

Chapter 6. Program Elements: Video

Chapter Objectives

After completing this chapter you should be able to:

- Understand the basic principles on how analog and digital video works;
- Recognize all options available to integrate video onto a multimedia production;
- Understand the use of laser disc technology in reference to multimedia applications;
- Understand the basic about video digitizing;
- Manage the basic principles of video digital editing;
- Understand how to export digital video into a multimedia application.

Integrating Video into your Multimedia Production

Video has been with us for about sixty years. The relationship between video (television) and computers is a recent one and digitized video is one of the most recent additions to multimedia technology. Video enhance, dramatize and provides impact to your multimedia application. Your audience will better understand the message of your application with the adequate and carefully planned integration of video. Video is a very important way of conveying a message to the MTV generation. But be careful, quality digital video clips requires very demanding hardware and software configuration and support.

What purposes video serves in multimedia applications. Video can be integrated in your multimedia application for a number of different purposes among which are the following:

- Present testimonials of absent individuals;
- Present historical facts;
- Illustrate an industrial process;
- Deliver a welcoming message to employees using the multimedia application by a corporate spoke person or official;
- Present a craft technique;
- Present a walk through of a building such as a museum;
- Take customers through the manufacturing process of any given product;
- Present a virtual reality version of a new product before it goes into production;

In summary the advantage of integrating video into a multimedia

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presentation is the capacity to convey a large amount of information in the least amount of time with great effectiveness. Remember that motion integrated with sound is key for the understanding of information by your audience.

Open the Interactive Guide to Multimedia CD-ROM in Chapter 6 to have more information about the integration of video into a multimedia application.

Video Basic Principles

How video works? As a person involve in multimedia production you must have a basic understanding of this technology, it will definitely help you to work with the digitize video making tools. In this section we will present some basic principle on how analog and digital video works. Similar to film, video is a sequence of individual images, which we call frames, projected or displayed on a screen before a viewer or an audience. The projection of several frames per second creates the illusion of motion because our brain cannot register the individual images. Video has a frame rate of 24 frames per second (fps) to 30 fps, this rate projects a motion that appears to our brain smooth and continuous. Usually along with the frames there are one or more audio tracks which provides the aural or sound dimension.

How analog video is recorded and encoded?

Video cameras contain light-sensitive devices called charge-coupled devices (CCDs), which digitize or capture individual images as optical images and convert or encode them into electrical signals. Once the analog video has been encoded camera it can be stored (recorded) onto a magnetic media such as analog video tape, it can be edited, broadcasted or recorded digitally onto an optical disk storage device. The electrical signals captured by a video camera represents the color and brightness information of the image.

How video cameras interpret color?

All video cameras interpret color as a combination of the three primary colors: red, green and blue. This light-based color model is commonly referred as RGB color. Video cameras record or encode color information in different ways. Some high-end cameras process separate signals for each of the RGB components or they process signals for the chrominance (color) and luminance (brightness) this results in a component video signal. A more

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common process encodes the RGB (color) and luminance information into one signal, this is known as composite signal.

There are three broadcast and video standards and recording formats use in the world: NTSC, PAL, SECAM and HDTV. Due to the fact that these standards are not interchangeable, it is critical where in the world your multimedia will be used or from where you will be receiving video clips.

NTSC

The standard composite signal adopted by the television and video industries in the United States and Japan is known as the NTSC signal, NTSC stands for National Television Standard Committee. An NTSC video signal has a frame rate of 30 fps (or, more precisely 29.97 fps). As specified by the NTSC standard, a single video frame is made up to 525 horizontal scan lines.

PAL

In the United Kingdom, Europe, Australia and South Africa the most common composite video signal is PAL (Phase Alternating Line) which has a frame rate of 25 fps with 625 lines at a frame.

SECAM

SECAM stands for Sequential Color and Memory. This format is used in France, Russia, and other few countries. Although SECAM is a 625 lines, 50 Hz system, it differs greatly from the NTSC and the PAL systems in its basic technology and broadcast method.

