

# FullVideo Basic for AlphaStation Systems

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## User's Guide

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**December 1995**

This guide describes the procedures for installing, using, and troubleshooting FullVideo Basic hardware and software.

<b>Revision/Update Information:</b>	This is a revised manual.
<b>Operating System:</b>	Digital UNIX and Microsoft Windows NT
<b>Software Version:</b>	FullVideo Basic for AlphaStation Systems

**Digital Equipment Corporation  
Maynard, Massachusetts**

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**December 1995**

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Statement**

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FCC ID: EXM307

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1. This device may not cause harmful interference and
2. This device must accept any interference received, including interference that may cause undesired operation.

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 manufacturer's 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:

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

**Warning**

The use of a shielded cable for connection of the module to a video source is required to assure compliance with FCC regulations.

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# Preface

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## Guide Overview

**Purpose** This guide describes the FullVideo Basic module for Alpha PCI-based systems. It explains how to connect cables between a module and common peripherals, and it includes an overview of hardware, software, and standards. This guide also describes the FullVideo Basic software installation and verification.

**Audience** This guide is for individuals who install and use the FullVideo Basic module.

**Contents** Instructions for installing a generic option module in your AlphaStation system are available in your system documentation.

This guide is organized as follows:

- *Part I: FullVideo Basic Hardware Installation*
  - *Chapter 1: Multimedia*
  - *Chapter 2: Installing FullVideo Basic*
  - *Chapter 3: For Digital Services Representatives*
  - *Chapter 4: Specifications*
- *Part II: FullVideo Basic Software for Windows NT*
  - *Chapter 5: Getting Started*
  - *Chapter 6: Using TV*
  - *Chapter 7: Video Hints*

- *Chapter 8: Optimizing Your System*
- *Part III: FullVideo Basic for Digital UNIX*
- *Chapter 9: Digital UNIX Information*
- *Appendix A: Acronyms*
- *Glossary: List of terms used in this guide*

## Related Documents

The following related documentation is available. When you order one of these documents, please request the latest revision of it.

- *Multimedia Services for Digital UNIX Programmer's Guide*, order number AA-Q0APH-TE
- *Multimedia Services for Digital UNIX Run-Time Environment Guide*, order number AA-Q66FG-TE
- *Multimedia Services for Digital UNIX Installation Guide*, order number AA-Q66GG-TE
- *Digital Light & Sound Pack for Windows NT Installation and User's Guide*, order number AA-QNFFA-TE
- **MEDIA**CAPTURE for AlphaStation Systems User's Guide, order number AA-QNESA-TE

## Conventions

This guide uses the following conventions to help you find, identify, and use information:

<b>Note</b>	A note calls the reader's attention to any item of information that may be of special importance.
<b>Caution</b>	A caution contains information essential to avoid damage to the equipment.
monospaced type	Text displayed on the screen is shown in monospaced type.
<b>boldface type</b>	Boldface type introduces new terms.
<i>italic type</i>	Italic type emphasizes important information and complete titles of manuals.

Return

Specific keys and key sequences (such as the Return key or toolbar buttons) are represented in boxes.

UPPERCASE

Uppercase text indicates directory names, file names, and acronyms.

❶

A number in a circle corresponds to a number in an illustration.



# Part I

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## FullVideo Basic Hardware Installation





# 1

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## Multimedia

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### Overview

This chapter provides information about the following:

- FullVideo Basic module
- Multimedia-enabling software
- Minimum system requirements

### Multimedia Technology

Multimedia is a technology with which you can capture, alter, and present information such as audio, video, graphics, and text. The FullVideo Basic module offers the technical advantage of video capture and live playback at the desktop; information can be captured in real time and stored locally. Users of the Digital Alpha workstation's fast PCI bus can add the FullVideo Basic hardware and multimedia software development tools to a computing environment that already provides:

- Desktop computing
- Industry-standard personal productivity tools
- Access to distributed applications and resources

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## FullVideo Basic Module

### Introduction

The FullVideo Basic module permits you to add multimedia capabilities to your Alpha workstation by simply installing one module in an available PCI bus slot. There is no need to remove or change a color-frame buffer module or a graphics module that may already be in place.

The FullVideo Basic module also allows you to receive and play back video by using television, video cassette recorders, video cameras, and so on.

### Features

The FullVideo Basic module has the following features:

- Video module that uses one AlphaStation PCI slot.
- NTSC (National Television System Committee) and PAL (phase alternation line) full-motion video input.
- Fifteen (15) frames per second (fps) at 160 x 120 pixels.
- Ten (10) fps at 320 x 240 pixels.
- Two RCA composite input connectors.
- One S-video (VHS) Y/C input connector.
- Hardware independent of installed graphics subsystem.
- Live video capture.
- Real-time video capture of video signals in:
  - NTSC 640 x 480 pixels format
  - PAL 768 x 576 pixels format
- Real-time video input in NTSC or PAL in composite and S-video format.
- NTSC full-frame video data capture and PAL field capture.
- AccuVideo rendering in software to ensure superior perceptual image quality, and a choice of output colors, brightness, contrast, saturation, and image sharpening.

- Video scaling of window size from icon to full-screen size. Video windows can be sized dynamically to full-frame size.
- Video capture (video-in) in 4:2:2 YUV format, YVU9 planar, YVU12 planar, 8-bit pseudocolor,\* or 24-bit true color.\*

The part number for the FullVideo Basic option module is AV201-AA.

### **Configuring Multimedia Systems**

You can install one or two option modules on any base system that has one or more available slots and supports the Alpha PCI architecture. (Note that only one module can be installed on Windows NT systems.) Two modules on one system supply two simultaneous video inputs.

### **Software Requirements**

If you purchase a new AlphaStation system, you automatically receive either the Multimedia Services for Digital UNIX or Digital Light & Sound Pack for Windows NT software included in your operating system software. You need the following versions of software with a multimedia system:

- For Windows NT systems:
  - Microsoft Windows NT operating system.
  - FullVideo Basic for Windows NT software.
  - *Digital Light & Sound Pack for Windows NT SPD (60.39.00)*. Please check the SPD (Software Product Description) for supported versions of the operating system.
- For Digital UNIX systems:
  - Multimedia Services for Digital UNIX run-time kit, Version 2.0 or later.
  - *Multimedia Services for Digital UNIX SPD (48.92.06)*. Please check the SPD for supported versions of the operating system.

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\* The conversion is done in software.

To add a FullVideo Basic (AV201-AA) module to an existing AlphaStation system, you must purchase one of following:

- Multimedia Services for Digital UNIX run-time kit, Version 2.0 (QL-20YA9-AA)
- Digital Light & Sound Pack for Windows NT (QB-4LTAA-SA)

## **Peripherals**

You can add any of the following devices to your AlphaStation product:

- RRD4x compact disc drives (for software installation)
- Laser disc player
- Switcher
- VCR
- Video camera

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## Multimedia-Enabling Software

### Introduction

Multimedia Services for Digital UNIX and the Digital Light & Sound Pack for Windows NT are the multimedia video-enabling software for Digital Alpha workstations. The software helps developers create multimedia end-user applications and enhance existing applications using the FullVideo Basic module.

