

# VIDEO TOASTER USER

YOUR GUIDE TO VIDEO FX/3D ANIMATION/TV GRAPHICS

JUNE 1995

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on NewTek's  
Latest  
Triumph

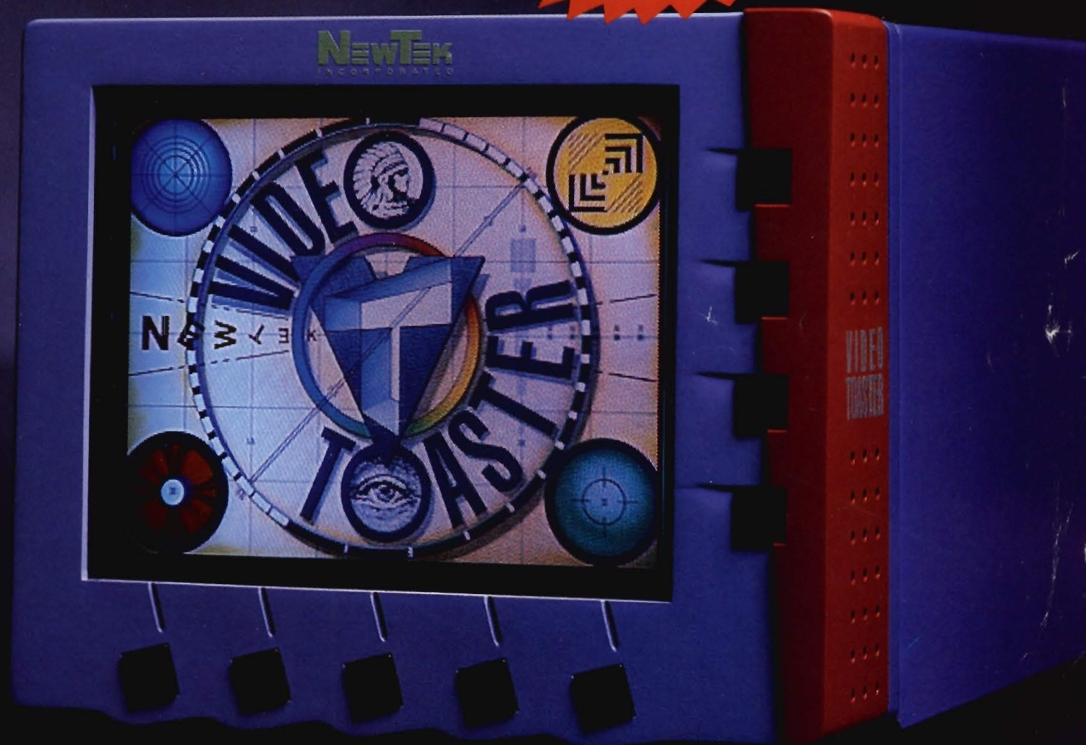
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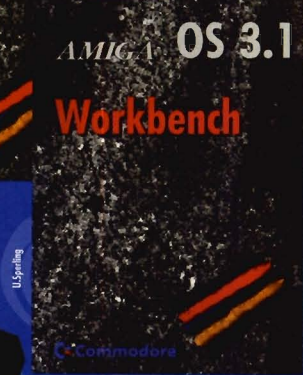
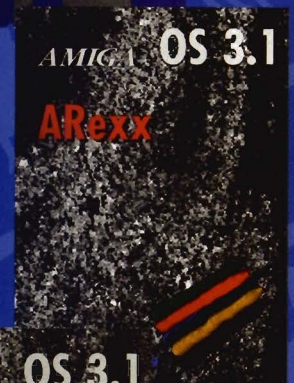
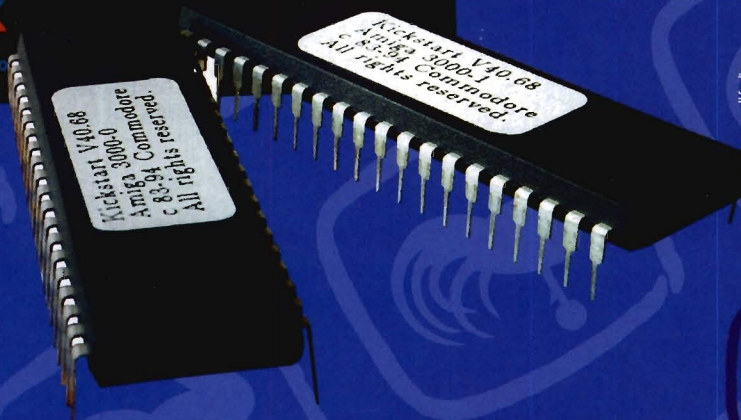


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FOR INFORMATION CIRCLE 149



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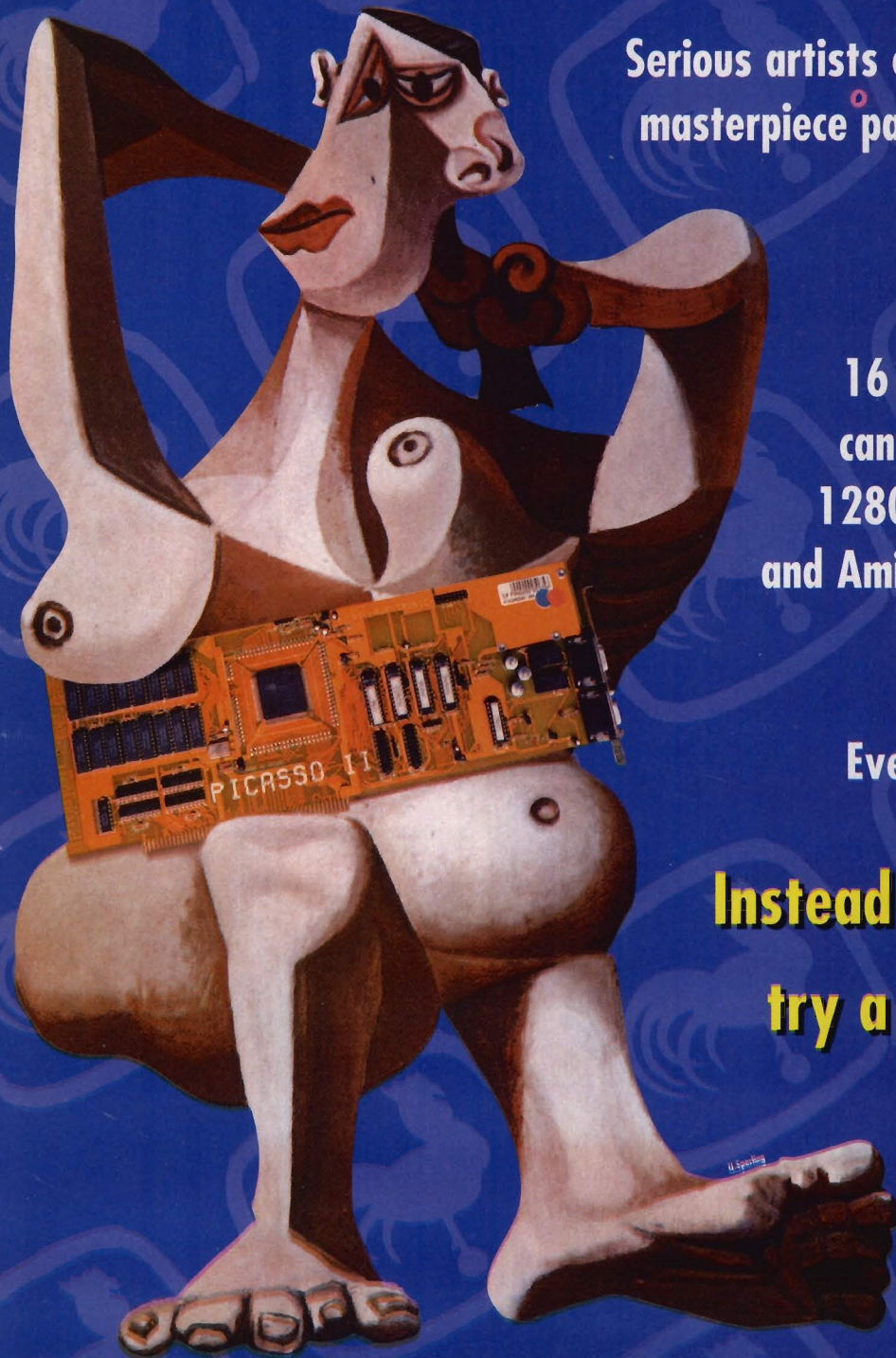
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# VIDEO TOASTER USER

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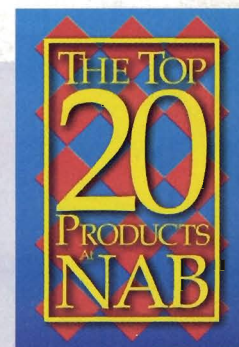
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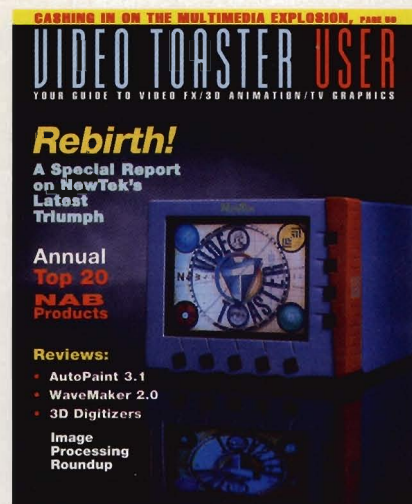
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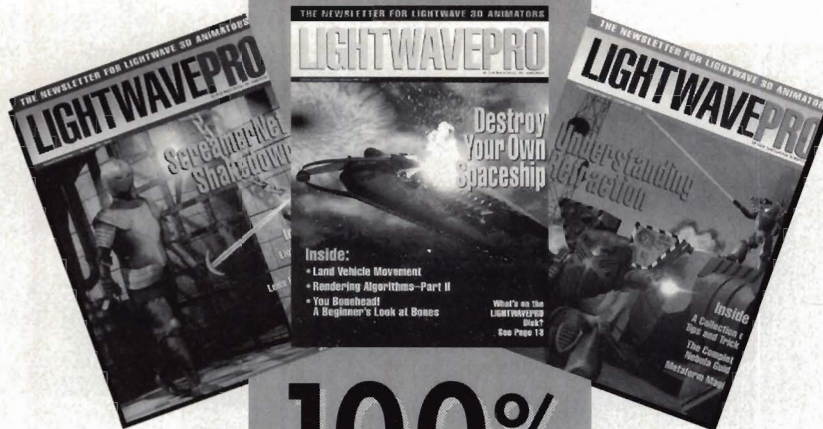
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GROUP PUBLISHER

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Jim Plant

MANAGING EDITOR

Joan Burke

ASSOCIATE EDITOR

Carey Cohen

CONTRIBUTING EDITORS

John Gross, James Hebert

David Hopkins, Mojo, Cliff Roth

Geoffrey Williams, Burt Wilson

CONTRIBUTING WRITERS

Dan Ablan, Joe Clasen, Mike Danger,

Matt Drabick, Chris Fenwick,

Erik Flom, Susan Ishido, Harv Loser,

R. Shomms Mortier, Doug Shannon

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Helga Nahapetian Taylor

ART/PRODUCTION COORDINATOR

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This month we recognize **Helga Nahapetian Taylor** for contributing extraordinary accomplishments to our company.



**Avid Media Group, Inc.**  
273 North Mathilda Avenue  
Sunnyvale, CA 94086-4830  
Tel: (408) 774-6770 Fax: (408) 774-6783  
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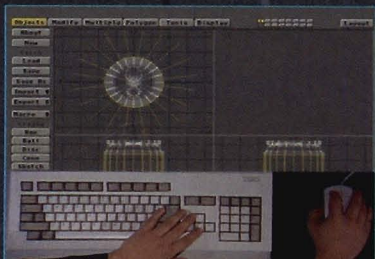


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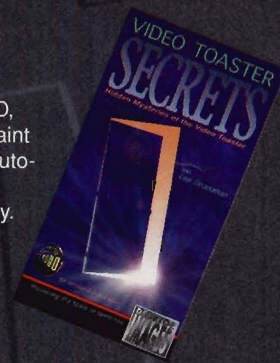
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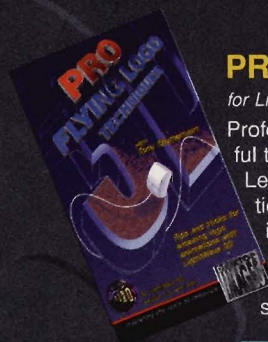
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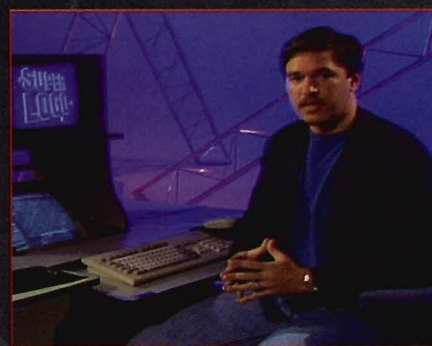
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# TOASTER TALK

## Stronger Than Ever

NewTek Proves a Dramatic Presence at NAB

by Jim Plant



**N**ewTek is back! After a frustrating year of dealing with the disruption caused by the demise of Commodore, NewTek roared into the 1995 National Association of Broadcasters trade show in Las Vegas with a vengeance. In a series of meetings held on Sunday, April 9, the day before the NAB exhibits opened, the company demonstrated its new products and new direction to press, develop-

ers, dealers and end users. The centerpiece of NewTek's display was the announcement and demonstration of Video Toaster for Windows.