HDTV

High Definition Television (HDTV) is projected as the next step in video technology. Among the characteristics of this emerging standard are 1,200 lines of resolution in a 16:9 aspect ratio (visualize this as the format of a cinemascope movie). At present there are three competing standards, one each developed by the Japanese and the Europeans and one by the United States. This technology is expected to hit the market early in the next century.

Keep these standards in consideration when setting your video capture device.

How image video resolution is defined?

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Image resolution is an important concept in defining a video signal. The image resolution is defined based on the number of picture elements that make up the image, this is called pixels. A displayed video signal is a conglomerate of tiny picture elements called pixels, which makes the color and brightness of the image. The picture quality of your video signal increases as the number of pixels increases per unit area. Video camera encode the image information as grid of pixels. An NTSC video frame contains 486 horizontal lines of visible pixels, with each line containing 720 pixels. Thus an NTSC video frame is made of approximately 350,000 pixels (720 by 486).

How are video signals displayed?

For the analog video signal to be converted into a recognizable image, the image must be run through a decoder. The function of the decoder is to split the signal into RGB signals so that the image can be displayed on-screen. Television screens are made up of tiny phosphors that emit varying intensities of red, green and blue light when struck by a carefully controlled electron beam. In the case of a standard video television signal to be projected, the electron beam must scan across 525 lines on the screen 30 times per second. Actually, the electron beam scans a television screen in interlaced mode-that means, that the beam scans all the even lines of a frame and then all the odd lines of that frame. The even lines and the odd lines of each frame are referred to separately as fields. To maintain a frame rate of 30 fps, the electron beam must scan at a rate of 60 fields per second. When you freeze the frame, you actually see the two fields being alternately scanned on the NTSC monitor.

Computer screens operate in a non interleaved mode. This means that the electron beam scans all the rows of phosphorus sequentially to create the image on screen and repeats the process about 60 to 75 times per second to refresh the screen.

What is time code?

The duration of a video clip and its starting and ending frames are commonly measured using a unit or address called timecode. The timecode unit is a way to identify each frame of a videotape for control in editing and broadcasting. Timecode is particularly useful to those editing video, it allows to locate frame accurately and to synchronize picture and audio elements.

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Video Sources Options

With the advent of the personal computer revolution, the marriage of video and technology was an obvious one. Images in motion provides realism and dramatism to any presentation. Multimedia applications which are capable of successfully integrating video have carefully analyzed various options of video sources and formats during their planning stage. Among the video resources available for their integration into a multimedia application are:

- Live TV analog video signals integrated via PC-TV;
- Digitizing analog video and storage in a laser video disc;
- Laser disc video controlled by a computer multimedia application;
- Digitized video clips (Quick Time or Microsoft Windows AVI).

Figure 6.1 Video Sources

Lets explore the different video sources available for your multimedia application development.

Integration of Analog Video into a Multimedia Application

The integration of a live analog video signal or a video from a VCR is feasible to be included as a video source in a multimedia application. This is possible through the use of a video board AV board on a Macintosh) or a PC-TV board on an IBM compatible with a TV tuner connected to the computer. In this setup the multimedia application will determine when the video signal will be played through a video window in the computer screen. Control of a VCR in this setup is possible if the VCR has a computer interface port by which an RS-32 cable is connected to the computer serial port.

Among the potential applications of this setup are:

- Integration of available collection of analog videos;
- Use of live signals from commercial broadcast,
- Integration of selected video signals from cable TV;
- Integration of video signal from close circuit TV systems among others;

Laser Disc and CD-ROM Stored Video

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Laser disks and CD-ROM video technology can provide a new dimension to old video tapes. Corporations and educational institutions usually have invested tens of thousands of dollars in the production of video taped programs. To update them it might cost tens of thousand dollars more, but there are ways to upgrade these programs, make the interactive and even to include new features at relative low cost and high quality. The key to achieve this is to digitize the video and store it on a laser disk or a CD-ROM.

