# FullVideo Supreme

# Owner's Guide

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# Preface

## Guide Overview

**Purpose**

This guide describes the FullVideo Supreme module for Alpha workstation systems with a PCI bus. It explains how to connect cables between the module and common peripherals, and includes an overview of hardware, software, and standards.

**Audience**

This guide is for individuals who install and use the FullVideo Supreme module.

**Contents**

This guide lists the features of the FullVideo Supreme module. Generic instructions for installing an option module in your workstation are available in your system documentation. They are not included in this document.

The guide contains two chapters, two appendixes, a glossary, and an index.

- Chapter 1 describes the FullVideo Supreme module. It also provides an overview of the Multimedia Services for DEC OSF/1 software with which you can develop multimedia applications. It lists peripherals you can use with the FullVideo Supreme module.
- Chapter 2 provides installation instructions specific to the FullVideo Supreme. For example, it describes how to add cables to the option module.
- Two appendixes list Digital services information and hardware specifications.
- A glossary defines frequently used multimedia terms.

- An index provides references to information in this guide.

## Conventions

The following conventions are used in this guide:

| | |
|---|---|
| **Note** | Notes provide general information about the current topic. |
| ❶ | A number in a circle corresponds to a number in an illustration. |

# 1
# Multimedia

## Overview

This chapter provides information about the following:

- FullVideo Supreme module
- Multimedia Services for DEC OSF/1 software

### Technology

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

- desktop computing
- industry-standard personal productivity tools, and
- access to distributed applications and resources.

# FullVideo Supreme

## Overview

The FullVideo Supreme 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 Supreme module allows you to receive and transmit video using television, video cassette recorders, video cameras, and more.

## Features

The FullVideo Supreme module, part number AV301–AA, provides the following features:

- Real-time video capture of video signals in:
  - National Television System Committee (NTSC) (640 x 480 pixels) format.
  - Phase Alternation Line (PAL), or *Systeme Electronique Couleur Avec Memoire* (SECAM), (768 x 576 pixels) formats.
- Real-time video input in NTSC or PAL, in composite format.
- NTSC and PAL video output, in composite format.
- NTSC full–frame video data capture; PAL and SECAM full field capture.
- AccuVideo rendering in hardware 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.
- Genlock to external devices.
- Graphics overlays.

- Video capture (video-in) in 4:2:2 YUV format, in 8-bit pseudo-color, in 8-bit grayscale, or in 24-bit true color (conversion done in software).

**Note**

The FullVideo Supreme module does not contain Joint Photographic Experts Group (JPEG) compression /decompression, nor does it support direct RGB input.

## Software Requirements

You need a minimum revision of the following software with your multimedia system:

- Digital UNIX (formerly called DEC OSF/1) Version 3.0 or higher
- Multimedia Services for DEC OSF/1 runtime subset, Version 1.5

## Peripherals

You can add any of the following devices to your Alpha workstation.

- RRD4*x* compact disc drives (for software installation)
- Laser disc player
- Switcher
- VCR
- Video camera

# Multimedia Enabling Software

## Overview

Multimedia Services for DEC OSF/1 is the multimedia video enabling software for Digital workstation systems. The software helps developers create multimedia end-user applications and enhance existing applications using the FullVideo Supreme module.

## Software Subsets

The Multimedia Services for DEC OSF/1 software product contains a runtime subset and a developer's subset as follows:

- The runtime subset provides the runtime multimedia software that enables audio on Alpha workstations, provides a multimedia server, audio and video drivers, audio and video record and playback utilities, the DECsound utility, the Video Odyssey screen saver, as well as audio and video clips.
- The developer's subset includes the contents of the runtime subset, 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, example applications, and a programmer's manual. A larger selection of audio and video clips is available to developers as part of this kit.

## Multimedia Services for DEC OSF/1 Documentation

Refer to the following documents for more information about the Multimedia Services for DEC OSF/1 software products:

- *Multimedia Services for DEC OSF/1 Installation Guide*, part number AA–Q66GE–TE
- *Multimedia Services for DEC OSF/1 Programmer's Guide*, part number AA–Q0APF–TE
- *Multimedia Services for DEC OSF/1 Run Time Environment Guide*, part number AA–Q66FE–TE

# 2

# Option Installation

## Overview

This chapter provides the following information about the FullVideo Supreme modules:

- Unpacking the Parts Kit
- Connecting Cables to the Module
- Verifying the Installation
- Problem Solving Hints

The FullVideo Supreme module occupies one PCI option slot and provide connections for video-in and video-out devices.