The new Video Toaster represents an important new product philosophy designed for multi-platform exposure. Following in the footsteps of LightWave 3D 4.0 (which began shipping during the show), NewTek has converted the Toaster and Flyer technology into a standalone package that can conceivably migrate to any computer platform with a SCSI II port and the appropriate control software. (The first version scheduled to ship later this year will work under Windows NT and Windows 95.)

In a VTU special report prepared specifically for NAB, NewTek President Tim Jenison described the Video Toaster for Windows as follows: "A complete video production workstation, including non-linear editing, that connects to a standard PC running Windows NT or Windows 95, via the SCSI II port....[It's] a much more complete product than the original Video Toaster we delivered back in 1990....A standalone device (see front cover photo) that contains parts of the original Toaster, in combination with the Flyer, a built-in TBC, and a few new devices to tie it all together. So what you get is all the graphic, special effects, audio and non-linear editing capabilities in one complete, plug-and-play package....With the combination of the LCD screen and function keys on the front of the unit, you can make the Video Toaster perform a number of its functions, including simple editing, completely independent of any computer at all....We've designed a soft-shell carrying case and a battery system that would allow you to take the Video Toaster out into the field and record directly from your video camera to the hard drives. Then you'd use the Toaster's built-in editing functions or connect your laptop to the system and edit out in the field, or bring the unit back into your studio and connect it to your desktop PC."

Jenison emphasized that the needs of NewTek's existing user base, consisting primarily of Amiga users, were considered in the design of the new product. He explained that the Flyer NLE card many Toaster owners have already purchased is identical to the Flyer card in the new product in every way. This similarity makes it possible for Toaster owners to buy the Flyer now and insert it

into the Amiga, creating a powerful audio-video workstation with non-linear editing capability. Later they can choose to buy the Video Toaster Bay (the new product minus the Flyer card), pull the Flyer out of the Amiga and plug it into the new box. In this way, users would not only have an external box that was controllable from the Amiga (or a Windows-based PC), but also a portable, battery-powered, direct-to-disk field recorder.

Scheduled to ship in the third quarter of this year (though Jenison insists it will be ready by July), the base system without hard drives is \$7,995. The professional version, which includes a high-quality LCD monitor, is priced at \$9,995. The Toaster Bay (minus the Flyer card) is \$2,995 for the base model and \$4,995 for the pro model.

In addition to this new product introduction, NewTek made several other related announcements at NAB, including a partnership with Xaos Tools that would bundle "Penello" animated brushing technology into the new multi-platform version of LightWave. NewTek also revealed that Xaos would become the worldwide, exclusive distributor for LightWave on the SGI platform.

NewTek also announced the licensing of both Elastic Reality's HIIP (Host Independent Image Protocol) technology and Syndesis Corp.'s InterChange translation technology for use in all their products. These two arrangements open the door for the use of a wide variety of graphic and 3D file formats in the Video Toaster and LightWave environments.

Toaster users also heard from NewTek's new chief executive officer, Dwight Parscale, who explained at NewTek's pre-NAB reception that he had been brought in to offload many of Tim Jenison's administrative tasks and make it possible for Jenison to spend more time developing and improving products. Parscale also acknowledged that many of NewTek's past operational procedures—including communication with dealers, developers and end users—were "really screwed up," and that he is committed to fixing them. After mentioning specific Flyer-related problems, he promised that NewTek would address them quickly.

All in all, it was a great show for NewTek and Toaster users. The *Video Toaster User Pavilion* in NAB's MultiMedia World was a crowded success, and NewTek's main booth was hectic, as usual. Despite all the changes that NewTek has undergone in the past year, including a complete new management team, it is clear that the company's primary strengths—developing innovative, low-cost video production tools and coming up with clever marketing ideas—are still in abundance. Anyone who went to NewTek's pre-NAB meeting at Caesar's Palace and witnessed Penn & Teller interrupting the session and bussing everyone off to a party at a nearby laser tag establishment could see that some things haven't changed a bit.

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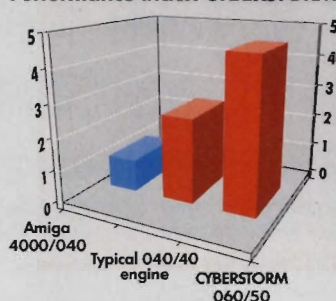
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### Performance Index CYBERSTORM



Application: LightWave 3D Rendering.  
Amiga 4000/040 = Factor 1.

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Picture shows A4000 version of the CYBERSTORM System

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FOR INFORMATION CIRCLE 147



# TOASTER TIMES

## Part-Time Hours, Big-Time Products

Corey Cohen

**F**or many animators and video producers, a completed project is exactly that: something that, once finished, is written off as a check in the bank, experience gained, a contact made or reinforced. Ray Cronise doesn't see things this way.

"To quote a good friend of mine, I'm looking at ways to invest my time, not sell my time," he says. Cronise—a NASA scientist by day, videographer by night—has succeeding in breaking into the camp of videomakers who work with materials that are mass-marketable; materials that can be partially or completely reused or resold for multiple profit. This wide



An image from one of four animations Cronise made for an Alabama radio station.

spectrum ranges from tapes requiring custom segments for each customer to mass-

produced products such as special-interest videos.

NewTek's Video Flyer,

which Cronise has been using since the arrival of the beta version, is a tremendous help to him in this whole process.

"The Flyer puts everything in one box—exactly what [NewTek] promised in *Revolution*," said Cronise. "It takes away all the headaches of integration, so I don't have a birds nest of wires hanging around. I come in, hook up a deck...sit down and edit. The Flyer gives me the freedom to be creative—I don't have to worry about getting something done."

A specific example of the videographer's work with the non-linear editor involves the longstanding contract his Madison, Ala.-based company, KRC Productions, has to produce corporate videos for Adtran. The telecommunication firm's diverse customer base is best served by video modules that can be very quickly customized for particular clients. However, reusing video is inherently problematic for many Toaster users: with prosumer formats such as Hi8 and S-VHS, generational loss is unacceptable,

## Cooking Up Success

Joan Burke

**T**he recipe for a successful video production company reads something like this:

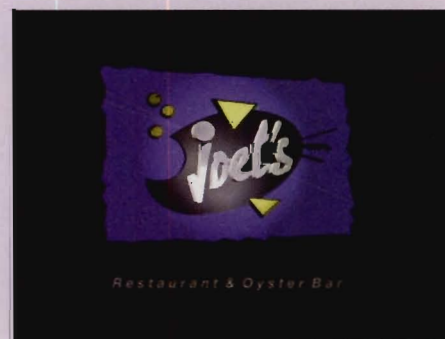
- 4 men in their mid-30s
- 4 hopes of being a millionaire by age 40
- 0 video experience
- 0 animation experience
- 1 Video Toaster
- 2 tons of enthusiasm
- 5 barrels of energy
- 10 cups of initiative and a few thousand dollars.

Combine these ingredients and let simmer. The result is Abetting Pro-

ductions (815-332-4427), a thriving video company in Rockford, Ill.

### Early Beginnings

How the company started is an interesting tale. President Jeff Palmer was struck by tragedy when his wife passed away following a terrible motorcycle accident. While Palmer was grieving, his best friend, Greg De Carlo, was also experiencing the turmoil of a divorce. Both men were at low periods in their lives and needed something new and uplifting to direct their energies toward. They tossed



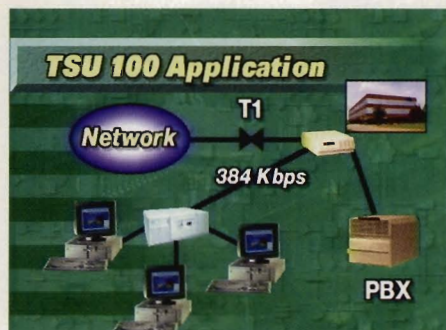
A logo designed and modeled by Abetting and Wild Design Studios in seven hours with PixelPro 3D and Modeler.

around the idea of starting a company, but had no clue as to what kind.

Then Palmer was introduced to the Video Toaster through a demo tape. "It was like a light bulb for me. It was an

continued on page 14





Graphics from a corporate video for Adtran. The background image was done using Composite Studio and the foreground elements are brushes cut from video clips with TPaint.

and for these videographers, a D-2 or Betacam suite is cost-prohibitive. Cronise now avoids this problem by using the Flyer, which allows high-quality video to be stored directly to disk. "With the Flyer, I can compete in the world of high-end equipment: I set [a project] up, push a button...and I've got a new master."

This strategy is helping the video producer branch out and develop series of tapes for clients in diverse professions. Cronise is currently scripting several videos for a local veterinarian that, by leaving holes for personalizing specific practices, can later be customized for any number of practitioners in that field. Informational tapes for a local chiropractor, complete with LightWave animations, present similar opportunities for future profits.

### Riding the Wave

Following their meeting through an Internet mailing list, Cronise is also working with Fusion Films' Mark Thompson to develop a series of LightWave instructional tapes under the company name ProWave. "We'd like to take higher-end techniques people won't just stumble across, but are easy to implement," Cronise said. "We're try-

continued on page 12

# The Way I See It

## Reading D-Mail



Mike Danger

Once again we meet and leave the sidebar of life for another edition of this gossipy column and rumor mill. Consider this the *Talk Soup* of the video medium. This month's offering is sure to please with knowledge more than all the other magazines combined. Get out your pen and paper, because you will be tested at the end.

I just got back from the Non-linear Expo in Orlando, Fla. This event was to showcase such systems as the Flyer, the Cube and others. The first thing I noticed when arriving at the expo site (besides the obvious cramps I incurred due to an eight-hour car ride I was unfortunate enough to experience from the back seat of a Geo) was a group of people that grumbled about the price of admission but had no qualms about purchasing an editing system that might cost more than their car. As the show continued, each exhibitor was to construct a public service announcement (PSA) with prepared footage. Representatives were to construct their company's commercial and would be critiqued after the very tasty German American-prepared buffet the organizer's served. Chef boy, was I hungry. Working in the NewTek pit was the ever-capable James Hebert. As the day advanced, it was time to see which system did the best job for its price on this public service announcement. From my understanding, the Flyer/Toaster combo and Avid Technology's Cube took top honors. From what I was told, while both systems performed well, the Flyer's audio suffered from a lack of correct connector plugs to the beta deck. I also learned that the competing system suffered because the finished product had too much color saturation in its video portion. The point is that the Flyer, while costing less than other systems, performs equally

well against the more expensive units. Wasn't that NewTek's purpose from the get-go, to make video production affordable?

A couple of issues ago fellow columnist Mojo suggested that the future of the Amiga in the video industry was on its way to ye olde glue factory. I think it is a bit hasty to scrap your Commodore product for a common PC. Phone calls and faxes have come my way alerting me to the fact that Motorola may soon be manufacturing an 060 chip for the Amiga



Framegrab of the Month goes to Paul Tyson.

4000. There are also plans for an Amiga clone called the DraCo if certain chipsets become available. In the New York area local entrepreneur Dave Tibario of Area 52 has been finding Amiga machines for the Toaster-needy in excess of seven per week. His better-than-average prices have netted him enough income in the last year alone to pay for his and his partner's four-year college terms. As a matter of fact, Tibario is rumored to have gone in the spaghetti sauce business to help fund the production of his own tower to house the Toaster and Flyer system. If his sauce is as good as his prices, I'll take two. Mama Mía, with those newest facts, let's hope the Amiga-Toaster technology will continue until the computer has a new home.

continued on page 12



## The Way I See It continued from page 11

While boning up for the trek from Topeka to Nevada, it seems that the same people who are famous for one of the biggest tape giveaways ever are busy working on the next installment for your video library. While filming a scene resembling something from the Oliver Stone flick *Natural Born Killers*, NewTek receptionist Michelle Kabriel decided to perform her action scenes instead of opting for a stunt person. Needless to say, Kabriel is now sporting a new cast on her broken ankle. Send all your cards to her in care of NewTek. I guess the old adage "break a leg" doesn't apply here, right Michelle?

Our D-mail box is full of written responses this month. In lieu of something to fill this space, I thought I'd share a few with you.

*Dear Mike,*

*I read your column monthly, but I'm having trouble syncing audio and video together when using two cameras during music video shoots. How can I use the A/B-roll system when editing and get both video clips to line up with the video? I don't have SMPTE time coding and wanted to hear your thoughts.*

*Clueless in Chicago*

Dear Clueless,

I, like yourself, don't have the bucks to afford SMPTE time coding. What I have to do is start both cameras before shooting the event and capture someone with both cameras clapping. By using your jog shuttle on both decks, plus a lot of patience, you can manually align the clap on both decks by both sound and picture. This may sound difficult, but a lot of lower-end studios use this trick and it works well. After completing this process, use your Toaster to A/B-roll the clips along with your chosen soundtrack. Better yet, buy a Flyer. Thanks for the question.