### Multimedia Services for Digital UNIX Software Kits

The Multimedia Services for Digital UNIX software contains a run-time kit and a developer's kit as follows:

- The run-time kit provides:
  - The run-time multimedia software that enables audio on Alpha workstations
  - A multimedia server, audio and video drivers, and audio and video record and playback utilities
- The developer's kit includes:
  - The contents of the run-time kit
  - Support for waveform audio recording and playback
  - Support for video capture and playback
  - Support for video compression and decompression to manage data stored in WAVE and AVI files
  - Sample applications
  - A programmer's manual

### Digital Light & Sound Pack for Windows NT Software Kits

The Digital Light & Sound Pack for Windows NT software, created specifically to enhance Microsoft's Video for Windows, includes Alpha-optimized software codecs.

Microsoft Video for Windows is the multimedia-enabling software environment included with your Windows NT operating system software. Video for Windows helps users to create multimedia applications and enhance existing applications using the FullVideo Basic module.

**Multimedia Services for Digital UNIX Documentation**

Your **Multimedia Services for Digital UNIX** software is shipped with the following documentation. When you order additional documents, please request the latest revision of the document.

- *Multimedia Services for Digital UNIX Installation Guide*
- *Multimedia Services for Digital UNIX Programmer's Guide*
- *Multimedia Services for Digital UNIX Run-Time Environment Guide*

**Digital Light & Sound Pack for Windows NT Documentation**

Your **Digital Light & Sound Pack for Windows NT** software is shipped with the following documentation. When you order additional documents, please request the latest revision of the document.

- *Digital Light & Sound Pack for Windows NT Installation and User's Guide*

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## What You Will Need

### Computer

The minimum system requirements are:

- Any Digital Equipment Corporation AlphaStation system running Digital UNIX or Microsoft Windows NT
- VGA analog monitor with 640 x 480 resolution or better
- Hard disk drive with 80 MB of available space for Windows NT systems
- Hard disk drive with 16 MB of available space for Digital UNIX systems
- 256-color VGA display graphics adapter or better
- AlphaStation Sound Card

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**Note**

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Remember, the minimum memory configuration for each operating system and platform is different. Refer to your SPD for additional information.

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# 2

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## Installing FullVideo Basic

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### Overview

This chapter explains the following on how to install the FullVideo Basic module:

- Unpacking the parts kit
- Installing the option module
- Connecting cables to the module
- Connecting the video source
- Verifying the installation
- Solving problems

Each of the modules occupies one PCI bus option slot, and each module provides connections for video-in devices.

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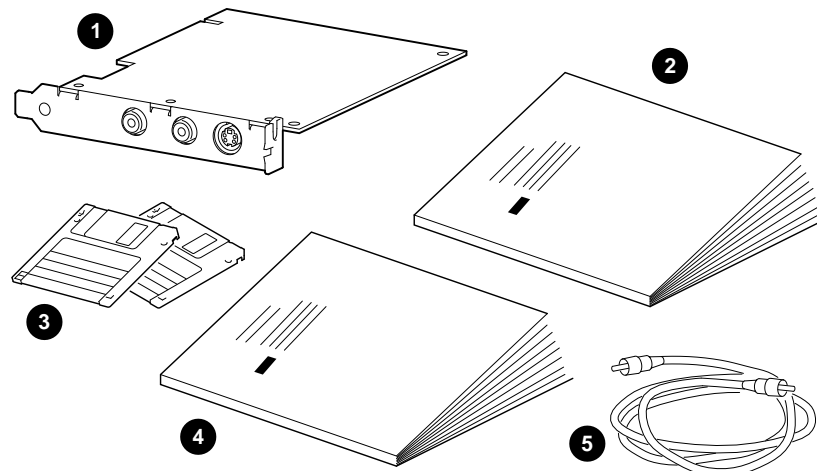
## Unpacking the Parts Kit

### Contents of the FullVideo Basic Kit

The FullVideo Basic parts kit (see Figure 2-1) contains the following items:

- ❶ FullVideo Basic module
- ❷ *FullVideo Basic for AlphaStation Systems User's Guide*
- ❸ Two 3.5-inch diskettes for software installation on Windows NT
- ❹ *MEDIACAPTURE for AlphaStation Systems User's Guide* (Windows NT)
- ❺ One 4-foot (1.2-m) RCA video connector cable

Figure 2-1 Contents of FullVideo Basic Kit



MLO-011772

**Cabling Hints**

Multimedia applications can use numerous peripheral devices plus system and option modules. Each device has its own cabling requirements. Label each cable in your multimedia configuration to make the moving or changing of equipment easier.

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## Installation Overview

### Introduction

FullVideo Basic is designed for quick, easy installation. Follow these steps to capture video:

1. Set the I/O address jumpers on the module (you need to do this if there is a conflict between the default factory setting and other devices on your system).
2. Install the FullVideo Basic module in your system.
3. Install the FullVideo Basic software.
4. Use the RCA cable supplied in your parts kit and connect your TV, video camera, VCR, or laser disc player to the COMP0 connector on the FullVideo Basic module.
5. Test the installation.

### I/O Address Jumpers

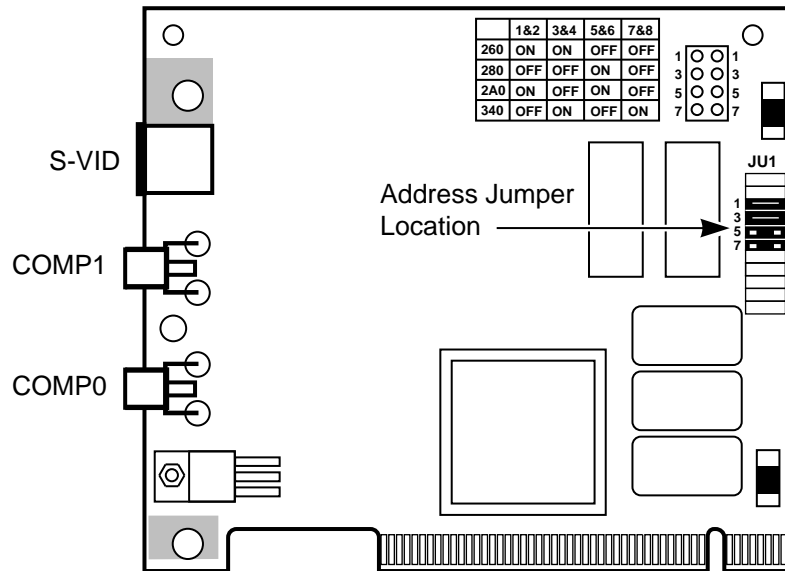
Your FullVideo Basic module I/O setting is factory configured to work on most systems. In some cases, you may need to use a different setting to avoid conflicts with other devices attached to your AlphaStation system. You do this by setting jumpers on the module.

