Sound Editor

A **Sound Editor** is a creative professional responsible for selecting and assembling sound recordings in preparation for the final sound mixing or mastering of a television program or motion picture. Sound editing developed out of the need to fix the incomplete, undramatic, or technically inferior sound recordings of early talkies, and over the decades has become a respected filmmaking craft, with sound editors implementing the aesthetic goals of motion picture sound design.

The Academy of Motion Picture Arts and Sciences recognizes the artistic contribution of exceptional sound editing with the Academy Award for Best Sound Editing.

U-matic

Ideally, though, your motivations for cutting should be to advance the narrative storytelling of your video. U-matic is the name of a videocassette format first shown by Sony in prototype in October 1969, and introduced to the market in September 1971. It was among the first video formats to contain the videotape inside a cassette, as opposed to the various open-reel formats of the time. Interestingly, unlike most other cassette-based tape formats, the supply and take-up reels in the cassette worked in opposite directions during playback, fast-forward and rewind: one reel would run clockwise while the other would run counter-clockwise. As part of its development, in March 1970, Sony, Matsushita Electric Industrial Co., Victor Co. of Japan JVC), and five non -Japanese companies reached agreement on unified standards.

The videotape was 3/4 inches 1.9 cm wide **, so the format is often known as 'three-quarter-inch' or simply 'three-quarter'.** U-matic was named after the shape of the tape path when it was threaded around the helical video head drum, which resembled the letter U**. Betamax used this same type of "U-load" as well.**

In the early 1980s, Sony introduced the semi backwards-compatible High-band or BVU Broadcast Video U-matic format, and the 'original' U -matic format became known as 'Low-band'. This High-band format had an improved colour recording system and lower noise levels. BVU gained immense popularity in ENG Electronic News Gathering and location programme-making, spelling the end of

16mm film in everyday production. By the early 1990s, Sony's 1/2" Betacam SP format had all but replaced BVU outside of corporate and 'budget' programme making. Sony made a final improvement to BVU by further improving the recording system and giving it the same 'SP' suffix as Betacam. First generation BVU-SP and Beta-SP recordings were hard to tell apart, but despite this the writing was on the wall for the U-matic family.

U-matic would also see use for the storage of digital audio data as opposed to analog video for the Sony PCM -1600 PCM adaptor, which used a special U-matic recorder as a transport. The PCM-1600 was the first **system used for mastering audio compact discs in the early 1980s. The later PCM-1610 and 1630 units also used U-matic cassettes as a storage medium.** U-matic is no longer used as a mainstream production format, yet it has such a lasting appeal as a cheap, well specified, and hard-wearing format that many television facilities the world-over still have a U-matic recorder.

Magnetic tape is a non-volatile storage medium consisting of a magnetic coating on a thin plastic strip. Nearly all recording tape is of this type, whether used for video, audio storage or general purpose digital data storage using a computer.

Magneto-optical and optical tape storage products have been developed using many of the same concepts as magnetic storage, but have achieved little commercial success.

The Betamax v/s VHS Format War

Sony's Betamax video standard was introduced in 1975 followed a year later by JVC's VHS. For around a decade the two standards battled for dominance, with VHS eventually emerging as the winner.

The victory was not due to any technical superiority Betamax is arguably a better format, but to several factors. Exactly how and why VHS won the war has been the subject of intense debate. The commonly-held belief is that the technically

superior Betamax was beaten by VHS through slick marketing. In fact the truth is more complex and there were a number of reasons for the outcome.

Sony's founder, Akio Morita, claimed that licensing problems between Sony and other companies slowed the growth of Betamax and allowed VHS to become established. However most commentators have played down this issue and cited other reasons as being more important.

It is certainly true that VHS machines were initially much simpler and cheaper to manufacture, which would obviously be an attraction to companies deciding which standard to back. It has also been reported that Sony inadvertently gave its competitors a helping hand by revealing key aspects of Betamax technology which were then incorporated into VHS.

In any case, manufacturers divided themselves into two camps: On the Betamax side was Sony, Toshiba, Sanyo, NEC, Aiwa, and Pioneer. On the VHS side were JVC, Matsushita Panasonic), Hitachi, Mitsubishi, Sharp, and Akai.

For consumers, the most immediately obvious difference between the two formats was the recording length. Standard Betamax tapes lasted 60 minutes — not long enough to record a movie. Conversely, the 3-hour VHS tapes were perfect for recording television programmes and movies. Sony did adapt and offer various solutions for longer recording, but it was too late. The issue of recording time is often cited as the most defining factor in the war.

