Software Product Description

PRODUCT NAME: Multimedia Services Version 1.6 for Digital UNIX **SPD 48.92.06**

DESCRIPTION

Multimedia Services Version 1.6 for Digital UNIX® brings audio and video capabilities to Digital's workstations, and provides a full programming library for use by developers of new applications. Multimedia Services provides support for the following built-in and optional audio/video hardware:

- Built-in audio on Digital's Alpha workstations running the Digital UNIX Operating System
- AlphaStation Sound Card
- Microsoft Windows Sound board
- Sound and Motion J300 TURBOchannel multimedia option
- FullVideo™ Supreme PCI video option
- FullVideo™ Supreme JPEG PCI video option

The application programming interface is based on the same multimedia interface provided in Microsoft® Windows NT™ and Windows™ 3.1 operating systems including Video for Windows™.

Multimedia Services Version 1.6 for Digital UNIX is packaged in two licenses: a runtime license and a development license.

The runtime license enables built-in audio on AlphaStation systems, and other audio/video options.

Some of the features include:

- DECsound - an audio record, playback, and edit utility.
- AlphaVCR, a utility with a variety of features:
  - — play live video and audio
  - — play back audio and video files including JPEG, Intel's Indeo™ or YUV data
  - — controls to manage brightness and contrast
  - — play MPEG-1 audio/video files
  - — play AVI files to an output video device like a VCR or TV monitor. File format support is dependent upon hardware option. The FullVideo Supreme supports playing either X Image or YUV data to video out. The Sound and Motion J300 and FullVideo Supreme JPEG support playing X Image, YUV, or JPEG data to video out. Note that playing Indeo files to video out is not currently supported.

VIDEO	
JPEG	play, record
24 bit RGB	play, record
Intel Indeo	play
AUDIO	
Microsoft Wave Audio	play, record
Sun Audio	play

- Audio Control, a utility to control volume and port selection for all audio devices.
- Video Odyssey, a video screen saver that displays Motion JPEG AVI files through JPEG software decompression, requiring no additional video hardware.
- Supports standard Microsoft Resource Interchange File Format (RIFF) file I/O in AVI and WAVE file formats in the utilities. This allows sharing of many audio and some video files between PCs and Alpha systems.
- Audio and video clips.
- Low level drivers for built-in audio on AlphaStation systems, the Sound and Motion J300 TURBOchannel multimedia option, the FullVideo Supreme and FullVideo Supreme JPEG PCI multimedia options and the Microsoft Windows Sound System.
- Supports two Sound and Motion J300 options in one system.
- Supports two FullVideo Supreme and FullVideo Supreme JPEG boards in a single system, including heterogeneous support.

File formats supported include:

- WAV: IMA ADPCM, G.711 A-law, G.711 u-law, 8-bit linear, 16-bit linear
- Sun AU (read only): u-law
- AVI: Motion JPEG YCbCr Subsampling 2, Motion JPEG Y, MJPG YCbCr Subsampling 2, XImage 8-bit, XImage 24-bit, YUV 4:2:2 interleaved, Indeo R3.1, Indeo R3.2
- Other: MPEG-1 Systems (ISO/IEC 11172-1), MPEG-1 Video (ISO/IEC 11172-1)

The Multimedia Services Development license provides the application programming interface to incorporate the audio and video functions into applications. Features include:

- API callable from C, based on Microsoft's multimedia calls in Windows NT and Windows 3.1 operating systems and Video for Windows Version 1.0.

  This compatibility eases porting of multimedia applications from Windows platforms to Alpha systems by reducing the programmer's learning curve and the coding changes required for a successful Digital UNIX implementation.

