



Preparing Independent Video Productions for Film Output

Cineworks Digital Studios provides film recording services for productions produced on either film or video formats. Today, there are a myriad of choices for production and post production formats, both in the high end professional world and in the independent world. Because there are so many choices, it is confusing as to how to prepare for film recording. This document will try to provide some guidelines.

Production Formats

35mm film is generally projected at a frame rate of 24 frames per second. Because of this, it is highly recommended that productions intended for film recording be shot and post produced at the same 24 frames per second rate. Cameras and recording systems that provide this frame rate include:

Panasonic: DVX100 (standard definition), SDX900 (standard definition), HVX200 (standard and high definition), and Varicam (high definition).

Sony: All CineAlta devices (including F900, F950, and XDCam HD products).

Thomson: Viper.

Arri: D20.

Canon: XL1H (24F mode).

Note that Sony HDV cameras do not shoot or record in a 24p mode. This makes them less desirable for projects destined for film recording, and therefore we cannot recommend them at this time. If a project is shot using a Sony HDV camera, the result must be converted to a 24 fps rate for film recording. This can be done either by the user, through the use of various third party processing software, or by Cineworks, using a high end device manufactured by Teranex. Needless to say, Cineworks will charge for this service.

Editorial

It is highly recommended that any and all editorial for projects to be recorded on film be done as 23.98 fps projects. This will necessitate the removal of any 3:2 or 3:2:2:3 pulldown added in the original production recording (as is done by some of the Panasonic products, as well as the Canon) prior to editing. It will, however, ensure that any speed changes or other effects done in the editorial process will visually represent what the final result will be on the film.

Delivery Elements

Ideally, Cineworks should be delivered a fully rendered, checked, and approved Quicktime file or files. Film reels by necessity run 1000 feet, or about 10 minutes. In almost all cases, feature films are formatted as 2 of these reels at a time, or approximately 2000 feet (20 minutes or less). These reels are usually called "1AB," "2AB," and so on. For a "typical" 100 minute movie, this would mean 5 "AB" reels. For this reason, the program will need to be "balanced," or split up, into 20 minute or less sections. It is highly desirable to break the reels at scene changes, and more specifically, on scene changes that are cuts and do not have music cues that bridge the cut. Each of these reels should have an leader at the head, with a one frame "pop" on the sound track corresponding to the last frame of the countdown on the leader – "2" in the case of the most commonly used leader today (the SMPTE leader), or "3" in the

case of the older, “traditional” Academy leader. These numbers correspond to 2 seconds, or 3 feet, prior to the first frame of the reel, and are used to match up the optical sound track, once it’s made, to the picture negative.

If possible, Cineworks should be supplied with one Quicktime file per “AB” film reel, preferably on a FireWire hard drive. All film recording from video origination at Cineworks is done in the 1920x1080, 24p HD uncompressed video format, which has an aspect ratio of 16:9. If your Quicktime file is not in this format, we will need to convert to it prior to performing the film recording, so it is important to consider this prior to delivery. We will be happy to do this for you, but please be aware that we will charge you for reformatting and it will also delay the delivery of your film elements. Cineworks has both Avid and Apple Final Cut Pro editing systems, so we can also accept projects in their original form on either system. However, once again, it is time consuming for us to render your project for you, so this is likely to be a step you should perform prior to delivering to Cineworks. If we do render the project for you, we cannot be responsible for any editing errors, missing sound or picture files, or other editing problems. Since film recording is a rather expensive process, it is highly recommended that you not only render the program yourself, but that you also check the result of that render prior to delivering the file to Cineworks. We will also be happy to play the file for you in our screening room prior to film recording if you request it, thus ensuring that you get what you expect to get on the film.

Sound tracks on film are recorded optically. In most cases, attaching the final sound track to each of the Quicktime files is the best way of ensuring proper synchronization between the track and the picture. We will use that track and make a separate sound file for optical sound track recording.