There are four settings that you can use:

Jumper	1&2	3&4	5&6	7&8
Address ⇒ 0x 260	On	On	Off	Off
Address ⇒ 0x 280	Off	Off	On	On
Address ⇒ 0x 2A0	On	Off	On	Off
Address ⇒ 0x 340	Off	On	Off	On

Figure 2-2 shows the jumper identifiers printed on the FullVideo Basic module.

**Figure 2-2 Address Jumper Location**



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## Installing the Option Module

The FullVideo Basic module can be installed in any available PCI bus slot in your system. Option modules are installed in PCI bus slots in a similar way. Refer to your system documentation for the following information:

- Shutting down the system software.
- Turning off the system.
- Removing system cables.
- Removing any system unit cover.
- Attaching an antistatic wriststrap.
- Installing an option module.
- Replacing the system unit cover.
- Connecting the system cables.
- Connecting a video source to your video capture module, if desired. (Refer to the following section: Connecting Cables to the Module.)
- Turning on the system.
- Rebooting the system software.

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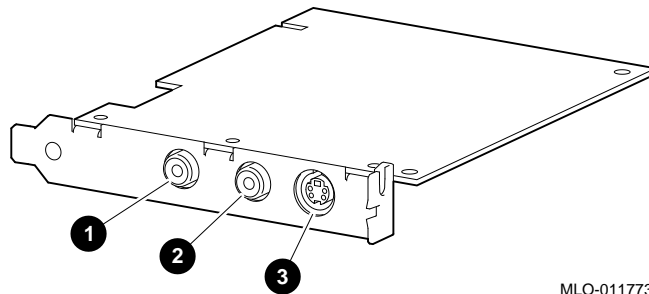
## Connecting Cables to the Module

### AV201-AA Bulkhead Connectors

The FullVideo Basic module (AV201-AA) has three bulkhead connectors as shown in Figure 2-3:

- ❶ Video-in composite — RCA-type connector
- ❷ Video-in composite — RCA-type connector
- ❸ Video-in S-video — S-video 4-pin mini-DIN connector

**Figure 2-3 FullVideo Basic Bulkhead Connectors**



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## Video Display Devices

Table 2-1 identifies the cables that you use to connect a FullVideo Basic module to a video display, TV, camera, camcorder, or VCR input connector.

**Table 2-1 Using Cables Correctly with Video Input Devices**

If the video display has...	Then follow these instructions...
An RCA-type connector	Connect an RCA-to-RCA cable to either <b>1</b> or <b>2</b> in Figure 2-3.
An S-video 4-pin mini-DIN connector	Connect an S-video to S-video cable (customer supplied) to <b>3</b> in Figure 2-3.

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### Note

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End-user applications that require the play of video in a window without computer-driven device control can use any video source. Application writers can write device control programs for any video device.

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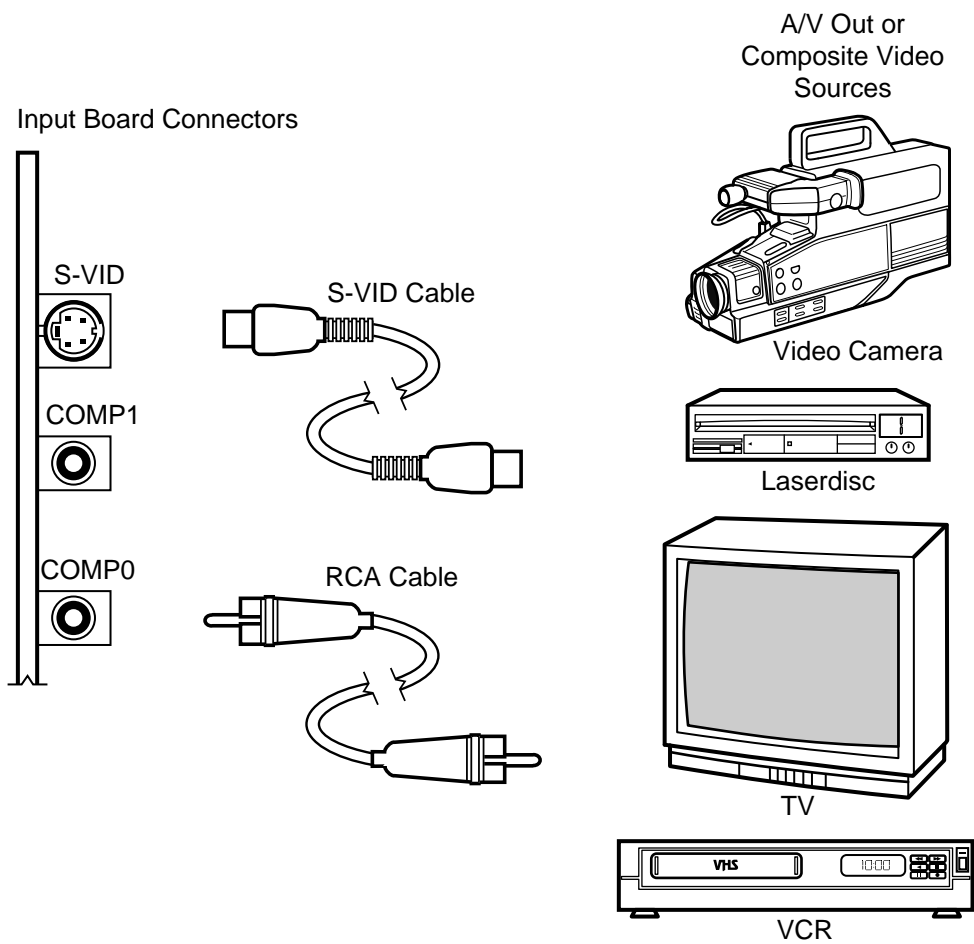
## Connecting the Video Source

The FullVideo Basic module provides three video input connectors:

- COMP0 (composite video, RCA-type connector)
- COMP1 (composite video, RCA-type connector)
- S-VID (super VHS or S-video)

The RCA cable connects to either the COMP0 or COMP1 jack. To connect a video source to the S-VID jack, you need an S-video connector cable. (Note that no S-video connector cable is provided.) Use the RCA cable to attach your video camera, TV, VCR, or laser disc player to the COMP0 connector on the FullVideo Basic module. Figure 2-4 shows the module input connections.

**Figure 2-4 FullVideo Basic Module Input Connections**



ZK-7743A

If you are using a video source that has a cable labeled S-Video or S-Video Out, use this instead of the cable provided in your parts kit.

If your video source provides both composite video and S-video, S-video produces a better image.

If you are capturing audio, connect the video source's audio output to your audio module's input connector.

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**Caution**

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To avoid damage, always connect your video source to the FullVideo Basic module with power off to both pieces of equipment.