# Unpacking the Parts Kit

## Kit Contents

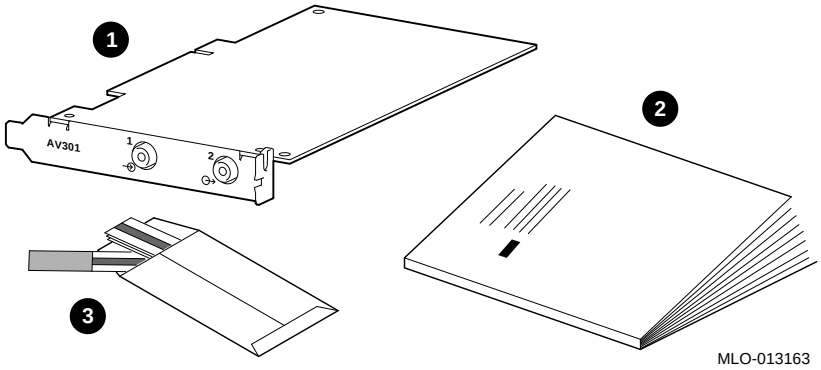
The FullVideo Supreme parts kit (see Figure 1) contains the following items:

❶ FullVideo Supreme module

❷ This document

❸ Disposable antistatic wrist strap

**Figure 1 Contents of FullVideo Supreme Package**




## Cabling Hint

Multimedia applications can use numerous peripheral devices plus system and option modules. Each device has its own cabling requirements. A simple label identifying each cable in your multimedia configuration makes a future move or equipment change easier.

# Installing the Option Module

## Overview

A FullVideo Supreme module can be installed in any available PCI bus slot in your system. Option modules are installed in all PCI bus slots in a similar way. Refer to your system documentation for additional information. It should explain how to perform the following tasks:

1. Shut down the system software.
2. Turn off the system.
3. Remove system cables.
4. Remove any system unit cover.
5. Attach an antistatic wrist strap.
6. Install an option module.
7. Replace the system unit cover.
8. Connect the system cables.
9. Turn on the system.
10. Reboot the system software.

# Connecting Cables to the Module

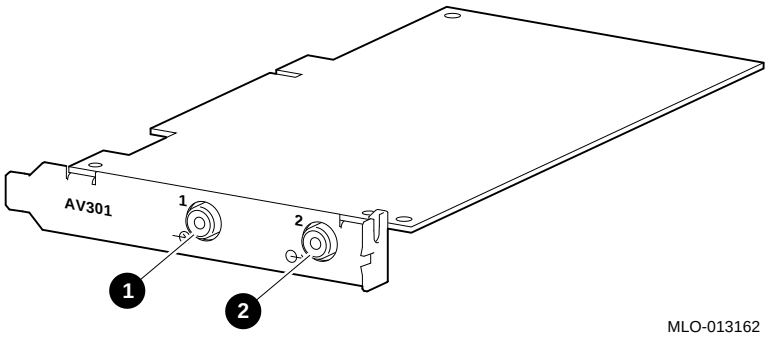
## FullVideo Supreme Bulkhead Connectors

The FullVideo Supreme module (part number AV301–AA) , contains two RCA-type composite video connectors, as shown in Figure 2:

❶ Video In Composite —RCA-type connector

❷ Video Out Composite —RCA-type connector

**Figure 2 AV301–AA Bulkhead Connectors**



## Video Display Devices

Table 1 identifies the cable you use when you connect your FullVideo Supreme module to a video display, TV, camera, camcorder or VCR input connector.

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

| If the video display has... | Follow these instructions... |
|---|---|
| An RCA connector | Connect an RCA-to-RCA cable (customer supplied) to ❷ in Figure 2. |

## Video Sources

Table 2 identifies the cable you use when you connect your FullVideo Supreme module to a laser disc player, TV tuner, camera or VCR output connector.

**Table 2 Using Cables Correctly with Video Output Devices**

| If the video disc player has... | Follow these instructions... |
|---|---|
| An RCA connector | Connect an RCA-to-RCA cable (customer supplied) to ❶ in Figure 2. |

**Note**

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.

# Verifying the Installation

## Overview

When you install the multimedia enabling software purchased for your system, an installation verification procedure (IVP) included in this software will test for the proper hardware installation of the FullVideo Supreme module.

