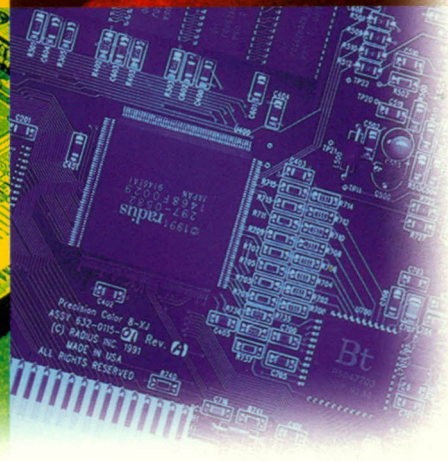
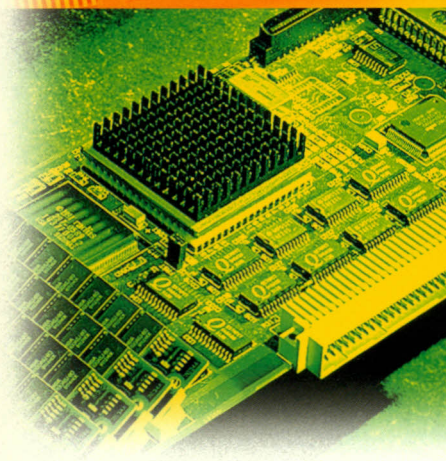
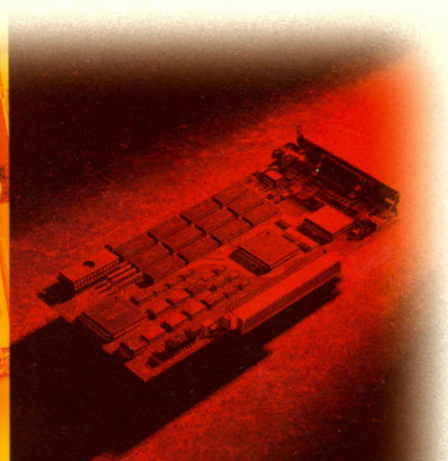
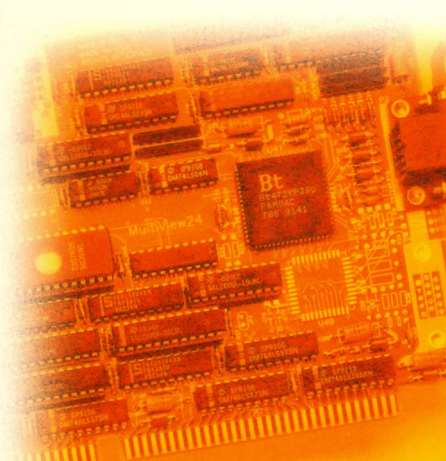


MULTIVIEW™ 24

COLOR GRAPHICS CARD

User's Manual



radius

**Radius MultiView™ 24
Video Interface Card**

*For IBM PC/AT-Compatible and
Micro Channel-Compatible Systems*

User's Manual



Printed in the United States on recycled paper

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Introduction

Congratulations on your purchase of the Radius MultiView™ 24 Video Interface card. The MultiView 24 Interface card represents a state-of-the-art, 24-bit graphics system for PC/AT-compatible and Micro Channel-compatible computers.

The MultiView 24 Interface card provides the following features:

- Extremely fast response: the MultiView 24 Interface card provides 24-bit color at speeds rivaling the fastest 8-bit cards
- 24 bits of video signal per pixel, which translates to 16.8 million colors available on screen
- A special software driver for Microsoft Windows
- An advanced diagnostic utility that quickly pinpoints potential problems with the MultiView 24 Interface card
- Support for a wide range of single-frequency and multi-frequency monitor systems
- 1024×768 non-interlaced resolution at refresh rates of 60, 70, 72, or 75Hz or at 43.5Hz interlaced
- Compatibility with 8514/A hardware and software to support numerous industry-standard programs
- Convenient, single-screen operation through a VGA passthrough; dual-screen operation with a VGA attached to a separate monitor.

Registration Card

A warranty registration card is included in your MultiView 24 Video Interface card kit. Please fill out the card and return it so we can provide you with the best-possible customer support.

Overview of the MultiView 24 User's Manual

This manual provides installation instructions for your MultiView 24 Video Interface card and its related software. It also includes instructions for connecting the interface cable to your Radius or other monitor.

For specific instructions on how to set up the monitor that you will connect to the MultiView 24 Interface card, refer to the documentation included with the monitor.

This manual is divided into six chapters and includes several appendices and an index.

- Chapter 1 *Quick Start* provides an overview for users who have installed and configured video interface cards.
- Chapter 2 *Installing MultiView 24 Hardware in an ISA/EISA System* explains how to install the MultiView 24 Interface card in your PC/AT-compatible computer.
- Chapter 3 *Installing MultiView 24 Hardware in a Micro Channel System* explains how to install the MultiView 24 Interface card in your Micro Channel-compatible computer.
- Chapter 4 *Installing MultiView 24 Setup and Diagnostic Software* explains how to install the system software that activates and controls the MultiView 24 Interface card.

Chapter 5.....*Installing MultiView 24 Windows 3.x Drivers* explains how to install the Windows drivers for use with the MultiView 24 Interface card.

Chapter 6.....*Reference* contains a troubleshooting section, technical information, and customer service information.

Chapter 1

Quick Start

This chapter provides an overview for users who have installed and configured video interface cards. If you are new to your computer, please skip ahead to Chapter 2, *Installing MultiView 24 Hardware in an ISA/EISA System*, or Chapter 3, *Installing MultiView 24 Hardware in a Micro Channel System*, and then read the rest of this manual in its entirety. You will find many hints, tips, and suggestions that will make working with your new computer system easier and more enjoyable.

In spite of your familiarity with installing and using video interface cards with your computer, Radius recommends that you read this manual in its entirety before proceeding. Be aware that no matter how much you know about MS-DOS, Windows, or OS/2 systems, you may need to refer to this manual occasionally when configuring specific applications.

Quick Start Installation Stages

The installation procedure involves five distinct stages:

- Installing the MultiView 24 Video Interface card
- Configuring Micro Channel machines
- Installing drivers and utilities
- Running the MV24SET utility
- Installing Windows drivers

Quick Start Installation

To install your Radius MultiView 24 Interface card,



Warning: Be aware that the MultiView 24 Interface card is a static-sensitive device. When handling the card, always follow proper grounding procedures to avoid electrostatic damage.

1. Install the interface card in your computer.



In a Micro Channel system, install the MultiView 24 Interface card in the highest-level slot available, according to the following hierarchy:

- First** A 32-bit slot with Auxiliary Video Extension
- Second** A 16-bit slot with Auxiliary Video Extension
- Third** A standard 16-bit slot (VGA passthrough cable needed)

2. If you will be using a single monitor on an ISA system or the Standard 16-bit slot on a Micro Channel system, connect the VGA passthrough cable, which is furnished, on the MultiView 24 Interface card to the feature connector of either your VGA card or, if you have VGA built into your computer, your computer's motherboard.

The MultiView 24 Interface card is not compatible with pseudo VGA cards that are based on 8514/A or S3 graphics chips. These cards must be disabled if they are integrated into the motherboard, or removed from the system.



If you are using a two-monitor system, you do not have to connect the passthrough cable. If you do, VGA programs will display on both monitors.

Micro Channel System Configuration

In a Micro Channel system, configure your system as indicated in the following steps, 3a — 3h. For ISA/EISA installation, proceed to step 4.





- 3a. Connect the monitor to the VGA or XGA video port on the computer.

Important: Do not connect your monitor to the MultiView 24 until the system configuration is complete.

- 3b. Turn on the power for the monitor and computer.
- 3c. If you see the 165 error code, insert the IBM Reference disk in drive A and restart the computer.

If 165 =  then 

- 3d. When you see the IBM logo, press 
When prompted to run an automatic configuration, press  for NO.
- 3e. Select Copy an option diskette from the Main Menu.
- 3f. When completed, select set Configuration from the main menu and Run automatic configuration from the Set Configuration menu.
- 3g. When automatic configuration is complete, exit the configuration program and turn off the computer.



Important: At this point, you have to change your monitor's connection from your VGA or XGA port to the MultiView 24 card's port.

- 3h. Disconnect your monitor from the VGA or XGA video port and connect it to the MultiView 24 card.
4. Turn on the power for the monitor(s), wait a few seconds, and then turn on the power for your computer.



5. When the DOS prompt appears, insert the *MultiView 24 Utilities and Drivers* disk, provided in the kit, into the floppy disk drive.

If you are using a single monitor, your computer might boot in monochrome mode (programs that normally come up in color come up in gray). This is because the MultiView 24 ROM is disabled. The problem will disappear once you run MV24SET, which enables the ROM (steps following).

6. Activate the Radius INSTALL application by typing,

A: (or **B:** , depending on the location of your floppy disk drive)

INSTALL

7. A menu will appear, listing all of the available drivers and utilities. Use the up- and down-arrow keys to highlight the driver you want to install. Press the space bar to select it for installation. An asterisk (*) will appear next to the item. Select as many items as you want. To de-select an item, highlight it and press the space bar again; the asterisk will disappear.



Important: Select MV24SET.EXE and DIAG24.EXE. Select CLR24.EXE if you are operating a two-monitor system. Select 8514 Adapter Interface if you will be running non-Windows software in 8514/A graphics mode. Do not install MV24INIT.EXE at this time. (It should be installed only if you encounter a ROM conflict that cannot be resolvable with other cards or software in your system.)

8. When all of the drivers you want to install have been selected, press the key.
9. Specify a driver directory. The default directory is **C:\MV24**.

The selected drivers (and/or utilities) will be copied onto the hard disk.