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## Verifying the Windows NT Installation

Make sure your video hardware is working properly in the system prior to installing the software. Check to see that the:

- Video source is producing output
- Video connector cable is good and properly connected
- Video source material is of satisfactory quality

To test your installation:

1. Connect your video source to either the COMP0 or COMP1 jack on the back of the FullVideo Basic module using the supplied RCA video cable (use an SVHS cable and the S-VID input jack if you have an S-video source).
2. Turn on the video source.
3. Check to see that live video is being properly displayed on your screen. Live video performance depends on the system type and CPU speed.

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## Verifying the Digital UNIX Installation

### **Introduction**

When you install the Digital UNIX multimedia-enabling software on your system, an installation verification procedure (IVP) automatically tests the hardware to ensure that the FullVideo Basic module has been properly installed.

### **Operating System Based Diagnostics**

Operating system based diagnostics run during the Multimedia Services for Digital UNIX IVP. The diagnostics use the FullVideo Basic drivers and enabling software to test complex functions such as compression, decompression, and dithering.

See your Multimedia Services for Digital UNIX documentation for additional information.

Additionally, you can use the procedures recommended in the DECVET Version 3.3 product for installation verification.

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## Problem-Solving Hints

### PCI Bus Problems

Problems with the option module can be related to network options or PCI-based options. Your system documentation provides you with information to diagnose the likely cause of PCI bus problems. Follow these steps to troubleshoot a problem:

1. Confirm that the FullVideo Basic module and the cable are properly seated.
2. Check for a faulty slot by moving the installed module to an open slot.
3. Call your Digital Services representative for help.

### Service Contract and Warranty

If an error is detected and you have a service contract or your warranty is in effect, report the problem to your Digital Customer Support Center (CSC).

**Reporting Problems**

Before you contact a Digital Services representative with your problem, complete the following worksheet. Have it available when talking to a representative.

**PROBLEM WORKSHEET**

If you have a problem, please fill in the following information before calling Digital for assistance. It helps the Digital Services representative to identify the problem quickly.

System Name/Model Number? \_\_\_\_\_

System Serial Number? \_\_\_\_\_

FullVideo Basic Module Serial Number? \_\_\_\_\_

Graphics Module? \_\_\_\_\_ Driver Version? \_\_\_\_\_

Operating System & Version? \_\_\_\_\_

FullVideo Basic Software Version? \_\_\_\_\_

Monitor Name/Model Number? \_\_\_\_\_

Type of Video Source? \_\_\_\_\_

Error Received? \_\_\_\_\_

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# 3

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## For Digital Services Representatives

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### Overview

This chapter describes the field replaceable unit (FRU).

### Ordering FRUs

Digital Services representatives can order the following field replaceable unit: FullVideo Basic module (AV201-AA), part number 30-44901-01.



# 4

---

## Specifications

---

### Overview

This chapter provides the following hardware and software specifications for the FullVideo Basic product:

- Video input connectors
- Video format
- Software compression
- Bus requirement
- Power requirements
- Environmental specifications
- Mechanical size

### Video Input Connectors

The FullVideo Basic video capture module has the following video input connectors (NTSC and PAL):

- Two composite video connectors
- One S-video connector

### Video Format

The FullVideo Basic product captures video in the following formats:

- Video capture in YVU9, YVU12, YVU16, 8-bit RGB, 16-bit RGB555, and 24-bit RGB formats
- Full-color still image capture at up to 640 x 480 pixel resolution

- PAL format up to 768 x 576 pixels

---

**Note**

---

FullVideo Basic capture support is dependent on the capabilities of the software. Refer to the *Multimedia Services for Digital UNIX SPD (48.92.06)* and the *Digital Light & Sound Pack for Windows NT SPD (60.39.00)* for supported video capture formats.

---

**Software  
Compression**

Software compression is performed with installed compression drivers.

**Bus  
Requirement**

The FullVideo Basic video capture module may be installed in any available 32-bit PCI bus slot.

**Power  
Requirements**

Table 4–1 lists the power requirements for the FullVideo Basic video capture module.

**Table 4–1 Power Requirements**

---

5 volts	±5% @ <1.5 amps
12 volts	±5% @ <250 milliamps

---

**Environmental Specifications**

Table 4–2 lists the environmental conditions in which the FullVideo Basic video capture module can operate.

**Table 4–2 Operating Conditions**

---

Ambient temperature (operation)	10°C (50°F) to 50°C (122°F) <sup>1</sup>
Ambient temperature (storage)	0°C (32°F) to 70°C (162°F) <sup>1</sup>
Relative humidity (operation)	5% to 90% noncondensing
Relative humidity (storage)	0% to 95%

---

<sup>1</sup>Temperature range varies between systems. See your system documentation for additional information.

---

**Mechanical Size**

The FullVideo Basic module conforms to the mechanical dimensions for a short-length PCI option: 10.67 cm x 17.46 cm (4.2 in. x 6.875 in.).



# **Part II**

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**FullVideo Basic Software for Windows NT**





# 5

---

## Getting Started

---

### Overview

This chapter provides information about the following:

- Making backup diskettes
- Product files installed on the system
- Accessing Release Notes
- FullVideo Basic TV icon

---

### Backup Diskettes

#### Introduction

Before you do anything else, make working copies of your original diskettes. Store the original diskettes and use the copies. If your copies become damaged, use the original diskettes to create new copies.

To make working copies of your original diskettes, perform the following procedure:

1. Obtain a set of blank diskettes of the same type and capacity as your originals, and label them appropriately.

2. At the command prompt in your current program group, type:

```
DISKCOPY A: A: 
```

(Substitute B: for A: or any other letter for A, if you use an alternate floppy disk drive.)

3. Follow the on-screen instruction to copy the set.

## Software Installation Using Diskettes

To be up and running quickly, perform the following steps:

1. Insert the first FullVideo Basic 3 1/2-inch diskette into diskette drive A.
2. In the Program Manager File menu, click on File and then select Run.
3. In the command line text box, type:

```
A:\setup
```

Click on the Run button and follow any on-screen prompts to complete the installation. A status meter displays the installation's progress.

---

## Product Files Installed on the System

The following product files are installed on the user's system. Unless indicated otherwise, all files are installed by default on the system disk drive in the `\win32app\mc` directory path. (Note that the `mc` stands for **MEDIA**CAPTURE.)

**The files are:**

```
astrmhelp.dll
atisetup.inf
atiyuv.dll %SystemRoot%\system32
clear.afx
dcoffset.afx
delay.afx
fadein.afx
fadeout.afx
gain.afx
invert.afx
mc.exe
mc.hlp
mcrelnot.wri
mixloop.afx
mixslidr.dll
msvcrt20.dll %SystemRoot%\system32
muscr132.dll
noisegt.afx
normalze.afx
pastemix.afx
reverb.afx
reverse.afx
setup.exe
silence.afx
swap.afx
tv.exe
tvhelp.hlp
vbasic.dll %SystemRoot%\system32
vbasic.hlp
vbasic.sys %SystemRoot%\system32\drivers
xfade.afx
```

---

## Release Notes



The Release Notes summarize the latest product revisions. To examine the Release Notes, follow these steps:

1. Double click on the Release Notes icon in the **MEDIACAPTURE** program group.
2. Use Microsoft WRITE to print this file.

