INSTALLATION GUIDE

Xceed™ Color 30™

8-Bit Video Card for the Apple® Macintosh® SE/30

MICRON
TECHNOLOGY, INC.

Limited Warranty Information

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NOTE: To obtain service during the warranty period, or to obtain service thereafter:

1. Contact Micron by calling (800) 642-7661 or (208) 368-3850 to obtain a returned material authorization (RMA) number. Make a note of the RMA number—you may be asked to supply it when making inquiries about the repair status.

2. Return the complete product in its original packaging. If you do not have the original packaging, please contact Micron for instructions on returning your defective product. Send the product, shipping prepaid, to:

   MICRON TECHNOLOGY, INC.
   Memory Applications Group
   Attn: RMA Area
   8455 Westpark Street
   Boise, ID 83704-8366

3. Enclose proof of purchase documentation showing the date of purchase (sales receipt or invoice).

4. **Be sure to write the RMA number on the front of the package.**

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62-0065 (0369–Rev A, 16 SEP 91)

Radio and Television Interference

Class B Device

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/TV technician for help.

Using the Proper Video Cable

In order to maintain compliance with the FCC "Class B Device" rating, the connection between the Micron Xceed video card and your monitor should be made with a shielded video cable using metallic RFI/EMI connector hoods.

CAUTION: Changes or modifications made to this Micron Technology, Inc., product, without the expressed permission of Micron, may void compliance with FCC rules and regulations as well as void the user's authority to operate the product with other devices or equipment.

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Chapter 1 Video Card Overview

Introduction

Thank you for choosing Micron's Xceed Color 30 card for your Macintosh SE/30 computer. We believe you have selected one of the highest quality products available for Apple Macintosh computers. The Xceed Color 30 card is just one in a full line of Macintosh products from Micron Technology, Inc. Other high quality products available include:

Xceed Products for the Apple Macintosh:

- Memory upgrade kits for Macintosh computers and the LaserWriter IINTX printer
- Video cards for the Macintosh II family of computers
- Cache card for the Macintosh IIci
- PicturePress Accelerator card for the Macintosh II family (JPEG image compression solution—includes PicturePress software.)

Before You Install Your New Micron Video Card

Please take the time to read this installation guide. Failure to follow the instructions could result in improper installation which may void the warranty on the video card and could damage your computer. Any modification to the video card may invalidate its warranty.

Your Video Card Package Should Contain the Following Items:

- Micron Xceed Color 30 Video Card
- Video Card Internal Cable and Bracket
- Video Card Installation Guide (this document)
- Micron Software Diskette
- Static Wrist Strap
- Warranty Registration Form

If you have trouble installing or using your Micron video card, contact your Macintosh computer dealer, your video card dealer, or Micron Technology, Inc., at (800) 642-7661 or (208) 368-3850. Technical help from Micron is available weekdays between 8 a.m. and 5 p.m. Mountain time. We recommend you save the original packaging in the unlikely event you need to return the product.

Video Card Features

- Designed for installation in the Macintosh SE/30-type Processor Direct Slot (PDS)
- Provides 640 x 480 (standard) and 640 x 870 (portrait) resolution
- Provides 1, 2, 4 or 8 bits per pixel, allowing up to 256 simultaneous colors from a palette of more than 16.7 million
- Includes MonitorXCEED gamma color correction utility, Virtual Video virtual desktop expansion utility and MacroPaint 8/24-bit color paint program
- Compatible with many industry standard 13" and 14" monitors including Apple's high-res RGB monitor
- Compatible with Apple's portrait display
- Automatic external monitor sensing through software
- Optional adapter available from Micron to convert the SE/30 internal monitor to 8-bit gray-scale
- Provides the same features for the Macintosh IIsi with Apple's Processor Direct Slot (PDS) adapter
- Compatible with some VGA monitors (based on a 31.5KHz horizontal scan rate)
- Tested at the factory over a wide range of environmental conditions to ensure reliability
- Five-year registered warranty

Recommended Tools for Video Card Installation

1. We suggest you use the **static wrist strap** (provided with this product) during the entire video card installation process. This will guard against any damage to the video card or your computer from static electricity. If a static wrist strap was not included with this product, contact Micron Technical Support and one will be provided at no cost.

2. A special ***"TORX T-15" access tool*** is required to remove the screws that are deeply recessed in the SE/30 case. This tool is available from Micron or your dealer. You may also use an allen wrench with a handle at least six inches long.

3. A small **phillips screwdriver** is necessary to attach the video card and the video cable bracket to the SE/30 internal frame.

A Word of Caution:

Micron Technology, Inc., provides the instructions in this installation guide strictly as a convenience to the purchaser of this Xceed Video Card. Micron specifically disclaims any and all liability or claims which may arise from use of these instructions and/or installation of the video card. We recommend that the video card installation be performed by a qualified Apple Computer dealer. Performing the video card upgrade on your own may void your Macintosh computer warranty.

Technical Specifications

Dimensions
6.25 in x 6.38 in
(15.9 cm x 16.2 cm)

Power Consumption
+5V: 1.25A (6.25W) Operating

Environment

Operating:	0°C to +50°C
Nonoperating:	-30°C to +60°C
Humidity:	80% Maximum (Noncondensing)
Vcc:	+5V Nominal

Video Specifications

Resolution:	640 x 480	640 x 870
Refresh:	67Hz	75Hz
Horiz. Scan:	35KHz	68.8KHz
Bandwidth:	30.24MHz	57.2MHz
Pixel Depth:	8-bits Max.	4-bits Max.
Output Type:	RGB	
VGA Horiz. Scan:	31.5KHz**	
Video Memory:	0.5MB	
Sync Type:	TTL Level Sync	
Bus Width:	32-bits	
Connector:	DB-15	

** *This video card has the capability to sync to the VGA horizontal scan rate of 31.5KHz. A special cable is required for use with VGA monitors using this scan rate. Refer to Appendix B of this installation guide for the correct cable/connector pin assignments.*