10. Depending on which drivers and/or utilities you installed, you may be prompted to modify the AUTOEXEC.BAT file. Choose the option that best suits your needs.
11. You will be prompted to run MV24SET (if this is the first time you have configured your MultiView 24 Interface card). Press Y.
12. Select the monitor you will be using and follow the instructions on the screen.
13. If yours is an ISA/EISA system, enable the ROM by setting it up for either address location. If you experience problems enabling the ROM, refer to the *Troubleshooting* section of Chapter 6, *Reference*.
14. Exit the MV24SET utility.
15. Turn your computer off and then turn it on again. This loads the new and modified files.

Each utility and driver is supplied with a README file. Be sure to read the contents of these files for more information. See Appendix G, *Reading the MultiView 24 Video Interface README Files*, for information on working with README files.

Using the MultiView 24 Video Interface Card with Microsoft Windows

If you will use the MultiView 24 Video Interface card with Microsoft Windows v3.x, you must install the Windows drivers separately. If you are currently using a VGA card with extended DOS modes, install the MultiView 24 Interface card and its DOS software as described above and then install

Windows at the lowest available resolution of the VGA card in your computer. (Consult the VGA card's user's manual for instructions.)

1. Install the MultiView 24 Interface card and its DOS software as described in the previous procedure.
2. Change to the Windows directory by typing,

CD\WINDOWS (or **CD*<dirname>*** , where ***<dirname>*** is the name of the directory in which Windows is installed)

3. Start the Windows Setup application by typing,

SETUP

4. When the SETUP screen appears, use the arrow keys to select the Display setting.
5. Press to open the Display options.
6. Use the up- and down-arrow keys to select VGA from the list of display types.



Important: *This is extremely important: the Display setting must be VGA. Refer to the Microsoft Windows User's Guide supplied with Windows v3.x if you are not familiar with the procedure for verifying the Display setting.*

7. Press to continue.
8. Press to accept the Windows configuration that you have defined. If you are prompted to insert any Windows disks, follow the instructions on the screen. The Setup application will save the VGA display configuration, and this configuration will be used when you start Windows.

At this point, the Setup application will return you to the DOS prompt.

9. Next, start Windows by typing,

WIN

Windows will appear on the monitor attached to your VGA. If the Windows screen is unreadable, or if it appears on another monitor, refer to the *Troubleshooting* section of Chapter 6, *Reference*.

10. Choose Run from the File menu. The Run window will appear.
11. Insert the *MultiView 24 Utilities and Drivers* disk.
12. At the Command Line prompt, type,

A:\INSTALL

(or **B:\INSTALL** , depending on the location of your floppy disk drive),

and click the OK button. The Radius Driver Installation window will appear.

13. Choose the Small-Font driver if your screen is 17 inches or more; Large-Font if it is less than 17 inches.
14. Click the OK button to install the Windows driver files.
15. Both drivers will be installed onto your hard disk drive; the selected driver will be activated. When the installation is complete, the Exit Radius Install window will appear. Click the Restart Windows button (or the Return to DOS button to exit Windows).
16. Store your *MultiView 24 Utilities and Drivers* disk in a safe place. Your license agreement allows you to make one backup copy.

Using the MultiView 24 Video Interface Card with Non-Windows (DOS) Applications

The MultiView 24 Video Interface card is 8514/A compatible. If you wish to run non-Windows software (such as AutoCAD, OS/2, or WordPerfect) in 8514/A mode, follow the video setup instructions in the application's user's manual.



Not all DOS software supports 8514/A. If you are using such an application, set it up for use with the VGA card installed in your computer.

Chapter 2

Installing MultiView 24 Hardware in an ISA/EISA System

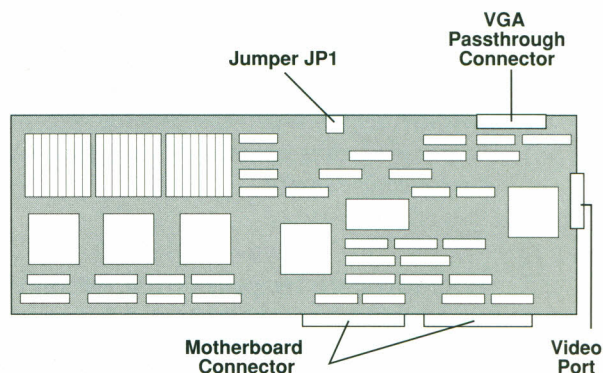
This chapter explains how to unpack MultiView 24 Video Interface card and install it in your PC/AT-compatible computer.

Unpacking

When you first open your MultiView 24 Video Interface card kit, make sure you have everything to set up your system. Unpack all the components and match them against the packing list. If you are missing any of the items, contact your Radius Authorized Reseller.

Overview of the MultiView 24 Video Interface Card

The MultiView 24 Video Interface card has a variety of components that you may need to configure as you install the card. The following diagram shows location of these components.



Components of the MultiView 24 Video Interface card for PC-AT-compatibles

- **Jumper JP1** The circuit jumper enables and disables the MultiView 24 Interface card ROM. Refer to Appendix D, *Jumper Settings*, if you have any problems booting up your computer.
- **VGA Passthrough Connector** This connector is used to link the MultiView 24 Interface card to either a VGA card or a motherboard that supports the industry-standard VGA feature connector. When the two boards are connected by the passthrough cable, the VGA signal “passes through” the MultiView 24 Interface card to provide the capabilities of both cards to the monitor connected to the MultiView 24 Interface card’s video port.
- **Motherboard Connector** This connector, with a gap in it, fits into the 16-bit ISA or EISA bus interface slot on the motherboard of your PC/AT-compatible computer
- **Video Port** The video port is an industry-standard HD-15 (mini DB-15) connector and is used to link the MultiView 24 Interface card to your monitor.

Installing the MultiView 24 Video Interface Card



Warning: *The MultiView 24 Video Interface card is a static-sensitive device. When handling the card, always follow proper grounding procedures (see step 4, below) to avoid electrostatic damage.*

Preparing Your Computer

1. Turn off the computer system and any attached peripherals (monitors, hard disk drives, scanners, etc.). Leave the computer plugged into a grounded power outlet so the power cord can serve as a ground for the system.



Warning: Before proceeding, be absolutely sure that the computer is turned off. Leaving the computer turned on can injure you, as well as damage the computer system's components and/or the MultiView 24 Interface card.

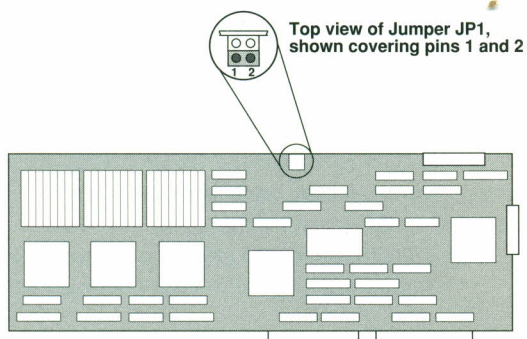


Important: If you are not sure you'll remember which cables go in which connectors on the back of the computer, label the cables and connectors before disconnecting them.

2. Disconnect all of the cables except the power cord from the rear of the computer.
3. Remove the cover of your computer. Refer to the owner's manual supplied with your computer for instructions.
4. Discharge the static electricity from your body by placing one of your hands on a bare metal surface of the power supply. One hand should always be in contact with a bare metal surface of the power supply to provide grounding while you touch the MultiView 24 Interface card or parts of the motherboard. If you must use both hands to perform any of the installation steps, touch a bare metal surface of the power supply just prior to doing a step.
5. Remove the MultiView 24 Interface card from its anti-static bag, and place the card on top of the bag with the components (the black chips) facing up and the motherboard connector facing you.

Verifying the Jumper Setting

Locate Jumper JP1. The jumper is a black plastic block, which should be covering pins 1 and 2 (the two pins farthest from the board), as shown in the following diagram:



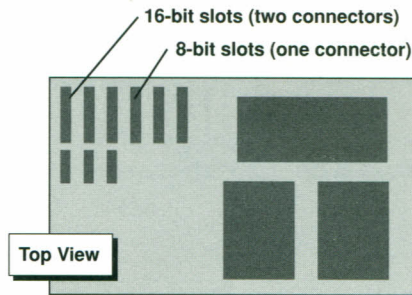
Default location (ROM enabled) for Jumper JP1

If the plastic jumper block is not covering pins 1 and 2, pull it off and place it over those pins. For more information about the settings for Jumper JP1, refer to Appendix D, *Jumper Settings*.

Installing the MultiView 24 Video Interface Card in a One-Monitor System

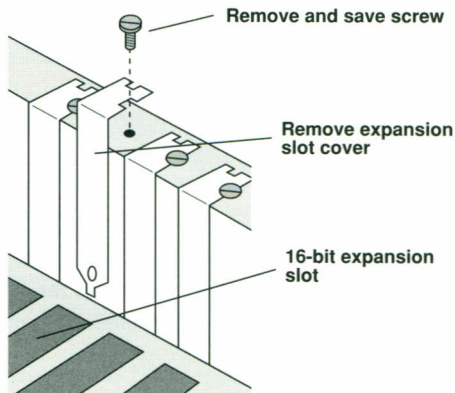
If necessary, consult the user's manuals supplied with your computer (and any other devices you may have attached to it) as you perform the procedures in the following section.

1. Follow the grounding procedures described on the previous pages.
2. Select a full-length, 16-bit expansion slot where the MultiView 24 Interface card will be installed. Make sure the slot you choose is close enough for the VGA passthrough cable to reach the feature connector of your VGA card or motherboard. A 16-bit slot has two separate board-edge connectors, as shown in the following diagram.