Authoring a Laser Disc

The process of transforming an analog video tape into a laser disk is called authoring. The target video taped needs to comply with certain requirements before it is send to a post-production facility. Its format must be 1" (one inch) or 3/4 inch and time coded.

Figure 6.2 Lasr disk authoring process.

When requesting the services to a video post production facility to author a video disk make sure to request from them the production of a CAV (Constant Angular Velocity) disk. Regular laser disk use for home video systems are CLV (Constant Linear Velocity) The rational for selecting a CAV disk is the need to control the playback of the video on the laser disk frame by frame. When pause the CLV disks their video look fuzzy, out of focus. On the other hand, CAV laser video disks when pause deliver a sharp steady image.

Applications

If you connect a video disk player to the computer serial port with and interface cable, you can develop a multimedia application that can control the playback of specific video frames as selected. The video could be integrated and displayed in the computer screen via a video window or displayed separately from the computer screen using a TV monitor. The first option is rather expensive because it will require a video capture board in the computer.

Properly compressed digitized video can be used for the same purposes as above. The advantage of using digitized video from a CD-ROM compiled into a Quick time movie is that you don't need a video capture board or any other peripheral to playback the video integrated with the multimedia application interface.

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Shooting Your Own Video

Perhaps you are low on budget and your multimedia application needs to incorporate some short video clips. The answer could be to shoot your own video. To do it right you must understand the requirements of digital video. Sometimes even video production professionals do not know these peculiarities and your investment it might not even be worthwhile. The following are some basic considerations to shoot video these will help you to avoid the amateur-home-video feel.

- Use a steady cam and or a tripod -try to avoid shooting video hand holding the camera, use a tripod to stabilize the camera, the results will look more professional. If you have to hold the camera, use a camera with steady cam technology. This system will help to keep the picture steady.
- Crop the shot - digitized video windows are usually small, when shooting a interview crop the shot. If you open the lens to a wide angle shot, due to the relatively small video window its going to be hard to see the subject.
- Shot with slow and steady movements - video frame rates of digitized video is usually less than 30 fps, by definition the video will look jerky. If you shot the video with moving the camera fast you will increase the jerkiness of the video. Also try to shot in an area in which the subject is the only object moving.
- Use direct and even lighting - light should be even, if possible diffused, avoid background shadows by placing lights in the front and sides of the subject. Harsh shadows don't look good in digitized videos.
- Use subtle or pastel color schemes - red and blue colors will reduce the quality of the digitized video. Digitized video use can only carry a limited amount of color information in the available bandwidth. Bright color will quickly use the available bandwidth causing tonal variations to disappear.
- Do not use the camera built-in microphone - when selecting the video camera to be use, select a camera with the best possible audio system. When performing interviews use professional quality lapel microphones.

Video Production for Multimedia

There are four basic steps in the production of digital video for your multimedia application. Figure 6.3 presents the sequence in the production

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process.

Figure 6.3 Multimedia video production.

Analog video acquisition. The following components are included in this step:

- Script production, story board development, selection and use of analog video equipment to be use in the shooting of footage for video to be integrated into a multimedia application.
- Selection and acquisition of existing analog video sources. One of the great advantages of the integration of digital video and multimedia technology is its capacity to re purpose video materials. This is that existing analog video footage can be digitized and integrated into a multimedia application which will add a number of other elements such as an interactive glossary, graphic overlays, text bullets, animation's and others. Some of the potential sources of existing analog video footage are:
 - Technical and training videos;
 - Educational videos;
 - Corporate presentation videos;
 - New products videos;
 - Industrial processes videos;
 - Television Commercials
 - Video footage available in laser disc formats or CD-ROM formats;
 - Video clip media vendors.

Digital video editing, audio tracks editing, addition of special effects, transitions and titles. This process is accomplished by using video capture and editing software tools such as Adobe Premier. The use of this software will be discussed in this chapter.