*Dear Mike,*

*Sometimes when using my Toaster system for rendering for an extended period, the system tends to get sluggish and slows down, or even quits. I have an Amiga 4000 with a Toaster, TBCs, PAR card, and more. Heck, what*

*gives? Got any ideas what is going on? I appreciate your help.*

*Toasty in Hawaii*

Dear Toasty,

I'm not a technician—though I play one in this column—but my first impression is that your machine and CPU chip could be overheating. Reliable troubleshooters have warned me that sometimes cramming the smaller Amiga 4000 full of cards, drives and assorted accessories can cause a lack of ventilation to your CPU. When this chip gets hot and feverish, its only means of relief is to cool itself off by shutting down. People that have had this problem have either opted for a bigger case to house their valuables or removed the outer case to promote better circulation. If you choose the topless solution, please keep screwdrivers, tongues and hands out of the insides while in operation. Better yet, consult your Amiga dealer.

As we consume most of our allotted space and come ever closer to the crème de la crème portion of this column known as the Framegrab of the Month, it has come to my attention that Amblin Imaging will soon be working on the new *Flintstones* movie. Will they use the Toaster, as in other creations? Somebody let me know.

Well, as I throw all the framegrabs you've sent in up in the air and use the scientific method of selecting the first one stepped on, let me congratulate Paul Tyson (no relation to the fish stick industry), who created this still with the help of Alpha Paint. The only information on his disk is that Paul is the virtual media in the Detroit motor city. Good work, Paul.

As we abort this column, let me thank you for your comments, faxes and phone calls. For submitting a framegrab, comment or fax, I present to you the following information:

Mike Danger  
P.O. Box 11802  
Pensacola, FL 32524  
Phone/fax (904) 469-1001  
24-hour D-mail (904) 477-0853

## Part-Time continued from page 11

ing to present mainly high-end material that users can turn around and make money with." At press time, the first of these videos was scheduled for release in mid-April. A planned introductory tape would include a CD-ROM with scene files, royalty-free objects, image maps, sound effects, and more.

### Aiming High

Considering Cronise's fairly recent venture into video—he was introduced to it in 1992 while serving as a science reporter



LightWave magician Mark Thompson on the set of ProWave's new in.focus tutorial tapes.

for a NASA television program—he's made some impressive strides in a number of areas. As many striving entrepreneurs have experienced, however, building a business on the side isn't without some serious challenges. For Cronise, the hardest part is often just time management. "Finding the time that's convenient for the client to meet. Finding time to sleep. And the fact that there's a limit to what you can do. I mean, you've still got to change the litter box. You can't just be a Toaster addict and sit in a dark room full of monitors, waiting for your next issue of VTU."

For more information about KRC Productions and ProWave/in.focus, call (205) 830-2767.

VTU

## Sorry...

Due to technical and scheduling issues, the feature on mass storage planned for this issue (and announced in last month's "Toaster Talk") has been moved to August 1995's VTU. The editorial staff promises to never, ever, ever make this mistake again.



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## Cooking Up Success continued from page 10

opportunity," he said, "The next day I got magazines and books on video production. I just looked at the books." After all the reading and research, it was decided: they would start a video production business.

### Natural Talent

DeCarlo was named the computer wizard of the company because of his ability to read the manual of anything and know exactly how to use it within hours. The two men bought a Video Toaster in 1993.

It was then that Palmer told two other friends, Mark Irby and Dave Welsh, about the new business venture. They, too, with no video knowledge, were interested in forming a partnership.

"We're all kind of the same, we're all driven," Palmer said, "They [Irby and Welsh] came in with \$15,000."

The company began to grow and all partners had their roles defined.

DeCarlo writes all of the music. He also does some graphics. Palmer is in charge of marketing and writing. Irby does all 2D animation and camera work. Palmer said, "Mark [Irby] grabbed the DPaint manual and mastered it. And he's probably one of the best shooters in Rockford."

Welsh was sent to a three-day Amilink seminar and now he's the company's editor. "A year ago he knew nothing about editing and now he makes sure everything is timed to the beat," Palmer said.

### The Smell of Success

Abetting Productions began by creating commercials. Their first job was a 30-second spot for Stash O'Neils which was completely rotoscoped. After only two months of being in business, Amheuser Busch was on their client list. The young company produced more than 44 commercials in one year. How did they do it?

First of all, Abetting now has more equipment, including one A4000, two

A2000s, Toaster 3.5, DPaint IV, Wavewriter, Studio 16, Bars and Pipes, a Bernoulli box, ADPro, Montage, TV Paint with the Retina board and Amilink Pro.

The process begins with the shoot. The team goes in knowing what shots they want. They bring them back to the office and time code them. Later the music is laid down and they try to incorporate 3D, whether it be a logo or lens flares.

"We don't want to be like anyone else so we've made some custom Switcher effects," Palmer said, "We use the CG every single day as well as ChromaFX, LightWave and the Switcher."

### New Ventures

The growing company also uses the Toaster to produce two weekly programs. *Shockwave*, their 30-minute alternative music video show, features artists such as Sex Idols and Lucy's Fur Coats,

who aren't receiving airtime on MTV. "We do tons of 3D graphics on the show," Palmer said. "We use the Toaster Switcher effect to go from one music video to the next."

Abetting Productions also uses the Toaster when creating their country

dance show—*The Cactus Rose Dance Show*, featuring line and couple dancing. A/B-roll is done throughout the entire show. It is also sprinkled with 2D animations created with TVPaint. It used to take four hours to complete the show; now it takes the company approximately 40 minutes to finish a given episode.

With all the right ingredients, Abetting Productions has combined natural talent and a drive for success to create a company with vast accomplishments and opportunities.

Palmer said, "I had no idea that our company was going to grow like it has."



This scene from *Shockwave* used Humanoid, Montage and assorted custom model objects.

## News & Notes

### Make It Legal

Want to use someone else's audio or visuals in your work but don't want to risk fines or other legal complications? Maybe you need Total Clearance. Total Clearance is a full-service company providing clearance for reuse of all types of film, video and photographic materials in all media worldwide. The agency handles rights issues concerning actors, authors, celebrities, copyright holders, directors, music publishers, musicians, photographers, stunt performers and writers. Total Clearance helps creators of entertainment and educational products through the time-consuming and often complicated process of clearing rights to use all types of audio/visual properties by identifying clearance concerns, developing and executing the clearance strategy, approaching rights holders and negotiating clearances on the producer's behalf. For more information, contact the Mill Valley, Calif.-based company at (415) 389-1531, or via e-mail at TotalClear@aol.com.

### Plan Ahead

The following is a partial list of conventions later this year (continued from last issue):

- |   |   |
|---|---|
| <b>MACWORLD EXPO</b>                                    |   |
| Aug. 8-11   | World Trade Center & Bayside Expo, Boston, Mass.<br>(MacWorld Communications, Inc., 617-361-8000) |
| <b>WORLD MEDIA EXPO</b>                                 |   |
| Sept. 6-9   | New Orleans Convention Center, La.<br>(NAB, RTNDA, SBE and SMPTE, 800-342-2460)                   |
| <b>VIDEO EXPO IMAGE WORLD</b>                           |   |
| Sept. 19-21   | J.K. Javitz Convention Center, New York, N.Y.<br>(Knowledge Industry Publications, 800-800-5474)  |
| <b>PC EXPO</b>  |   |
| Oct. 3-5  | McCormick Place East, Chicago, Ill.<br>(Blenheim Group, 800-829-3976)                             |
| <b>VIDEOMAKER EXPO</b>                                  |   |
| Oct. 27-29  | Los Angeles Convention Center, Calif.<br>(Videomaker magazine, 916-891-8410)                      |
| <b>VIDEO TOASTER EXPO '95</b>                           |   |
| Nov. 1-4  | Universal City Hilton & Towers, Calif.<br>(Avid Media Group, Inc., 800-322-2843)                  |
| <b>COMDEX FALL '95</b>                                  |   |
| Nov. 13-17  | Las Vegas Convention Center, Nev.<br>(The Interface Group, 617-449-6600)                          |
| <b>VIDEO TOASTER AND LIGHTWAVE 3D TRAINING SEMINARS</b> |   |
| Dec. (date TBA)   | Outrigger Reef Hotel, Honolulu, Hawaii<br>(Avid Media Group, 800-322-2843)                        |



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W

hew! This year's NAB was a display of the new and newer, better and best, the ambitious and the extraordinary—fertile ground for an editorial staff eager to explore some truly exciting developments in desktop video. The criteria for this year's selection were deceptively simple: Toaster- and LightWave-related

products and items whose innovative, ground-breaking features made them impossible to ignore. As in the past, we've attempted to come up with a collection of hardware and software that we're confident will help our readers pursue ever-increasing opportunities in video production.



## An Innovative Option

**Product:** Toaster for Windows  
**Description:** PC-compatible non-linear editor  
**Price:** \$7995  
**Availability:** Third quarter  
**NewTek Inc.**  
 1200 SW Executive Dr.  
 Topeka, KS 66615  
 (800) 847-6111



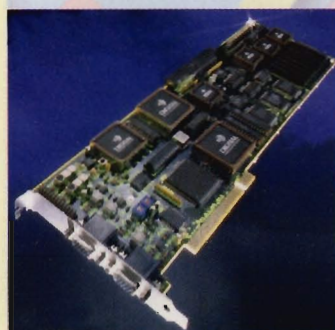
NewTek's new *Toaster for Windows* has opened up worlds of opportunity for video producers hesitant to use an Amiga-compatible product. The Toaster for Windows is a complete video production workstation—including non-linear editing—that connects to a standard PC running Windows NT or Windows 95 via the SCSI II port. This battery-powered portable unit, complete with custom softcase, allows users to record broadcast video anywhere—simply plug a camera into the Toaster and record direct to hard drive. Inside there is built-in time base correction with proc amp controls, three digital still stores, a four-input production switcher, character generator, eight tracks of CD-quality audio, 3D animation system, video processor, luminance keyer, SMPTE time code reader/generator and single-frame animation recorder. (See future issues for more in-depth coverage of this product.)

**FOR INFORMATION CIRCLE 1**

## Perceiving Digital Video

**Product:** DPS Perception  
**Description:** Video Recorder  
**Price:** Not available  
**Availability:** June

**Digital Processing Systems**  
 11 Spiral Drive, Ste. 10  
 Florence, KY 41042  
 (606) 371-5533  
 Digital Processing Systems has introduced the *DPS Perception Video Recorder (PVR)*, a high-quality PCI-based digital video disk recorder system. This board is capable of recording and playing back broadcast-quality video in real time from a dedicated SCSI hard drive. Perception features 10-bit video encoding, an integrated SCSI-2 hard drive controller, PCI bus card and component, composite and S-video outputs. When used with animation software such as LightWave 3D 4.0 or other graphics applications, PVR can directly import RGB files through its PCI bus interface. PVR can easily integrate with many software packages via



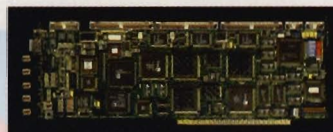
the DPS file system, which allows frames to appear simultaneously in different file formats. PVR can also be used with any Windows NT-compatible sound card for audio applications. The DPS Perception is a welcomed tool for your non-linear editing and animation needs.

**FOR INFORMATION CIRCLE 2**

## Rise Above

**Product:** Video Toaster Flyer  
**Description:** Non-linear editing system  
**Price:** \$4,995  
**Availability:** Immediate  
 NewTek's *Video Toaster Flyer* is an easy-to-use non-linear editor with the same capabilities one would expect from a production suite with \$50,000 video tape decks. This pow-

erful tapeless editing system utilizes a breakthrough technology called VTASC, specially designed to put broadcast-quality video on a hard drive.



Users can record video and audio segments as clips, which are arranged with a simple drag-and-drop interface. Using the Video Toaster 4.0 software, real-time effects, graphics or text can be added. Press the play button and video plays back—in real time and broadcast-quality. The Flyer can even be used as an animation recorder with LightWave 3D. And a powerful DSP chip provides up to eight tracks of 16-bit, CD-quality audio for music, sound effects and voice-overs.

**FOR INFORMATION CIRCLE 3**

## Painting Pleasure

**Product:** Alpha Paint  
**Description:** Paint/image enhancement software  
**Price:** \$699.95  
**Availability:** Immediate  
**InnoVision Technology**  
 1933 Davis St., Ste. 238  
 San Leandro, CA 94577  
*Alpha Paint* is the first all-in-one paint program for the Video Toaster with no additional utilities, programs or chip RAM required. The program contains a wide variety of 24-bit painting, masking and image enhancement tools, and a full 12-bit alpha channel for anti-aliasing, blending and compositing. Using an exclusive time-saving single-monitor interface, Alpha Paint presents real-time, full-screen painting in



16 million colors directly on the Toaster's display. Full-screen WYSIWYG operation with multiple undo and redo means no more rendering or HAM artifacts. The Toaster's Hardware Video Mixing Alpha Channel is utilized for unique soft-edge feathering and transparency effects played back over any live video source, including one-of-a-kind video-over-video effects.