One more issue is worthy of note—pornography. There is a claim that adult content was not available on Betamax possib ly because Sony would not allow it while it was becoming readily available on VHS. Whether or not this was really a factor is a contentious topic. Many sources have referred to it as fact while others have made a campaign of debunking the "Myth of Betamax & porn". But it is unable to find any substantiated evidence that pornography sales significantly influenced the outcome of the war.

At some point and for some reason the choice of rental movies on VHS became better than Betamax. It is arguable how this situation came to be, but once it happened, there was no turning back. Bitter Betamax owners cringed in their ever-decreasing corner of the video store while VHS owners gloated.

The war was over by the late 1980s, although supporters of Betamax have helped keep the format going in a small niche market. Betamax production in America ended in 1993, and the last Betamax machine in the world was produced in Japan in 2002.

Of course, both Betamax and VHS were eventually made obsolete by digital technology.

Linear Editing

Linear Editing consists of three main categories:

1. In-Camera Editing: Video shots are structured in such a way that they are shot in order and of correct length. This process does not require any additional equipment other than the Camcorder itself, but requires good shooting and organizational skills at the time of the shoot.

2. Assemble Editing: Video shots are not structured in a specific order during shooting but are rearranged and unneeded shots deleted at the time of transferring copying . This process requires at the least, a Camcorder and VCR. The original footage remains intact, but the rearranged footage is transferred to a new tape. Each scene or cut is **"assembled"** on a blank tape either one-at-a-time or in a sequence.

There are two types of Assemble Editing:

1. A Roll--Editing from a single source, with the option of adding an effect, such as titles or transitioning from a frozen image the start of the next cut or scene.

2. A/B Roll--Editing from a minimum of two sources VCR's or Camcorders and recording to a third VCR. This technique requires a Video Mixer and/ or Edit Controller to provide smooth transitions between the sources. Also, the sources must be electronically "Sync'd" together so that the record signals are stable. The use of a Time Base Corrector or Digital Frame Synchronizer is necessary for the success of this technique.

A/B-roll editing is a term used in linear editing to describe the process of combining two or more sources of raw footage together with transition effects. In the realm of linear editing, it is scientifically impossible to add a true

A/B-roll transition effect between two images on the same tape. Why? Because videotape only allows you to play one portion of the footage at a time. To add a dissolve between two shots requires that they be on two separate tapes source A and source B) played simultaneously in two VCRs. Then and only then can a true A/B-roll transition be performed. A "false" sort of A/B -roll, called the A/X-roll transition, is possible with one tape; this involves the SEG freezing a single frame

of video, then shuttling the tape to a different location and performing the transition from the still to the new moving image. Looks pretty good, but it isn't a true A/B-roll transition.

From the equipment standpoint, the A/B-roll editor requires at least two source VCRs or camcorders in VCR mode), an edit VCR to record the master, an edit control unit to control switching between footage, and a special effects generator to create wipes, fades, dissolves or other desired transition effects.

To perform A/B-roll editing, the editor rolls source A in play mode) and the edit VCR in record mode), which records the A -roll onto the master. When a change is called for, the editor cues the transition effect and the B-roll video. This causes the A-roll video to fade, dissolve, wipe or otherwise go away in the midst of some special effect and the B-roll to appear in its place. The point when the two video sources may appear superimposed is called the transition point. When the transition is complete, the A-roll video stops, and the B-roll footage continues to roll until the end of the edit.

Different types of editing

Video editing is the process of manipulating and rearranging video shots to create a new work. Editing is usually considered to be one part of the post production process — other post-production tasks include titling, colour correction, sound mixing, etc. Many people use the term editing to describe all their post-production work, especially in non-professional situations. Whether or not you choose to be picky about terminology is up to you, we are reasonably liberal with our terminology and we use the word editing to mean any of the following:

- Rearranging, adding and/or removing sections of video clips and/or audio clips.
- Applying colour correction, filters and other enhancements.
- Creating transitions between clips.

The Goals of Editing

There are many reasons to edit a video and your editing approach will depend on the desired outcome. Before you begin you must clearly define your editing goals, which could include any of the following:

Remove unwanted footage

This is the simplest and most common task in editing. Many videos can be dramatically improved by simply getting rid of the flawed or unwanted bits.

