configuration. Aperture tests are not available if the aperture is disabled, and CRT mode and pixel depth are determined by current installation, DAC type, memory size, and memory type.
Adapter not detected	This message should only occur when a *mach64* ASIC is not detected. If this message occurs and a *mach64* board is present, it may indicate an I/O conflict, conflicts between the Extended Memory Manager (EMM) and the video ROM. Try removing all other boards from the system and booting from a plain DOS disk. Try excluding the video BIOS address (C0000-C7FFF) from the memory manager. Refer to the documentation furnished with the memory manager software for information.
Any FIFO test error	The effects of a bad command FIFO should be visible. (e.g., the screen does not come up, or it displays garbage.)
Quick memory test error	Run Detailed RAM Test to confirm the error and identify the address of the error.
Detailed memory test error.	Run Detailed RAM Test several times to confirmthe error and take notes of any messages and error codes.
DAC LUT test failure.	An error has occurred while testing the DAC LookUp Table. The problem should be visible on the top color bar of any 8bpp mode.
ROM checksum error.	An error has been detected in the ROM.
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Specifications

System Requirements Intel 386/486/Pentium or compatible computer system (8086/8088/286 not supported) with one of:
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32-bit VESA Local Bus. (up to 33MHz)
32-bit Intel PCI Local Bus.

Operating System one of:
DOS 5.0 or Windows 3.1.
Windows NT or OS/2 2.1.

Video Display Buffer
GRAPHICS PRO TURBO 2MB & 4MB VRAM
GRAPHICS XPRESSION 1MB & 2MB DRAM
WINTURBO 2MB VRAM
WINBOOST 1MB & 2MB DRAM

Sync Signals
Separate horizontal and vertical sync at TTL levels.

Video Memory Address
A000 - BFFF plus the memory aperture address enabled through the INSTALL program.

Video BIOS Address
C000 - C7FF.

Video Port Address
102, 1CE, 1CF, 2E8, 2EC - 2EF, 3?4, 3?5, 3?8 -3?B, 3C0 - 3CA, 3CC, 3CE - 3CF, 3DC, and all aliases; 46E8.
(?=B for monochrome, ?=D for color operation)

Video Output Connector
15-pin D shell (Female), IBM standard.

VGA Feature Connector
26-pin header, VGA Out only, VESA standard.

Video interrupt (Reserved for future use):
ISA 2, 3, 5 or 10, jumper selectable.
VLB 2, 3 or 5, jumper selectable.
PCI system auto-configurable.

Power
+5V ±5%, @ 1.3A typical.

Environment
Ambient Temperature:
50× to 122× F (10× to 50× C) operation.
32× to 162× F (0× to 70× C) storage.
Relative Humidity:
5% to 90% non-condensing operation.
0% to 95% storage.

MTBF
120,000 hours.