**FOR INFORMATION CIRCLE 6**

## Faster Than Fast

**Product:** AV Gold Series  
**Description:** Digital audio/video disk drives  
**Price:** Starting at \$1,810  
**Availability:** Immediate  
**Micropolis Corp.**  
 21211 Nordhoff St.  
 Chatsworth, CA 91311  
 (818) 709-3300  
 Micropolis' *AV Gold Series* disk drives offer an unprecedented minimum sustained transfer rate of 4MB/sec., a greater than 35 percent improvement over the industry's current A/V drives. The Gold Series drives have been optimized for continuous, sustained delivery of data, eliminating the possibility of



delays in the data stream that cause frame dropouts and jerkiness in digital A/V playback or recording. The drives are performance-tuned for continuous throughput and maximum bandwidth, offering the high, uninterrupted data rates required for enhanced digital and audio performance in applications such as multimedia, digital video editing and video servers. Specific drives include the Scorpio 9 Model 1991AV, featuring 9.1GB of formatted capacity and an internal data rate of 47-77 Mbits per sec-



ond; the Capricorn 4 Model 3243AV, with 4.3GB of formatted capacity and an industry-fast 7,200-rpm spindle speed; and the Taurus 2 Model 422AV, which offers 2.1GB of formatted capacity in a one-inch-high form factor and a 7,200-rpm spindle speed.

**FOR INFORMATION CIRCLE 7**

## Digitizing Time

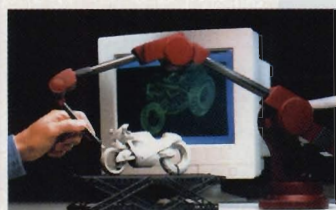
Product: MicroScribe 3D

Description: 3D Digitizer

Price: \$2,395

Availability: Immediate

Immersion Corporation  
3350 Scott Blvd., Bldg. 30  
Santa Clara, CA 95054  
(408) 653-1160



Immersion has released *MicroScribe 3D*, the latest in the company's 3D digitizer line. Users of this instrument can trace clay models, physical objects and mechanical parts and create detailed computer models in minutes. *MicroScribe* features a high-performance mechanical arm with a stylus tip that provides accuracy and range of motion. This 3D digitizer is ideal for animators and can be used in real-time to manipulate objects, control views and define animation trajectories. *MicroScribe* also features a large work space, approximately a 50-inch sphere, which allows sizable objects to be digitized. With additional digitizing software, 3D models can be made from polygons, points and splines and data can be exported in most standard formats. Toaster users will find that the *VertiSketch* software from Blevins is compatible with *MicroScribe 3D*.

**FOR INFORMATION CIRCLE 8**

## Balance Your Audio

Product: YCP-AUDIO/Flyer

Description: Converter

Price: \$249

Availability: Immediate

Y/C Plus

310 SW. 6th St.

Topeka, KS 66603

(913) 235-5014



Y/C Plus has released the *YCP AUDIO/Flyer*, a solution for many Flyer-specific audio problems. Specially designed for use with NewTek's Video Flyer, YCP-AUDIO/Flyer converts the normal 10K unbalanced line level input and output of several products to broadcast 600 ohm balance stereo input and output. Users will no longer experience grounding problems because a special cable provides power from the Amiga computer. The product also converts Hi-Z for use with routing switchers and Betacam VCRs.

**FOR INFORMATION CIRCLE 9**

## The Sound of Music

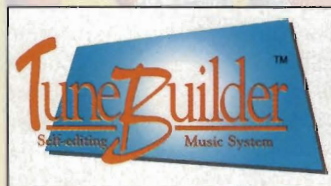
Product: Arpeggio featuring TuneBuilder

Description: Self-editing music system

Price: \$999

Availability: Immediate

AirWorks Media  
10173 109th St.  
Edmonton, AB T5J 3M4  
Canada  
(403) 424-9922



AirWorks Media's *Arpeggio* is a CD-ROM product featuring *TuneBuilder*, a powerful technology that automatically edits music. *TuneBuilder* allows users to simply type in the length of music and the music in *Arpeggio* automatically edits, loops and extends itself. Professional quality is not an issue, as *TuneBuilder* searches the music library with professional criteria such

as tempo, style, key word or category. Other features include automatic file transfer from CD-ROM to hard drive and a full audio project manager. *TuneBuilder*'s user-friendly interface helps to organize music notes by selection, block or version. When used as a cut editor, *TuneBuilder* can provide customized music with various lengths to be exported to several different video applications and platforms, including the Amiga.

**FOR INFORMATION CIRCLE 10**

## Synchronizing Signals

Product: ES-2940

Description: Dual 1x4 A/V distribution amplifier

Price: \$900

Availability: Immediate

ESE  
142 Sierra St.  
El Segundo, CA 90245  
(310) 322-2136



Introduced by ESE, the *ES-2940* is a rack-mounted unit containing two audio distribution amplifiers, two video distribution amplifiers and a five-output RS-170A black burst sync generator. The *ES-2940* is designed to meet the requirements of systems that interface with, distribute and synchronize video and audio signals. It features video gain and EQ controls, audio gain control, and broadcast-quality audio and video. The unit has the ability to accept balanced or unbalanced audio and produce four copies. Each of the video DAs provides a loop through input and four isolated outputs. For unbalanced outputs, each of the 1x4 audio distribution amplifiers can provide up to eight separate and isolated feeds.

**FOR INFORMATION CIRCLE 11**

## Straight to the Screen

Product: DigiMax

Description: 3D Digitizer

Price: \$695

Availability: Immediate

Impulse, Inc.  
8416 Xerxes Ave. North  
Minneapolis, MN 55444  
(612) 425-0557

*DigiMax* offers an easy-to-use, fast and affordable way to bring the real world to your 3D work. Plug the serial cable from the *DigiMax* to your host computer, run the *DigiMax* software, and cali-



brate your digitizing probe. Then simply mount an object to be digitized between the screw-in mounts and use the probe to pick key points on your object. As you rotate the object and select points the *DigiMax* software displays your object points in real-time 3D, converting these samples into a 3D object that you can render with your favorite rendering system, like *Impulse's Imagine*. *DigiMax* software shows users four views of the object and a "real-time" preview window in the upper-right window. Objects can be digitized in Quad View or in a large single-window formats. *DigiMax* will handle objects of any material up to 20 inches long and 12 inches in diameter with 1/32-inch precision. The included software requires a PC (DOS 5.0 or higher) or an Amiga. The program outputs DXF and *Imagine File Format*.

**FOR INFORMATION CIRCLE 12**

## Metamorphosis

Product: Elastic Reality

Description: Morphing software

Price: \$495

Availability: Immediate

Elastic Reality Inc.  
925 Stewart St.



— 1800 949-2843

Madison, WI 53713  
(608) 273-6585

Elastic Reality's powerful product promises state-of-the-art effects for desktop publishing, multimedia, corporate communications, television and film. The most advanced commercially available warping and morphing system in the world, *Elastic Reality* offers the first desktop WYSIWYG video transition generator; a powerful structured matting and compositing tool; and an in-between frame generator for stop-motion and cel animation. Features include true 32-bit application for top speed, a shape-to-shape interface allowing users to produce higher-quality results with less effort, freehand and structured drawing tools, and a drag-and-drop, multiple-document interface (MDI) with multi-tasking supported. Shapes



can move and dissolve at their own rate; be assigned a depth; create their own mattes automatically; and be scaled, rotated, flipped and moved using editing tools with undo. Elastic Reality reads and writes most professional file formats, including Targa, TIFF, PICT, SGI RGB, BMP, FLI, JPEG, Amiga IFF and more.

**FOR INFORMATION CIRCLE 13**

### Ready to Measure

Product: Hamlet 302WVA  
Description: Portable waveform/vector/audio  
Price: \$1,895  
Availability: Immediate  
Feral Industries  
9204 Bond St.  
Overland Park, KS 66214  
(913) 492-4666

The *Hamlet 302WVA* lets users prevent problems such as hot spots, loss of picture detail and blurred images, and verify that their recorded

signal meets broadcast specifications. The 302WVA is the newest addition to the Hamlet MicroScope series of portable test measurement equipment. Designed with a



new membrane front panel but encompassed in the same compact, lightweight chassis as the original MicroScope 302 unit, the 302WVA is a rasterizing waveform/vector/audio test measurement device designed specifically for field use. It is ideal for camera setup, continuous monitoring throughout a shoot and during post-production editing for matching sources. Like all Hamlet units, the 302WVA displays digitally generated waveform/vector signals and their associated gratitudes and traces on any video monitor, including field monitors, LCDs and camera viewfinders that have a reference input. And the device features two linear audio bar graphs for monitoring and matching audio levels.

**FOR INFORMATION CIRCLE 14**

### New and Improved

Product: Toaster System 4.0  
Description: Major upgrade for the Toaster  
Price: \$549 (CD-ROM)  
Availability: Immediate  
With NewTek's Toaster System 4.0, the Toaster has received a significant upgrade and several new features to enhance production and



functionality. The Switcher now has a drag-and-drop interface, graphic representation of all crouton types, more than 100 new Toaster effects, fully automatic A/B-

roll editing and multiple Switcher modes, including file management, project editing and switcher view for live production. ToasterCG showcases several new enhancements, including a safe title area display, the ability to rotate and shear text to any angle, and scalable PostScript text and brushes. It also has new ARExx macros, a spell checker, image scaling, copy/paste font attributes and several new fonts. Toaster-Paint gets a facelift with an all-new interface, ARExx macros for making Flyer stills, slow-motion clips and fast-motion clips. Users will notice an improved color palette with HSV color wheel and a menu structure with a full image button.

**FOR INFORMATION CIRCLE 4**

### More for Less

Product: Teraclipse  
Description: Custom computer configuration  
Price: \$3,995  
Availability: Immediate  
Bushey Virtual Construction  
951 S. Cypress St., Ste. F  
La Habra, CA 90631  
(714) 447-3587



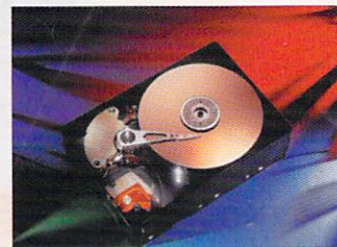
The *Teraclipse* workstation is a powerhouse computer with a number of standard high-quality features. Its stock configuration includes a 166 MHz Alpha motherboard and CPU with 256K cache; 17-inch flat screen, low radiation, on-screen programmable monitor; 4x SCSI Toshiba CD-ROM; 64-bit 2MB graphic card; 540MB removable IDE hard drive; Windows NT 3.5 Workstation software installed; a 1.44 floppy drive; 101 enhanced-key keyboard with dust cover; three-button mouse; and a full tower case with dual fans and 5-5.25-inch and 3-3.5-inch expansion bays. In actual applica-

tions, users can expect the 166 MHz Teraclipse to be three times faster than a Pentium 90. BVC has announced that the Teraclipse will be upgradable to 233MHz at the end of May for an additional \$300. Custom configurations such as extra RAM, hard drives, networking solutions and 3D accelerators are also available.

**FOR INFORMATION CIRCLE 15**

### Come Take a Drive

Product: Atlas Series  
Description: Disk drives  
Price: Starting at \$703  
Availability: Immediate  
Quantum  
500 McCarthy Blvd.  
Milpitas, CA 95035  
(408) 894-4000



Quantum's *Atlas Series* 3.5-inch, 7,200-rpm disk drives are designed to meet the demanding performance and reliability requirements of high-performance, high-capacity applications. Acoustic performance and low operating power make these drives a superb choice for high-end desktop applications. Optimized performance features include a custom SCSI controller, a sophisticated command recording algorithm, an embedded quadrature servo system and a large multitask segmented cache. A SCSI II interface means the drives are Flyer- and Toaster for Windows-compatible. The Atlas drives are equally well-suited for real-time multimedia applications. Their quadrature servo system continuously compensates for temperature changes, eliminating the need for thermal recalibrations that interrupt A/V data streams. And Quantum



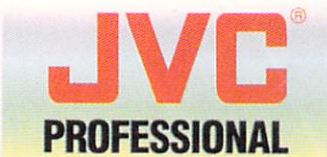
drives have the highest data integrity in the industry.

**FOR INFORMATION CIRCLE 16**

### A Better Image

Product: KY-27CU  
Description: Video camera  
Price: Under \$10,000  
Availability: July  
JVC Professional  
41 Slater Dr.  
Elmwood Park, NJ 07407  
(201) 794-3900

JVC's prosumer-oriented KY-27CU is full of valuable features for active video producers. Among its many options are 2/3-inch IT CCDs with 380,000 pixels; reduced smear comparable to 2/3-inch FIT; F9 at 2,000 lux sensitivity; 1.0 lux minimum illumination in LoLux; 800 lines



horizontal resolution; fully automatic or manual shooting capability; and a remote control by multicore or triax up to 5,000 ft. A new technological breakthrough in CCD construction allows the KY-27CU to achieve extremely high resolution and unprecedented reduction in smear levels. This camera utilizes JVC's renowned LoLux technology for 1.0 lux sensitivity. Digital control of the processing stages allows full-time Auto White and enhanced ALC modes.