---

## FullVideo Basic TV Icon

When the installation is complete, the FullVideo Basic TV icon is created. The **MEDIACAPTURE** program folder is created and the icons are placed within this group. Figure 5-1 shows the default startup program group.

Figure 5-1 Default Startup Program Group



To test the installation to make sure that FullVideo Basic is working properly, click on the TV icon in the **MEDIACAPTURE** program group. Ensure that the video for TV corresponds to the jack you are using on the back of the FullVideo Basic module.

Double click on the TV icon. Your FullVideo Basic software is ready to use.



# 6

## Using TV

### Overview

This chapter contains information on displaying and capturing images from a variety of audio and video equipment.

FullVideo Basic includes an application for displaying live video-in-a-window (a TV-like image) from a camcorder, television, VCR, or laser disc player (Figure 6-1).

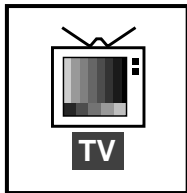


Figure 6-1 TV Image

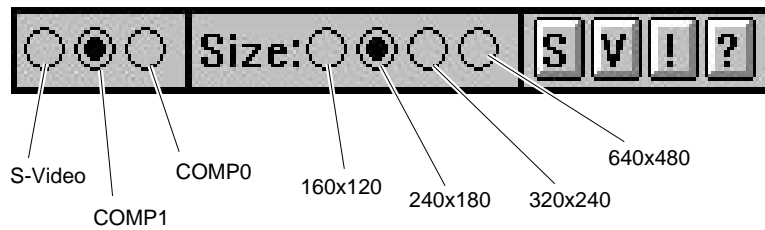


You can capture still images with the click of a mouse button, and save them in a variety of image formats. To start the video application, double click on the TV icon. A TV image is displayed.

Clicking on the TV icon displays your video source's output in real time. The frame rate depends on your system's capabilities (reducing the window size generally increases the frame rate). Figure 6-2 describes the TV controls. The online help  provides more details.

The toolbar provides instant access to the TV functions.

**Figure 6-2 TV Toolbar**





---

## Configuring TV

### Introduction

Using the three configuration dialog boxes, you can set up the capture environment that best suits your purpose.

### Video Setup

To specify the window size, placement and style, frame rate, and other options, click on the Settings **[S]** button in the toolbar (Figure 6-2) to open the video settings menu shown in Figure 6-3.

**Figure 6-3 Settings Menu**

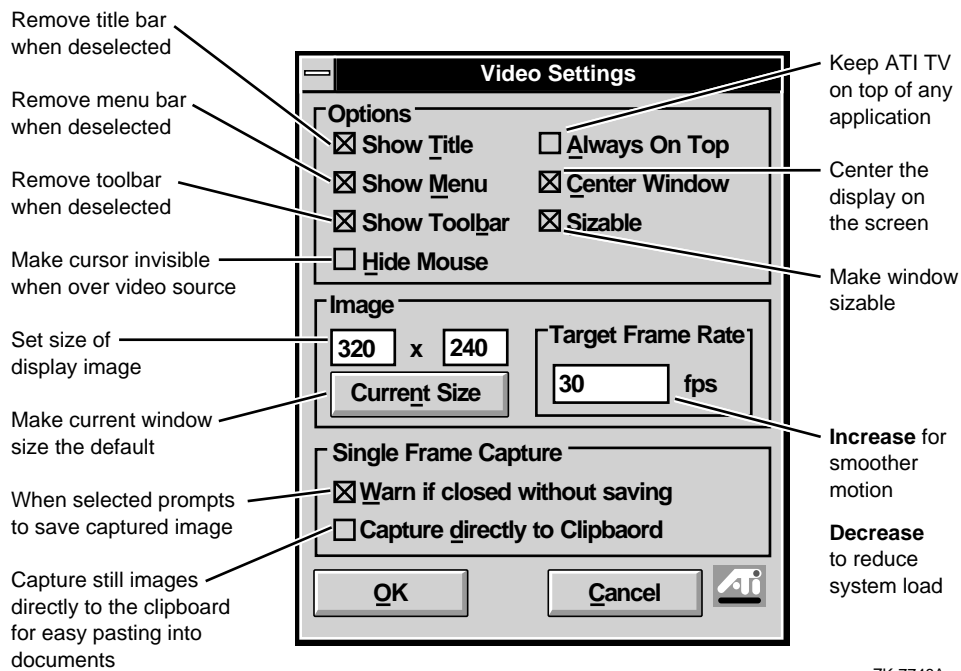
<b>V</b> ideo	<b>W</b> indow
<b>S</b> etup	<b>Alt+S</b>
<b>V</b> ideo <b>S</b> ource	<b>Alt+V</b>

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Click on Setup to display the Video Settings dialog box.

Use the Video Settings dialog box shown in Figure 6–4 to set up your TV environment.

**Figure 6–4 Video Settings Dialog Box**



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## Video Input


Click on the Video  button in the toolbar (Figure 6-2) to open the video input menu shown in Figure 6-5. Click on a video source — SVideo, Composite 1, or Composite 0.

Figure 6-5 Video Input Menu

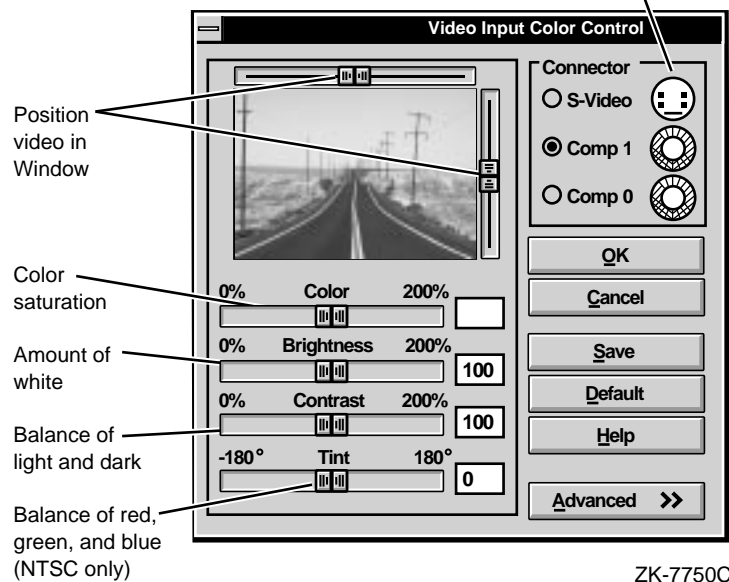
<b>V</b> ideo	<b>W</b> indow	<b>?</b>
<b>S</b> etup		Alt+S
<b>V</b> ideo Source		Alt+V
S <b>V</b> ideo		Alt+1
Composi <b>t</b> e 1		Alt+2
✓ Composi <b>t</b> e 0		Alt+3
<b>C</b> apture Still		Shift+Ins
<b>C</b> apture To Clipboard		Ctrl+Ins
<b>E</b> xit		Alt+X

Advanced >>

The Video Input Color Control dialog box (Figure 6-6) is displayed. Selections made in this dialog box affect the signal being received by your capture module. The arrows on the Advanced button point to the right (>>).