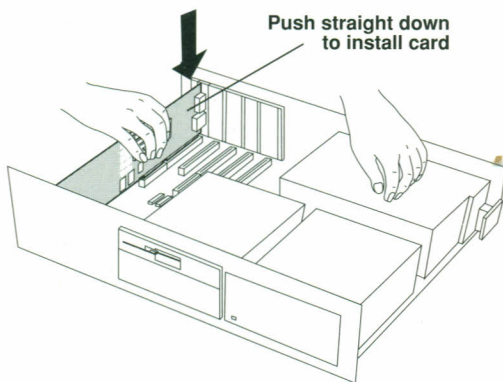
16-bit and 8-bit expansion slots on the motherboard

3. Remove the slot cover where the MultiView 24 Interface card will be installed. Remove the screw at the top, and lift the cover up and out of the chassis. Save the screw: it will be used to secure the MultiView 24 Interface card.



Removing the expansion slot cover

4. Place one hand on the power supply and pick up the MultiView 24 Interface card, touching only the edge of the card. Orient the video interface directly over the 16-bit slot, and gently push the card into the slot.



Installing the MultiView 24 Video Interface card



Warning: *If the card does not seat easily, remove it from the slot and try again. Do not wiggle the card back and forth while you are inserting it — this places unnecessary stress on the card and on the connectors in the slot.*

5. Secure the MultiView 24 Interface card to the top of the expansion chassis by replacing the screw removed in step 3 of this procedure.
6. Check the connector to your motherboard (or VGA video card) and select the VGA passthrough cable that fits it. The connector that attaches to the MultiView 24 Interface card, a “header” style connection, is the same on both cables.

Use the following connector combination if your VGA feature connector is “header” style (rows of pins extending from the card):



MultiView 24 connection



Feature connector connection

Use the following connector combination if your VGA feature connector is “edge” style (a tab extending from the card):



MultiView 24 connection



Feature connector connection

Notice that the connector ends are keyed so they can be attached in only one way.

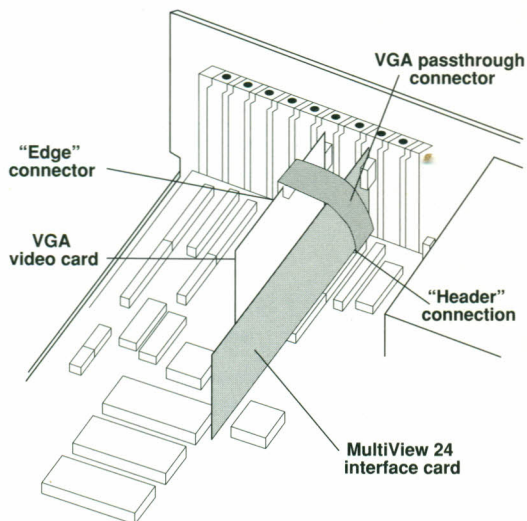


Some VGA cards with header-style connectors still have pin 25 in place. In such cases, you can remove the plastic pin on the cable connector with a pin or needle.

7. Place one hand on the power supply and connect one end of the VGA passthrough cable to the feature connector on the VGA video card or to the feature connector on the motherboard. Connect the other end to the VGA passthrough connector on the MultiView 24 Interface card. Align the red side of the cable with the notch on the connectors.



The MultiView 24 Interface card is based on the 8514/A graphics standard, which does not allow for two 8514/A interfaces in the same system. Pseudo VGA interface boards based on 8514/A — like the ATI 8514/Ultra, Paradise 8514/A Plus, Diamond Stealth, and Fahrenheit 1280 — or boards based on the 8514/A or S3 graphics chips cannot be used for VGA passthrough and must be disabled, if they are integrated into the motherboard, or removed from the system.



The VGA passthrough connector connected to the MultiView 24 Interface card and the already installed video card

8. Attach your monitor to the MultiView 24 Interface card's video port.
9. Turn on the power for the monitor, wait a few seconds, and then turn on the power for the computer.
10. Do not replace the computer cover until you have completed the software installation and tests.

If your computer system will not boot, or if the MultiView 24 Interface card or some other board already installed in your system does not function properly, you probably have an I/O conflict. Refer to Appendix F, *I/O Address Decoding Table*, to resolve this conflict.

At this point, the computer is up and running and the DOS prompt should appear on the monitor (adjust the brightness and contrast controls if necessary).

Installing the MultiView 24 Video Interface Card in a Two-Monitor System

Follow steps 1 through 5 of *Installing the MultiView 24 Video Interface Card in a One-Monitor System*, above, and continue with the steps below.

6. Do not attach the VGA passthrough cable.
7. Attach your 24-bit monitor to the MultiView 24 video port and attach an appropriate monitor to the video port of your VGA interface card or to the video port of your motherboard. Refer to the documentation supplied with your monitors for instructions.
8. Turn on the power for the monitors, wait a few seconds, and then turn on the power for the computers.
9. Do not replace the computer cover until you have completed the software installation and tests.



If you are using a two-monitor system, you do not have to connect the passthrough cable. If you do, VGA programs will display on both monitors.

Chapter 3

Installing MultiView 24 Hardware in a Micro Channel System

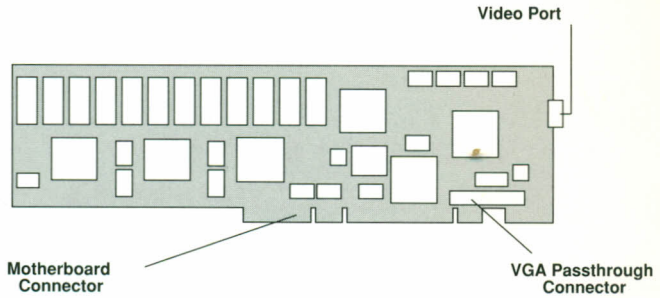
This chapter explains how to unpack the MultiView 24 Video Interface card hardware and install it in your Micro Channel-compatible computer.

Unpacking

When you first open your MultiView 24 Video Interface card kit, make sure you have everything to set up your system. Unpack all the components and match them against the packing list. If you are missing any of the items, contact your Radius Authorized Reseller.

Overview of the MultiView 24 Video Interface Card

The MultiView 24 Video Interface card has a variety of components that you may need to locate and configure as you install the card. The following diagram shows the location of these components.



Components of the MultiView 24 Interface card for Micro Channel systems

- **Video Port** The video port is an industry-standard HD-15 (mini DB-15) connector and is used to connect the MultiView 24 Interface card to your monitor.
- **VGA Passthrough Connector** This connector is used to link the MultiView 24 Interface card to either a VGA card or a motherboard that supports the industry-standard VGA feature connector. When the two boards are connected by the passthrough cable, the VGA signal “passes through” the MultiView 24 Interface card to provide the capabilities of both cards to the monitor connected to the MultiView 24 Interface card’s video port.
- **Motherboard Connector** This connector fits into the 32-bit or 16-bit slot with Auxiliary Video Extension or a Standard 16-bit slot.



Installing the MultiView 24 Video Interface Card

Important: *The MultiView 24 Video Interface card is a static-sensitive device. When handling the card, always follow proper grounding procedures (see step 4, below) to avoid electrostatic damage.*

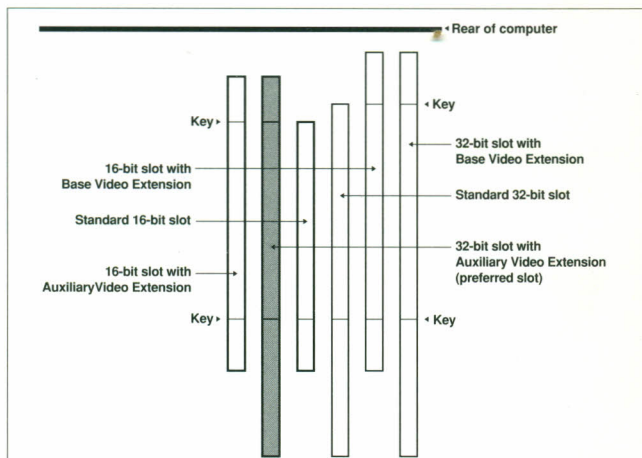
1. Turn off the computer system and any attached peripherals (monitors, hard disk drives, scanners, etc.). Leave the computer plugged into a grounded power outlet so the power cord can serve as a ground for the system.



Warning: *Before proceeding, be absolutely sure that the computer is turned off. Leaving the computer turned on can injure you, as well as damage the computer system's components and/or the MultiView 24 Interface card.*

2. Remove the cover of your computer. Refer to the owner's manual supplied with your computer for instructions.
3. Discharge the static electricity from your body by placing one of your hands on a bare metal surface of the power supply. One hand should always be in contact with a bare metal surface of the power supply to provide grounding while you touch the MultiView 24 Interface card or parts of the motherboard. If you must use both hands to perform any of the installation steps, touch a bare metal surface of the power supply as soon as the step is completed.

4. The illustration below represents the layout and description of the various expansion slots that may be in your computer. Not all computers are of identical construction.



Overhead view of sample PS/2 computer expansion slots

5. Remove the MultiView 24 Interface card from its anti-static bag, and place the card on top of the bag with the components (the black chips) facing up and the motherboard connector facing you.

If necessary, consult the user's manuals supplied with your computer (and any other devices you may have attached to it) as you perform the following procedures.

6. Follow the grounding procedures in step 4, above.
7. The MultiView 24 Interface card operates best when installed in the 32-bit slot with Auxiliary Video Extension. If you have a card in this slot that is not using the video extensions, please relocate it. If your computer does not have a 32-bit slot with Auxiliary Video Extension, use the 16-bit slot with Auxiliary Video Extension. If both these slots are unavailable, you can install the MultiView 24 Interface card in a Standard 16-bit slot, which will require

you to use a VGA card with a feature connector and the VGA passthrough connector for a single-monitor solution.