**FOR INFORMATION CIRCLE 17**

### Speed by Storm

Product: Cyberstorm 68060  
Description: Accelerator card  
Price: \$1,349  
Availability: June  
phase 5 digital products/Softwood Inc.  
7776 Point Parkway West  
Phoenix, AZ 85076  
(602) 431-1461  
Available for Amiga 4000 owners is the *Cyberstorm 68060* accelerator system from phase 5 digital products. The fully modular system

comes with a Cyberstorm carrier module, CPU module and a memory module and has room for additional expansion modules. Cyberstorm's unique design allows

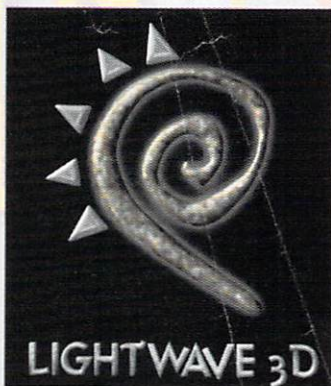


different CPU speed grades to be used and upgraded without changing the system or memory configurations. With this card, 3D rendering times are significantly increased. Cyberstorm also features fast access to the Amiga graphic memory and the Zorro-III bus accelerates the display speed of graphic expansion boards. The CPU modules feature a CPU direct connector for option expansions such as cache memory boards. Cyberstorm 68060 comes with a complete software package containing various utilities and a library.

**FOR INFORMATION CIRCLE 18**

### Making Waves

Product: LightWave 3D 4.0  
Description: Animation software  
Price: \$995  
Availability: Immediate  
NewTek Inc.  
1200 SW Executive Dr.  
Topeka, KS 66615  
(800) 847-6111



NewTek's photorealistic animation software, LightWave 3D 4.0, has been upgraded and moved to other platforms. Formerly dominating the animation industry on the

Amiga only, the 3D software can now be used with Windows, Windows NT and SGI. One of the most significant features of LightWave 4.0 is the new plug-in design that allows third-party developers to make plug-ins providing increased functionality, including gravity, particle systems and image processors. Major changes have been made in Layout. The objects panel allows a user to make an object unaffected by fog. The camera panel now has custom pixel aspects. With LightWave's new surface samples a user can render small tests of a surface as many times as necessary. Modeler has also received a few enhancements, including additional undo/redo layers.

**FOR INFORMATION CIRCLE 5**

### Revolutionizing Video

Product: DVCPRO  
Description: Video system  
Price: Not available  
Availability: Immediate  
Panasonic  
One Panasonic Way  
Secaucus, NJ 07094  
(201) 392-6925



DVCPRO is an innovative system that any videographer will welcome to their workstation. Created with VTR and advanced digital technology, DVCPRO compresses component digital signals by a factor of five to provide maximum recording times of 60 or 120 minutes. The compact and efficient system consists of a EFP camera/recorder, a DVCPRO ENG camera/recorder with 1/2-inch FIT 3CCD, a studio VTR for editing, and a field edit package including dual audio/video display monitors, a super portable VTR (convenient for recording and viewing) and a compact

camera/recorder. DVCPRO provides laptop editing in which footage can be edited on the spot. What started as the idea of combining a compression standard, a family of cassettes, a chipset mechanism and format is now a complete video system ideal for the single-person production company.

**FOR INFORMATION CIRCLE 19**

### Dinosaur Power

Product: Raptor 3  
Description: Windows NT workstation  
Price: Starting at \$7,500  
Availability: Immediate  
DeskStation Technology  
13256 West 98th St.  
Lenexa, KS 66215  
(913) 599-1900



LightWave users who need increased rendering speed will want to check out *Raptor 3* from DeskStation Technology. This high-performance Windows workstation was built for speed. The motherboard delivers I/O capability with 4 PCI slots, 2 ISA slots and twin SCSI ports. This configuration doubles hard disk performance. Since maximum memory capacity is desired, 8 SIMM sockets provide room for 1GB of main memory. Raptor 3 is processor-independent, so various microprocessors can be used, including RISC and Alpha. This flexibility allows users to customize their workstation according to their needs, and upgrading is simply a matter of changing an add-in card. Currently available is the Raptor 3 633, which is based on MIPS R4600 running at 133MHz, and the Raptor 3 5/300, based on an Alpha 21164 running at 300MHz.



LightWave 3D™

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**FOR INFORMATION CIRCLE 112**



# TOASTER POST

## ToasterPaint Timesavers

Tricks for Freezing Frames and Using RubThru

by Burt Wilson



**N**ecessity, they say, is the mother of invention. Well, whoever "they" are, they got it right! I've discovered a number of things through doing post-production with the Toaster that I would not have come across had I not been challenged by the project I was working on. I'm sure it's been the same with you, too.

I do a lot of freezing of frames in my work, and I quickly found that I could cut out a whole step and get a better product if I just skipped the motion removal button in the Setup screen, went straight into ToasterPaint and grabbed one frame from the DV bus my frozen image was in.

it up as a background image in the CG is click on the paint icon in the CG's Pallet control panel. Your image will automatically be loaded in.

Another thing about freezing an image. Try to think ahead in your pre-production planning as to which scenes you'll want to freeze and then be sure to let your talent and your cameraperson know ahead of time that the end of a scene is going to be a freeze. Then they can reduce their motion so you can get a better freeze.

Grabbing a single frame degrades the image greatly, so it's always best to grab a four-frame freeze. It matches better, too, when cutting it into your edit.



To put a shot of a food dish inside an area that is not perfectly square, first draw a box on your field monitor where that area is and shoot the dish inside that box.



Next, in post-production, put a freeze of the dish in the swap screen and the frame it's going into on the main screen. Be sure the area in the main screen is all one solid color.



Finally, hit RubThru and the fill-all button and click your cursor inside the black area. The dish will be neatly rubbed-through in place.

Previously I would freeze the frame, go to the Setup screen, remove the motion, and then save it as a frame-store before I worked on it in ToasterPaint and/or ToasterCG. Going straight to ToasterPaint saves a small amount of time, but when you add it up in a year's worth of production, it's a big savings.

You should also know that repeatedly saving a frame-store in ToasterPaint really degrades the image. You can actually see it fall apart before your eyes. That's why you should always save a work in progress as an RGB file in ToasterPaint. Your image will then retain its integrity.

I told this to someone recently and he asked, "Well then, how do you pull up the image as a background in the CG if it isn't saved as a frame-store?" The answer is to change the path at the top of the requester. Simply clear the path and type in the drive your Toaster is loaded into followed by a colon. Then type in Toaster/3D/Images and click on OK. Your RGB files will now appear, ready to be loaded as a background.

On the other hand, if your image was on the screen in ToasterPaint when you exited, all you have to do to bring

Here's a trick that helps to preserve the integrity of your image and still gets a great freeze. Frequently, a four-frame capture has only a section or two still moving when a freeze is taken of it. The standard response is to reduce it to a single frame, but, as we know, the image will be degraded.

Try this instead. Go into ToasterPaint and grab a four-frame freeze, and then hit your (j) button to send it to the Swap Screen area. Now grab a one-frame freeze and hit (j) again to bring the four-frame freeze to the front with the one-frame freeze behind it in the Swap Screen.

Now for the magic. Click on RubThru in the Mode menu and then click on the smallest square brush, the straight-line tool and the fill button. Go to the areas on your four-frame freeze that are still moving and, holding down the left mouse button, draw a tight loop around any vibrating area in your picture. Release the mouse and click on the right mouse button and the motionless image from the one-frame freeze will replace the moving image.



There! You removed the motion, but you also saved the overall integrity of the frame. You'll like the results much better than what you'd have if you had only gone with the one-frame grab.

This technique works particularly well on scenes that have pockets of vibration in them due to the high contrast of adjacent images. For example, I

plate is bordered by a rope (it's a Western steakhouse) and is therefore irregular, meaning I can't just texture-map something inside of it.

The solution is to first leave the inside of the template all one color, such as black. Then, before I go out to shoot the different dishes, I draw an outline of the template on my field

the frame has to be in exactly the same place in each scene.

One way to do this is to put the scene with the frame in the Swap Screen and then cut it out carefully with the cut-out tool. Holding it exactly in place directly over the frame it was cut from, hit the (j) button to bring up the new scene and then,

**"When it comes to real-world post-production with the Toaster, I use RubThru more than any other screen mode."**

do a lot of work shooting inside of computers, and frequently, when I freeze a scene, some metal part will be oscillating while the rest of the freeze will be perfect. I use the above RubThru technique to take out the vibration and preserve the integrity of the scene.

Believe it or not, when it comes to real-world post-production with the Toaster, I use RubThru more than any other screen mode in ToasterPaint. It's a great tool, and you should really get to know all its uses. For example, I have made a template for one of my restaurant clients in which I insert pictures of different dishes. The thing is, the tem-

monitor and make sure the food shot fits inside that window.

Back at the studio, I get a freeze of the food, load it into the Swap Screen and load my template in front of it. Now for the magic. All I have to do is go into the RubThru mode, click on the Fill-all tool and click the cursor inside the black area. Lo! the tempting dish will fill the desired space.

Another real-world task I'm constantly faced with is editing together a succession of still-scenes in which a single frame with a picture inside of it stays in the same place through all the successive dissolves. In this situation,

without moving the mouse, click the frame down in the new scene.

This method is fraught with problems—from getting the wrong placement to slightly moving the mouse. OK, you ask, why didn't you try clicking on coordinates in the Preferences mode and then clicking the frame down by the numbers? OK, yourself. You try it!

The easiest way, I think, is to get a medium point on a square brush and click on RubThru. Then place the cursor at the upper-left corner of your original frame. Holding it in place, hit the (j) button to bring up your new scene. Then, draw out a small rectangle to the right

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that used to take many steps in  
ToasterPaint can now be done in  
one fell swoop... Roll over,  
ToasterPaint."*  
Digital Video Magazine  
March 1995

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- Underscan and Onion Skin display modes
- Multicolor/multidirectional gradients
- Same functionality for all Toaster systems

## ToasterPaint

- Painting/interface limited to Amiga display
- Time consuming rendering required for output
- Limited or no keying over live video
- One level Undo
- Limited text rotation and effects
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- Limited display options
- Two-color gradients, horizontal or vertical
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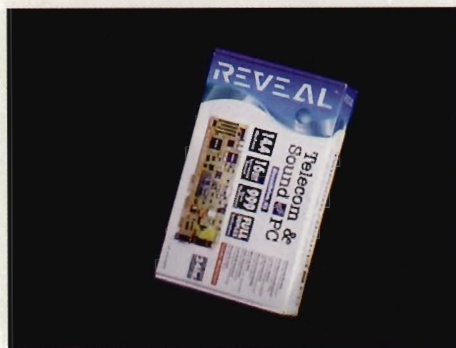
Fax: 510.638.6453



\* Limited time offer. Comparison based on specifications as of 3/95. Screen shot provided by A. Kashinn, Blue Rose Studio, WI. Alpha Paint is a trademark of InnoVision Technology. Trademarks are the property of their respective holders.



## TOASTER POST



To show an X-ray of a bag with a product box inside, first set up the box shot in your studio and use a half-dissolve to position it correctly in place "inside" the bag.

and down. That portion of the frame will now show through.

Now hit (j) and go back to your original scene with the frame and place the cursor in the lower-right corner. Hit (j) again and draw out a rectangle up and to the left, right into the very corner of the frame you previously rubbed through. You now have an exact replica of your frame in the exact same place it should be in the new scene.



Next, TxMap (in the Mode menu) the close-up of the bag over the product box using approximately a 30% transparency.



Finally, to restore the rest of the scene to 100% color, use RubThru, the straight-line tool and the fill tool to fill in the areas around the bag that are not supposed to be transparent.

Swap Screen, and loaded my close-up of the bag over it. Now comes the fun.

I clicked on my cut-out tool and hit (w) to get a brush of the full screen of my bag scene close-up. I saved it as a Swap Brush and clicked on TxMap in the Mode menu. Next, I went into the Transparency and Warping drawer and set the two transparency sliders to approximately a 30% transparency, dragging the sliders down about one-third from the top.

Returning to the main control panel, I hit (j) to bring up my frame of the product box and clicked on the Fill tool. Then I texture-mapped my brush over the entire screen, beginning in the upper-left corner and dragging it down to the lower-right corner.

The result is the bag becomes transparent and we can see the product box inside, as if we were X-raying the bag. The problem is the rest of the frame-store has become transparent, too. So now I go back into Transparency and Warping and set the sliders back to the top—no transparency—and then go back to the main control panel and click on RubThru, the straight-line tool and the fill tool.

Now I carefully draw a fill area over everything outside of the bag area. This brings through the original frame-store into these areas, eliminating the transparent look it previously held.

The project is now finished, and all I have to do to complete the effect is dissolve from a framestore of the close-up of the bag to a framestore with the product box transparent inside the bag. I hope these real-world tips are helpful. I look forward to hearing from you, too. Write to me in care of VTU. More next month!

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FOR INFORMATION CIRCLE 144



# DEAR JOHN

## Going to the Movies

### Transferring LightWave Animations to 35mm Film

by John Gross



**T**his month we have both some old business and some new. Let's start with the old...

**Q:** I have two questions regarding my "Reader Feedback" letter published in your March '95 column. The letter addressed one method for freezing a time code-specific video frame.

1. Did reader Betty Willis of Ft. Worth have to wait until the March issue, or was the information sent to her right after you received it? I am interested in knowing how much time elapses between readers' questions and when they receive an answer through "feedback."