Choose the best footage
It is common to shoot far more footage than you actually need and choose only the best material for the final edit. Often you will shoot several versions takes of a shot and choose the best one when editing.

Create a flow
Most videos serve a purpose such as telling a story or providing information. Editing is a crucial step in making sure the video flows in a way which achieves this goal.

Add effects, graphics, music, etc
This is often the "wow" part of editing. You can improve most videos and have a lot of fun by adding extra elements.

Alter the style, pace or mood of the video
A good editor will be able to create subtle mood prompts in a video. Techniques such as mood music and visual effects can influence how the audience will react.

Give the video a particular "angle"
Video can be tailored to support a particular viewpoint, impart a message or serve an agenda.

Linear v/s Non Linear Editing

In the early days of electronic video production, linear tape -to-tape editing was the only way to edit video tapes. Then, in the 1990s, non-linear editing computers became available and opened a whole new world of editing power and flexibility. Non-linear editing was not welcomed by everyone and many editors resisted the new wave. In addition, early digital video was plagued with performance issues and uncertainty. However, the advantages of non-linear video eventually became so overwhelming that they could not be ignored.

In the 21st Century non-linear editing is king and linear editing is widely considered to be obsolete, or at least primitive. This is an understandable attitude considering the advantages of non-linear editing, but we urge you not to be too judgmental. Linear editing still has some advantages:

1. It is simple and inexpensive. There are very few complications with formats, hardware conflicts, etc.
2. For some jobs linear editing is better. For example, if all you want to do is add two sections of video together, it is a lot quicker and easier to edit tape-to-tape than to capture and edit on a hard drive.
3. Learning linear editing skills increases your knowledge base and versatility.

According to many professional editors, those who learn linear editing first tend to become better all-round editors. Although the "linear vs non-linear" argument is often subjective and some editors will disagree with the statements above, there can be little doubt that increasing your skill base is a good thing. There is nothing to be gained by completely rejecting linear editing, and much to be gained by adding it to your repertoire.

Setting Up a Non Linear Edit Suite

To edit video on a computer you will need:

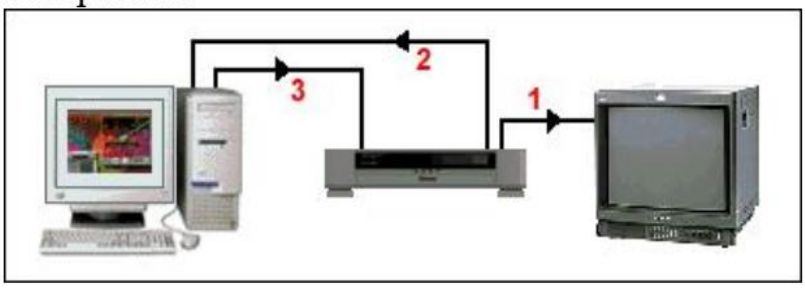
- **A source device** to play the original tape or disk. Typically a VCR or camera.
- **A computer** with at least these specs: 200 MHz processor / 64 MB RAM / Fast hard drive with 1 GB or more free space. If you want decent results, you'll need much higher specs. Some editing software requires a high-performance computer to even work properly.
- **A video capture device.** To capture video from an analogue source such as VHS or Video8 you need a device to convert the video into a digital format. This can be a standalone device which plugs into the computer or a video capture card which becomes part of the computer. If you are using a source device which outputs a digital signal such as Firewire or USB) you don't need a capture device, but you do need to make sure your computer has the appropriate input available.
- **Connecting leads** to plug the source device into the capture device or computer.
- **Software** to control the capturing, editing and outputting.
- **A video monitor** or television.
- **Camera and Computer**-The most common system in non-professional situations is to plug your video camera directly into your computer via a Firewire or USB connection. These are digital connections and allow you to "dump" footage straight from the camera to the hard drive. This is a

convenient and inexpensive way to operate. Consult your camera manual for details.

If your camera doesn't have a digital output, but does have analogue AV outputs, you can use a capture device. Follow the next example, using your camera in place of the VCR. If your camera doesn't have any video outputs at all, you will need to use a VCR as the source device.

Computer and VCR

The example below shows a VCR used as the source device, connected to a computer with capture card. A video monitor or television is used to monitor the pictures. Audio can be monitored with the TV speakers, a separate sound system or headphones.