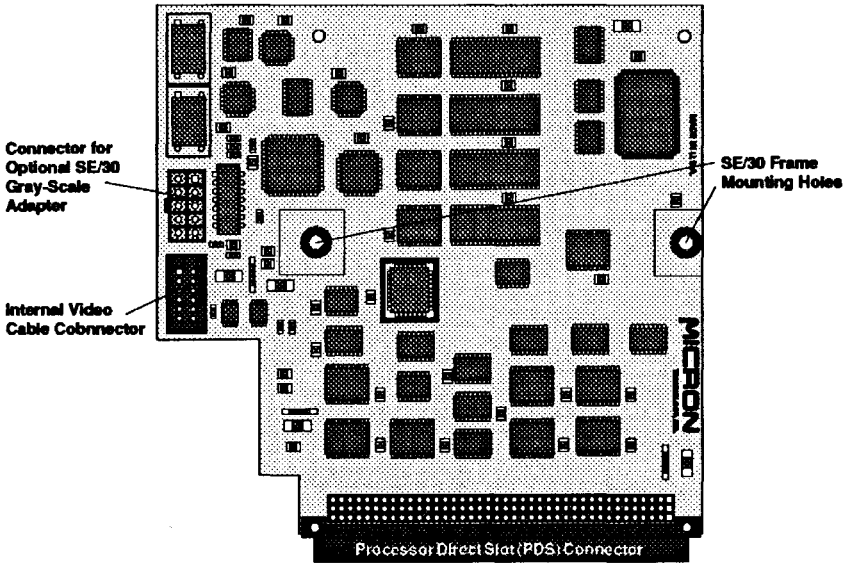

Figure 1-1
Micron Xceed Color 30 Video Card

Chapter 2 Installing the Video Card

Protecting Against Static Electricity

Caution: Static electricity can damage the VRAMs and other components on the video card and in your computer. Do not touch the edge connector or any components on the video card. Before you handle the video card or touch the Macintosh system board, ground yourself by touching the internal metal frame of the SE/30. Use a grounding strap as you install the card if one is available. Since movement can accumulate static electricity, limit your movements as you install the video card.

Gaining Access to the SE/30 Expansion (PDS) Slot

Micron's video card plugs into the Processor Direct Slot (PDS) connector inside your SE/30. To gain access to the PDS connector, perform the following steps.

WARNING: Make sure that the power to all of your computer equipment is turned off and that you wait five minutes before attempting to open your system.

1. Disconnect the keyboard and any other cables connected to your system. If the programmer's switch is in place on the lower left side of the computer, carefully pry it "out" from the bottom and lift it off.

2. Remove the four "TORX" screws from the back of the SE/30 case (Figure 2-1). The top two screws are deeply recessed in the carrying handle. To remove them, you will need the "T-15" access tool (available from Micron), or a similar tool.

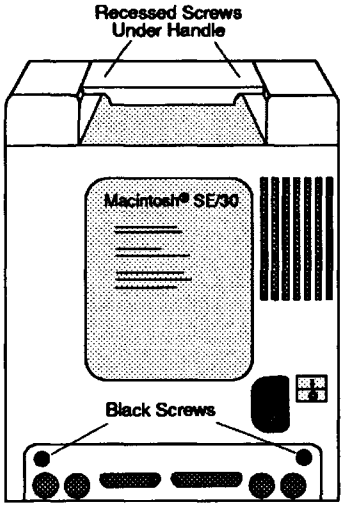

Figure 2-1
SE/30 TORX Screw Locations

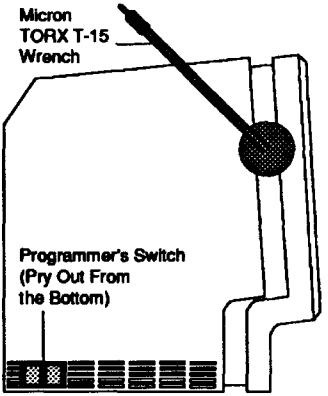

Figure 2-2
Separating the SE/30 Case

Gaining Access to the SE/30 Expansion (PDS) Slot (contd)

Note that the two black screws reside in the bottom two locations (Figure 2-1). These screws are threaded differently and must be replaced in the same holes during reassembly.

3. After you remove the four screws, separate the two halves of the case as shown in Figure 2-2. It may be necessary to carefully pry the two halves of the case apart using the round, flat end of Micron's TORX wrench. To remove the back of the case, it is easiest to carefully place the SE/30 on its face and pull the back of the case up and off.

WARNING: Some of the Macintosh components contain very high voltages even when the power has been turned off for extended periods of time. Keep your hands away from the areas labeled HIGH VOLTAGE. When possible, work with one hand, keeping the other hand away from the computer. Figure 2-3 shows the most dangerous areas inside the Macintosh SE/30.

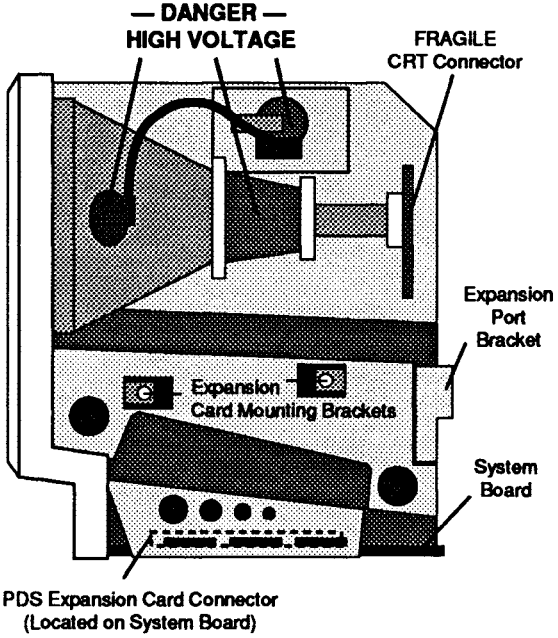

Figure 2-3: (Right Side View)
SE/30 Internal Components and High Voltage Areas

Gaining Access to the SE/30 Expansion (PDS) Slot (contd)

4. Once you have removed the back half of the SE/30 case, carefully remove and set aside the aluminum Radio Frequency Interference (RFI) shield covering the bottom and lower back of the computer. Be sure to handle the shield carefully. If it is misshaped in any way, it could be difficult to reinstall.