2. Was there some reason that I was not given credit for the information printed in your column?

Don Townsend  
Colorado Media Associates  
Boulder, CO

*"You can build*

*your scenes at 24*

*frames per second and*

*play back wireframe*

*previews at the same*

*speed to get a feel for*

*your animation."*

**A:** 1. For that particular case, the information was not sent, but rather printed in the magazine. Whenever possible, I try to send out information to readers when a self-addressed, stamped envelope is included, but even then it can take a bit of time. Most often, however, questions and answers are printed only in the pages of VTU (as you know now, since your letter was sent on Feb. 10). For the fastest response to a question, send e-mail. Might I

suggest that any readers looking for quick feedback from other readers allow me to print their address so others could respond directly?

2. Yes, there was a reason you were not given credit: I screwed up. I just went back and read my original column off of my hard drive, and sure enough, no credit. (And to think I was going to blame the editorial staff!) I sincerely apologize. Let it be known that the freezing-a-specific-frame-of-video tip was sent in by Don Townsend of CMA in Boulder, Colo.

Dear John,

In the April '95 issue of VTU, a reader asked how to achieve loopability with fractal displacement maps. I was interested in the same thing and came up with a different solution than the one you provided.

First, I created a sphere. I used a level 4 tessellated sphere so the deformation would be smooth. I assigned the desired fractal displacement map to the object and selected World Coordinates. I then moved the sphere off of the 0,0,0 axis and parented it to a null object. The null object remained at 0,0,0. I parented the camera to the null object as well.

Rotating the null object 360 degrees over the number of frames required resulted in a loopable anim of a nicely amorphous glob.

Jay Watson  
via Fax

**John says:** Great idea...and well-thought-out! And now, onto the new business...

**Q:** I have recently been granted the lifelong wish of being named director of special effects on an upcoming movie. This film is sci-fi and my duties will primarily revolve around creating and coordinating 3D animation. I have three years of experience on LightWave, but it is strictly video experience.

I have several questions that pertain to generating LightWave animations for transfer to 35mm film. They are:

1. Should I plan on 24 frames per second (fps)? How will that affect the timing of my video previews?
2. What resolution is necessary for 35mm film? (This will be projected.)
3. Are there special aliasing considerations?
4. Should I field render?
5. What file format should I use?
6. Who does film transfers?

If you can answer any of these questions I would be very grateful.

Desperate in Detroit

**A:** OK, Desperate. Here goes:

1. Yes, you should plan on 24 fps, because your client will! This means that you have to start thinking in terms of 24 frames in a second instead of 30. If you want something to last for five seconds on film, plan for 120 frames instead of 150. The great thing is you get to render less! You can plan for this in a couple of ways.

You can build your scenes at 24 fps and play back wireframe previews at the same speed to get a feel for your animation. The problem with this is that if you lay video tests down, you have to compensate for the 24 fps of film versus the 30 fps of video. You can either record your animation to a device that allows you to



play it back at the correct speed (which you could then record) or you can build your scenes at 30 fps for all of the video tests. Once you get final approval and you are ready to go to film, you can scale your scenes down to 24 fps with the Scale All Keys function found in the Scene panel (Figure 1). If you simply scale all frames of your animation by 0.8, your scene will automatically convert to 24 fps. You can go back to 30 fps by scaling all keys by 1.25. Remember that this function changes all envelopes and motions in your scene. If you are using LightWave 4.0, make sure to also set your Frames Per Second setting (Scene panel) to 24 so any texture velocities will look the same. If you have earlier versions, you will have to adjust any velocities yourself.

One last thing to check for is any image sequence offsets. These will not be affected by your scaling function, and may not match up with intended object motion or dissolves.

2. The resolution needed depends on the company doing the film transfer and what they require. It also depends on how it is going to be projected: Flat? Cinemascope? Generally, resolutions for film are referred to as 2K or 4K. A common flat 2K resolution is 1828x1332. The 4K version is doubled to 3656x2664. Make sure to use square pixels. If you subscribe to *LIGHTWAVEPRO*, check out the May issue's "Digital Cinematography" column for more in-depth coverage of film sizes.

3. Yes, there are antialiasing considerations—you should antialias. Preferably at the highest level possible, depending on rendering time.

4. No, you should not use Field Rendering. This is intended primarily for video. Field rendered images seen on film look too much like video.

5. File format, like resolution, depends on the company doing the transfer. Cineon is a popular format, but the company may be able to take many different breeds.

6. You're going to have to do a little research on who does film transfers in your area. I don't know Detroit that well (actually, at all). Here in Los Angeles, there are many companies, including the Post Group, OCS and Cinesite.

**Q:** I am writing to request some technical advice from someone at your organization regarding the Toaster and recording and playing back animation from and to LightWave. I am a novice Toaster user (just got the thing up and running last October). I have an Amiga 2000 with a GVP '040 accelerator card installed, 12MB of RAM and 2MB of chip RAM, running Toaster 3.1. I realize



Figure 1

the ideal solution is the Video Toaster Flyer, a PAR or VLab Motion, but I am afraid the cash is just not there right now for any of these. Can you offer the poor man's animation solution?

I would love to do at least five to eight seconds of flying logos and other relatively simple, non-memory-intensive LightWave animations for clients, but really do not have a clue as to how to proceed.

One other thing I would like to ask is how to use the "transporter" effect on the Switcher. It would be invaluable for some wedding effects.

Jon R. Williams  
Walnut Creek, CA

**A:** There are a few things I can think of. One is to convert your animations to a lower resolution and play them back off of your Amiga, using your Toaster's genlock to record them to video. Rend24 is a nice program for doing this and can be found online. ImageF/X or another image-processing program could also handle the conversion process. This, of course, is not the most ideal situation, as you will not get the nice look of a 24 bit-animation playing back.

My second suggestion is to find a low-cost, 3/4-inch single-frame record deck and a single-frame controller that will work with your Toaster. A good solution for the controller is the Personal Single Frame Controller. Chances are this isn't an option for you, which leads me to my third thought...

You could work out a deal with a company that has the equipment you need. Agree to provide the company

with free animations or other work in exchange for the use of their equipment.

If all else fails, I have known people who have actually recorded a frame (or so) at a time to their VCR. While not the easiest thing in the world to do, it may work.

As far as using the transporter effect, it is really quite simple. Have the people you are shooting stand very still as you pull the T-bar down while this effect is selected. Once the bar is all the way down, you will have the people frozen on the video. Have them move out of shot, then pull the T-bar up and they will transport out. To beam them back, move the T-bar down on the empty room, have them re-enter, then push the bar back up. Simple!

VTU

*John Gross is a supervising animator for Amblin Imaging, currently working on effects for Star Trek: Voyager. He is also the editor of LIGHTWAVEPRO newsletter. E-mail him at jgross@net-com.com.*

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# SOUND REASONING

## Finer Points of Audio Levels

### VU Meters and Level Matching

by Cliff Roth



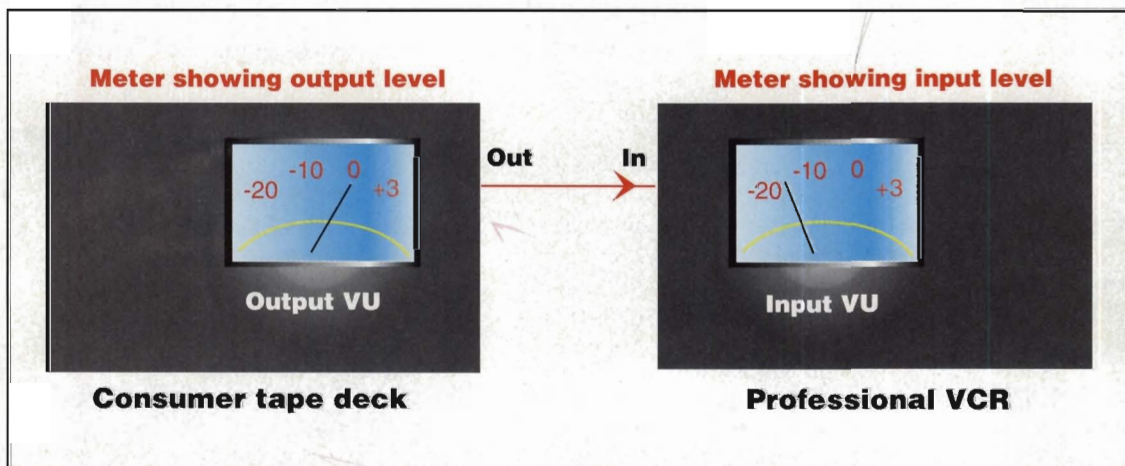
**C**ompared to the main picture adjustments—focus, zoom, iris, gain and white balance—the main audio adjustment, level, is rather simple. But consider how many videos you've heard that had unintelligible audio—too low, so high it was distorted—or annoying audio with level shifts that made you want to constantly reach for the remote control (or wish you could). It's clear that, despite surface simplicity, audio level adjustments are mission-critical to successful video production. The complex audio mixes of professional feature film and video productions—sometimes involving as many as 64 separate tracks—represent the sum of many precisely set audio levels.

#### Defining Zero-VU

The VU meter can be one of the most confusing aspects of audio engineering—especially when using mixing consoles and multi-track recorders. The audio signal flows through a chain of equipment. A moderately sophisticated editing system will include a playback VCR, an audio mixing console, outboard effects such as reverb and compressor, and a recording VCR. Each of these machines has its own VU meter, which, under ideal circumstances, should read the same, with peaks occasionally going slightly above the 0-VU point, but generally reading around 0-VU.

During recording, the 0-VU point on a VCR or audio recorder represents the optimum recording level. VU

measurements are essentially the same as decibel measurements, which are a comparative system based on powers of ten. (Mathematically speaking, the number of decibels = 10 x the log of the measured quantity divided by the reference level.) A signal that's 20 decibels stronger than another signal is 100 times greater; a signal that's 1000 times stronger is 30 dB more; a 10,000 times increase is 40 dB, and



Not all VU meters are calibrated to the same standard. A "0-VU" signal from a consumer tape deck may read as "-14 VU" on a professional deck.

Though consumer camcorders and VCRs often suffer from fully automatic, non-adjustable audio level control, as soon as you step up to the semi-pro realm of video recording equipment, or start working with an audio mixer, levels become adjustable.

In an earlier column we looked at automatic level control (ALC) and the reasons why you're better off adjusting camcorder audio levels manually—it avoids unwanted distortion when people begin speaking, and keeps background ambience levels more consistent. And two issues back we looked at signal-to-noise ratio, and why recording with the least noise means setting the audio level at the highest possible point that doesn't cause distortion.

Now it's time to tackle the other level settings, and answer the almost mystical audio question: What is the meaning of zero-VU on a level meter?

so on. VU and dB measurements are based on a logarithmic scale (similar to the Richter earthquake scale) that helps to condense what would otherwise be a very wide range of numbers.

(The range of human hearing is approximately 10 trillion to one, or 130 dBs. This range has a special name—the dB-SPL scale, for sound pressure level. The 0-dB SPL level is the threshold of perception.)

Don't be thrown off by the concept of "zero," or nothingness. The 0-VU point on the VU meter means zero difference from the optimal recording level. But two questions still remain: What does 0-VU represent when the audio tape is playing back? And what does 0-VU represent on the mixing console meters?

The answer partly depends on whether you're dealing with consumer or professional/industrial equipment. For tape playback, there are two ways of think-



ing about the level meter: First, as an indication of magnetization level recorded on the tape; and second, as an indication of the electrical level coming out of the deck's audio output jacks.

### Calibration Tapes

The procedure used by technicians to calibrate, or "align," professional tape decks is surprisingly simple. It starts with a reference tape, which contains a test tone with the ideal recording level for a particular tape formulation. The tape is played and the playback VU meter is adjusted so it reads 0-VU with this reference signal.

Next, a variable test tone is recorded while the playback level is monitored. The tone is adjusted to a level that results in playback at 0-VU. Finally, the recording VU meter is adjusted to read 0-VU with that input level, which is the same as that of the reference tape.

The above procedure is usually performed with a mid-range test tone whose frequency is typically

recorded at equal VU levels will be within a 6 dB range (since the range between -3 and +3 is 6).

### Line-Level Signals

In practical terms, the significance of VU meter readings is that they correlate with the actual electrical signal level coming out of a VCR's or mixer's output jacks. The higher the level, the higher the VU reading. It may be surprising to learn that not all audio equipment is calibrated to the same standard of what the 0-VU point represents.

Let me now introduce yet another new decibel-related term: dBm. The dBm is a special decibel scale that uses the arbitrary standard of one-milliwatt of power as its reference point. (One watt of power, or 1,000 milliwatts, is equal to 30 dBm.)

Professional audio and video equipment is usually calibrated so the 0-VU point on the level meters is equal to an actual output power of 4 dBm during playback. However, most consumer devices (such as tape decks, hi-

This is one reason why professional studios are inherently less susceptible to hum and other noise pickup than home project studios—the higher signal levels traveling around the patch bays and system wiring have a built-in 14-dB signal-to-noise advantage. (Another reason is the use of three-wire balanced connections with XLR microphone-type connectors, rather than unbalanced phono jacks.)

The term "line level" thus has two different meanings: When talking about consumer equipment, it's -10 dBm; but if it's pro gear, the line level is at +4 dBm. If you've ever plugged a consumer device (such as a CD or cassette deck) into a professional device (such as a professional mixing console) and found that you had to boost the levels way up, you were probably facing this audio level mismatch.