Digital Video

Digital video formats such as Quick Time and AVI, depend on special algorithms that control the amount of information per video screen that is sent to the computer screen, as well as the rate at which frames are displayed. Currently, both technologies allows digital image display at full-screen images at 30 frames per second. Both technologies provides methods for interleaving or blending audio and video data in such a way that provides

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for sound to remain synchronized with the video. These two technologies allow video image data to stream from disk to memory in a buffered and organized manner.

Digital video technologies organize time-related data in many forms. Traditional videotape involves a video track with two audio tracks. Quick Time technology is a multitrack recorder which allows you to have an almost unlimited number of tracks.

Quick time and Microsoft Video for Windows technology are used in movie-making tools to create, edit and present digitized motion video segments in your multimedia application.

Capturing and Editing Video

The NTSC and PAL video signals are analog in nature. Computers however, display information digitally. Thus, in order to computers be able to display video signals through a computer they must be digitized, or sampled. The process of digitizing video is known as capturing. The capturing process is performed by a video capture board or frame grabber. This device is installed in one of the computer expansions slots. This device is use to digitize an analog signal converting it to a digital computer graphic signal.

Video Compression

If you digitize a 10 second video clip at full screen, 24-bits, full-motion requires the storage and transfer of a very large amount of data in a very short period of time. Specifically, to reproduce one frame of digital video at 24 bits requires approximately 1 MB of computer data, 10 seconds of full-screen, full-motion digital video requires 300 MB of hard disk space. In turn, when playing back this video your computer will need to deliver data at a rate of 30 MB per second, presently this is technically not feasible for desk top computers using NuBus technology, typically, hard disk transfer 1 MB per second. Today we have overcome this technological bottleneck by using digital image compression techniques. At present, we use real-time compression algorithms such as JPEG, MPEG, P*64, DVI and C-Cube. These algorithms compress digital video information at rates ranging from 50:1 to 200:1. The following is a summary of how these compression logarithms work:

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JPEG

JPEG stands for Joint Photographic Experts Group. This compression standard was initially developed to be used with still images. Its compression ratio is about 20:1 before visible image degradation occurs. JPEG is one of the most popular compression standards use in the Macintosh, PC and Amiga platforms. At a compression rate of 30:1 the image storage requirement is reduce from 1 MB to 33K, and the data transfer rate is reduce to about 1 MB per second. This transfer rate is well within the capabilities of most machines. On the downside, at 30:1 compression rate you sacrifice a lot of image data.

MPEG

MPEG stands for Moving Picture Experts Group. This standard was specifically developed for motion images. At 50:1 compression rate (before image degradation occurs), MPEG compression allows compression of video and audio at a fast compression speed and decompression occurs in real time. Compression and decompression in MPEG, like in JPEG, is a symmetrical system, which means it compress and decompress at the same rate. MPEG is capable of decompressing data at a rate of 1.2 to 1.5 MB per second. Its decompression rate allows most players to play full-motion, full-screen videos at 30 frames per second. MPEG allows compression rates of 200:1 with some observable degradation of the image.

DVI

DVI compression/decompression technology is based on the Intel i750 chip set. Thus this decompression standard is proprietary. DVI's compression algorithms can compress full-motion, full-speed 24 bits video at a rate between 80:1 to 160:1. At these compression rates DVI is capable of delivering 30 frames per second full-screen, full-motion video. JPEG delivers 30 frames per second but at a quarter of screen size.

P*64

P*64 (pee star sixty-four) was developed by the Consultative Committee on International telegraph and telephone (CCITT). This video compression standard is used as a video telephone conferencing standard for compressing audio and video images. Encoder products from telephone service providers such as AT & T and Northern Telecom use P*64 to deliver wide-spectrum telecommunications capabilities incorporating high-speed and very-high speed-throughput data transmission over both copper and fiber optic digital telephone networks. P*64 encodes real-time motion video and audio for

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transmission over telephone lines at 30 frames per second.

Hardware Considerations

Digital recording of video signal requires substantial amounts of disc storage due to the fact that color and brightness information for each pixel in every frame must be stored.