**Figure 6-6 Video Input Color Control Dialog Box**

Select from three video sources: most home video uses Composite (Comp 0 or Comp 1); professional equipment may have an S-Video connector.



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Click on the advanced button.

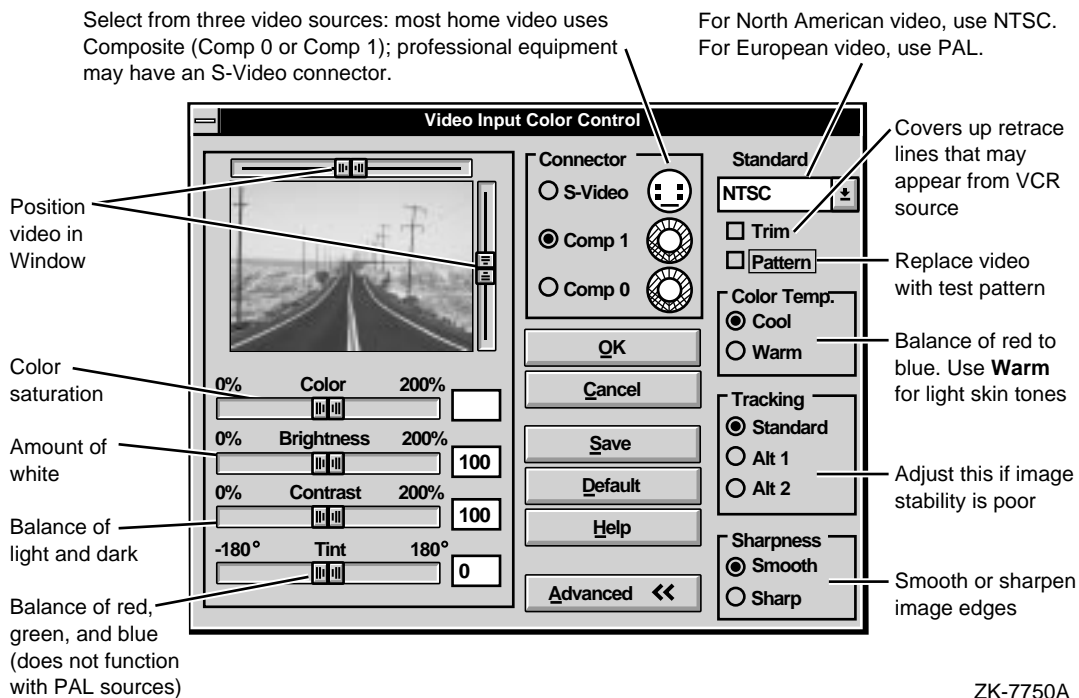
## Color Control

Advanced <<

The arrows on the Advanced button point to the left (<<). The Video Input Color Control dialog box expands (Figure 6-7).

Color controls let you produce the best possible picture for a particular use. Use them to make the image that you are capturing look the way you want it to look. The Default button always returns you to a usable picture.

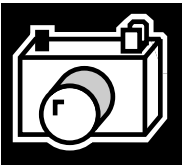
**Figure 6-7 Video Input Color Control Expanded Dialog Box**




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---

## Capturing Single Frames



The cursor turns into a camera icon when you move it into the TV window.

Click on the displayed video (Figure 6–8), or click on the Capture  button in the toolbar (Figure 6–2). You can capture frames as fast as you can click the mouse button.

**Figure 6–8 TV Window with Camera Icon**



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The frame is captured in 24 bits-per-pixel (bpp) color using the current size of the TV window, and is placed in its own window (Figure 6-9).

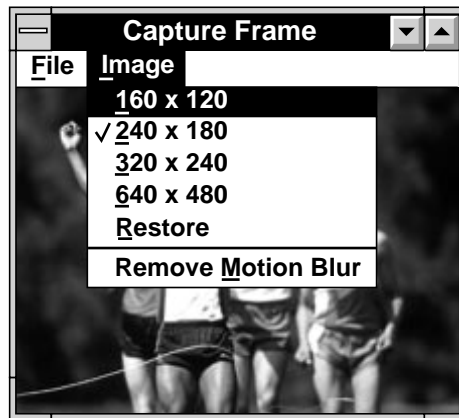
**Figure 6-9** Captured Frame



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Select the Image option on the Capture Frame screen, and your captured frame is displayed. You can specify the frame size for your image. If you select 640 x 480, and your captured image contains motion artifacts, click on Remove Motion Blur to clean up the image (Figure 6–10).

**Figure 6–10** Selecting the Image Option



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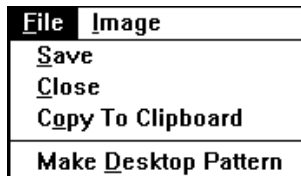


---

## Making a Desktop Pattern

You can turn a captured image into a desktop pattern (wallpaper) for your computer (Figure 6–11). TV saves the image as an atitv.bmp file (it can be renamed to any name you choose), and places it in the same directory where TV is installed, or the directory where WINNT35 is installed.

**Figure 6–11 File Dialog Box**



Each time you select Make Desktop Pattern, TV overwrites the previous atitv.bmp file to avoid filling your disk with images.



# 7

---

## Video Hints

---

### Overview

This chapter provides information about the following:

- Video for Windows and **MEDIACAPTURE**
- Compressing Video

---

### Video for Windows and **MEDIACAPTURE**

Video for Windows is a Microsoft Windows standard that allows for capturing, editing, and playing video and synchronized audio under Windows. It uses a file format called AVI (Audio/Video Interleaved).

**MEDIACAPTURE** is an ATI Technologies, Inc. software application for capturing and editing video and audio. It uses the Video for Windows software layer under Windows to perform all its tasks. When you capture a video clip with FullVideo Basic, it is saved in Video for Windows format with the file extension .avi. This Video for Windows layer is built into Windows NT Version 3.51. You do not need to buy additional software.

Video for Windows is important because it defines a standard way of creating video so that it can be played back on any machine that uses Windows Version 3.51 (or higher). This creates a broad market for video on the desktop, enabling you to send a video to a friend or colleague so that they can play it back on their system without any special hardware.