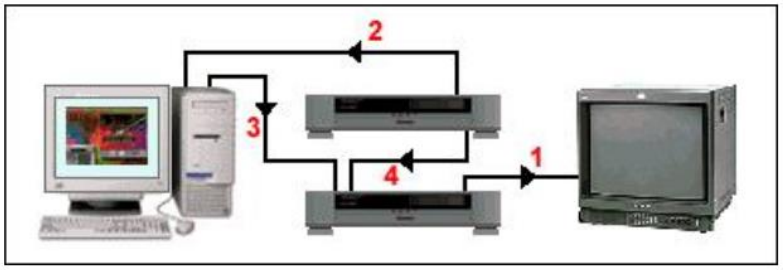


1. If the VCR has two or more AV outputs, use one of them to plug into the AV input of the monitor. If you have only one AV output, use the RF aerial output instead, and use the A V output for the next step.
2. The second AV output of the VCR plugs into the AV input of the computer's capture card. The AV output of the capture card plugs into the AV input of the VCR.

In this system, footage is played from the VCR to the computer, edited, and then played back from the computer to the VCR for recording.

Computer and Two VCRs

This system is slightly more elaborate, and has advantages such as the ability to record directly from one VCR to the other linear editing. Also, if the computer has the appropriate hardware, you can use it to overlay graphics in real time as you record from one VCR to the other.



The top VCR is the source device; the bottom VCR is the recorder.

1. The AV output of the record VCR plugs into the AV input of the monitor.
2. The AV output of the source VCR plugs into the AV input of the computer's capture card.
3. The AV output of the capture card plugs into the AV input of the record VCR.

The second AV or RF) output of the source VCR plugs into the second AV or RF) input of the record VCR. On the record VCR, select the appropriate input to record from either the computer or the source VCR.

Professional film and TV productions often use two cameras to capture their A and B footage sources. For many of us, though, a second camera and another skilled pair of hands to operate it can be hard to come by. The single-camera shooter can just as easily gather footage for A/B-roll editing if he prepares in advance.

The Single-camera Solution

Just because most people use a single camcorder to shoot their video productions doesn't mean they can't enjoy the nifty effects and variety available from a multi-camera shoot. The trick for the single-camera videographer is to shoot two different tapes of footage with the same camcorder. One tape the A -roll typically captures the main subject and action. The other type the B -roll typically records peripheral **"effects"** shots like close-ups, reaction shots, and establishing shots that add drama, variety and context to the primary footage.

STEP 1 Think it Through

Preproduction planning is the first step toward a successful A/B-roll shoot. Think about a traditional wedding shoot. You would probably record some of the pre-ceremony activities, like the bride getting ready, the ushers rolling out the rice

paper and the fidgety groom-to-be. Once the music starts, you would then catch the action of the ceremony, including the vows and the ring exchange. From there you would record the couple leaving the church and probably round out the event with some reception footage. Once home, you would edit out the rough spots, hit rewind, and start passing the production out to family members for viewing.

To shoot the above scenario for an A/B-roll edit, you would need to approach the shoot a little differently. First, you would need at least two tapes: one exclusively for A-roll and the other exclusively for B-roll. The A-roll would still capture the high points, but the B-roll would serve to add texture and perspective.

If, for example, in the middle of the ceremony, you wanted to dissolve to a shot of the bride's parents, it would be a special effect indeed to keep the camera on the altar and also record the parents. A/B-roll shooting gives you the ability to "cheat" a shot like this. In this example, you would shoot the parents at some point before or after the ceremony, with a separate tape in the camcorder the B -roll. This also illustrates how single-camera A/B-roll shooting is very deliberate. **Every shot is planned and lined up.**

Step 2 Write it out

For single camera A/B-roll shooting, a shooting plan is important to make sure you acquire all of the footage you might need. The plan can be anything from a simple handwritten form to a detailed storyboard. To help expand your compositional horizons, borrow a trick from the book of great Hollywood directors and try to pre-visualize the entire shoot beforehand. Try to establish a mental picture of what the finished production will look like before you start. Now write it down. For many videographers, this will be in stark contrast to their typical "getting what you can, when you can" shooting style, but it will pay substantial dividends in the quality of the finished production. Even though every videographer will "see" an event differently, certain shots are essential to ensure proper coverage of the proceedings and a script will make sure you don't miss any in the confusion.

As you consider an event, try to break it into logical scenes. This will help determine what you must shoot for A-roll and what you can fit in for B-roll. In the case of a wedding, the ceremony would be the A-roll. A good way to begin many videos, for example, is with an **"establishing shot,"** which is usually an extreme long shot that sets the scene for the viewer. This first shot quickly orients the viewer, gives context to the scene and allows a smooth "entrance" into the tape.