Cineworks can also accept videotape as a source for film recording projects. Once again, it is highly recommended that a 24 frames per second rate be used. If 3:2 pulldown is used on the recording, it should be continuous from the first frame of video, as it will be removed prior to film recording. The best videotape format for delivery is HDCam SR, however, we can also accept submissions on HDCam, DVCProHD, Digital Betacam, Betacam SP, and various DV formats, such as DV, DVCam, DVCPro25, and DVCPro50. Once again, when preparing delivery elements in any of these formats, please keep in mind the aspect ratio (16:9) and the frame rate (24fps).

Other Issues To Consider

Production

Video and film are different in any number of ways. Many independent video productions that record to film do so with the intent of taking on more of a “film look.” There are a number of things to keep in mind during production that will help to make this a bit more successful. First, try to avoid any video “clipping.” Video has less dynamic range than film, and therefore in many cases very bright highlights will not be able to fit into the range acceptable by the video camera. Any clipped highlights will still look clipped when recorded on film, so they are best avoided if possible. Second, avoid fast camera pans when shooting at 24 frames per second. Many video shooters are not experienced with shooting at this frame rate, and are disappointed when they notice “strobing,” or stuttering, during camera dolly moves or pans. This is due to the lower frame rate, which imposes some limitations on how fast one can do these moves without strobing. A good rule of thumb when panning in a 24fps production is to go slow enough that any object takes at least 4 seconds to cross from one side of the frame to the other. This will give the moves a more fluid, “filmic” look. Another suggestion is to avoid excessive use of hand held camera operations. One of the reasons that “high end” productions look the way they do is that the cameras are heavier, and are mounted on dollies that are quite heavy as well. As a result, any camera moves are usually very smooth, unlike most small camera productions that tend to favor a hand held style. Unless the story or situation demands it, your production will have a much more “professional” look if your camera moves are slower and smoother. Finally, avoid use of overly saturated colors, such as very bright reds and greens. These may look good on your video version, but they do not translate

very well to film stocks, which tend to be a bit more “muted” in their color saturation. What you see is not what you will likely get.

Color Correction

Unless it is absolutely necessary, it is best to avoid doing color correction in your editing software for material destined for film recording, unless you can monitor the output on a properly calibrated display. What you see on your computer screen is not a good indicator of what you will see on your film output. In addition, the color correction controls in nonlinear editing programs are not nearly as transparent or sophisticated as standalone color correction programs, such as Color Finesse or Final Touch. The best and most accurate color correction is that done on high end devices, such as a DaVinci color corrector. Cineworks has both a DaVinci 2K Plus color corrector (in our HD telecine suite) and an Assimilate Scratch system in the Digital Intermediate theater. Both of these devices can do a great job, and often the cost of using them is well worth it in terms of flexibility and, more importantly, the ability to work with a trained colorist. If you do choose to do the color correction yourself, keep in mind that some of the same limitations noted above in the Production section still apply. Try to avoid video clipping, excessive saturation, and extreme contrast. None of these things will translate well to film, unless those effects are specifically desired.

Sound

Sound in a theater is not the same as sound on your desktop. It is important to keep this in mind when mixing your sound track, and do what you can to at least try and simulate what the sound will be like in a larger environment. Unless you have a very sophisticated sound system in your editing room, or you're mixing on a dedicated mixing stage, you are probably better off monitoring your sound on headphones than on speakers. A well crafted sound track can truly help to make or break any film, and utilizing the services of people well versed in sound editing and mixing can really help move your project to a higher level. Sound is probably the most “magical” part of post production, as it is the only part of it that is created almost completely from scratch. Don't overlook its importance.

In Conclusion

Cineworks is uniquely set up to handle film recording of independent video originated productions. We will be happy to review your materials with you prior to your final submission and offer whatever aid we can in helping you to achieve the best result on your film recording, whether that includes using some of our own equipment, or simply offering advice. By following the guidelines outlined here, and by consulting with us prior to delivery, you can avoid much of the guesswork, and also avoid a lot of unpleasant surprises.