## Operating System-Based Diagnostics

The operating system-based diagnostics, run during the Multimedia Services for DEC OSF/1 installation verification program (IVP), use the FullVideo Supreme drivers and enabling software to test complex functions such as dithering, video out, and video in. See your Multimedia Services for DEC OSF/1 documentation for additional information.

Also, for additional verification of your installation, refer to the procedures recommended in the DECVET Version 3.3 product.

# Problem Solving Hints

## PCI Bus Problems

Option module problems can include problems related to network options, as well as PCI options. Your system documentation provides you with information to assist you in diagnosing the likely cause of PCI bus problems. The following information may also help you troubleshoot a problem.

| Step | Action |
|---|---|
| 1 | Confirm that the FullVideo Supreme module and any cabling are properly seated. |
| 2 | Check for a faulty slot by moving the installed module to an open slot. |
| 3 | Call your Digital service representative for help. |

## Service Contract and Warranty Information

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

# A

# For Digital Multivendor Customer Services Representatives

## Overview

This appendix provides a list of field replaceable units (FRUs).

### Ordering FRUs

Use the information in Table 3 to order field replaceable units for the customer.

**Table 3 Field Replaceable Units (AV301–AA)**

| Field Replaceable Unit | Part Number |
|---|---|
| FullVideo Supreme module | 54–23296–02 |
| Antistatic wrist strap | 12–36175–01 |

# B

# Hardware Specifications

## Overview

This appendix provides the hardware specification for the FullVideo Supreme modules as follows:

- Mechanical Size
- FullVideo Supreme Environmental Specifications
- Video Input/Output Electrical Characteristics

## Mechanical Size

The FullVideo Supreme module conforms to the mechanical dimensions for a short length PCI option: 4.2 in x 6.875 in.

# Environmental Specifications

## Operating Conditions

Table 4 provides information about the environmental conditions in which the FullVideo Supreme module can operate. The term "operating conditions" refers to a FullVideo Supreme module in an Alpha system that is plugged in, turned on, and running.

**Table 4 Operating Conditions**

| | |
|---|---|
| Temperature range | 10°C (50°F) to 40°C (104°F)[1] |
| Relative humidity | 10% to 90% (20% to 80% with removable media options) |
| Air circulation | Minimum clearance of 8 cm (3 in.) on all sides of the system unit. |

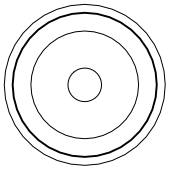
[1]Temperature range varies between systems. See your system documentation for additional information.

# Video Input/Output Electrical Characteristics

## RCA-type Composite Connector Characteristics

The FullVideo Supreme has two RCA-type input and output connectors. Figure 3 shows the connector pin characteristics.

**Figure 3 Video I/O Connector Pin Diagram**



MLO-013164

For both the video input and output composite connectors:

**Table 5 Video Input/Output Pin Assignments**

| | |
|---|---|
| Center | Composite |
| Outer Rim | GND |

## Video Input Characteristics

Video input signals conform to either NTSC, PAL, or SECAM specifications for timing and levels. Table 6 lists the video input characteristics.

**Table 6 Video Input Characteristics**

| | |
|---|---|
| Impedance | 75 ohms |
| Input voltage | 1 Vpp (nominal) |
| Polarity | White positive |
| Coupling | DC coupled |

## Video Output Characteristics

Table 7 lists the video output connector characteristics.

**Table 7 Video Output Characteristics**

| | |
|---|---|
| Impedance | 75 ohms |
| Output voltage | 1 Vpp (nominal) into 75 ohms |
| Polarity | White positive |
| Coupling | DC coupled |

# Glossary

This glossary contains concepts, terms, acronyms, and services associated with multimedia.

### ASICs

Digital engineering custom-designed chip. The chip is designed by Digital but is manufactured by a vendor.

### 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*.

### chrominance

The color component of a composite signal. Chrominance also refers to the color component of any image, as opposed to its grayscale value or luminance. In terms of the NTSC color standard, chrominance contains the combined I and Q components of the signal.

### composite video signal

Composite video signal types combine the YUV and sync 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.

A composite signal is a color display signal that transmits all necessary information (color, brightness, sync, and other information) together. The device that receives the composite signal must decode the various kinds of information in order to display an image. Mixing color and brightness information together, then separating the information in

this way, compromises the quality of the final image as some information is lost. Compare with *S-video signal*, which produces a higher-quality image than composite signals.