5. Set the SE/30 back on its base and locate the PDS expansion card connector. As you face the right side of the SE/30, the expansion card connector is located inside on the system board near the front of the computer as shown in Figures 2-3 and 2-4. Also note where the expansion card mounting brackets are located.

Installing the Video Card

Carefully follow the steps on the next few pages to install your Micron video card.

Caution: Some of the hardware inside the SE/30 is very fragile and could easily break. As you install the video card, be particularly careful not to "bump" the CRT connector as shown in Figure 2-3.

1. Insert the connector on the video card into the PDS expansion card connector on the SE/30 system board. As you install the video card, observe the following:

   • The components on the video card should face "in" toward the center of the computer.

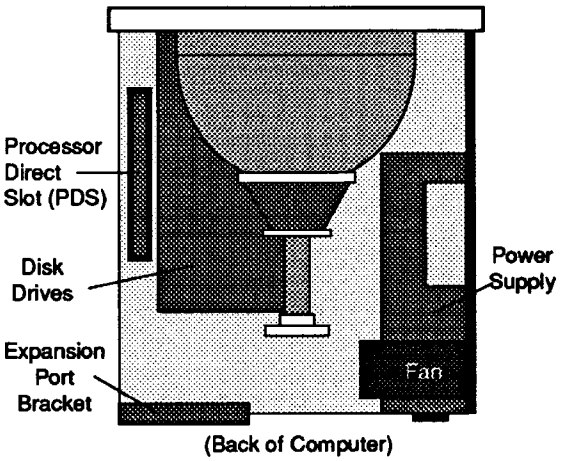

Figure 2-4
SE/30 Processor Direct Slot (PDS) Location

Installing the Video Card (contd)

- Offset the Micron video card with the right and left expansion card mounting brackets as shown in Figure 2-5. As you face the right side of the computer, position the video card so the left mounting bracket is behind it (toward the inside of the computer), and the mounting bracket on the right is in front (toward you).

- Make sure the video card is gently but firmly seated in the expansion slot connector.

Caution: DO NOT FORCE THE CARD INTO THE CONNECTOR! If the card seems difficult to seat in the expansion slot, remove the card and check to see if any pins on the connector are bent. If you see a bent pin, carefully straighten it with a pair of tweezers (be careful not to break it off) and try to install the card again.

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2. Install the screws and washers supplied by Micron through the video card and the mounting brackets as shown in Figure 2-5 and secure them with the nuts.

3. Place the video card internal cable bracket and connector through the expansion port bracket on the SE/30 frame as shown in Figures 2-6 and 2-7. Secure the video card cable bracket to the expansion port bracket with the screws, washers and nuts supplied.

Caution: Be careful not to drop the washers or screws inside your computer. If not found and removed, these parts could cause electrical shorts and damage your system.

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4. Plug the video card cable into the video card using the lower of the two connectors (see Figure 1-1 in Chapter 1 for reference). Note that the plug is "keyed" and can only be inserted one way.

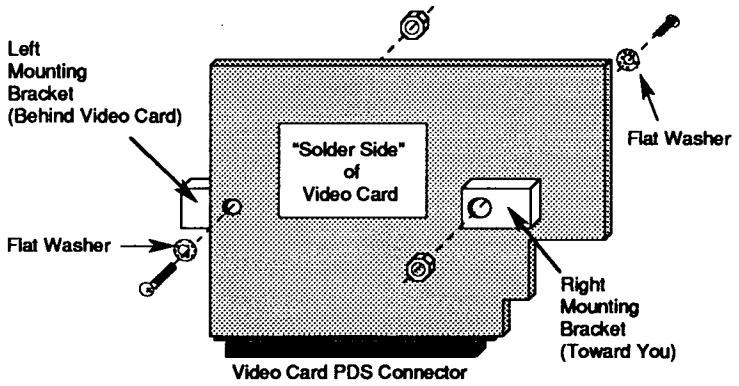


Figure 2-5
Video Card Installation

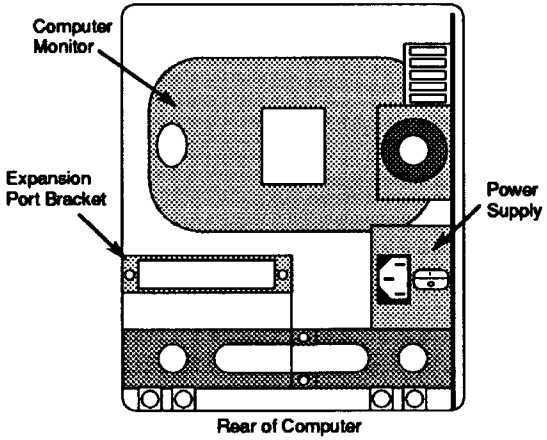


Figure 2-6
Location of the Expansion Port Bracket on the SE/30 Frame

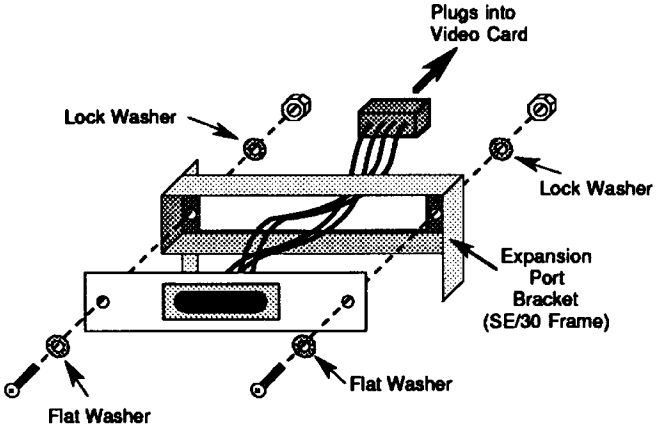


Figure 2-7
Connecting the Video Card Cable Assembly to the SE/30 Expansion Port Bracket

Installing the Video Card (contd)

5. Remove the small, rectangular plastic access cover from the back half of the SE/30 case. This will allow you to access the video port when you replace the case on the SE/30. To remove the access cover, use your thumb to press it firmly from the inside of the SE/30 case until it pops out the back.