Warning: *The MultiView 24 Interface card will not fit into an expansion slot with Base Video Extension. If you attempt to install the card into one of these slots, you risk damaging the card, the slot, or both.*

8. Remove the cover of the slot in which you will install the MultiView 24 Interface card. Loosen the screw at the bottom, and lift the cover up and out of the chassis.
9. Place one hand on the bare metal chassis or casing of your computer and pick up the MultiView 24 Interface card, touching only the edge of the card. Place the motherboard connector directly over the slot, and gently push the card into the slot.



Warning: *If the card does not seat easily, remove it and try again. Do not wiggle the card back and forth while you are inserting it because this places unnecessary stress on the card and on the connectors.*

10. If the MultiView 24 Interface card is not installed in a slot with an Auxiliary Video Extension, connect the VGA passthrough cable to the MultiView 24 Interface card and the VGA-compatible card as shown in the illustration on page 16.



Some VGA cards with header-style connectors still have pin 25 in place. In such cases, you can remove the plastic pin on the cable connector with a pin or needle.

11. Do not replace the computer cover until you have completed the software installation and tests.

Micro Channel System Software Installation


To install the necessary system software,



Important: Make sure your monitor is still connected to the built-in video port of the computer. It must *not be connected* to the MultiView 24 video port until system configuration is complete.

1. Turn on the power to your monitor, wait a few seconds and then turn on the power for your computer.

If 165 =  then 

2. If you see the 165 error code, insert the IBM Reference disk in drive A and restart your computer. Otherwise, wait for the IBM logo and press .

If your computer system will not boot, or if the MultiView 24 Interface card or some other board already installed in your system does not function properly, you probably have an I/O conflict. Refer to Appendix F, *I/O Address Decoding Table*, to resolve this conflict.



3. When you are prompted **to run an automatic configuration, press N.**
4. The Main Menu is displayed. Select "Copy an option diskette."
5. Follow the instructions on the screen, and use the *MultiView 24 Utilities and Drivers* disk when you are asked to insert your *Option* disk.
6. When finished copying the Option disk, select Set configuration.



7. From the Set configuration.menu, select Run automatic configuration.
8. When Automatic configuration is complete, exit the configuration program and turn off your computer.
9. Disconnect the monitor video cable from the VGA or XGA video port and connect it to the MultiView 24 port.

The installation of the MultiView 24 Interface card is now complete and you are ready to:

- Install MultiView 24 software (Chapter 4)
- Run system diagnostics (Chapter 4)
- Install Windows drivers (Chapter 5)

Chapter 4

Installing MultiView 24 Setup and Diagnostic Software

This chapter explains how to install and run the MultiView 24 video interface setup and diagnostic software.

Before You Begin

This chapter explains how to install the software that controls the special features of the MultiView 24 Video Interface card. The installation process builds upon software already installed on the hard disk drive of your computer.

With this in mind, be sure that Microsoft DOS (MS-DOS) version 3.1 (or higher) is installed on your hard disk drive before you proceed.

Installing MultiView 24 Video Interface DOS Files

The following steps explain how to install the software files that activate and control the special features of the MultiView 24 Video Interface card. Each file has its own README file, which you should read for more information. See Appendix G, *Reading the MultiView 24 Video Interface README Files*, for information on working with README files.



Important: *The following installation procedure may modify the files that load when you start your computer.*

To install the MultiView 24 Interface card DOS files,

1. At the DOS prompt, insert the *MultiView 24 Utilities and Drivers* disk into the floppy disk drive.
2. Start the INSTALL application by typing,

A: (or **B:**) , depending on the location of your floppy disk drive)

INSTALL

The first screen of the application will appear.

Press to continue.

3. The next screen is used to select the application drivers, and/or system drivers, to be installed on your hard disk drive.

8514 Adapter Interface (AI) CLR24.EXE (Screen Clear Utility) DIAG24.EXE (Diagnostics) MV24INIT.EXE (ROM Replacement) MV24SET.EXE (Setup Utility)
--

Use the up- and down-arrow keys to highlight the driver you want to install. Press the space bar to select it for installation. An asterisk (*) will appear next to the item. Select as many items as you want. To de-select an item, highlight it and press the space bar again; the asterisk will disappear.

To get information about the selected driver, press the F1 key on the keyboard.

Important: Select *MV24SET.EXE* and *DIAG24.EXE*. Select *CLR24.EXE* if you are operating a two-monitor system. Select *8514 Adapter Interface* if you will be running non-Windows



software in 8514/A graphics mode. Do not install MV24INIT.EXE at this time. (It should be installed only if you encounter a ROM conflict that is resolvable with other cards or software in your system.)

4. When you have selected all the desired MultiView 24 software and utility drivers, press **(←Enter)** to continue with the installation.
5. You will be prompted to define the directory where the Radius MultiView 24 drivers and utilities will be installed.

The default setting for this directory is C:\MV24. You can enter any valid DOS directory name for the drivers and utilities files.

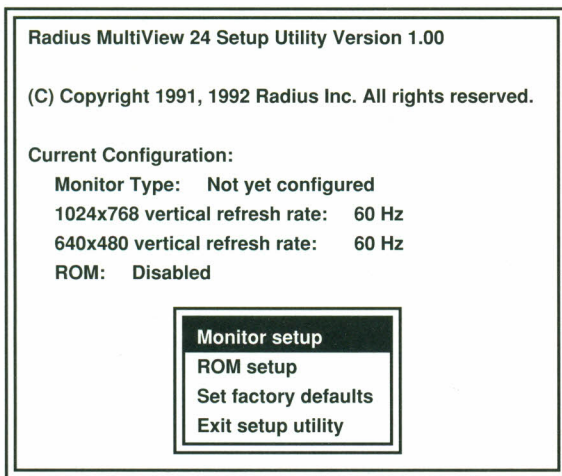
Press **(←Enter)** to continue.

6. At this point, the INSTALL application will automatically install all of the drivers and/or utilities you have selected.
 7. Next, you will be prompted for changes that should be made to the AUTOEXEC.BAT file (executed when the computer is booted). You will be prompted to
 - Add the directory C:\MV24 to the PATH statement in the AUTOEXEC.BAT file
 - Load the 8514/A Adapter Interface (AI) as part of the AUTOEXEC.BAT sequence startup (if you have installed the AI)
- Follow the directions on the screen to make the appropriate changes.

8. You will be prompted to locate the drive and directory containing the AUTOEXEC.BAT file. Enter the appropriate drive and directory, and press to continue.
9. You will be prompted to run the MV24SET utility automatically.

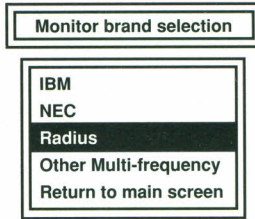
(The MultiView 24 Interface card will not function properly until you have run the MV24SET utility. You can run this later by typing **C:\MV24\MV24SET.**)

Press to continue. The following screen will appear.

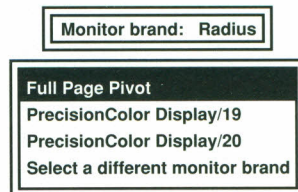


The MV24SET screen

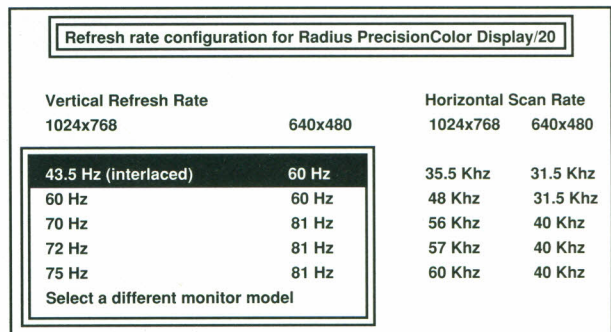
10. Select "Monitor Setup" and press . The following screen appears. Press to continue.



11. Select the manufacturer of the monitor you have connected to the MultiView 24 Interface card. If the manufacturer of your monitor is not listed, select “Other Multi-frequency.” Press **← Enter**. A screen similar to the following appears.

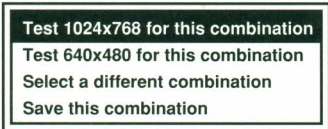


12. Select the monitor you are using and press **← Enter**. A screen similar to the following appears.

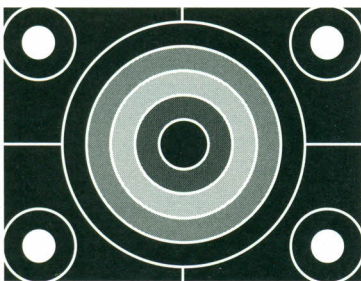


13. If you selected a specific brand and model, select the highest refresh rate listed for the most ergonomic setting. Press **← Enter** and the following screen appears. If you

selected “Other Multi-frequency,” consult your monitor’s user’s manual for the refresh rate that corresponds to the highest 1024×768 horizontal scan rate your monitor can accept.



14. Run each of the resolution tests in any order. The test screen is similar to the one that appears below.



When the test screen appears, check that the image is stable and that it is not distorted and does not jitter on the screen. You should not hear any unusual high-pitched noises. The rectangle that borders the image should be completely visible and centered on the screen. The circles should be perfectly round.

Use your monitor’s horizontal and vertical sizing and centering controls (if available) to adjust the image before you come to a conclusion about the test.

The color rings in the center of the test pattern should be (working from the outer to the inner ring) black, red, green, blue, and black. If they are not in this order on your monitor, you probably have your monitor’s video


cables connected to the incorrect BNC video connectors. You can safely remove these cables and reattach them without turning your computer off. Later tests will also check the placement of the color cables.