Video for Windows also includes a number of different ways of compressing video so that it is easier to store, play back, and distribute. You can use these compression schemes *off line*, depending on your needs. See the Compressing Video section for more information.

---

## Compressing Video

- Introduction** Because uncompressed video files consume large amounts of disk space, they can be difficult to distribute, manipulate, and store. You can use the supplied compressors *off line* to compress video files; but remember, repeated recompression can seriously degrade the image.
- Smaller Files** Video compression *reduces* the size of these files to manageable levels by encoding the video frame data. When the encoded frames are required for playback or editing, they are decoded (decompressed) back into their original form.
- Better Playback** Compression also *improves* playback. Computers are limited by their data rate — how quickly they can transfer data from disk to memory and display. If a video file requires a higher data rate than the computer can provide, it does not play back properly. It may appear jumpy and skip frames, and the audio may suffer.
- With high data rates, which result from capturing uncompressed frames, you must decrease the frame rate until the data rate is reduced to the point where your system can handle it. (Other factors also affect the data rate: frame size, frame rate, and audio format greatly influence playback speed.)

## **Lossy and Lossless Compressors**

Sometimes improved playback quality means lower image quality — hence, a *lossy* compressor sacrifices image quality to reduce the data rate. *Lossless* compressors do not reduce image quality. Generally, the less compression, the better the image.

Keep in mind that:

- Lossless compression is preferred for editing because it maintains the original video quality by retaining more of the video data.
- When editing is complete, a lossy compressor can be used to help improve playback quality before distributing the files.

Table 7–1 describes the available compressors and their uses. Keep in mind the following:

- As you increase data compression, the data rate decreases.
- The more data to be compressed, the lower the frame rate.
- Lossless data is captured at lower frame rates than compressed files.

**Table 7–1 Lossy and Lossless Compressors**

Lossless Compressor	Description
No compression	<p>Full frames are stored with no compression. While this provides lossless video files, they can be very large.</p> <ul style="list-style-type: none"> <li>• Use this for editing to avoid losing data through repeated compression.</li> <li>• Use for short videos with small frame sizes.</li> </ul>
Microsoft RLE Video 1 compressor	<p>Compression software with the following benefits:</p> <ul style="list-style-type: none"> <li>• Produces 8-bit (256-color) video files.</li> <li>• Uses run-length encoding, which is good for large areas of solid color in graphic images and animations.</li> </ul>

(continued on next page)

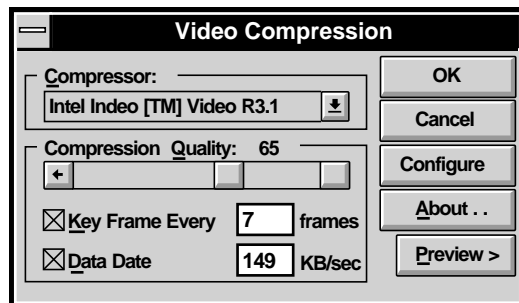
**Table 7–1 (Cont.) Lossy and Lossless Compressors**

<b>Lossy Compressor</b>	<b>Description</b>
Microsoft Video 1 compressor	Effective for most video sources, but does not compress as quickly as other methods.
YVU12 Video	Preserves image quality very well, but results in a high data rate, which may not play back acceptably. Requires more space than YVU9.
YVU9 Video	Preserves image quality very well, but results in a high data rate, which may not play back acceptably.
Intel Indeo Video	Effective for most video sources, but may sacrifice image quality when recompressing files that have already been compressed using Indeo Video.
Cinepak Compression	Preserves image quality very well, but does not compress as quickly as other methods. Effective during editing to preserve image quality.

## Saving Video with Compression

If **MEDIACAPTURE** software is loaded on your system in addition to the FullVideo Basic software, you can save and compress a video clip. To do this, open a **MEDIACAPTURE** Video Compression dialog box and select a compressor. See your **MEDIACAPTURE** documentation for instructions.

Figure 7-1 Saving a Video Clip



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# 8

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## Optimizing Your System

---

### Overview

Video places a tremendous burden on any computer. To minimize the impact, you should optimize your system to get the best possible performance. This chapter explains how to optimize your system for video capture and playback.

---

### Optimizing for Video Capture

#### High-Quality Sources

Remember:

- Use the highest quality video source possible. In descending order of quality, video sources are: Laser disc, Hi 8, Super VHS and 8mm, and VHS.
- If your video source provides S-Video, use it by connecting it to the S-VID input connector on the FullVideo Basic module.

#### Hard Disk Drive

Be sure to:

- Use a dedicated hard disk drive, or create a partition for capturing video.

---

## Optimizing for Playback

To optimize your system for playback:

- Defragment your hard disk drive. This minimizes the time required for your drive to locate video frames. Use a defragmenting utility to optimize and defragment the drive as often as necessary. Call your Digital sales representative for a list of third-party utilities that work with your Digital AlphaStation system and Windows NT software.
- Close all other applications and other video windows when you play a video.
- For captured audio, use monaural recording, smaller sample size, or reduced sampling frequency to reduce the size of audio files.

A faster hard disk drive can provide improved performance and smoother playback. For 15 frames per second (fps) capture, your hard disk drive should have an average access time of 10 ms or less, and a data transfer rate of 1.5 MB per second or better.

---

## Troubleshooting

Table 8-1 lists the most common reasons why FullVideo Basic may not work correctly. When you find a problem that is similar to yours, try the suggested solution. You might also want to review all sections in this chapter for tips on improving video performance on your particular configuration.

**Table 8-1 Troubleshooting FullVideo Basic**

<b>Problem</b>	<b>Recommended Solution</b>
The video is in black and white only.	Check the Video Source setting to verify that you have selected the correct Input Source setting (Composite or S-Video) for your video source device.
Audio is not captured with the video.	FullVideo Basic captures video only; you need a separate sound card to capture audio. Check your sound card setup for correct installation, and ensure that the sound card is connected to your audio source.
Preview window does not display an image.	If your video source is connected to the COMP0 connector on the FullVideo Basic module, try plugging it into the COMP1 connector (or vice versa). Check the video source output. Check the cable connections on the video source and the FullVideo Basic card. Ensure that the video source is plugged into the correct connector.
Video is unstable.	Check the video signal format (NTSC or PAL), and the tracking options.



# **Part III**

---

**FullVideo Basic for Digital UNIX**



# 9

---

## Digital UNIX Information

---

### Overview

This chapter provides information about the following:

- Software requirements for adding a FullVideo Basic option to your AlphaStation system running Digital UNIX
- Documentation available for using a FullVideo Basic option with your AlphaStation system running Digital UNIX

---

### Software Requirements

When you purchase a new AlphaStation system running Digital UNIX, you receive the Multimedia Services for Digital UNIX run-time kit with the system. The version of the run-time kit that you received depends on when you purchased your AlphaStation system. Therefore, you must verify that you have the correct version of the Multimedia Services for Digital UNIX run-time kit.

