Videography

INSIDE ELECTRONIC GRAPHICS

SPECIAL REPORT ON THE HARDWARE
HOW VIDEO PROFESSIONALS ARE USING IT

GUIDE TO CHARACTER GENERATORS

ANIMATION HARDWARE REPORT

CONVERSATION WITH
HARVEY DUBNER
THE COMPUTER EXPERT WHO'S TAKING A BIG BYTE
OUT OF VIDEO'S TECHNICAL CHALLENGES

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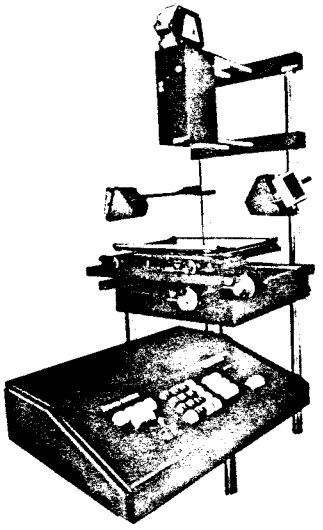
LET'S GET IT

Video animation hardware that can get your production on the move

by James Meigs



The demand for quality animation for video continues to grow. Viewers expect ever more sophisticated images; clients want sophistication *and* speed and economy. Unfortunately, getting animated—as any video producer knows—can be enormously expensive. Whether a producer chooses conventional cel animation on film—with its high labor and processing costs—or computer-generated digital animation, a few seconds of animation can often be the costliest part of a production.

Fortunately, advances in video and computer technology have resulted in a number of interesting alternatives to both cel animation on film and high-priced digital animation techniques. This report will cover a representative sample of some of these alternatives.

Two of the systems in this report, Lyon Lamb's VAS IV and the Animation Video's AniVid system, apply film animation techniques to video, recording cel animation directly on videotape. Three systems made by Computer Image use analog computer technology to manipulate flat art images. One digital system is included in this report, the Datamax UV-1R, which offers limited digital animation at a remarkably low price. Another type of system, which requires neither a computer nor frame-by-frame recording but creates certain animation effects using polarized light, is offered by Frank Woolley.

These devices are part of a revolution in video technology that is transforming the look of everything from broadcast television to modest corporate and educational productions. Advertising agencies are discovering that video animation can be used to produce animated storyboards, in house, at a fraction of the cost of conventional techniques. Broadcasters and cablecasters are tying video animation hardware in with their digital effects and graphics systems. Video animation techniques are even being used in feature film production. With applications like these, no one can call video animation systems Mickey Mouse!

ANIMATION VIDEO

Animation Video, a division of Convergence in Irvine, California, offers the AniVid System, a microprocessor-based frame-by-frame recording system. The complete system includes the controller, an animation stand with InteLens, a programmable zoom lens, and a broadcast-quality color camera. The user provides an editing VTR, a color monitor for image display and a black-and-white monitor for status information.

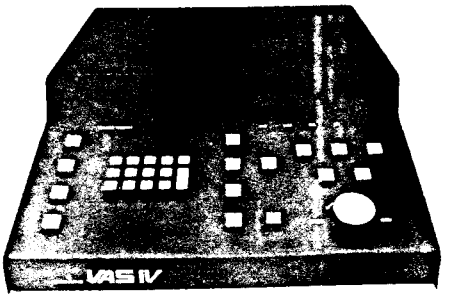
The AniVid system performs single- or multiple-frame insert recording on videotape moving at normal speed through the VTR. The AniVid controller uses SMPTE time code to locate the last recorded frame on the tape; the tape is then rewound to a point before the last frame. This ensures that, during the recording pass, the VTR will be locked up before it lays down the desired frame or frames. After each pass (called an expose cycle), the procedure is repeated.

The AniVid controller provides complete remote control of the VTR and allows the operator to preset the parameters of the expose cycles, such as the amount of preroll and number of frames to be recorded. Unacceptable frames anywhere in the program can be quickly replaced. The controller also offers a rotoscope mode, which enables the operator to match prerecorded live-action material with synchronous animated artwork. The controller generates a status display including time code and frame numbers and VTR status information.

The AniVid animation stand, while it resembles a conventional film animation stand in most respects, features the novel InteLens. Instead of moving the camera up and down to vary frame size, the AniVid system uses the InteLens microprocessor-controlled zoom lens assembly. The lens assembly movement is fully programmable through the controller's optional RS-232 port. After choosing start and end points, speed and tapering, the operator can program the controller to automatically move the lens to the next position after each expose cycle.