Reassembling Your SE/30

When you have successfully installed the video card, use the following guidelines to reassemble the SE/30.

1. Place the computer with the screen facing down on a flat, smooth surface.

2. Carefully position the aluminum RFI shield on the bottom of the computer.

3. Carefully slide the back half of the SE/30 case down over the computer.

4. Replace the four TORX screws—make sure to place the two black screws in the bottom two holes and the two silver screws in the top two holes.

5. Set the computer upright and reattach the keyboard, mouse, power cable and programmer's switch.

6. Attach the external monitor cable to the video card port. Connect the monitor to the power source.

7. Reattach any other peripheral devices.

Installing the Video Card in the Macintosh IIsi

If you are planning to install the Xceed Color 30 video card in the Macintosh IIsi, you will need to purchase Apple's Processor Direct Slot (PDS) adapter. Instructions for installing additional cards in your computer are found in "Setting Up Your Macintosh IIsi" which is included in the documentation package that came with your system.

Configuring the System Software

Before you continue, you should be using Macintosh System Software version 6.0.4 or a later version. If you do not have version 6.0.4 installed, obtain a copy from your dealer or user group and install it at this time. Be sure to use the "Installer" program on the "System Tools" disk, and refer to the Apple documentation that came with your system for additional information.

A note to System 7.0 users: Micron has tested the Xceed Color 30 video card with System 7.0 and found it to be fully functional. Although system configuration under System 7.0 will be slightly different, video card features and operation are identical.

To configure your Macintosh SE/30 for color or portrait operation, turn your computer "on" and follow the steps below.

1. Select "Control Panel" from the "" menu on the Finder desktop. The screen will display a window similar to the one in Figure 3-1. Scroll down until the "Monitors" icon is displayed and select it. The window will change—allowing you to set the characteristics of your monitor—as shown in Figure 3-2.

NOTE: The "1" and "2" in Figure 3-2 represent the two monitors connected to your system. To identify which monitor is "1" and which is "2," click on the "Identify" button. Also, the larger monitor icon represents the external monitor (higher resolution), while the smaller monitor icon represents the SE/30 internal monitor (lower resolution).

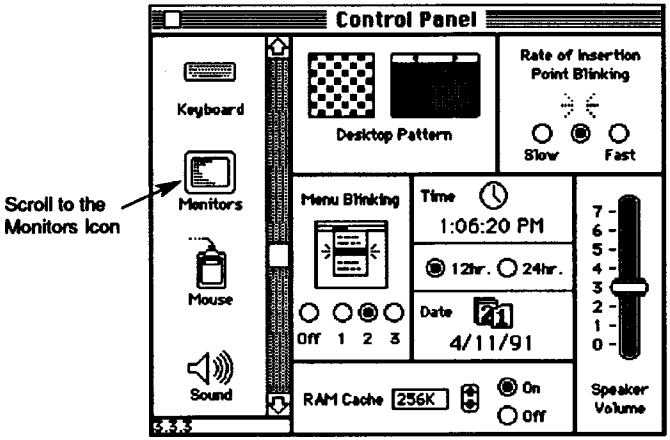


Figure 3-1
Control Panel Screen

Configuring the System Software (contd)

2. Click on the larger of the two monitor icons; the changes you make in the following steps will affect that monitor only.

3. For a standard 13" or 14" color monitor (640 x 480 resolution):
   - Select the "Colors" option.
   - Choose either "4," "16" or "256" for the number of colors simultaneously displayed.

   For the Apple portrait monitor, you can choose up to 16 shades of gray only.

4. You can select the monitor that displays the menu bar on power-up by dragging the menu bar icon to monitor "1" or monitor "2" as shown in Figure 3-2.

5. You can also select which monitor displays the startup screen ("Welcome to Macintosh") by pressing and holding down the "Option" key on your keyboard while you drag the small "Smiling Mac" icon to the appropriate monitor (Figure 3-2).

6. You can click on either of the monitor icons and drag them to a position which correctly represents their physical location with respect to each other (right or left, top or bottom). Then, when you move the mouse, the pointer will move from monitor to monitor in a logical manner.

Close the Control Panel and restart your system to put the changes into effect. For additional information on configuring your system software, refer to the "Macintosh System Software User's Guide" that came with your computer.

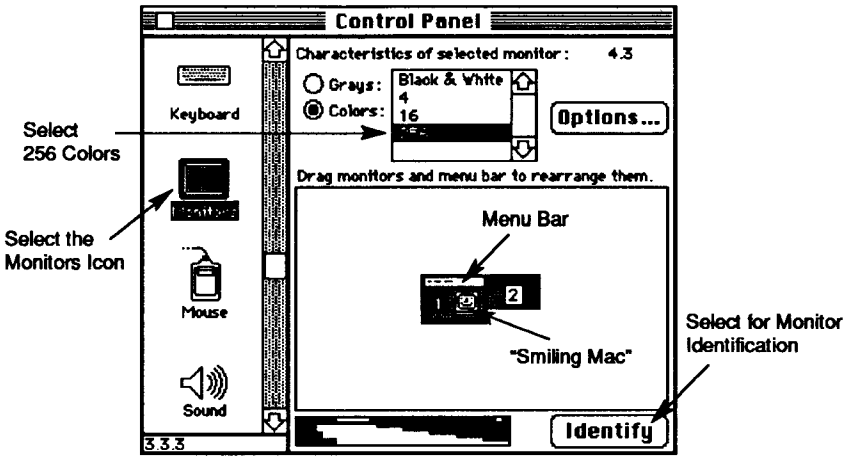


Figure 3-2
Selecting the Monitor Characteristics

Chapter 4 Micron Utility Software

A note to System 7.0 users: The utility software included with your Xceed Color 30 video card has been tested under System 7.0 and found to be compatible. Although some installation/configuration procedures will differ slightly from System 6.0 versions, the functions and features of the utility software will be identical. When installation procedures are different between System 6.0 and System 7.0, both sets of instructions will be given.