To use the FullVideo Basic video capture module on your Digital UNIX system, you must purchase the Multimedia Services for Digital UNIX run-time kit Version 2.0 (or higher), order number QL-20YA9-AA.

---

## Documentation

For detailed information about FullVideo Basic for Digital UNIX systems, refer to the following documentation:

- *Multimedia Services for Digital UNIX Installation Guide*, order number AA-Q66GG-TE
- *Multimedia Services for Digital UNIX Run-Time Environment Guide*, order number AA-Q66FG-TE
- *Multimedia Services for Digital UNIX Programmer's Guide*, order number AA-Q0APH-TE

---

**Note**

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When you order these documents, please request the latest versions of them.

---



# A

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## Acronyms

**BMP**

Bitmap file extension

**DIB**

Device-independent bitmap

**ISA**

Industry Standard Architecture

**PCI**

Peripheral Component Interconnect

**RAM**

Random-access memory

**RCA**

Radio Corporation of America

**RLE**

Run-length encoding

**VCR**

Video cassette recorder

**VESA**

Video Electronics Standards Association

**VGA**

Video Graphics Array



---

## Glossary

### **ADPCM**

Adaptive Differential Pulse Code Modulation. A technique by which audio waveforms are compressed and converted into digital data. See also *waveform audio*.

### **.AVI**

Audio/Video Interleaved. Microsoft's specification for the integration of digital motion video under Microsoft Windows. See also *digital video*.

### **BIOS**

Basic Input/Output System. ROM chips that handle details of computer input-output operation. Contains drivers tailored to each peripheral device's requirements.

### **bitmap (BMP)**

Bitmap file extension. Representation of characters or graphics by individual pixels arranged in row and column order.

### **brightness**

The amount of white (as compared to the amount of red, green, and blue) in a color. On a monitor, this translates into the amount of pure light in a color. For light sources and signals that transmit color, the brightness component is also called *luminance*.

### **buffer**

Memory area reserved for use in performing input/output (I/O) operations.

**CD-ROM**

Compact disc read-only memory. Essentially, the data equivalent of a music CD. CDs hold about 600 megabytes of data.

**chrominance**

The color information in an image. One of the three characteristics coded in a composite video signal; represented by the letters UV. Chrominance also refers to the color component of any image, as opposed to its grayscale value or luminance.

**composite video**

Video signal format that includes the complete visual waveform, including chromatic (color) and luminance (brightness) picture information, as well as control signals. Composite video signal types combine the YUV and synchronous signal on one wire. The video output on a VCR is a composite video signal, which can be received as video input by a television monitor.

**compression**

The process of reducing the size of data files to reduce storage and computer processing requirements.

**contrast**

The gradation of tone between an image's highlights, midtones, and shadows.

**decompression**

The process of increasing the size of data files.

**digital video**

Video signal represented by computer-readable binary numbers that describe image colors and brightness.

**driver**

Software that provides an interface between a software application and specific hardware.

**duration**

The playing time of a clip, measured in the standard format approved by the Society of Motion Picture and Television Engineers (SMPTE): Hours:Minutes:Seconds.Frames.

**frame**

A single, complete picture in television and video. FullVideo Basic can capture and save-to-disk at up to 30 frames per second (at 160 x 120 resolution). See also *NTSC*.

**frame rate**

The number of video frames displayed per second.

**hue**

The color (sometimes called tint). See also *saturation* and *brightness*.

**I/O address**

Input/output address. I/O addresses are channels used to transfer data between an I/O device and the computer's microprocessor. The I/O address is the starting memory address through which the AlphaStation system exchanges data with peripheral devices, such as the FullVideo Basic module.

**IRQ (interrupt request)**

Devices connected to an AlphaStation system must be set up to use different IRQ numbers. For example, if a modem and a mouse were set up to use the same IRQ number, neither would work properly.

**ISA bus**

Industry Standard Architecture expansion bus, based on the IBM AT bus.

**JPEG**

Joint Photographic Experts Group. Developers of the JPEG compression algorithm for compression and decompression of still images for use in computer systems.

**kB**

Kilobyte. One thousand bytes (actually, 1024 bytes in binary numbering).

**luminance**

Brightness—the balance of light and dark shades in an image. One of the three characteristics coded in composite video; represented by the letter Y. Luminance is used interchangeably with brightness.

**MB**

Megabyte —one million bytes (actually, 1,048,576 bytes in binary numbering).

**MCI**

Media Control Interface. Microsoft's platform-independent multimedia specification providing a consistent way to control devices such as CD-ROMs and video playback units.

**NTSC**

National Television Systems Committee. North American television technical standards organization. Frame rate is 30 per second. Uses RGB (Red Green Blue) as the base.

**OLE**

Object linking and embedding. A function that allows Windows applications to share common data (objects) by establishing a link between two applications. Both applications must have OLE capabilities to establish this link. Links are established by copying to, and pasting from, the Windows clipboard.

**PAL**

Phase alternation line. European (excluding France) television standard.

**palette**

A collection of up to 256 colors that Windows uses to display images and video.

**PCI**

Peripheral Component Interconnect local bus.

**pixel, pel**

Picture element. Smallest addressable area of the computer screen.

**RCA**

Radio Corporation of America. Also, a designation for miniature connector type.

**resolution**

Number of pixels that can be displayed on the screen at one time. For example, 640 x 480 means 640 pixels horizontally, and 480 pixels vertically, for a total of 307,200.

**saturation**

The amount of color.

**S-video**

Type of video signal used in Hi 8 and S-VHS videotape formats. It transmits luminance (brightness) and chrominance (color) portions separately, using multiple wires, avoiding the NTSC encoding process and the resultant loss of picture quality. Also known as Y-C video. See also *composite video* and *NTSC*.

**thumbnail**

A reduced-size representation of a frame. See also *frame*.

**tint**

Color (sometimes called hue). See also *saturation* and *brightness*.

**VGA**

IBM's Video Graphics Array. Provides 16 colors from a palette of 256,000.

**WAV**

Waveform audio. Under Windows, digital audio files are normally stored with the file extension. See also *waveform* and *waveform audio*.

**waveform**

The visual representation of an audio file, where the volume level of individual samples is displayed, showing the highs and lows in volume over time. Under Windows Version 3.1, digital audio files are normally stored with the file extension .WAV (waveform audio). See also *waveform audio*.

**waveform audio**

Digitized sample of an audio waveform, stored in a form that your system can understand and manipulate. See also *waveform*.

**Y-C video**

See also *S-video*.

**YUV**

In the computer and broadcast worlds, three color components describe a given color. Broadcast standards accomplish sending all of the color information on one wire by modulating these three components onto one signal. CCIR601, an international standard for digital broadcast video, is specified with the chrominance (color) data (usually referred to as U and V), subsampled in X by a factor of 2, resulting in the phrase 4:2:2 YUV color space (Y is the luminance of the pixel).



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