Video Capture and Playback in your Multimedia Application

During the planing process of your application, you most carefully plan the integration of video. There are four main parameters that most be taken into consideration for achieving the most effective results:

- Video window size;
- Video frame rate;
- Image quality and resolution;
- Data transfer rate of the storage media;
- Storage capacity of delivery media.

The above parameters are of critical importance when setting the variables during the video capturing process and the setting of video compression. The first parameter you should take into consideration is the data transfer rate of the storage device you plan to use during the video capture/compression/editing process. As a rule of thumb, the faster the data transfer rate the faster the playback and the smoother the video motion effect will look. Your choice then it should be a hard disk. Hard disks transfer rate range between 1MB/second to 10 MB/second. Even though that this is the highest speed available, it falls short from the 30 MB/second required for full motion uncompressed video. So, in terms of hardware consideration you most have a fast and large capacity hard disk for video capture, compression and on-line editing.

The window size is the number of pixels that will be displayed horizontally and vertically. Window size and video quality are directly related to the size of the video file and thus will affect the storage capacity of the delivery media. All these relationships will be discussed in this section. The smaller the window size, the smaller the file is and the faster the information can be transfer and processed. Typical window size settings are presented in figure 6.____.

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Figure 6.4 Typical digital video window sizes.

Frame rates refers to the number of frames per second displayed during the playback of the video. The lower the frame rate, the faster data can be processed, the smaller the video file. There is an obvious tradeoff for lower frame rates and that is their silent film flicker, jerky motion. You will not achieve smooth full motion video until the frame rate is between 24 fps and 30 fps.

Image quality refers to the bit depth of digital information that the compression / decompression device (codec) will capture per frame. Settings related to this parameter can range from 8 bits to 24 bits. Reducing the bit depth reduces the number of colors, resolution of the image, increases the transfer rate reducing the amount of information to be transferred.

Based on the above information it is obvious that there must be a number of tradeoffs needed in order to accomplish a well balanced moderate-to-good quality video. This is accomplished using a video window size of 240 x 180 a frame rate of about 15 - 24 fps and a CD-ROM as display distribution media.

Video Capturing and On-line Editing Basics

There are available a number of software packages with the capability of capturing video and performing on-line video. Adobe Premier is one of these, Premiere is a cross platform video capturing and editing software. This section will present the basic principles and procedures for video capturing and on-line edition. You will find this operations very practical when developing digital movies to be integrated into a multimedia application. To accomplish this purpose we will use Adobe Premiere, please open the CD-ROM A Road Map to Multimedia and look for the Adobe Premiere demo.

Video Capturing

To perform video capturing and on-line editing it is critical to use a computer with a processor speed of 75 Mhz. or more, 16 MB of RAM minimum, a large data storage space (4 Giga bytes hard drive) and a video capturing board. Keep in mind that the faster the processing speed of the computer use for capturing video the faster the video frame rate of the capture video.

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The following matrix presents the different hardware configurations use for video capturing based on the desired output quality.

| Video Capture Hardware | Domestic Use | Business | General Quality | Professional Quality | Broadcast |
|------------------------|--------------------------------------|--|----------------------------|--|-----------------------|
| Video Capture Hardware | PC: Media Vision PC: None | ProMovie Studio Recorder Mac: AV boards Mac: Supermac Video Spigot | PC: Intel Smart Video | Media II Mac; Mac: New Video Eye-Q Video Vision | PC; IBM Action Radius |
| Window Size | 160 x 120 | 240 x 180 | 320 x 240 | 640 x 480 | |
| Bit Depth | 16-bit | 16-bit | 24-bit | 24-bit | |
| Storage Space | 230 MB to 1 GB | 230 MB to 1 GB | 2 GB | 400 MB to 8 GB | 1 GB to |
| RAM | 8 to 12 MB | 8 to 16 MB | 8 to 16 MB | 24 to 32 MB | |
| Processor Speed | 486/66 MHz 68040/66 MHz PC 604 | 486/66 MHz 68040/66 MHz | 486/66 MHz 68040/66 MHz | 586/670 MHz Power PC 601 | Power PC 601 Power |

Before capturing video is to connect a commercial quality VCR to the video capturing board located inside the computer. Make sure to use high quality cables for these connections. Low quality cables can affect the video

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recording quality.