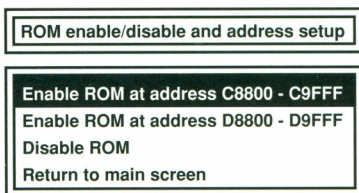
The same image is used for both resolution tests. If either test fails, select “Select a different combination” and you will return to the refresh rate configuration screen. Select a lower refresh rate and test again. If all refresh rates display incorrectly, refer to the *Troubleshooting* section of Chapter 6, *Reference*. If both tests pass, select “Save this combination.”

You will return to the MV24SET screen. Notice that the text in Monitor Type and the two refresh rate lines reflect the settings you chose during the procedure above.

Enabling ROM

To enable ROM in an ISA/EISA system,

1. Select “ROM setup” and press . The following screen will appear.



2. Choose one of the ROM addresses (Radius recommends address C8800–C9FFF) or “Disable ROM.” If you choose one of the “Enable ROM” addresses, MV24SET will check for ROM conflicts and will alert you to possible problems. If you choose to disable the ROM, you will have to run INSTALL again and install MV24INIT.EXE, a RAM replacement for the ROM.

Return to the main screen, exit the program, and turn the computer off.

3. Turn the computer on. It will load the software and prepare to use all of the new files, changes, and settings you have specified.

To enable ROM in an MCA system,

The ROM setting for the MultiView 24 MCA is automatically set during the system configuration in the previous chapter. It should not be necessary to change the setting unless a rare conflict results with another board or software exists.



1. Select "ROM setup" and press . The following screen will appear.

To change the MultiView 24 ROM enable setting:

- 1) Copy the file @8066.ADF from the MultiView 24 Utilities and Drivers Diskette to the backup (not the original) copy of your IBM PS/2 Reference Diskette.
- 2) Insert the backup copy of your IBM PS/2 Reference Diskette into drive A, and reboot your system.
- 3) At the main menu, select "Set Configuration". Following the instructions provided in your PS/2 documentation, locate the MultiView 24 settings, and change the ROM enable setting as desired.

Press any key to continue . . .

2. Follow the instructions on the screen.

If your system does not boot properly, the ROM addresses are probably in conflict. Refer to the *Troubleshooting* section of Chapter 6, *Reference*, for more information.

At this point, the installation of the DOS files that activate and control the MultiView 24 Interface card is complete.

Running System Diagnostics

The Diagnostics program enables you to confirm that the MultiView 24 Video Interface card and the monitor connected to the card are operating correctly.

To run the MultiView 24 Diagnostics program,

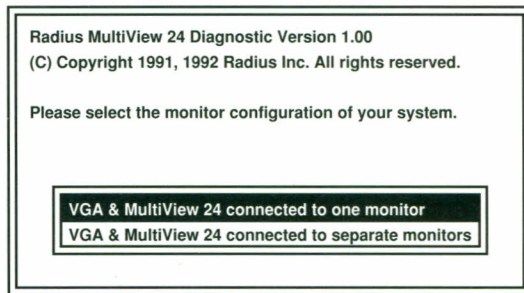
1. At the DOS prompt, insert the *MultiView 24 Utilities and Drivers* disk into the floppy disk drive. If you installed DIAG24.EXE as suggested in *Installing the MultiView 24 Video Interface DOS Files*, you can run the Diagnostics program from your hard disk.
2. Start the Diagnostics program by typing,

A: (or **B:**) , depending on the location of your floppy disk drive)

CD\DIAG

DIAG24

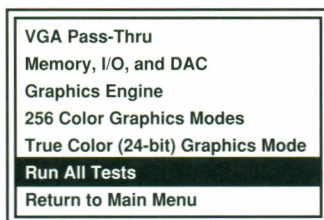
The following screen will appear.



3. Choose the appropriate configuration and press . The following screen will appear.



4. Select "Interface Card Tests." Press . The following screen will appear.



5. Select the test you want to run (Radius recommends that you select "Run All Tests"). Press to start the test. A description of each of the tests follows.

VGA Pass-Thru test. If you are running a one-monitor system, or a two-monitor system and have connected the passthrough cable, make sure your VGA passthrough cable is connected before you start this test. (If you are running a two-monitor system without the passthrough cable, this test will be skipped.)

The test screen comprises 16 color boxes and their labels. Verify that the labels correspond to the colors. If they don't, your monitor's video cables might be attached incorrectly. If you are operating a two-monitor system, you will next see a screen full of "1"s on both monitors. If you do not, try reattaching your VGA passthrough cable. The next screen will appear only on the monitor connected to the VGA port. If the screen does not come up, your connection might be faulty. Check the connection to your VGA port. If this does not help, press N to return to the Interface Card Test screen.

Memory, I/O, and DAC test. The screen fills with a multi-color background. The test ends with a series of rapidly firing color guns. It might appear that the computer is shorting out. It isn't; this is the standard test. The program reports any errors it finds.

Graphics Engine test. Six multi-color, multi-form patterns will appear on the screen. This test is a self-test, so do not be concerned about the labels that appear under the patterns. When the test is over, press any key to continue.

256 Color Graphics Mode test. This test displays four graded-color bars. Verify that the labels correspond to the colors and follow the instructions on the screen. The patterns are displayed twice — first for 640 resolution, then for 1024.

True Color Graphics Mode test. This test displays a graduated fill from red through magenta and back to red. Verify the labels.

When a test screen comes up, verify that the labels accurately reflect the colors next to them, read the message, and press the appropriate key on the keyboard. If you press N, a diagnostic message similar to the following will appear.

<p>Diagnostic Failure: Error in VGA Pass-Thru graphics mode test</p> <p>Press ENTER to continue or ESC to end this test...</p>
--

Write down the message in case you have to contact Radius Customer Support. Then follow the instructions on the screen.

Press **Esc** from a test to return to the test selection menu.

Press **Esc** from the test selection menu to return to the main menu.

When all the tests have performed as required, replace the cover of your computer. Your MultiView 24 Video Interface card is now fully operational.

Chapter 5

Installing MultiView 24 Windows 3.x Drivers

If you will be using your MultiView 24 Video Interface card with Microsoft Windows v3.x, follow the steps below to install the software files required for Windows.

Each file has its own README file, which you should read for more information. See Appendix G, *Reading the MultiView 24 Video Interface README Files*, for information on working with README files.

Confirming Windows Setup

Before you install the MultiView 24 Windows drivers, you must confirm that Windows is correctly installed on your hard disk drive and that VGA (or your specific VGA) is selected as the setting for Display in Windows Setup.

If you are currently using a VGA card with extended DOS modes, install the MultiView 24 Video Interface card (as described in Chapters 2 and 3) and its DOS software (as described in Chapter 4) and then install Windows at the lowest available resolution of the VGA card. (Consult the VGA card's user's manual for instructions.)

If you are currently using a standard VGA card, install Windows as described below.

1. Change back to the drive where Windows is installed.

2. Change to the Windows directory by typing,
CD\WINDOWS (or **CD*<dirname>*** , where *<dirname>* is the name of the directory in which Windows is installed)
3. Start the Windows Setup application by typing,
SETUP
4. When the SETUP screen appears, use the up- and down-arrow keys to select Display.
5. Press to open the Display options.
6. Use the up- and down-arrow keys to select VGA.
7. Press to continue.
8. Press to accept the display setting.

If you need more information about using the Windows Setup application, refer to the Microsoft Windows User's Guide supplied with Windows v3.x.

Installing the MultiView 24 Video Interface Windows Files

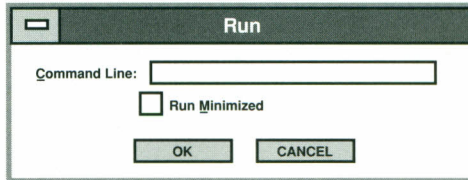
The following steps explain how to install the software files that activate and control the special features of the MultiView 24 Video Interface card when used with Microsoft Windows v3.x.

1. Make sure that you have installed the MultiView 24 Interface card's DOS files and have run MV24SET, both described in the *Installing the MultiView 24 Video Interface DOS Files* section of Chapter 4.

2. Start Windows by typing,

WIN

3. Insert the *MultiView 24 Utilities and Drivers* disk into the floppy disk drive.
4. When the main Program Manager window appears, click on the File menu, and drag to choose Run.
5. The Run window will appear, as shown in the following diagram:



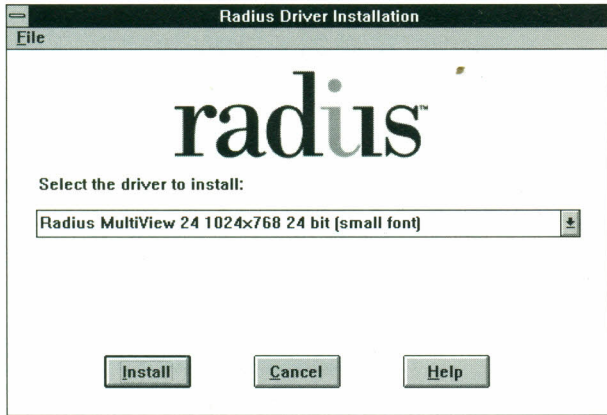
The Run window

At the Command Line prompt, type,

A:\INSTALL (or **B:\INSTALL**) , depending on the location of your floppy disk drive)

6. Click the OK button to proceed with the installation.

7. The Radius Driver Installation window will appear, as shown in the following diagram:

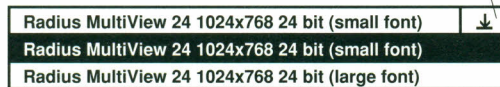


The Radius Driver Installation window

8. Select the appropriate setting. If your screen is less than 17 inches, choose the large-font driver; if it is 17 inches or more, choose the small font driver. With many applications (e.g., Microsoft Word), the small-font driver will display more of a document than the large-font driver.