The Virtual Video Feature

Included on the Micron software diskette is the "Virtual Video" utility. This Control Panel device (C-dev) allows you to use available memory on the Micron video card to "virtually" expand the desktop area. This can be a valuable feature for CAD applications or programs using large graphics files, because it allows you to access and use a larger display area than your monitor is capable of physically providing.

There are three options available for desktop size:

- The ***"Physical Monitor Size"*** option is the default size and represents the actual resolution (640 x 480) of the external monitor connected to your system.
- The ***"Virtual Monitor 1K x 512"*** option is available if you are using Apple's 13" High-Res RGB monitor or other compatible 13" or 14" monitors. The 1K x 512 choice increases the desktop size from 640 x 480 to 1024 x 512 resolution.
- The ***"Virtual Monitor 1K x 1K"*** option is available if the Micron video card is connected to Apple's 13" High-Res RGB monitor (or other compatible 13" or 14" monitors) as well as the Apple portrait (15") monitor. The 1K x 1K choice will expand the desktop size to 1024 x 1024 resolution.

Since the Virtual Video feature can expand the desktop to an area larger than your monitor can physically display, the software allows you to use the larger desktop by simply moving the mouse out to the edges of the screen to "pan" the display area.

Scroll to the Virtual Video Icon and Select It (System 6.0.x Versions)

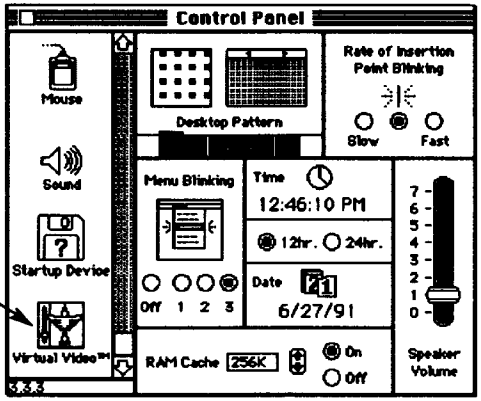


Figure 4-1: Selecting the Virtual Video C-dev

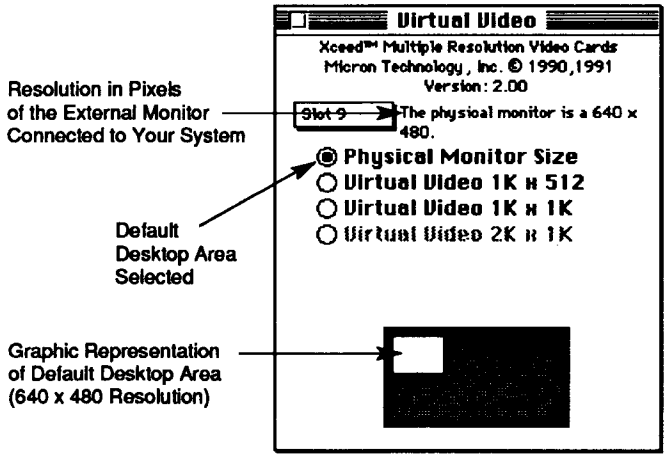


Figure 4-2
Virtual Video Features

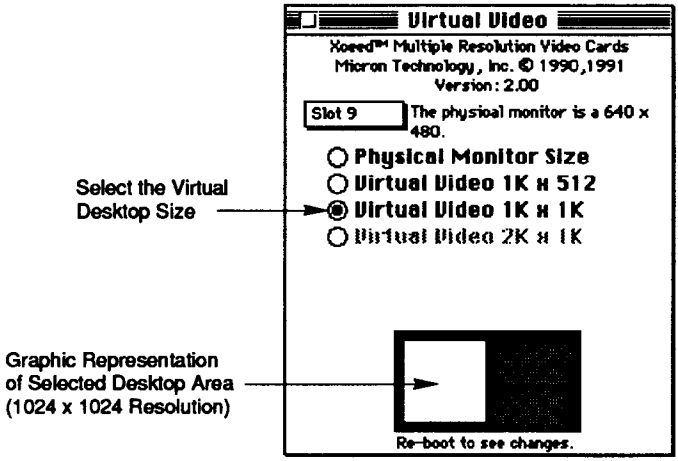


Figure 4-3
Choosing the Virtual Desktop Size

Using Virtual Video

To install the Virtual Video feature, drag the icon from the Micron software diskette to your System folder ("Control Panels" folder under System 7.0) and reboot your computer. To use the Virtual Video feature, follow the steps below.

1. Select "Control Panel" from the "" menu on the Finder Desktop. Scroll down to the "Virtual Video" icon and select it as shown in Figure 4-1. Figure 4-2 shows the Virtual Video features available.

2. Choose one of the available desktop sizes by clicking on the corresponding button as shown in Figure 4-3. The default selection is "Physical Monitor Size." The other choices are available only if their descriptions are highlighted (not "grayed out").

3. After choosing the Virtual Video desktop size, you must reboot your computer for the changes to occur.

Note that after you reboot your computer, you may have to go back into the Control Panel and reselect your monitor of choice (because you are using more than one monitor) from the "Monitors" c-dev (Figure 4-4). This is required by the Macintosh operating system (including System 7.0) because you have effectively "changed" to a different monitor size. Note that if you choose the 1K x 1K option, you will be restricted to a maximum of 16 colors (4-bit mode) due to the 0.5MB limit of video memory on the Xceed card. The selected monitor's size displayed in Figure 4-4 represents the selected Virtual Video size. The setup and operation procedures for Virtual Video are the same for the Apple portrait monitor.