- Waveform audio recording and playback
  - — Device independent interface to the audio hardware in the DEC 3000 Alpha, DEC 2000 Alpha and AlphaStation workstations, including built-in audio hardware, the AlphaStation Sound Card, and audio on the Sound and Motion J300.
  - — Functions to record, play back, and control audio including volume, stop, start, and pause.
  - — Functions to query device capabilities and to open, close, and configure devices.
- Audio compression and decompression
  - — Functions to compress and decompress audio WAV data in IMA ADPCM (Adaptive Delta Pulse Code Modulation)
- Video capture
  - — Functions to query device capabilities and to open, close, and configure devices.
  - — Functions to capture video in memory buffers with selectable capture formats of JPEG compressed, 16-bit YUV, 8-bit dithered, and 24-bit true color. More than one type of capture can occur simultaneously depending upon the option. The Sound and Motion J300 and FullVideo Supreme JPEG can capture both JPEG and non-JPEG simultaneously but only with certain combinations of data formats. The FullVideo Supreme does not support more than one type of simultaneous capture. Video input can be NTSC, PAL, SECAM, composite, or S-video formats.
  - — Functions to modify the quality of the rendered video data including brightness, contrast, mirror, saturation, and sharpening.
- Video compression and decompression
  - — Functions to compress and decompress video data, and manage devices and control parameters that affect the quality of dithered 8-bit X images such as brightness, contrast, saturation, and sharpening.
  - — JPEG compression and decompression support for the Sound and Motion J300 option.
  - — JPEG compression and decompression support for the FullVideo Supreme JPEG option.
  - — Alpha CPU performance allows JPEG decompression and compression support through software only for video playback and decompression. Highly dependent on the performance of the Alpha processor, a 320 x 240 Motion JPEG file can be displayed at 12 to 38 frames per second.
  - — Alpha CPU performance allows Intel Indeo R3.2 decompression and compression support through software only for video playback and compression. Again, highly dependent on the performance of the Alpha processor, a 320 x 240 Indeo file can be displayed at over 30 frames per second. Indeo R3.1 files may also be decompressed.
- Video output
  - — Functions to send data (including graphics, video, and text) captured on the workstation monitor to a video output device such as a VCR or television monitor.
  - — NTSC frame and PAL field formats are supported.
- Multimedia and image file I/O
  - — Functions to create, read, and write disk files that store audio and video data in Waveform Audio (WAVE) and Audio/Video Interleaved (AVI) file formats.
  - — Images are stored in device-independent bitmap (DIB) formats for standard image and motion JPEG, XIMAGE, and YUV video data formats.
- Sample code for many of the functions listed above.

CONFORMANCE TO STANDARDS

Multimedia Services is designed to conform to the following standards:

- MIT X Window System™ Version 11 Release 5 (X11R5)
- Microsoft's Video for Windows V1.0 and multimedia extensions in Windows 3.1 and Windows NT V3.1

HARDWARE REQUIREMENTS

Processors Supported:

Alpha:

DEC 3000 Model 300 AXP Workstation,
DEC 3000 Model 300 AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 300X AXP Workstation,
DEC 3000 Model 300X AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 300LX AXP Workstation,
DEC 3000 Model 300LX AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 400 AXP Workstation,
DEC 3000 Model 400 AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 500 AXP Workstation,
DEC 3000 Model 500 AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 500 AXP Server,
DEC 3000 Model 500X AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 600 AXP Workstation,
DEC 3000 Model 600 AXP Workstation with Sound and Motion J300 multimedia option,
DEC 3000 Model 700 AXP Workstation,
DEC 3000 Model 700 AXP Workstation with Sound and Motion J300 multimedia option
DEC 3000 Model 800 AXP Workstation,
DEC 3000 Model 800 AXP Workstation with Sound and Motion J300 multimedia option
DEC 3000 Model 900 AXP Workstation,
DEC 3000 Model 900 AXP Workstation with Sound and Motion J300 multimedia option
DEC 2000 Model 300 with Microsoft Windows Sound System
AlphaStation 200 4/100
AlphaStation 200 4/100 with FullVideo Supreme or FullVideo Supreme JPEG option. Support for audio only. Requires 64MB for support of both audio and video.
AlphaStation 200 4/166
AlphaStation 200 4/166 with FullVideo Supreme or FullVideo Supreme JPEG option
AlphaStation 200 4/233
AlphaStation 200 4/233 with FullVideo Supreme or FullVideo Supreme JPEG option
AlphaStation 250 4/266
AlphaStation 250 4/266 with FullVideo Supreme or FullVideo Supreme JPEG option
AlphaStation 400 4/233 with AlphaStation Sound Card
AlphaStation 400 4/233 with AlphaStation Sound Card and FullVideo Supreme or FullVideo Supreme JPEG option
AlphaStation 600 5/266
AlphaStation 600 5/266 with FullVideo Supreme or FullVideo Supreme JPEG option
AlphaStation 600 5/300
AlphaStation 600 5/300 with FullVideo Supreme or FullVideo Supreme JPEG option