Click this button to select driver

Select the driver to install:

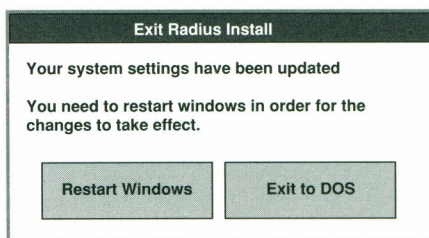


9. Click the Install button.
10. At this point, the files necessary to activate the special features of the MultiView 24 Interface card will be installed on your hard disk, and Windows system files will be updated to work with those files.



Both drivers are copied to your hard disk. If you wish to change drivers at a later date, run the Windows Setup application and choose the other driver from the list of Display options.

When the installation is complete, you will be prompted to restart Windows, which will load the new and changed files.



11. Click the Restart Windows (or the Exit to DOS) button.

At this point, the installation of the special Windows files is complete.



Important: *If a new version of the MultiView 24 Windows drivers becomes available, you must repeat the previous installation procedure in its entirety. In other words, you must start with the VGA (or your specific VGA) setting in the Windows Setup application, not the MultiView 24 video card driver. Always run the Radius INSTALL application with this video driver selected in the Windows Setup application.*

Upgrading Software Files

You should re-install the MultiView 24 software whenever:

- You receive upgraded software files from Radius for the MultiView 24, or
- You upgrade to a newer version of Windows



Always keep in mind that the MultiView 24 Interface card's software files are created *based on the software applications that are already installed on your hard disk drive*. If you change or update a software application, you may need to re-install it.

8514/A Support for Non-Windows Applications

Some applications support the 8514/A standard by writing directly to the 8514/A registers. Others require the Adapter Interface (AI).

The AI is a software interface to the MultiView 24 Interface card's 8514/A hardware compatibility. The utility is compatible with the Adapter Interface provided by IBM with the 8514/A.

The AI is a terminate-and-stay-resident (TSR) program. When loaded, it uses approximately 24KB of RAM. The AI supports only 8-bit color, with resolutions of 640×480 or 1024×768. Refresh rates for 8514/A are set in MV24SET.

Check the manuals for the applications that you will be using in 8514 mode to see if they require the Adapter Interface. If the manuals do not state that the AI is required but you get a message something like "8514/A Adapter not found" when you try to run the application, try the following:

1. Run the INSTALL application and install the Adapter Interface. Have INSTALL add the AI to your AUTOEXEC.BAT file.
2. Reboot the computer to make the updated AUTOEXEC.BAT file take effect.
3. Run the application again.

This completes all installation.

Chapter 6

Reference

This chapter contains troubleshooting tips, information about Radius Customer Support and Service, a listing of Radius international sales offices, and a glossary.

Troubleshooting

Should you experience a problem with your system, first take a few minutes to try to isolate the difficulty. Performing a few basic steps will verify whether there is, in fact, a problem.

I have run INSTALL and MV24SET on my ISA/EISA system and the computer still doesn't boot properly.

- You probably have conflicting ROM addresses. Follow the steps below.
 1. Turn the computer off.
 2. Move Jumper JP1 to cover the two pins closest to the board (to disable the ROM in hardware). Refer to the illustration in Chapter 1.
 3. Turn the computer on and run MV24SET. Disable the ROM in software by selecting, in order, "ROM setup," "Disable ROM," "Return to main screen," and "Exit setup utility."
 4. Turn the computer off, and move Jumper JP1 back to the two pins farthest away from the board (to enable the ROM in hardware). The ROM is still disabled in software from step 3.

5. Turn the computer on.
6. Run MV24SET again and select the other ROM address.

If your computer still doesn't boot, remove all the after market boards from your computer except for the MultiView 24, the VGA card, and the disk controller.

7. Add the removed boards back into the computer one at a time until the conflict reappears. Power down each time.
8. Check the manual for the offending board to see if its ROM can be moved to a different address.

In the extremely rare case that the conflict is still not resolved, repeat steps 1 through 5. Run INSTALL again and install MV24INIT.EXE. Add MV24INIT.EXE to your AUTOEXEC.BAT file, so it will be run every time you boot your computer. (You can have INSTALL do this for you automatically.)



MV24INIT.EXE runs in only the DOS environment.

The screen image is distorted and unreadable (or there is no screen image at all).

- You may have selected an incompatible refresh rate in the MV24SET utility or MV24SET has not yet been run.
- Make sure that the monitor connected to the MultiView 24 Interface card is compatible with the interface card. (See Appendix B, *Compatibility Guide*, for a listing of compatible monitors.)
- Make sure that the power cable for the monitor is connected to a live, grounded power outlet.

- Make sure that Windows v3.x is set up to use the 8514/A or MultiView 24 driver using the Setup application in your Windows directory. If it is set up properly, there may be a conflict between your primary interface card and the MultiView 24 Interface card. Rerun Setup from your Windows directory and set the video mode to match your primary video interface card.
- The MultiView 24 Interface card is based on the 8514/A graphics standard, which does not allow for two 8514/A interfaces to be installed in the same system. Video cards such as the ATI 8514/Ultra, Paradise 8514/A Plus, Diamond Stealth, Fahrenheit 1280, or other video interfaces based on the 8514/A or S3 graphics chips must be disabled, if they are integrated into the motherboard, or removed from the system.
- Make sure that the brightness and/or contrast controls of the monitor are turned up enough so that an image appears on the screen.
- Make sure that the interface cable is securely connected to both the monitor and the video port on the MultiView 24 Interface card.
- Make sure that the MultiView 24 Interface card is properly seated in its expansion slot. Turn off your computer, open the case, and press down on the MultiView 24 Interface card to make sure it is properly seated. Also make sure that all other expansion cards installed in your computer are firmly seated.
- Try using a different interface cable to connect the MultiView 24 Interface card to the monitor. A defective cable can cause a variety of problems: no display, distorted display, lines across the display, etc. Refer to the owner's manual supplied with your particular monitor for information about the type of interface cable that is required.

- There may be some type of error in one (or more) of the files that configure the computer system. In particular, check the AUTOEXEC.BAT and CONFIG.SYS files. Using a text editor (such as the EDIT utility supplied with Microsoft DOS v5.0), disable the individual lines that load device drivers.

To do this, type “REM ” (don’t forget the space) in front of every line that loads a device driver. Save the AUTOEXEC.BAT and CONFIG.SYS files and reboot your computer. If the monitor operates correctly, remove the “REM ” prefix at the beginning of suspect lines, one by one, and reboot your computer. When you determine the line that loads the offending device driver, refer to the manual that corresponds to the device for more information.

Some applications operate correctly and others do not.

- Applications that do not operate correctly with the MultiView 24 Interface card may require a different configuration *from within the application*. Applications that do not have a MultiView 24 driver need to be configured as 8514/A in order to take advantage of the MultiView 24 Interface card’s 1024×768 resolution. If your software is installed for VGA, ensure that the VGA passthrough cable is properly connected.

For example, the application may be set up to work with a different type of interface card (or driver, or resolution). In this case, refer to the manual supplied with the application for information about how to configure the application.

The monitor connected to the MultiView 24 Interface card displays some colors more brightly than other colors.

- Most monitors have individual controls to adjust the levels of the red, green, and blue colors that are displayed. Usually, these controls are located inside the housing of the monitor. Contact the dealer where you purchased the monitor for service information.

There are two monitors connected to my computer system and one (or both) show "wavy" lines of distortion.

- The monitors are placed too close to one another. Move the two monitors farther apart and the distortion should disappear.
- The monitor(s) might be too close to a fluorescent light. Move the monitor(s) away from the light source.
- You might have set an incompatible refresh rate for your monitor type. Run MV24SET again.

The colors on the monitor do not correspond to the labels assigned to the color bars during the diagnostic tests.

- The color cables from the computer's video out ports are not connected to the appropriate BNC video in ports on the back of your monitor.

VGA software displayed on the monitor connected to the MultiView 24 Interface card has "noise," moving pixels, or incorrect color.

- Ensure that the VGA passthrough cable is connected properly.
- Ensure that the monitor cable is connected properly.
- Guidelines established by VESA (Video Electronics Standards Association) limit the signal that can effectively "pass through" from a VGA interface to another interface.

Generally speaking, the passthrough cable provided with the MultiView 24 Interface card can handle VGA and SVGA signals up to 1024×768 with refresh rates up to 70Hz. However, due to electrical “noise” in various computers, video “noise” may be seen on the monitor. Try running the problem software in a lower VGA resolution or in 8514/A.

- HiColor, or 15/16-bit VGA signals, cannot properly pass through. Reduce the number of colors to 256 or less.
- Some VGA cards allow an 8-bit DAC. Refer to the manual that came with your VGA card for instructions on how to reduce the DAC to 6-bit operation.

If you are having a problem that you think may be related to the MultiView 24 Interface card, contact your Radius Authorized Reseller for assistance.

RadiusCare in the United States

At Radius, we believe that excellent service and support are an important part of the product you receive. With your purchase, we include a free one-year warranty and highly responsive technical support.

To make sure that the package is complete and product care is continued, we offer RadiusCare as an investment in the product’s future. For pennies a day, you can rest assured that your Radius products will be protected by an excellent service agreement and continued technical support for an additional one or two years.

RadiusCare can be purchased from any participating Radius reseller in the U.S. when you buy your Radius equipment, or during the time the product is in its initial warranty period. There are over 1500 Radius Authorized Resellers waiting to serve you.

For the location of an authorized U.S. Radius Reseller nearest you, call Radius at (408) 434-1012 or (800) 227-2795.