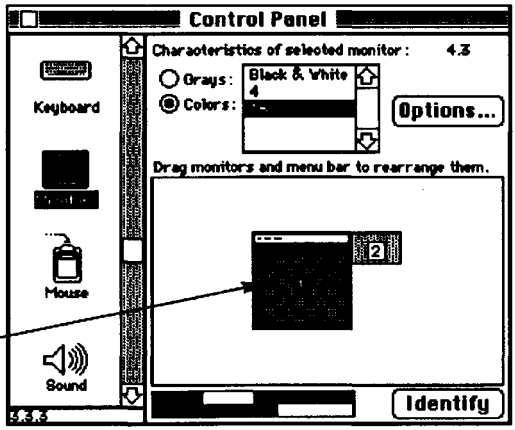


Figure 4-4
Reselecting Your Monitor of Choice

The "YAH" FKEY

Under Virtual Video, you can "pan" the display to view different areas of the overall virtual desktop. YAH ("You Are Here") is a utility included on the Micron software diskette that allows you to immediately determine the location of your screen on the virtual desktop. When activated, YAH displays a gray window on your screen representing the overall size of the virtual desktop. The white rectangle, inside the gray window, represents that portion of the virtual desktop that your monitor currently displays.

YAH is controlled using a function key or "FKEY." To install the FKEY, you will need to use an FKEY mover or manager such as Suitcase™ or MasterJuggler™. You can also use ResEdit to "paste" the FKEY into your "System" file. NOTE: If you use ResEdit, it is best to install the FKEY into a ***copy*** of your System file instead of the active System file itself.

When the YAH FKEY has been installed, you will need to be using Virtual Video to activate it. FKEYs are accessed by holding down the "command" and "shift" keys and typing the ID number of the FKEY. The ID number of the YAH FKEY is "7."

MonitorXCEED Gamma Color Correction Utility

The output of different color monitors (what you see on the screen) can vary greatly. The "MonitorXCEED" utility supplied on the Micron software diskette, allows you to adjust the color output of the monitor connected to the Micron video card. You may customize the display to match your application or adjust the screen colors so they more accurately match the output of a color printer (it does not affect the colors actually printed, however).

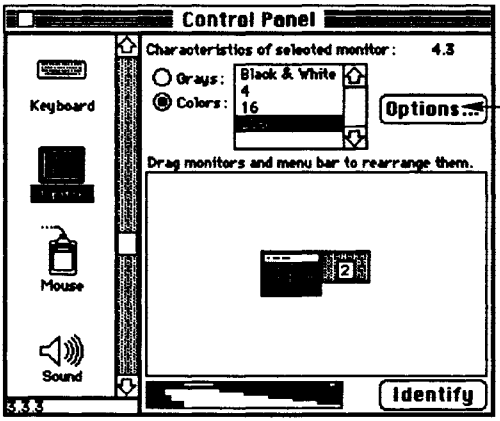


Figure 4-5
Monitors Window—Selecting MonitorXCEED

Adjustments made to the color output of your monitor may be saved as a special "gamma table" resource for use at another time. You may choose to have your system boot-up using the default (uncorrected) gamma table supplied with the Macintosh system software, or one of the special gamma tables you have created.

Using MonitorXCEED

To install the MonitorXCEED gamma color correction utility, drag the icon from Micron's software diskette to your system folder ("Control Panels" folder under System 7.0). MonitorXCEED is a c-dev extension, which means that it operates in conjunction with the "Monitors" c-dev supplied with your Macintosh system software. To use the gamma color correction utility, refer to the following steps.

1. Select "Control Panel" from the "" menu on the Finder desktop. Scroll down to the "Monitors" icon and select it (as you did earlier in Chapter 3). Before you can access MonitorXCEED, you must click on the external monitor to select it. You now have two choices as explained in Figure 4-5.

   - Clicking on the "Options..." button in the "Monitors" c-dev window will display a small window (Figure 4-6) showing the Micron video card installed in the system and a pull-down menu to select which monitor is connected to the video card.

NOTE: The Xceed Color 30 video card offers three monitor choices: 640 x 480 (Macintosh RGB), 640 x 480 (VGA), and Apple Portrait. *For proper operation, make sure that you select the correct option for your monitor before you reboot or shut down your system.*

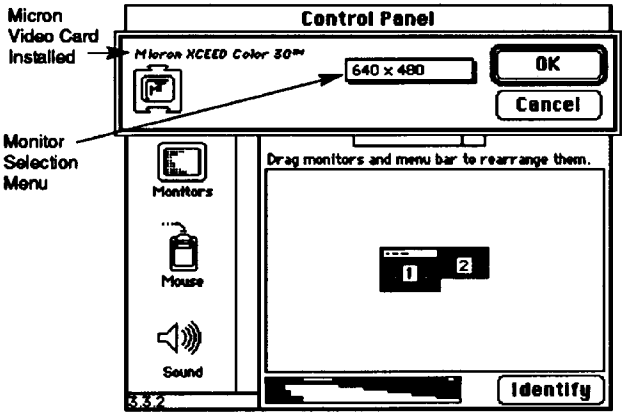


Figure 4-6
Monitor Selection Window

Using MonitorXCEED (contd)

- Clicking on the "Options..." button while holding down the "Option" key on your keyboard will activate the MonitorXCEED gamma color correction window as shown in Figure 4-7. The remaining steps will explain the uses of the MonitorXCEED utility.

2. The ***IRE*** feature controls the difference between the color "black" that you see on the external monitor screen and the blank (dark) border around the edge of the screen. When the IRE box is not checked (a "zero" setting), the two have the same intensity or appearance. When the IRE box is checked (a 7.5 setting), the blank border will have a lower intensity than the color black on your screen. Also, when the IRE is set to 7.5 the lighter ("white") colors have greater intensity on your screen. Some monitors will appear brighter overall with the 7.5 IRE setting. It is best to try both settings on your monitor to see which you prefer.

3. The color characterization squares (Figures 4-7 and 4-8) contain a diagonal line representing the relationship between color input and output (as seen on your monitor) for each of the colors selected. As you change the "Gamma," "Brightness," and "Contrast" scroll bars, these squares provide a graphic representation of the gamma curve for the selected colors.