In your CD please find and open the Adobe Premier save dissabled application.

To initiate the capturing process go to the File menu and select Capture, a video recording option will appear, chose this option. A video recording window will appear, turn on your VCR and you should be able to see a video signal in the video window (figure 6.5).

Figure 6.5 Adobe Premier movie capture window.

Before you start to record (capture) you must establish the video settings as presented in the window in figure 6.6.

Figure 6.6 Video capturing settings dialog box.

Set your recording with the following parameters: video window size 240 x 180, sample size 8 or 16 bit, audio channel to mono, and audio frequency to 11 Khz. These settings allows you to capture a video clip with a file of a relative small size. Keep in mind that you must compromise quality of the video vis a vis with the available storage space and the data transfer rate of the playback computer.

Start recording the video clip with the above settings, record a few seconds of video, when done, save the video clip. Now you are ready to edit your video clip.

Editing Video Clips

This tutorial will help you to understand all basic steps involved in editing video clips. Before you continue reading, turn on your computer and open the Adobe Premier working model located in the CD. When you start the program, the New Project Presents dialog box appears, this is illustrated in figure 6.7.

Figure 6.7. New Projects dialop box.

This window allows you to chose a preset parameter for the video clip.

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Based on your selection the preset determines the time base, the movie frame rate, and options for compression, previewing and output. The default preset is Presentation-160 x 120.

Once you select the preset and click OK six windows will appear as presented in figure 6.8. These windows are:

- Project window, for importing and storing video clips;
- Construction window, for assembling clips;
- Info window, for displaying information about clips;
- Transition windows, for selecting special effects transitions between clips;
- Preview window, for previewing the movie as you assemble it in the Construction window, and the
- Commands palette, for quick access to frequently used commands.

Figure 6.8 Opening windows: Project, Construction and Preview windows.

When you open the program, the active window is the project window, as presented in figure 6.10 when you chose the Import File command from the File menu, a dialog box appears, figure 6.9.

Figure 6.9 Adobe Premier file import dialog box.

In the Adobe Premier folder, locate the sample movie clips supplied in with the program. As you import video or audio files these are stockpiled in the Project window as shown in figure 6.10.

Figure 6.10 Adobe Premier Project window.

Using the Import File command choose the following files: Twirl, Circus Title, the audio clip Circus audio, and Overhead spin video clip, when finish click Done.

The next step is to open or activate the Construction window. Figure 6.11 present all the features and tools available in this window.

Figure 6.11 Adobe Premier Construction window features.

The construction window contains multiple tracks for placing video and

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audio clips. The video tracks include the main video tracks A and B, the T track for transitions, and the S track(s) for superimposed video clips. Beneath the video tracks are the audio tracks.

Among the tools and features available in the Construction window are:

- Time ruler - indicates the elapsed time in the movie;
- Play button - use to play the selected track
- Time unit selector - use to select the movie time unit, from a single frame to 2 minutes intervals, this changes the level of detail displayed in the window.

To initiate the editing of one or more video clips the first step is to move them into the Construction window. Our goal in this tutorial will be to joint two clips providing a transition between the two of them. To accomplish this, first, position the pointer over the thumbnail of the Spotlight clip in the Project window, notice that the pointer changed to a hand. Hold down the mouse button, and drag the clip onto the top track (track A) of the Construction window. The left edge of the clip must be aligned with the left edge of the Construction window. To accomplish this hold down the mouse and drag the clip to the left as shown in figure 6.12.

Figure 6.12 Positioning a movie clip onto the Construction window.

Now using the same procedure as described above, drag the Twirl clip from the Project window onto track A so that the edge of the clip butts against the right edge of the Spotlight clip. Positioning the two clips in this fashion creates a cut, or transition, from the Spotlight clip to the Twirl clip as presented in figure 6.13.

Figure 6.13 Positioning two movie clips side by side.