If you determine that you would like to dissolve from your establishing shot of the church to the bride's entrance, the church shot must be on the B-roll tape. Include this in the script, along with all the critical elements of the event. Now go back and brainstorm other B-roll shots that relate to the main action and can transition well in between. Remember, any two shots to include transition effects must be shot on different tapes. This makes planning ahead essential. For single camera A/B shooting, try to choose transition scenes that are easy to get and that you can shoot before or after the main action at your leisure.

Step 3 Shoot the A-roll

Great B-roll won't do you much good if you miss critical parts of the A-roll action. The important A-roll scenes must take priority. When taping a wedding, for example, pausing the tape during the ceremony would be disastrous as you would create breaks in the audio track. B-roll can be used to cover camera moves, but will never replace footage that is critical to the production.

Breaking down a production or event into its component parts allows the single-camera shooter the opportunity to decide which parts of the event are most important. Your primary footage makes up your A-roll, and you don't want to leave any out. Practice good framing, good lighting, good angles and other solid composition rules with your A-roll. Save the experimentation for the B-roll, where it's easier to cover up a miscue.

Step 4 Get Enough B-roll

One of the keys to remember when planning your shoot is that each segment of tape you plan to use as part of an A/B-roll transition must be long enough for editing. Each shot must last at least 10 seconds to cover usable footage, plus the pre-roll requirements of the editing system.

Pre-roll is the term used to describe the time it takes for the videotape in the source machine to stabilize, which is commonly about five seconds. Add another five or more seconds of video footage for the actual transition, and you can see how the 10-second rule-of-thumb came about. It is a good practice to shoot at least 30 seconds of every B-roll shot, just to be certain that you have enough usable video to perform a smooth, visually pleasing transition.

Often, you must look beyond the main action of a scene to find the details that make for interesting A/B-roll transitions. In the case of a wedding, for example, you might show a wide shot of the church as ushers are seating guests, music is

playing and candles are lit. A close-up of a candle as it takes flame would make an interesting dissolve, and you can easily shoot it before anything else happens. Shots like these allow for creative A/B-roll editing without causing concerns about continuity. It would be pretty tough for a viewer to discern if the candle shown in the extreme wide shot is the same candle in the extreme close-up.

Step 5 Repeat as Necessary

When planning your video, you may want to include transitions from one angle of a shot to another angle of the same action. This is a simple feat with multiple cameras recording the same scene from different perspectives. Although it may seem impossible with a single camera, in some instances there is a solution. A tricky way to copy the look of a multiple-camera shoot is to repeat the action and shoot it twice or more) from different angles.

Used extensively in the production of feature films, repeat action shooting allows for many options in A/B-roll editing. In situations where multiple takes are possible, the single-camcorder videographer can use this method. Even for a wedding video, it is possible to ask the bride and groom to re-enact key moments of the ceremony. Note that still photographers often do exactly this. This way you can get a close-up, say, of the ring going on the bride's finger to edit into the master shot as B-roll. Other projects lend themselves to repeatable action as well. **Step-by-step instructional tapes, product demonstrations and music videos are all perfect candidates for repeat action coverage**.

First record the entire scene as a wide shot. Then, repeat the scene several times, recording from a variety of angles to provide close-ups or more interesting details of the major characters and actions. You can use repeat action for the entire scene, or just with a section of the tape that's prime for a transition between angles.

Two tips help this "cheat" become more convincing: the talent's ability to closely mimic earlier action and the use of overlapping. **When shooting the same action in multiple takes, it is important for any on-camera subject to repeat the physical action as closely as possible to the previous takes**. If the guitarist in your music video jumps into the air after a particularly challenging solo in the first take, the guitarist needs to repeat that jump in each successive take.

Overlapping is the technique of beginning each new shot by repeating the action or dialogue that ended the previous shot. By providing a visual and audio reference of what happened immediately before the new section, final

editing and lining up of transitions becomes much easier and more professional looking.

The Basics

Don't overlook the basics of good shooting technique in your quest to get A/B-roll footage. **When you are planning your production, in addition to planning the transitions, try to visualize the "look" of the transitions as well.** We've all witnessed an awkward cut in a program where, for whatever reason, things just don't go together right. The same can happen with dissolves, wipes and fades.