4. The color selection boxes allow you to choose which of the three basic colors will be affected by changes made using the scroll bars. You can change one, two or all three colors at a time. To deselect a particular color, click on the "x" in the color selection box. To reselect the color, click on the empty selection box.

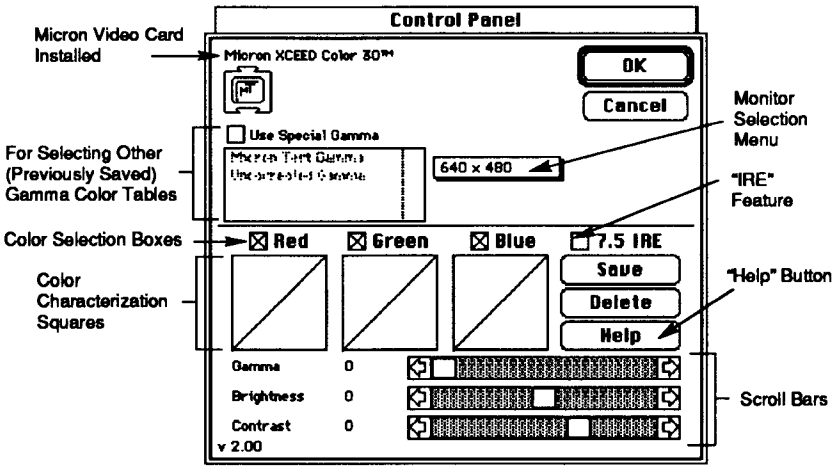


Figure 4-7
The MonitorXCEED Window: (Gamma Color Correction Utility)

5. The scroll bars make the actual changes to the display. The screen will display the change when you stop scrolling. To revert to the original (default) settings, move the scroll bars back to their "zero" position, or press the "Cancel" button. For additional information on MonitorXCEED's gamma color correction capabilities, press the "Help" button (Figure 4-7).

6. Once you are satisfied with your color adjustments, you can click on the "Save" button to save them as a special "gamma table" resource. MonitorXCEED will ask you to name the gamma table. After you name it, it will be saved for access again whenever you use the MonitorXCEED option.

7. To use a gamma table you have previously saved, select the "Use Special Gamma" box as shown in Figure 4-8. The previously saved gamma tables will be listed in the menu below. (Note that when you select "Use Special Gamma," the scroll bars are no longer active.) Select the gamma table of your choice and click the "OK" button to activate it. The "Uncorrected Gamma" option activates the default option supplied with the Macintosh System Software. You can always return to the default gamma by choosing it and clicking the "OK" button.

8. To delete a previously saved gamma table, press the "Delete" button (see Figure 4-8). A window will appear asking you to select one of the listed tables to delete. Note that there will be no changes made to the gamma table list until you close (press the "OK" button) the MonitorXCEED window.

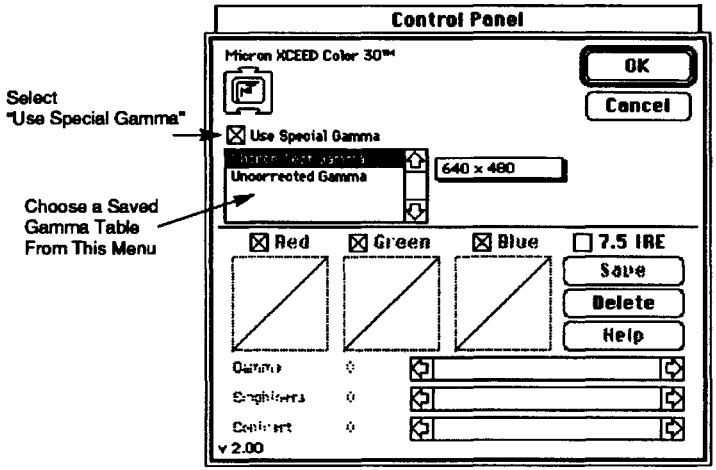


Figure 4-8
Accessing Saved Gamma Tables

Chapter 5 Common Problems

What to Do

If after following the instructions in this installation guide, your Xceed video card fails to operate properly, review the following symptoms and procedures. Look for your symptom and try each procedure in the order indicated until the problem is corrected. If your symptom is not listed, or if none of the procedures listed solve the problem, contact your video card dealer or Micron Technical Support at (800) 642–7661 or (208) 368–3850. Technical help from Micron is available on weekdays from 8 a.m. to 5 p.m. Mountain time.

Monitor does not operate when computer is powered up

Procedure 1

1. Make sure the monitor's video cable is securely connected between the monitor and the video card connector on the back of the SE/30.
2. Make sure the monitor's power cord is securely plugged into the monitor and the power outlet, and that the monitor is turned on.
3. Verify that the brightness control on the monitor is set to a visible level.

Procedure 2

1. Make sure the video card is properly seated in the SE/30 Processor Direct Slot.
2. Verify that the internal video cable is securely plugged into the video card.
3. Verify that there are no broken or damaged wires in the internal video cable harness or on the back of the expansion port connector. If broken or damaged wires are found, contact Micron Technical Support to arrange for repairs.

Monitor display is in black and white or does not allow color operation

Procedure 1

1. Select "Control Panel" from the "" menu on the Finder desktop.
2. Scroll to the "Monitors" c-dev and select it.
3. Click on the larger monitor icon to select the external monitor.
4. If you are using a standard 13" or 14" monitor (640 x 480 resolution), select "Color" first then "256" (8-bit mode). If you are using the Apple portrait monitor, you can choose up to 16 shades of gray only (4-bit mode).

One (or both) of the monitors has a dark line moving up or down the screen

Procedure 1

1. Turn off the external monitor. If the line goes away, the monitor and the computer are interfering with each other. Increase the distance between the computer and the monitor.
2. Adjust the physical location of the computer or external monitor with respect to fluorescent desk lights or other electronic devices that may cause interference.