Radius Customer Support and Service

Radius has created a worldwide Authorized Reseller network to provide extensive support in both sales and service. In the United States, if you cannot return to the reseller from whom you purchased your Radius product and do not know the location of the nearest Radius Authorized Reseller, contact the Radius Information Center at (800) 227-2795. For reseller information outside the United States, contact the local Radius International Distributor (listed in the following section) or contact:

Radius Inc

International Sales Department
1710 Fortune Drive
San Jose, California USA 95131-1744
(408) 434-1010

If you are experiencing problems, need answers to technical questions, or information about product updates, you should contact your Radius Authorized Reseller or online service for assistance. If you have a problem, be sure that you review the steps outlined in the *Troubleshooting* section of this manual and have completed the form on the following page before contacting your reseller. This will expedite the diagnosis and correction of your problem.

If, after consulting with your Radius Authorized Reseller, you need further assistance, contact Radius Customer Support at (408) 434-1012, Monday through Friday, 6:00 a.m. to 6:00 p.m., Pacific Standard Time. If you find it more convenient to contact Radius by facsimile transmission, the FAX number is (408) 954-1015.

Radius Customer Support can also be contacted via the following on-line information service:

<u>Service</u>	<u>Address/Phone</u>
CompuServe	76004,2155
America OnLine	RADIUSTS
Radius BBS	(408) 954-1689

Radius Product(s) _____

Serial Number(s) _____

VGA Card Model _____

PC System _____

DOS Version _____

Application Software and Version _____

Other Peripherals _____

CONFIG.SYS File Contents _____

AUTOEXEC.BAT File Contents _____

Radius International Sales Offices

Radius Canada
250 The Esplanade, Suite 110
Toronto, Ontario, M5A 1J2

telephone: (416) 777-9900
fax: (416) 777-9911

Radius France
BP 422, Bureau 300
World Trade Center 2, CNIT
2, place de la Defense
92053 Paris-la-Defense

telephone: 33-1 4692-2335
fax: 33-1 4692-2337

Radius United Kingdom
Mill Court, Mill Lane
Newbury
Berkshire, RG145RE

telephone: 44-635-38531
fax: 44 635-41286

Radius K. K. (Japan)
Yanaba Bldg, 5F
6-7-10 Roppongi, Minato-ku
Tokyo

telephone: 81-3-5410-2480
fax: 81-3-5410-1624

Radius Germany, GmbH
Bernerstrasse 81
6000 Frankfurt/Main 50

The Radius FAX Information System

If you wish to take advantage of an immediate response system for Radius products, information, and domestic suggested retail price lists, you may call one of the following numbers, and by following the instructions, you will receive the information you want by return-facsimile transmission.

- United States and Canada (800) 966-7360
- International (408) 954-6670

Glossary

The following is a glossary of terms that appear in this manual:

8-bit color: 256 colors.

24-bit Color: 16.8 million colors.

8514/A: A video standard and interface card created by IBM for high-resolution graphics.

AI (Adapter Interface): A software interface to 8514/A hardware.

Analog Monitor: A monitor that uses variable color control voltages to display a very large number of colors while requiring very few inputs. This type of monitor is required by the MultiView 24 Interface card.

ANSI: American National Standards Institute.

ANSI.SYS: Pre-defined set of escape sequences used in terminal protocol as agreed upon by the ANSI committee.

ASCII: American Standards Committee on Information Interchange. A standard used by IBM and compatible computers to convert numbers to text characters.

BIOS (ROM BIOS): Basic Input-Output System. This is the interface between an operating system (DOS, OS/2) and the hardware (video, disk, etc.).

BitBlt: A transfer operation that moves pixel data from one area of a frame buffer to another area of the buffer or to system memory. With bit-block transfers, graphic coprocessors can dramatically improve video display performance because a displayed object is handled as a unit instead of individual pixels.

CGA: The IBM Color Graphics Adapter.

Default Mode: The settings, capabilities, resolution, and display mode that the MultiView 24 uses when the system is first started.

Digital Display: Also referred to as a TTL Display. A type of monitor that switches signals ON or OFF to determine display color. Types of digital displays include the IBM Enhanced Color Display or Monochrome Display. The MultiView 24 Interface card does not support digital monitors.

Digital-to-Analog Converter (DAC): A chip that converts the binary numbers (digital) that represent particular colors to the analog red, green, and blue colors needed by a color display.

DIP Switch: Dual Inline Package switch. A series of tiny, two-position switches, which allow users to select and/or change options on computer boards, printers, and other peripherals.

Driver: The software interface between an application and the hardware it communicates with. This interface is application specific.

Dynamic RAM (DRAM): A commonly used type of memory used on video boards and PC system boards. DRAM is usually slower than video RAM because it only uses a single data pathway. (See *Video RAM*.)

EGA: The IBM Enhanced Graphics Adapter.

EMS: Expanded Memory Specification. Originally developed to break the DOS 640KB limit, it is now used as a general term for types of add-in memory boards.

Enhanced Color Display (ECD): The IBM Enhanced Color Display capable of 640×350 resolution.

Expansion Board: A device used to expand a computer's capability, such as the MultiView 24 Interface card.

Expansion Slot: An electrical connection within the computer used for the addition of expansion boards.

Expansion Slot Connector: The gold-edge connector on the MultiView 24 Interface card that plugs into an expansion slot.

Feature Connector: The connector on your motherboard and other VGA cards that allows you to connect interface cards together, to allow video signals from one board to "pass through" the connected board.

Frame Buffer: A large section of memory used to store the video image data that will be displayed.

Graphics Coprocessor: A chip that speeds video performance by executing graphics processing independently of the CPU.

Hercules Graphics Card (HGC): A monochrome monitor adapter that added a 720×348 mode to the capability of an MDA.

Hexadecimal Notation: A base-16 numbering system that uses numbers and letters. The hexadecimal sequence begins 1 2 3 4 5 6 7 8 9 A B C D E F, then 10, 11, etc.

Horizontal Frequency: The rate at which a monitor displays each scan line. Usually measured in kilohertz (KHz).

Interlaced Monitor: A monitor that refreshes every *other* scan line, every other pass of the screen. The first pass draws the odd-numbered lines; the second pass draws the even-numbered lines. (See *Non-interlaced Monitor*.)

Interrupt Request (IRQ): Signal used by a device, such as a mouse, to signal the computer that an external action took place and needs attention.

I/O Port: Input/Output port. An address used to access a hardware device.

Joint Photographic Experts Group (JPEG): An international group that developed an image compression standard bearing the same name. The JPEG standard specifies the particulars for the compression and decompression of large still images, such as photographs, video frames, or scanned pictures to reduce the amount of memory required to store them.

Jumper: A small cap-like device that connects pins on an expansion board to select available options.

MDA: The IBM Monochrome Display Adapter.

Monochrome Display: Monitor that displays information in one color. That “color” can be in varying intensities, as when displaying grayscale images.

Multi-Frequency Display: See *Variable Frequency Display*.

Non-interlaced Monitor: The opposite of an interlaced display; all the lines are redrawn in one pass instead of two, which reduces flicker. (See *Interlaced Monitor*.)

Palette: Total number of colors that are available to be displayed. With VGA, the palette is 262,144 colors.

Pass-through VGA: A feature that allows a VGA signal to pass from another graphics board via a cable attached to a high-resolution board and to the display. Other methods of pass-through include motherboard VGA (where a VGA controller is mounted on a high-resolution board), and the use of a daughter card VGA (where VGA controller and memory reside on a small, daughterboard that connects to a high-resolution board).

Peripheral Equipment: Auxiliary equipment connected to a computer, such as the monitor, printer, keyboard, etc.

Pixel: Short for “picture element.” A pixel is the smallest field displayed on the monitor. Can be compared to the dots which form images printed in newspapers.

Primary Monitor: The monitor that is active when booting your system.

RAM: Random Access Memory; memory that can be read from and written to.

Random Access Memory, Digital-to-Analog Converter (RAMDAC): A chip on a graphics board that translates a digital representation of pixel into the analog signal needed by a display.

Refresh Rate: Sometimes called Vertical Scan Frequency, it is the rate at which an electron gun of a display draws a screen full of lines from top to bottom — stated in hertz (Hz). Flicker develops at low refresh rates.

Resolution: Number of pixels displayed on the monitor. The higher the resolution, the crisper and sharper the images appear.

ROM: Read Only Memory; memory space in your computer that is used to store permanent operating instructions.

Secondary Monitor: The monitor connected to the graphics card that is co-resident with another card/monitor in your computer system. A secondary monitor is not active when booting your system.

Terminate and Stay Resident (TSR): Programs that are run once, and then remain in memory, usually to be activated by a sequence of key strokes or a “hot key.”

True Color: Refers to the display of the maximum number of colors discernible by the human eye — 16.8 million. Products capable of displaying 16.8 million colors are called True Color products.

Variable Frequency Display (VFD): A monitor that is capable of displaying a wide range of resolutions, due to its ability to scan at various horizontal and vertical frequencies. Sometimes referred to as “multisyncing.”

Vertical Frequency: The rate at which the monitor screen is refreshed. Usually measured in hertz (Hz).

VGA: The IBM Video Graphics Array.

Video Connector: The monitor connector (port) located on the MultiView 24 Interface card. The MultiView 24 Interface card supports the standard IBM 15-pin analog output connector (HD-15).

Video Electronics Standards Association (VESA): An industry-wide consortium organized to improve graphics standards. The MultiView 24 Interface card supports a variety of VESA standards.

Video RAM (VRAM): A type of memory used to buffer (store) an image and transfer it to the display. VRAM has two data paths — a technique known as dual-porting — rather than the single path of conventional RAM. VRAM moves more data in and out simultaneously, which speeds display drawing.

Appendix A: MultiView 24 Specifications

The MultiView 24 Video Interface card occupies one full-length, 16-bit expansion slot.

System Requirements:

IBM PC/AT, PS/2, or 100% compatible with 286 or faster CPU and VGA video adapter. 16-bit full-length ISA/EISA (AT) or Micro Channel (MCA) bus required. Recommended system includes ≥ 40 MB hard disk with 386 or faster CPU.