Of course, the ideal audio scenario is having all pro gear, and thus reaping the full benefits of the hardier +4 dBm signal level, which is inherently more resistant to noise from electrical lines, radio interference, motors, etc. (For a given noise level, a higher signal level produces a higher signal-to-noise ratio.)

But realistically, you may need to mix the two types of equipment, and thus risk slightly more noise pickup

## Attenuating patch cables will work in a pinch, but they run the risk of adding more noise, and should be avoided whenever possible.

1,000 Hz. Most audio recorders have optimum performance at this frequency, but that performance tapers off at the extremes of the audio spectrum, which runs from 20 Hz to 20,000 Hz.

With a calibration CD, a professional calibration tape or a test tone generator you can test the frequency response of your own VCRs. Record a series of tones—typically 10 Hz, 20 Hz, 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1000 Hz, 2000 Hz, 5000 Hz, 10,000 Hz, 15,000 Hz and 20,000 Hz—in short 10-second bursts. Record each one at 0-VU on the recording level meter. Then play the test tones back, and observe the output levels. The ideal audio recorder should record and play back all of these frequencies at the exact same level—that's what audio engineers call "flat response." The amount of deviation from this ideal is expressed as the recorder's frequency response measurement. A rating of 50 Hz to 12,000 Hz  $\pm$  3 dB (typical for a VHS linear audio track) indicates that within the stated range, the playback level of all signals

fi VCRs and inexpensive mixers) have VU meters calibrated so that 0-VU is equal to -10 dBm. Plug a consumer tape deck into a professional tape deck and you'll find that when the consumer deck's output VU meters are reading 0-VU on playback, the signal on the recorder side may read around -14-VU at the normal recording level setting.

Note that a tape recorded at 0-VU on a consumer deck has the same magnetization as a tape recorded on a pro deck. The difference is how high the signal level is after it's amplified and traveling through the cables that connect one device in the professional studio to another, such as a tape deck to mixing board. This is a function of internal amplifier adjustments, and obviously it's cheaper to build amplifiers that crank out a less powerful signal.

when the signal is at the lower, consumer-grade -10 dBm level. Special interface boxes are sold by professional audio/video suppliers to convert between these two levels. Examples include the Matchbox (\$189) and Match-Maker (\$260), available from Markertek Video Supply.

### Attenuation Cables

At the opposite end of the price spectrum from pro gear is the more rinky-dink world of camcorders and portable tape recorders that don't even offer any line level inputs. Instead, they have only a microphone input jack (usually a mini-jack).

Video producers working on low budgets may find themselves plugging a cassette or CD signal into a camcorder via the microphone jack, to transfer music, sound effects, voice-overs, or other audio elements. When-

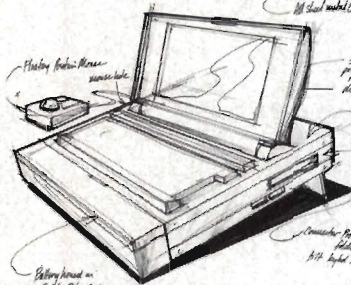
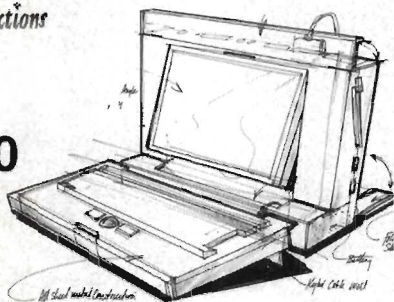




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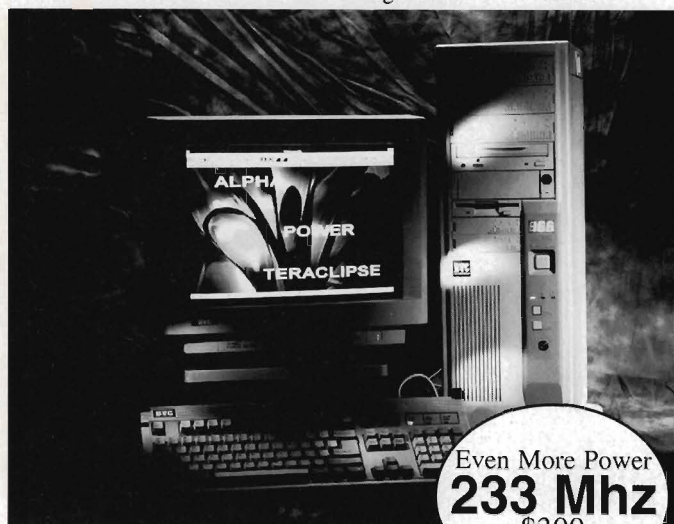
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FOR INFORMATION CIRCLE 109

## SOUND REASONING

ever there is a choice, generally avoid this technique and use the line-level (phono jack) inputs on a camcorder or VCR. But if you want to simultaneously record picture from the camera and sound from a recording, most camcorders under \$3,000 require the use of a microphone jack.

An attenuating patch cord is a convenient level-adjusting device that lets you connect from the headphone jack (or line level output) of a cassette or CD player to the microphone jack of a camcorder. Commonly available at your local Radio Shack or electronics store, the cables usually have red plugs and/or wires to indicate that they severely reduce the signal level (needed to feed a line level signal into a microphone jack).

Unfortunately, attenuating patch cords are prone to add noise to the signal. Touch the cable during use, and you're likely to add a loud buzz.

The cable itself reduces the signal-to-noise ratio of the connection. A microphone-level signal is typically in the ballpark of -60 dBm. That's about 100,000 times weaker than the -10 dBm standard line-level signal found on consumer equipment (for a 0-VU meter reading). The weaker signal means that any noise that may get picked up in the patch cable becomes 100,000 times more significant. It's rather silly to start with a strong line-level signal (such as a CD player), then cut it down drastically to microphone level, only to amplify it again for recording on the audio track of a videotape.

The moral: Attenuating patch cables will work in a pinch, but they run the risk of adding more noise, and should be avoided whenever possible.

If you're shooting with a camcorder indoors and need to simultaneously record sound from a line-level source, and are experiencing problems with hum and noise pick-up using a camcorder's microphone input jack, one solution to consider is making your video recordings using a VCR instead of the camcorder. Plug the line video output from the camcorder into the line video input of the VCR, and plug the line level audio source, such as a CD player, into the line audio inputs on the VCR. If the VCR has hi-fi sound, this setup will also provide even better audio fidelity than a non-hi-fi camcorder, and also frees up the linear audio track for dubbing onto later.

When trying this setup, pay careful attention to the quality of the video signal that makes it to the VCR. Audio cables are not the only cables susceptible to noise pickup. The picture may appear wavy or exhibit other problems from hum and radio noise picked up by the video cable. But that's another story.

VTU

Cliff Roth is the author of "The Low-Budget Video Bible," available from Bookmasters at (800) 247-6553. He teaches video at the School of Visual Arts in New York City, and can be reached via CompuServe at 74774, 1017.

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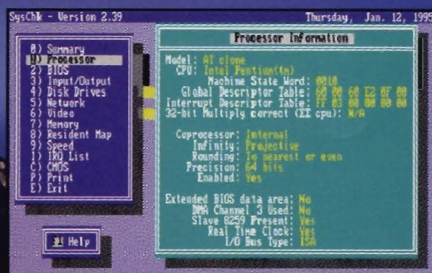


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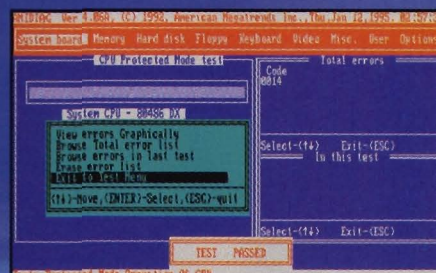
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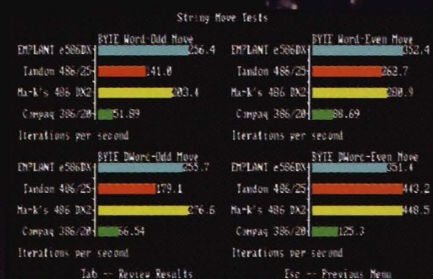
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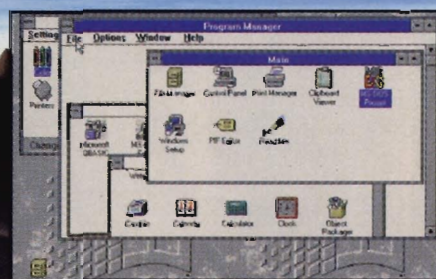
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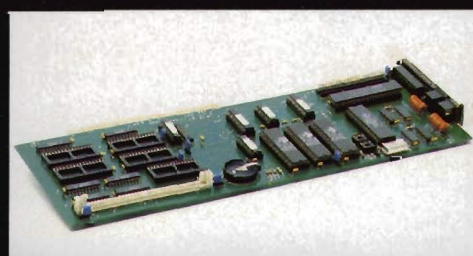
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# SLICES

## The Grand Reorganization

A New Directory the Manual Doesn't Mention

by James Hebert



# W

ith Toaster System 4.0, there's a new structure to the organization of the Video Toaster's files on your hard drive. It was adopted to smooth the confusion of having Video Toaster Flyer software, Toaster software and LightWave software on the Amiga, while also having LightWave software on the PC and SGI.

If you're familiar with more than one platform, you probably have an idea of what I'm referring to. The Amiga, PC and SGI all have their own conventions for directories and file names. Couple those three items with the fact that LightWave ships both with the Toaster and as a standalone product, and you have the formula for chaos.

So here's what we did.

On all platforms, the installation program will create a directory called NewTek. Within this directory, we threw everything else. Simple, isn't it?

Actually, there is more organization underneath. Much more, and I will get to that in a moment.

We've spent time studying both the PC and the SGI. Many software companies with two or more products

employ the use of a single directory that contains all of the products they sell. This relieves a lot of duplication, especially if each of their products utilizes certain files that can be shared. Why not keep one set of these files, in one location, rather than duplicate them all over your hard drive?

We chose to adopt this idea. Therefore, whether you use Toaster System 4.0 on the Amiga or LightWave 3D on the PC, you'll be able

to find the program within the directory called NewTek.

Furthermore, within that directory you'll see everything in one place that you're used to finding in several other places. This includes all of the support graphics that we often refer to as content—i.e., all the stuff that you use to create video graphics and animations: framestores, RGB images, brushes, scenes, objects, and more. The idea was that the NewTek product owner would be able to keep all related files together, in one directory. It made sense, logically.

So, if you are familiar with previous versions of Toaster software, be prepared for something a little different. No longer will you find a Toaster directory, a Projects directory and a framestore directory at the root level of your hard drive. They were moved into the NewTek directory!

These locations were previously hard-wired into the Toaster software, meaning that if you moved them or renamed them, the Toaster software did not know where to find them anymore. While it made programming the Toaster simpler, it also enforced a strict rule on users of the product.

The new organization also supports LightWave 3D much more effectively, since the directory structure from one computer mimics that of any other. Moving scenes, along with their related items, will be that much easier since you will not have to translate lengthy pathnames from one system to another.

Here's the layout.

**NewTek** (main directory)

**ARexx** (directory, contains ARexx scripts for all Toaster programs)

**Brushes** (directory, contains all brushes)

**CG** (directory, contains all CG pages, books, and any textfiles)

**Effects** (directory, contains Switcher effects and control croutons)

**Envelopes** (directory, contains LW envelopes)

**Framestore** (directory, contains Switcher framestore images)

**Images** (directory, contains all RGB images)

**Motions** (directory, contains LW motion paths)

**Objects** (directory, contains LW objects)

**Previews** (directory, contains LW wireframe preview animations)

**Programs** (directory, contains all Toaster programs and support directories)

**Projects** (directory, contains all Toaster and Flyer projects)

**PSFonts** (directory, contains all fonts used by CG, Paint and Modeler)

**Scenes** (directory, contains LW scene files)

**Surfaces** (directory, contains LW surface descriptions)

Notice that all forms of graphics (brushes, RGB images, framestores, etc.) can be found easily, at the first level, within the master **NewTek** directory. This allows you to get around quickly and easily.

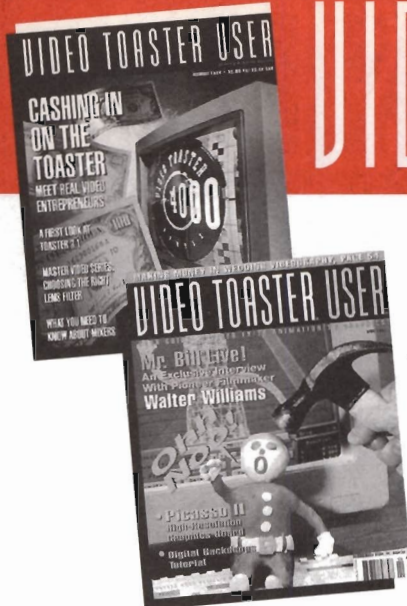
But what's hidden under the surface?

Within several of these directories you'll find additional files that may be of use to you. If you are a developer or if you do your own programming using ARexx, you'll want to explore two locations: the **ARexx** directory, to study the shortcut scripts NewTek has included, and the **Documentation** directory (inside the **Programs** directory), to find out what else System 4.0 software has to offer.