Most probably you want now to preview your new clip, this is very simple, first determine the preview options as presented in figure 6.14. After setting the preview parameters place the pointer in the time ruler at the top of the construction window, the pointer changes to a downward-pointing arrow as presented in figure 6.16.

Figure 6.14 Clip preview settings dialog box.

Figure 6.15 Adobe Premier movie clip Preview window.

Hold down the mouse button. The Preview window displays the movie frame that corresponds to the current location in the time ruler. To see a preview of the clip in the Preview window, drag to the right while holding down the mouse.

After previewing the clip you have decided that it is too long and that the resulting file will be quite large (remember that you must be concerned about the ultimately file size of the multimedia application). To trim down the duration of the movie we will use the Clip window to select the frames that we want to include in the Construction window. The frames that are included are defined by the clip's in point and out point. The process of changing these points is called trimming the clip. Changes made to a clip in the Clip window are automatically applied to the clip in the Construction window. The features of the Clip window are presented in figure 6.16.

Figure 6.16 Premier Clip window features.

Notice that an in point indicator appears in the upper left corner of the window. Click the play button in the Clip window or you can also use the slider bar. Drag the slider bar until the frame that you want to be the last frame of the clip appears. To position the precise frame you can use the Frame Forward and Frame Reverse buttons. To set the point out frame click the Out button in the lower right corner of the window. After doing this, an out point marker appears in the upper right corner of the Clip window. The clip is shortened in the Construction window.

At this point we have trimmed our clip to the desired length, but what about adding a gradual transition between the Spotlight clip and the Twirl clip. To accomplish this first drag the Twirl clip from track A to track B and position it so that the clip overlaps approximately one inch (about one second on the time ruler) with the Spotlight clip on track A as shown in figure 6.17.

Figure 6.17 Positioning two video clips onto two video tracks.

Open the Transition window (figure 6.18) and select the desired transition. Click and drag the transition into track T located between tracks A and B.

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As you drag the transition onto track T, the program automatically adjust the length of the transition to fit the overlapping section (figure 6.19).

Figure 6.18 Adobe Premier Transitions window.

Figure 6.19 Transition placed onto the transitions (T) track.

Preview the movie again to experience the selected transition.

What about we add sound to our clip this is a simple task. Drag from the Project window the Circus audio clip onto the audio track A in the lower half of the Construction window as shown in figure 6.20 .

Figure 6.20 Circus audio clip placed onto audio track A.

Align the left edge of the Circus audio clip with the edge of the audio track A in the Construction window. To trim the audio track use the Clip window as shown in figure 6.21 and follow the same procedures set used to trim the video clip.

Figure 6.21 Audio clip editing window.

When you have finished assembling the clip and the results are satisfying, the next step is to compile the movie into a quick time or digital movie. Before creating the movie, make sure to save the file.

Figure 6.22 Adobe Premier Save file dialog box.

The next step is to choose Movie from the Make menu. The Make movie dialog box is presented in figure 6.22. Click the Output Options. The Project Output Options dialog box appears (figure 6.23)

Figure 6.23 Project output options dialog box.

This dialog box allows you to change the characteristics of the final movie,

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including size, frame rate, compression type, and format. Make sure that the Open finished movie option is selected. This option instructs automatically the program to open the movie when it has finished compiling and saving the movie.

Name the movie in the Make movie dialog box, and click OK. A progress bar appears while Adobe Premier compiles the movie. When the movie is compiled, Premier opens the movie in a Clip window, this allows you the view the final compiled movie. Now you are ready to import the movie into the authoring program.