Hardware Features:

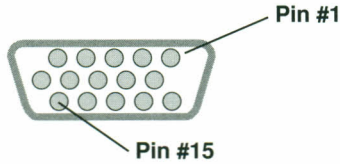
Resolutions	1024×768 and 640×480
Color modes	16.8 million and 256 colors
Horizontal scan rate	31.5KHz to 60KHz
Vertical scan rate (refresh)	43.5Hz to 75Hz
Pixel clock	76.8MHz maximum
Output connector	HD-15
VGA passthrough	640×480, 800×600, and 1024×768
Compatibility	8514/A
VRAM: ISA	3MB; 24 each 256KB×4
MCA	3MB; 12 each 256KB×8
Pixel Clock	programmable frequency synthesizer
Composite analog signal	RS-343
Power consumption	2.2A @ 5V
Dual monitor compatibility	VGA interface
Single monitor compatibility	VGA or XGA video on Micro Channel motherboard; VGA interface for ISA/EISA with feature connector for passthrough to MultiView 24

Appendix B: Compatibility Guide

	RESOLUTION							
	1024x768					640x480		
	60Hz	70Hz	72Hz	75Hz	43.5Hz <small>interlaced</small>	60Hz	81Hz	91Hz
MONITOR								
Radius								
PCD/19	•	•	•		•	•	•	
PCD/20	•	•	•	•	•	•	•	
Full Page Pivot	•							•
NEC								
3D					•	•		
4D	•	•	•		•	•	•	
5D	•	•	•	•	•	•	•	
3FGx	•				•	•	•	
4FG	•	•	•		•	•	•	
5FG	•	•	•	•	•	•	•	
6FG	•	•	•	•	•	•	•	
IBM 8514					•	•		
OTHER MONITORS								
Required Horizontal Frequency								
48KHz	•							•
56		•						
57			•					
60				•				
35.5					•			
31.5						•		
40							•	

Appendix C: Video Port Specifications

The following table lists the video port pin specifications for the MultiView 24 Video Interface card.



Male end of the HD-15 connector

Pin	Output signal
1	Red Video
2	Green Video
3	Blue Video
4	Monitor ID 2 / Hi-Res
5	Sense
6	Red Video Ground Return
7	Green Video Ground Return
8	Blue Video Ground Return
9	<i>Not Used</i>
10	Sync Return
11	<i>Reserved</i>
12	<i>Reserved</i>
13	Horizontal Sync
14	Vertical Sync
15	<i>Reserved</i>
Chassis	Ground



Important: To comply with FCC Class B regulations, a shielded interface cable must be used in conjunction with the Radius MultiView 24 Interface card.

Appendix D: ISA/EISA Jumper Settings

Jumper JP1 is used to enable or disable the MultiView 24 Video Interface card ROM. The default position of Jumper JP1 is for the ROM to be enabled (Jumper JP1 covers the two pins farthest from the card).

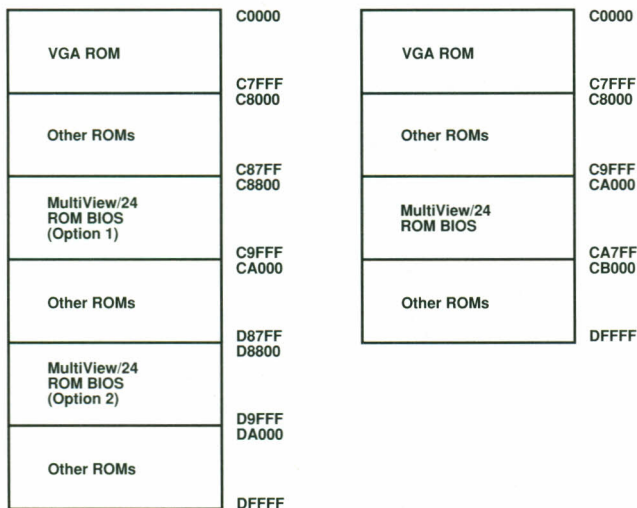
In the unusual circumstance that it is necessary to disable the ROM, move Jumper JP1 so that it covers the two pins closest to the card.

Disabling the ROM is necessary only if your computer freezes while executing the ROM code. This situation would prevent your computer from finishing its boot-up sequence and would make it impossible to run the diagnostic program and solve the problem.

The factory ships the ROM disabled with software, but enabled on the hardware. The ROM can be enabled only when both the hardware Jumper JP1 is set properly and the software is enabled.

Appendix E: Memory Map

The following diagram illustrates how the MultiView 24 Video Interface card is mapped into system memory:



*MultiView 24 ISA/EISA
Interface card memory map*

*MultiView 24 Micro Channel
Interface card memory map*



The positions of the ISA/EISA MultiView 24 ROM may be selected through the MV24SET program. Available positions are:

- 0 disabled — use MV24INIT.EXE as a RAM replacement
- 1 low (C8800)
- 2 high (D8800)

Appendix F: I/O Address Decoding Table

If your computer system will not boot after you have installed the MultiView 24 Video Interface card, or if that card or some other card in your system is not functioning properly, check to see if you have an I/O conflict by following the steps below.

1. Remove all of the suspect expansion cards except for the MultiView 24 Interface card, VGA card, and disk controller and reboot your computer.
2. If the system starts and the DOS prompt appears, turn off your computer.
3. Add an expansion card and try to boot the computer. If the computer boots, the card just installed does not conflict with the MultiView 24 Interface card. Turn off your computer.
4. Repeat step 3, adding a single card at a time, until the computer does not boot. You have isolated the conflicting board. Refer to the owner's manual supplied with the conflicting expansion card for information about how to change the parameters of the card so that it may co-exist with the MultiView 24 Interface card.

The following table shows the I/O locations reserved by the MultiView 24 Video Interface card.

One byte location at

02EA	02EB	02EC	02ED
------	------	------	------

Two consecutive byte locations at

02EB	06EB	0AE8	0EE8
12E8	16E8	1AE8	1EE8
22E8	26E8	2AE8	2EE8
32E8	36E8*	3AE8	3EE8
42E8	46EB**	4AE8	4EE8
52E8	56E8	5AE8	5EE8
62E8	66E8	6AE8	6EE8
72E8	76E8	7AE8	7EE8
82E8	86E8	8AE8	8EE8
92E8	96E8	9AE8	9EE8
A2E8	A6E8	AAE8	AEE8
B2E8	B6E8	BAE8	BEE8
C2E8	C6E8	CAE8	CEE8
D2E8	D6E8	DAE8	DEE8
E2E8	E6E8	EAE8	EEE8
F2E8	F6E8	FAE8	FEE8

* This value is 46E8 in Micro Channel systems

** Shared with some VGAs

Appendix G: Reading the MultiView 24 Video Interface README Files

Included on the *MultiView 24 Utilities and Drivers* disk are a variety of README.TXT files. These files include the latest information about the Radius MultiView 24 Interface card and the various drivers. Each subdirectory on the disk has its own README file.

The README.TXT files can be displayed by a special application (named "README.COM") that is included on the disk. This application includes a variety of convenient features for displaying and printing the contents of the README files.

To view the contents of a README file,

1. Insert the *MultiView 24 Utilities and Drivers* disk into the floppy drive of your computer.
2. Change to the drive where you inserted the software disk.

If you inserted the disk in the A: drive, type

A:

If you inserted the disk in the B: drive, type

B:

3. To display the README file for the directory (or disk), type

README

4. The contents of the README file will appear on the text-mode screen.
5. Press the up- or down-arrow key on the keyboard to view the contents of the README file.

6. When you are finished with the README file, press the **Esc** key on the keyboard to return to the DOS prompt.

F1

Working with the README File

Whenever the contents of a README file are displayed on the screen, you can press the F1 key on the keyboard to activate the README application's Help feature. The Help screen appears as shown in the following diagram:

README Version 1.00	
(C) Copyright 1991 Radius Inc. All Rights Reserved	
Key	Action
↑, ↓	---- Scroll up or down one line
PgUp, PgDn	---- Move up or down one page
Home	---- Move to the first line
End	---- Move to the last page
Ctrl + P	---- Print the README.TXT file
Esc	---- Exit
Press any key to continue...	

The README Help screen

As illustrated by the Help screen, the up- and down-arrow keys are used to scroll the text a line at a time, and the Page Up, Page Down, Home, and End keys work as expected.

Ctrl + **P**

You can print the contents of the README file by pressing **Ctrl** + **P** on the keyboard. The README application expects to find the printer connected to port LPT1 and will print the contents of the file in the printer's default text mode.

When you are through reviewing the contents of the README file, press the **Esc** key to return to the DOS prompt.



All of the README files included on the *MultiView 24 Utilities and Drivers* disk are in ASCII format and can be opened with any word processor or text editor application.

Appendix H: Regulatory Approvals

RFI: FCC Class B, Canadian DOC Class B.

FCC Statement

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 when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

In case of interference, determine whether the monitor or some other peripheral is causing the interference. Disconnect the monitor and try the computer with its peripherals. If the problem persists, disconnect the peripheral devices and their cables one at a time to locate the cause of the interference.

If the monitor is the cause of the interference, try the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- In case of TV or radio interference, turn the antenna until the interference stops, or consider installing an antenna with coaxial cable lead-in between the antenna and the TV.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications or changes to this product not expressly approved by Radius could void the user's authority to operate the equipment.

To insure compliance to FCC non-interference regulations, peripherals attached to this computer require shielded I/O cables.

You may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from:
U.S. Government Printing Office
Washington, DC 20402
Stock # 004-000-00345-4

Canadian RFI Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

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RADIUS Inc

1710 Fortune Drive
San Jose, California USA 95131-1744
(408) 434-1010



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