The controller can also be used with other inputs. For example, the system can be used to record the output of computer graphics systems, or for single-frame mastering for interactive videodiscs.

The complete AniVid system is priced at $41,900. (335)



LYON LAMB

Video Animation System IV, made by Lyon Lamb in Los Angeles, is designed for recording broadcast-quality animation directly onto 3/4- or 1-inch videotape at 30 frames per second. The heart of the system is a microprocessor-based controller that allows the operator to record one or more frames per recording pass, perform insert edits, replace botched frames, as well as shuttle, search and cue.

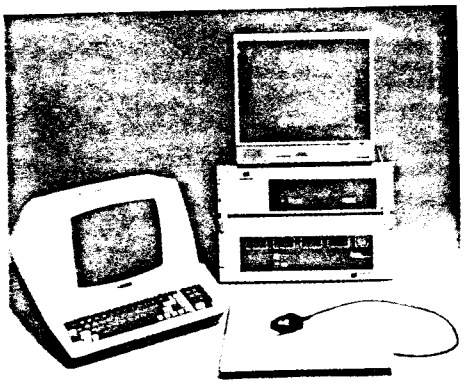
The complete system includes the controller, a broadcast-quality color video camera, color monitor and animation stand. (The system does not require a separate monitor for status displays, which can be superimposed directly over the video image on the color monitor.)

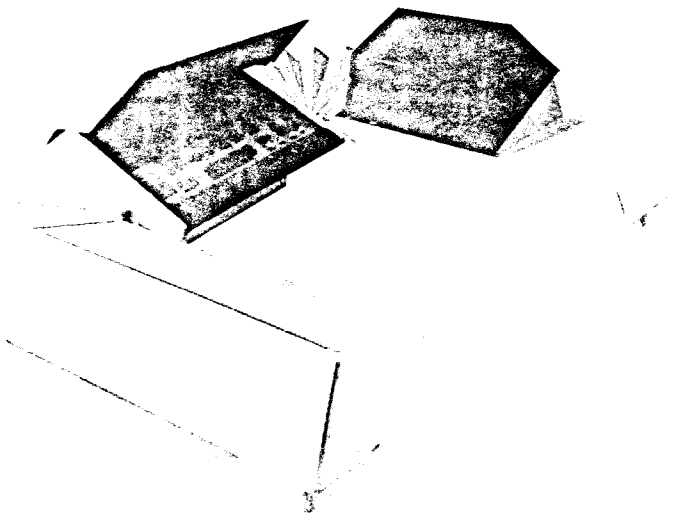
One of the most distinctive features of the VAS IV is its use of what Lyon Lamb calls vertical interval frame code. The frame code—designed to be more accurate than SMPTE time code recorded on the audio track—allows the controller to maintain field-to-field accuracy with moving or stationary tape.

Although the system was originally designed primarily for the animation of flat art, it can accept any NTSC input, opening up the possibility of other applications. For example, Lockheed has been using its VAS IV to do the frame-by-frame recording necessary for mastering interactive videodiscs. The system's controller also has an RS-232 port, which allows it to accept computer graphics inputs. This capability raises the possibility of using the VAS IV in conjunction with a computerized graphic arts or paint system. Satellite News Channels is using its VAS IV to record the output of its Computer Graphics Lab Images computer. It also has the unit tied in with a Quantel and an Ampex ADO to complete a system for rapidly producing the graphics, animation and effects necessary in news coverage.

Lyon Lamb's VAS IV is available for $17,500. The VAS IV-B, a model which can record at either 24 or 30 fps, costs $21,500. Lyon Lamb also makes the VAS III, an economical tool intended for pencil testing animation concepts and recording budget storyboards and animatics. This system consists of a VHS VCR, a black-and-white camera, monitor and foot pedal to control frame-by-frame recording and sells for $7,850. (338)

ANIMATED





DATAMAX

Many video producers would like computer animation capabilities in house, but can't afford the price tag on the full-blown systems. Datamax, in Elk Grove Village, Illinois, offers an economical alternative to the full computer graphics and animation systems with its UV-1R computer.

The UV-1R system consists of the computer, terminal monitor, graphics tablet and floppy disc drive. The system can also be operated with additional floppy-disc capacity as well as with a Winchester hard-disc drive. Other options include a video digitizer capable of digitizing outside video inputs for computer manipulation.