Optimizing Video for Playback from a CD-ROM

CD-ROM's are today's choice for distributing video, they are inexpensive to mass produce them and they store 800 MB of data. Based on recent technological developments CD-ROM have higher data transfer rates. You can take advantage of the higher transfer rates by properly preparing your digital video file, here are some suggestions:

- Limit the synchronization of video and audio, this will reduce the video file size and increase the data transfer rate;
- Be conservative in the use of high quality sound. CD quality sound as opposed to 11 Mhz. requires a larger file size. Record or edit the sound track of the video at 8 or 11 Mhz.
- The size of the video window and the frame rate you specify dramatically affects performance. The smaller the size of the video window the smaller the amount of data to be compressed and the faster the data transfer rate.
- The software compression algorithm you specify will make a dramatic difference in performance. The Cinepack algorithm, available in Quick Time and AVI, is optimized for CD-ROM playback. This is a process that is time consuming. Before you compress with Cinepack make sure that your are satisfied with the quality of the video.

Digitized Video Resources in the Internet

The following is a list of web sites dealing with graphic resources available through the Internet. This list was compiled using InfoSeek's search engine (<http://www2.infoseek.com/>). You are encourage to update this resource list by using the following search statement: +multimedia, +digitize video,

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+quick time movies, +digital video

QuickTime Conferencing Backgrounder

QuickTime Conferencing . QuickTime Conferencing . Technical Backgrounder . Table of Contents . QuickTime Conferencing . An Operating System Extension . The QTC Advantage for End Users . Using QTC . Apple Media ...

--- [487] http://quicktime.apple.com/qtc/qtc_back.html (43K)

QTVR White Paper

QuickTime VR . An Overview of Apple's . QuickTime VR Technology . Apple Computer, Inc. 1 Infinite Loop . Cupertino, California 95014 . (c) 1995 Apple Computer, Inc. All rights reserved. . Apple, the Apple logo,

--- [484] http://quicktime.apple.com/qtvr/qtvrtech5_26.html (44K)

Philips Page 16

Multimedia . General Information . What's New! . - DTV: New Silicon. - DTV: New Solutions . - Upcoming DTV Products . Video . - DTV . Audio. Digital Video Is Hot! .

--- [483] <http://www.semiconductors.philips.com/ps/philips16.html>

Report of Advanced Digital Video in the NII Workshop

Workshop on Advanced Digital Video . in the National Information Infrastructure . Table of Contents . Summary Report by the Program Committee . Introduction . Key Concepts . Breakout Group Summaries. Recommendations

--- [481] <http://www.eeel.nist.gov/advnii/> (86K)

Workstations - HP Digital Video: Seeing Is Believing

HP Digital Video: Seeing Is Believing . Foreword: Many new terms are discussed within this document. A glossary is provided at the end of the document that defines video terminology. Please consult the glossary for any unfamiliar video term or ...

--- [474] <http://www.dmo.hp.com/wsg/ssa/digvideo.html> (39K)

Warp's Info Page

Virtual TV Overview . A brief overview of Warp's Virtual TV (VTV) technology. . FAQ A list of frequently asked questions and answers. Performance . A summary of VTV's performance in a variety of environments. . Resolution . A note ...

Chapter 5. Program Elements: Video

--- [468] <http://www.warp.com/InfoPage.html> (16K)

Internet Video Council Home Page

This group of videographers and Internet developers came together in November 1994 because they shared an interest in Video on the Internet. The group met to exchange ideas and information. The participants represent the diversity of talent and ...

--- [466] <http://www.netvideo.com/video/> (2K)

Nsf-Arpa-Nasa Can Research On Digital Libraries . A Joint Initiative Of: . National Science Foundation . Computer And Information Science And Engineering Directorate . Advanced Research Projects Agency . Computing Systems Technology Office And The Software And ...

--- [466] http://farside.gsfc.nasa.gov/ISTO/DLT/nsf_can.html (20K)

Exercise: Creating Your First Presentation - Video

In this exercise you will have to develop another component of your interactive multimedia presentation for an imaginary client. As part of the process of planning the application you must define and develop the digital video elements of your multimedia presentation as proposed to you by the “content specialist.” At the end of this exercise you will have completed the digitized video elements of your first multimedia application. With the support of your instructor answer the following questions.

1. What function or purpose video will play in your application?
2. In which part of your presentation you will include video?
3. Are you planning to use analog or digital video?
4. How do you propose to integrate any one of the above?