Appendix A Glossary

Bit

A bit (binary digit) is the smallest unit of digital information the computer uses (either a "1" or a "0"). When used in reference to a video card, the bit value indicates the pixel depth (or number of colors) that the video card can display at one time. The information is expressed in the form "2^x," where "x" indicates the number of bits available for each pixel. In 1-bit mode, the screen can display 2^1 colors (two), black and white. In 8-bit mode, the monitor can display 2^8 colors, or 256 colors.

C-dev (Control Panel device)

A c-dev is a type of utility software that is accessible through the "Control Panel" desk accessory in the "" (apple) menu. C-devs are installed directly into the System Folder under System 6.0.x versions and are automatically available through the Control Panel when the computer is turned on. Under System 7.0, c-devs are placed in the "Control Panels" folder inside the System Folder. Micron supplies a c-dev "extension" (MonitorXCEED) with all video cards that is used in conjunction with the "Monitors" c-dev supplied with your system software. The "Virtual Video" utility supplied by Micron is also accessible through the Control Panel.

Color Palette

A color palette is the selection of colors available (saved as a resource file) to choose from and display on the monitor.

DA (Desk Accessory)

A software application you can access through the "" (apple) menu on the Finder desktop. Under System 6.0.x versions, desk accessories are installed into the "System" file of your computer's operating system using the application "Font/DA Mover" (supplied with your system software). Under System 7.0, desk accessories are installed directly into the "Apple Menu Items" folder located inside the System Folder.

DPI (Dots Per Inch)

A unit of measurement that refers to the number of dots a monitor (or printer) can display in one inch. Matching monitor and printer DPI provides WYSIWYG ("what you see is what you get") output at your printer.

Gamma

Gamma describes the line representing the relationship between color input and output values as displayed on your monitor. If the input is proportional (equal in value) to the output, the gamma is said to be "linear." With the Micron MonitorXCEED c-dev extension, the three basic colors displayed in the window have gamma lines that change with respect to the scroll bar settings.

Gamma Tables

Gamma tables are resources that store color information used to change the color characteristics that the video card displays on the monitor. The MonitorXCEED c-dev, supplied with Micron's video cards, allows you to manually adjust the current gamma table characteristics and save the adjustments as a separate resource.

Hz (Hertz)

Hz or "hertz" (cycles per second) is a unit of measurement used to describe the frequency range from 1 cycle to 1,000 cycles.

Icon

An icon is a graphic representation of something. Icons are used to graphically represent applications, commands, tools within an application, folders, files, documents and disks. Micron provides unique icons to represent both the "MonitorXCEED" and "Virtual Video" software utilities supplied with the Micron video card.

Init

(Applies to System 6.0.x versions only.) An init or "initialization program" is a utility program automatically run when the computer is powered on. Inits usually modify (add features to) the system file. In order for inits to be automatically installed, they must be placed in the System Folder. Inits may also be c-devs with options that can be accessed through the control panel. (See "C-dev.")

IRE

A unit of measurement: In the video signal, there are 100 IRE units of intensity between the blanked video and the white video levels. The blank video level corresponds to the black border you see around the display on your screen. If you choose to have this blank border assume a lower intensity level than the color "black" that normally appears on your screen, then 7.5 of the 100 units can be used for this. If the IRE is set to zero, the color black and the blank border will have the same intensity. If it is desirable to distinguish between the blank border and the color black and you prefer an overall "brighter" screen, set the IRE to 7.5. It is best to try both settings to determine which provides the best display.

KHz (Kilohertz)

KHz or kilohertz (one thousand hertz) is the unit of measurement used to describe the frequency range from 1,000 cycles to 1,000,000 cycles.

MHz (Megahertz)

MHz or megahertz (one million hertz) is the unit of measurement used to describe the frequency range in "millions of hertz."

PDS (Processor Direct Slot)

The Processor Direct Slot (PDS) is the expansion slot located on the Macintosh SE/30 system board allowing for single card expansion of the SE/30 computer. As its name implies, this expansion slot has direct access to the central processing unit (CPU) of the SE/30.

Pixel

A pixel is the smallest element or unit on the computer screen which can be independently assigned a color or a shade of gray. Pixels are usually used to define the resolution of a computer's monitor. The resolution that Micron's Xceed Color 30 video card addresses is 640 x 480 pixels.

Resolution

Resolution represents the horizontal and vertical size of the monitor screen in pixels. (See "Pixel.")

Screen Depth

Screen depth is defined as the number of bits of information per screen pixel. The depth determines the maximum number of colors that the screen can display. Micron's Xceed Color 30 video card supports up to 8-bit color or 256 simultaneous colors out of a possible 16.7 million. (See "Bit.")

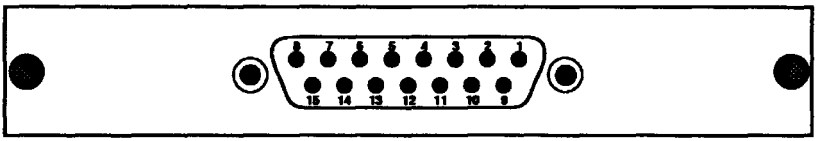
WYSIWYG

This is an acronym for "what you see is what you get." This term is used when the monitor display in DPI matches the output of a printer in DPI.

Appendix B SE/30 Video Card Connector Pin Assignments

CONNECTOR PIN NUMBER	SIGNAL
1	Red Ground
2	Red
3	Sync
4	NC
5	Green
6	Green Ground
7	NC
8	NC
9	Blue
10	Not Used
11	Green Ground
12	VGA Vertical Sync**
13	Blue Ground
14	Ground
15	VGA Horizontal Sync**

** *These additional video cable signals are required for proper operation with any VGA monitor having a horizontal scan rate of 31.5KHz.*



Female DB–15 Connector

Figure B-1
SE/30 Video Cable Connector Bracket
(Rear View)

Note to Apple Portrait Monitor Users Only:

Under some circumstances, you may experience some left to right screen jitter in the first column of an Apple Portrait monitor connected to this video card. This is a known marginality in the video card and is being corrected. If you experience this problem, please call Micron Technical Support at 800-642-7661 to arrange for repair. Please note that no other display modes are affected.

Thank you

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