Mismatched lighting can make for the most unpleasant transitions. A low light long shot of a wedding ceremony that dissolves into an over bright outdoor shot will appear jarring. Try to maintain a similar light level between A/B-roll shots, unless, of course, you purposely want a visual shock.

Camera movement can also throw off a transition. If the A-roll footage features a slow pan from left to right, you want the B-roll footage to feature a similar movement in direction and speed. While zoom-in/zoom-out combinations can work together, too much movement can confuse a viewer.

Finally, **don't discount sound in your productions**. The addition of sound segues, musical transitions and voice-overs all help to elevate the professional feel and polish of an A/B-roll edited production, whether you are shooting with one camcorder or five. Put at least as much time into developing the sound portion of your tape as you do the video.

Shooting for A/B-roll editing with a single camcorder takes a little more planning and a little more effort than using just your primary footage. However, if you want to improve the quality of your videos, the extra effort is worth it.

2.7.. Insert Editing: New material is recorded over existing footage. This technique can be used during the original shooting process or during a later editing process. Since the inserted footage is placed over the unwanted footage some of the original footage is erased.

Non-Linear Editing - Gaining in popularity quickly due to advances in technology, pricing, and product availability, this method of video editing utilizes the computer environment to aid in the editing process. This process is almost entirely digital and employs no mechanical functions except for the input of the

video sources and its final output to Tape or CD. Editing in this environment is essentially is a visual Cut-and-Paste method.

Some videos flow flawlessly through diverse scenes while others are almost painful to watch in their attempt to create meaning with choppy, unorganized video clips. The difference? It's all in the quality of your video editing.

1. **Prepare to Edit your Video**

   Before editing can begin, you must capture the video. If you have an analog camcorder the kind that records on Hi8 or VHS tapes you'll need a special video card that can translate the data from the format you use to a digital format the computer can read.

2. **Install Video Editing Software**

   Make sure that you have quality video editing software installed correctly. After you familiarize yourself with the software and its features, assemble the scenes on your video into a timeline or storyboard.

3. **Create the Point**

   The most important part of editing video is choosing your point-what you want to deliver with your video. This will determine what your audience feels and experiences when watching the video. For example, if you are creating a wedding video, decide if your focus will be on the beauty and sanctity of the day, or on the comical-highlighting mistakes and bloopers. After you have chosen the point of your video, select shots that reinforce your point. Then name each shot so you can remember the content. Don't take on too much video at once.

4. **Edit the Video**

   There are three types of video editing: combination, corrective, and duration editing. Combination editing rearranges scenes from the original order to reinforce your point. **Corrective editing corrects errors you made while filming, such as straightening a crooked shot**. Duration editing allows you to shorten video by eliminating everything but the highlights of a scene, or lengthen clips to add drama or suspense. If you don't know where to start, try combination editing first to get your shots in the order you

prefer, and then clean the scenes with corrective editing, and then add drama with duration editing.

5. **Adding Labels, Transitions, and Effects**

   Here comes the fun part embellishing. Adding music to your video makes your message far more powerful. You can add titles, names of people or places to help tell the story. And you can add a menu to the beginning of your video to allow viewers to select a specific scene. Transitions between scenes can range from simple fades to complex animations. Also, consider occasional special effects, such as making people fly through a scene to wow your viewers but don't overdo it.

FCP

Final Cut Pro is a professional non-linear editing system created by Apple Inc. that allows both professional and home users to edit both video and film. The latest releases are for Mac OS X only. From the early 2000s, Final Cut has developed a large and ever expanding user base. Used on Apple Macintosh computers, **Final Cut Pro was intended to be a resolution independent editing system but so far has not fully achieved this aim with real-time performance restricted to resolution, frame-rate and codec uniformity with source material.** Resolution, format and codec independent editing systems are available in competitive products to Final Cut Pro namely Sony Vegas, Grass Valley Edius and Adobe Premiere Pro.

Final Cut Pro has found acceptance among professionals and a number of broadcast facilities because of its cost effective efficiency as an off-line editor as much as a digital on-line editor. Final Cut Pro is also very popular with independent and semi-professional film-makers. As such, it can be used to edit material ranging from FireWire-attached Mini DV video from a consumer digital video camera or professional DV camera to High-Definition HD material in the various HD specifications and flavours including HDV. The software logs and captures video onto the computer's hard drive, where it can be edited and processed. The current version of Final Cut Pro 5.1 runs on both Intel and PowerPC processors.