### contrast

The ratio between the maximum and minimum luminance (brightness) values of a display.

### Digital UNIX operating system

A general-purpose operating system based on the Open Software Foundation OSF/1 technology. Digital UNIX was formerly called DEC OSF/1.

### dithering

Controlled addition of noise to an image, in a specific quantity, for the desired number of colors.

### Direct Memory Access (DMA)

The ability to transfer data directly to or from memory without passing it through the central processor unit (CPU).

### drawable

A collective term for windows and pixmaps, both of which can be used as sources and destinations in graphics operations.

### frame buffer

Memory used to store an array of graphic image data. Each element of the array corresponds to one or more pixels in a video display. See also *pixel*.

### hue

Hue represents the frequency of color and its position in the visible spectrum.

### luminance

The brightness or grayscale component of an S-video or composite signal. As the chrominance value gives an S-video signal its hue, luminance defines its brightness. In terms of the NTSC color standard, luminance contains the Y signal, while chrominance contains the combined I and Q signals. Also used interchangeably with the term *brightness*.

**multimedia**

A set of technologies that allow for the capture, manipulation, presentation, and integration of information involving data types such as text, graphics, and images, as well as animation, full-motion video, and high-quality audio.

**NTSC**

A color-encoding and decoding system for the transmission of video signals, 640 lines wide by 480 lines high at 30 Hz. The system was adopted by the National Television System Committee in 1953 and was the first monochrome-compatible, simultaneous color system used for public broadcasting. It was adopted by the Federal Communications Commission (FCC) for use in the United States, and is also used in Canada, Japan, and Mexico. Compare with *PAL* and *SECAM*.

**Phase Alternation Line (PAL)**

A color-encoding and decoding system for the transmission of video signals, 625 lines per frame at 50 Hz, used in most European countries. Compare with *NTSC* and *SECAM*.

**pixel**

A picture element that is the basic unit of a graphic display. A location on the monitor screen that can be selectively turned on or off. The more pixels to a screen unit, the higher the picture resolution.

**raster**

The electron beam that scans the image onto a picture tube. Raster images are generated with an intensity-controlled, line-by-line sweep of the electron beam across the screen. Television sets use raster displays.

**read-only memory (ROM)**

Memory that cannot be modified. The system can use (read) the data in ROM but cannot change it.

**saturation**

The richness of a color, as determined by the amount of white in the color.

### scaling

Enlarging or reducing all or part of a display image by multiplying its coordinates by a constant value.

### Systeme Electronique Couleur Avec Memoire (SECAM)

A color-encoding and decoding system for the transmission of video signals, 625 lines per frame at 50 Hz. The SECAM system is used in France and the CIS - Commonwealth of Independent States. Compare with *NTSC* and *PAL*.

### video signal

A signal generated by a television signal, VCR, camcorder, or laser disc player.

### Windows NT

"New Technology" operating system owned by Microsoft Corporation.

### 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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# How to Order Additional Documentation

## Technical Support

If you need help deciding which documentation best meets your needs, call 800-DIGITAL (800-344-4825) and press 2 for technical assistance.

## Electronic Orders

If you wish to place an order through your account at the Electronic Store, dial 800-234-1998, using a modem set to 2400- or 9600-baud. You must be using a VT terminal or terminal emulator set at 8 bits, no parity. If you need assistance using the Electronic Store, call 800-DIGITAL (800-344-4825) and ask for an Electronic Store specialist.

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[1]Call to request an Internal Software Order Form (EN–01740–07).

## Reader's Comments

**FullVideo Supreme Owner's Guide**

EK–FVIDO–OG. A01

Your comments and suggestions help us improve the quality of our publications.
Thank you for your assistance.

| **I rate this manual's:** | Excellent | Good | Fair | Poor |
|---|---|---|---|---|
| Accuracy (product works as manual says) | ☐ | ☐ | ☐ | ☐ |
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| Clarity (easy to understand) | ☐ | ☐ | ☐ | ☐ |
| Organization (structure of subject matter) | ☐ | ☐ | ☐ | ☐ |
| Figures (useful) | ☐ | ☐ | ☐ | ☐ |
| Examples (useful) | ☐ | ☐ | ☐ | ☐ |
| Index (ability to find topic) | ☐ | ☐ | ☐ | ☐ |
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