Notes:

- Software video playback is highly dependent on CPU and disk I/O performance. For example, software video playback on AlphaStation 200 4/100 while not as fast as other AlphaStations systems, can be configured to improve video playback by minimizing window playback size.
- The Sound and Motion J300 TURBOchannel multimedia option is required for video input, video output, real-time JPEG compression/decompression, and CD-quality audio on DEC 3000 workstations.
- The FullVideo Supreme or FullVideo Supreme JPEG option is required for video input and video output on AlphaStation workstations.
- The Sound and Motion J300 option, the FullVideo Supreme and FullVideo Supreme JPEG options are supported with the following restrictions in this version of Multimedia Services for Digital UNIX:

Sound and Motion J300 Limitations & Considerations

— No more than two Sound and Motion J300 options are supported per workstation.

— Digital audio input/output is not supported.

— ADPCM (hardware audio compression) is not supported.

— Video input in PAL and SECAM formats and output in PAL are supported in field mode only. Frames are de-interlaced in application software.

— The audio features of a Sound and Motion J300 option card cannot be used while the video, compression, or decompression features of that card are being used on the DEC 3000 Models 300, 300L and 300 LX. All other DEC 3000 workstations with the J300 can use simultaneous audio and video.

FullVideo Supreme and FullVideo Supreme JPEG Limitations & Considerations

— No more than two FullVideo Supreme or FullVideo Supreme JPEG options are supported per workstation.

— Video input in PAL and SECAM formats and output in PAL are supported in field mode only. Frames are de-interlaced in application software.

Disk Space Requirements

Disk space required for installation

Runtime: 21.0 MB

Development: 23.0 MB

Disk space required for use (permanent):

Runtime: 21.0 MB

Development: 23.0 MB

These counts refer to the disk space required on the system disk. The sizes are approximate; actual size may vary depending on the user's system environment, configuration and software options.

Memory Requirements for Motif® Support

The minimum memory supported for audio and video applications in a standalone Motif environment is 64 MB.

The performance and memory usage of multimedia applications are particularly sensitive to system configuration. More memory may be required on a system with several applications running, or where it may be desirable to improve the performance of an application.

The use of this software in conjunction with increased memory capability improves performance for many applications. The memory size suggested for most typical hardware configurations when using audio and video is 64 MB or 96 MB, depending on the system.

OPTIONAL HARDWARE

Multimedia Services for Digital UNIX supports the following optional hardware:

- Microsoft Windows Sound board option
- AlphaStation Sound Card
- FullVideo Supreme PCI video option
- FullVideo Supreme JPEG PCI video option
- Sound and Motion J300 TURBOchannel multimedia option

SOFTWARE REQUIREMENTS

- Digital UNIX V2.0 or greater Operating System

For the development of applications and programs that use Multimedia Services Development Kit for DigitalUNIX, one of the Multimedia Services supported languages is also required.

OPTIONAL SOFTWARE

Multimedia Services Version 1.6 for Digital UNIX supports the following language:

- Digital UNIX C Developers' Extensions Version 1.3

Note: Certain versions of these products are dependent upon a specific version of the operating system. Please refer to the Software Product Description (SPD) of the product in question to determine which version is necessary.

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

This product is distributed only on the Digital CD-ROM Software Library for Digital UNIX. This software library (order number QA-054AA-H8) contains the binaries and on-line documentation in Bookreader and PostScript® format. The Multimedia Services documentation is also available in hardcopy and must be ordered separately.

ORDERING INFORMATION

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Runtime Option: QL-20YA*-AA
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