Computer animation at this price—about $12,000 for the basic system—obviously entails making a few compromises. Compared to the more expensive systems, the UV-1R has a fairly modest horizontal resolution of 320. And, only four of the system's 256 available colors can be displayed in one screen area at once. (The screen can be divided into up to 16 stripes, each of which can handle four colors.)

The UV-1R uses the Zgrass computer graphics language to animate graphics in several ways. Even without peripheral storage, the computer can store 16 screens of video—very basic animations can be done simply by cycling through the screens. Another method involves isolating a certain image or segment of the screen. That segment can then be moved at different rates to any point on the screen and various display modes can make it appear to pass in front of or behind background objects. A combination of the two techniques can create animations such as a figure, with moving arms and legs, walking in front of a moving background.

The system can't do everything the big boys can do. But, considering that for the price of doing a major project on some of the other systems you could *buy* a UV-1R, the compromise might be well worth it. Smaller facilities and corporate video departments might discover that they can get good results using a simpler system like this in house, rather than using a more expensive system—and keeping one eye on the clock—at an outside facility. **(336)**

COMPUTER IMAGE

Computer Image Corporation in Denver, Colorado, offers an interesting and increasingly economical alternative to conventional cel animation. The firm builds and operates three systems, Scanimate, Ceasar and System IV, all of which use analog computer technology to manipulate flat art images.

To use Scanimate, the oldest of the three systems, an artist prepares a black-and-white image on a transparency or kodalith. The kodalith is placed in front of a video camera and the image—which is not digitized—is viewed on the screen. The operator can then watch the image as he manipulates certain knobs, each controlling a different aspect of an image such as size, position and movement from one part of the screen to the other. Color is added by masking the kodalith with various densities of grey, which the computer reads as different colors. The operator can then fine tune the color selection, painting any part of the screen virtually any color he wishes. When all aspects of the animation are satisfactory, the operator flips the animation switch and the segment plays back in real time.

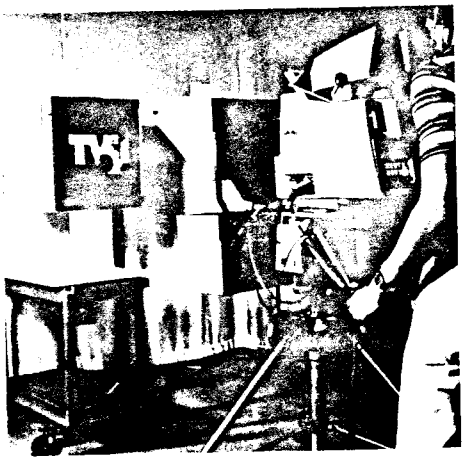
Computer Images' Ceasar incorporates most of the features of the Scanimate system, but adds the ability to animate multiple characters over art or live backgrounds. Like Scanimate the Ceasar system works with an analog image, but it applies digital computer technology to the tasks of positioning and timing the animations.

Ceasar and its successor, System IV (pictured above), can perform character animation through an interesting analog process. An image is placed in a television raster; an electronic signal such as a sine or delta wave is applied, deforming the raster and changing the shape of the character at the same time.

System IV can divide the screen into as many as 50 raster segments, and each segment can be controlled separately. By placing different parts of the character in different raster segments, an image with independently moving arms, ears, legs, etc. can be created. As with the Scanimate system, the finished animation plays back in real time. If required, the analog functions can be controlled digitally to play back at less than real time to produce higher resolution.

A number of Scanimate systems are in use around the country, including one at Image West in Los Angeles. Only one Ceasar has been built; it is in use at Computer Image's Denver facility. System IV is available for lease. **(337)**

FRANK WOOLLEY



Frank Woolley, in Reading, Pennsylvania, offers an inexpensive device which, while it doesn't offer a full range of animation, uses polarized light to create certain motion effects in logos and other artwork.

To use Woolley's Motionmaster system, an artist prepares a film transparency, which can be combined with different sorts of polarized overlays to produce various motion effects. Color is added and the artwork is mounted on the Motionmaster light stand. When polarized light is cycled through the artwork, motion effects, such as the impression of liquids flowing or wheels turning, are produced. The effect can then be shot with a camera directly off the light stand.

Frank Woolley sells the Motionmaster system, including a selection of stock art materials, for $2,595. Purchasers of the system can also attend one of Woolley's two-day seminars on the use of the system. **(339)**

James Meigs is *Videography's* senior editor.