Within the **ARexx** directory you'll find directories that hold the scripts for CG, the editor, LightWave, Modeler, Switcher and ToasterPaint. These are scripts only.

"If you are familiar  
with previous versions  
of Toaster software, be  
prepared for something  
a little different."





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The actual ARexx documents are within the Programs directory in a drawer named Documentation. Here you'll find the ARexx files for ToasterCG, the editor, the Genlock utility, LightWave 3D, LightWave Modeler, the ReadPICT and WritePICT utilities, Switcher, ToasterPaint, and the TloadPicture, Toast100 and ToastNSerial utilities.

Located in the **Programs** directory are the support directories. There is one for each of the Toaster's programs. Each directory contains files that support the application. For example, within **Hiip\_Support** you'll find all of the loaders and savers that NewTek has licensed from Elastic Reality. These allow Toaster programs to work with files from other computers (including BMP, IFF, JPEG, PICT, SGI, Targa, Tiff and more). Take a look within this directory if you want to know more.

Did you know that you can customize the framestore image that loads into DV1 on the main output whenever the Toaster/Flyer starts up? Within the **Programs** directory, look at the **Switcher\_Support** directory. There you'll find yet another directory, called **Start-up\_Frames**. There are two files here: **VILogo** and **VT4000**.

For owners of the original Video Toaster card, any image in this directory that has the name "VILogo" will be displayed on the main output when the system starts up.

For owners of the Video Toaster 4000 card, any image in this directory that has the name "VT4000" will be displayed on the main output when the system starts up. Now you can use your own logo as the Toaster Startup screen.

LightWave users will be interested to know that the configuration files for Layout and Modeler reside in **Programs**, in the **LightWave\_Support** directory. These files configure the directory locations for LightWave 3D. Note that this directory also contains the **ModelerMacroList**.

If you use ToasterPaint a great deal, you might be interested in this tidbit. Again, within **Programs**, there is a **ToasterPaint-Support** directory, with a file called **UserPalette.cfg**. This file contains the coded description of the 24 color wells that make up the user-definable palette. You cannot edit this file, so don't try! However, if you think you might like to create multiple palettes (one for flesh tones, one for false colors, one for shades of blue, whatever), then you might be interested in renaming this file **DefaultPalette.cfg**. Afterward, start ToasterPaint and create a new palette, say of flesh tones. Since ToasterPaint creates and updates the file **UserPalette.cfg** every time you change a color in the palette, you've just created a new palette file. Go back into the directo-

ry and rename this as **FleshPalette.cfg**. The next time you want to use these colors in paint, name the file **UserPalette.cfg** and start ToasterPaint. (Perhaps some enterprising *Video Toaster User* reader could invent a way to do this while you're still in ToasterPaint and save a few steps. On your marks. Get set. Hit the ARexx documentation!)

Don't forget that ToasterPaint still looks to a file called **keyboard.txt**, also within its **ToasterPaint\_Support** directory, for the description of how each key on the keyboard responds. Only a few keyboard commands have been changed and added to ToasterPaint, so you won't have much to "unlearn" (or "relearn"). If you want to modify this file, make sure to keep the original around just in case you make an error.

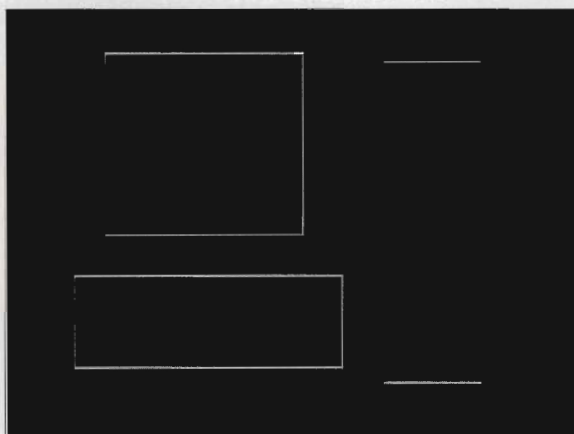
**Programs** contains other goodies. If you own an Amiga 3000, you've probably noticed that adding a Video Toaster card to the machine causes your Workbench screen colors to change. Usually they turn kind of purplish. Run the **Patch3000** utility program to fix this. (It's a small utility that corrects the color change, that's all.) In fact, if you want **Patch3000** to run automatically every time your system starts up, drag it into the **WBStartup** drawer on the Workbench. Then you no longer need to concern yourself with it.

Now, if you don't use all of the Toaster software, you may be wondering what items you can remove in order to save drive space. This is a controversial topic, since Toaster purists like myself draw back aghast at the concept of removing precious Toaster files. However, I have actually heard that Toaster users have lives of their own, and that they routinely modify things. So here are some tips.

First, when installing the software, you have the option of including or excluding certain files. This is your first opportunity to decide whether you want everything, or just a few things. Just in case you installed everything, here's a list of things you can remove safely.

- If you have no interest in programming with ARexx, locate the **Documentation** directory and remove all of the files with the word "ARexx" in them. This will free up only a little space, but every little bit counts.
- If you do not use LightWave 3D, locate the **Programs** directory and remove the subdirectories called **Envelopes**, **Motions**, **Objects**, **Previews**, **Scenes** and **Surfaces**. This will free up 27MB of space.
- If you do not use the color fonts in ToasterCG, locate and remove the **Colorfonts** directory for a savings of 33MB.

continued on page 72



This CG interface has several boxes onscreen that contain imported JPEG graphics. Notice that they look just like regular boxes or brushes.



This image shows the boxes when rendered. The upper-left box was loaded with aspect ratio preserved. The other two were rendered without aspect ratio.



# CYBERSPACE

## Explosions and Lightning

Utilities for Your 3D Arsenal

by Geoffrey Williams



**O**ther than the Video Toaster, I think the main reason I still hang onto my Amiga is for its animation capabilities. Most programs on the Amiga that generate single images can also create a series of frames, with changes over time. This allows for the designing of many impressive sequences.

An excellent example of this type of program is Avi Pilosof's Phenomena. Pilosof set out to create a utility that would generate animated lightning sequences that could be used in 3D animations. He sought help from a mathematics professor, and they eventually worked out a method. Once they had accomplished this, he also wanted to produce an explosion effect. After struggling with it and making little progress, he decided to try and design a rising

color, and the amount of forking using a slider from 1 to 25. You then type in a random seed number and the number of frames that you want generated for your animation sequence. For the explosion, you can select the amount of vertical squeeze (how wide compared to how tall the explosion is) and how violent the explosion will be, with a setting from 1 to 15.

Once you have set up your animation, you have a choice of either PAL or NTSC high or low resolutions. You can then choose a basename from the file requester. There is a catch, though, in that the first release is a little bit crippled and will generate and display the frames but not actually save them. The program is still usable by those with a little savvy and patience, but after seeing it, I think you will want to

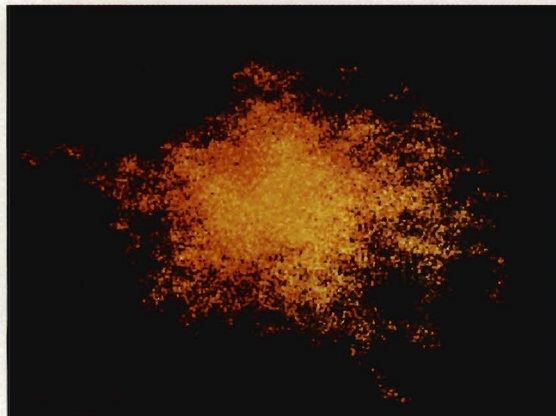
pay the very modest shareware fee to get the fully enabled version. The new version with smoke and alpha channels may be available by the time you read this.

The DL animation format is used on the PC, but if you ever need to create a DL-format animation on your Amiga, John Bicker's MakeDL will do the trick. It may not be the easiest utility to use in the

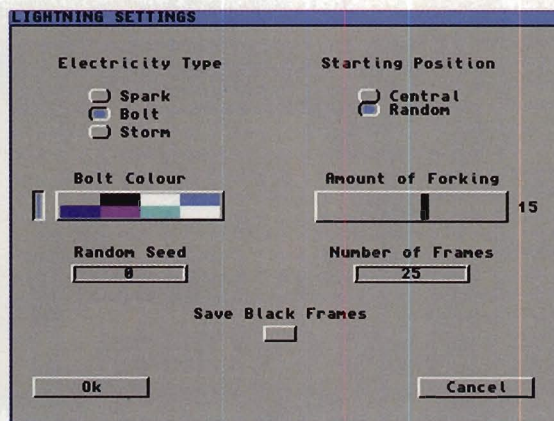
world, but it is the only one I have found that works well for this purpose. It is much like the old MakeAnim, which required a script file containing a list of the frames to compile. Animations in this format are 320x200 maximum at 18 bits.

Also by the same author is TapAVI, which plays back PC-format AVI (audio visual) animations. It supports CRAM(8), CRAM(16) and RGB(8), as well as the PCM(8) and PCM(16) audio formats. These animation files contain both audio and video, much like an MPEG file. TapAVI works as both a Workbench program and under the CLI. Unlike other players for the Amiga, it plays the animations immediately, without a lot of pre-processing, and supports their audio elements.

Many animation players on the Amiga that play back PC-format animations derive their code from something called XAnim. This venerable PC program has the ability to play numerous animation formats. It has been a



Creating animated explosions is a snap with Phenomena.



Controls are adjusted over the animated lightning bolts in the Control Panel.

smoke effect. He was able to accomplish this quite effectively, and then realized that with slight modifications this algorithm could also be used to generate an explosion.

### Phenomenal Lightning

The initial release of Phenomena contains the lightning and explosion effects. Pilosof plans to include the smoke effect as soon as an alpha channel can be added to make compositing the smoke with other scenes much easier. Both the lightning and explosions are quite effective, and they could easily be used in both 3D work and traditional animations or title sequences.

You choose which effect you want from the main control panel. For lightning, the choices for electricity type are spark, bolt or storm. The starting position can be random or centralized. You can choose the bolt



bit of a wait, but XAnim has finally been ported over to the Amiga. Originally by Mark Podlipiec with the Amiga port by Terje Pedersen, it has gone through several versions since it was first released not that long ago, and the current upgrade, XAnim6, is quite impressive.

XAnim6 can play back quite a large number of animation formats. In the version I have, there is support for FLI and FLC, IFF (Anim 3, Anim 5, Anim 7, color support up to HAM8 and color cycling support), the picture formats GIF 87a and 89a (including the GIF 89a animation extension), Amiga MovieSetter (the GoldDisk animation program), Utah Raster Toolkit RLE images and anims, AVI animations (IBM Ultimotion ULTI depth 16, JPEG, Motion JPEG, Intergraph JPEG, Microsoft Video 1, SuperMac Cinepak, Uncompressed RGB8 and run-length encoded RLE8), Quicktime Animations (uncompressed depth 4,8,16,24,24+ and GRAY 4,8, Apple Graphics RLE depth 1,8,16 and 24 and GRAY 8, Apple Animation SMC depth 8 and

GRAY, Apple Video RPZA depth 16, SuperMac Cinepak CVID depth 24 and GRAY 8, YUV2 depth 24, and Photo JPEG depth 8 and 24. XAnim also includes support for Quicktime animations with multiple video tracks, animations with multiple codecs, and single-fork and separate .rsrc and .data forks), JFIF images, and MPEG animations (currently only Type I Frames are displayed).

In addition, WAV audio files may have their sound added to any animation type that doesn't already have audio, by specifying the WAV file after the animation file on the command line. Currently, only the PCM audio codec is supported. XAnim provides various options that allow the user to alter colormaps, playback speeds and looping modes, and can provide on-the-fly scaling of animations with the mouse.

XAnim is much more stable under Workbench 3.0. It will work under 2.0, but is more prone to crashing. If you are not using a 4000, it is also better to have a graphics display card that

can emulate the Workbench, as this allows you to display animations in full color.

I have not had a chance to really play with this software, but I have read reports from others who have successfully run it on a variety of configurations. What it lacks in an interface it makes up for in versatility. Nothing else even comes close.

For converting video frames to an animation, the emerging standard is MPEG, and once decompression cards become cheap and plentiful, it should supplant Quicktime as the video playback format of choice. There is simply no comparison in quality.

If you want to make your own MPEG animations now (without sound; more about that next month), there is a fairly simple way if you own ImageFX. I have plugged it before, but I'll do it again—ImageFX is a great program, and you will be much happier having it in your toolkit. Michael van Elst wrote BuildMPEG to act as a standard ImageFX saver. It uses a modified version of the Portable Video

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## CYBERSPACE

Research Groups MPEG codec. It is definitely worth hunting down if you want to play around with the MPEG format.

### No Hardware

If you are interested in creating video sequences that are playable without additional hardware, here are a few tips to consider. Like the standard Anim format on the Amiga, both Video for Windows and Quicktime do compression that only records the changes between frames. Because each and every frame is almost completely different in video, it is very demanding. If you play any piece of video, you'll notice the colors of individual pixels change from frame to frame, even in static backgrounds where nothing should be moving.

### Quick Video Playback

One way to get much faster video playback in any format is to use image processing to reduce the amount of change. If any part of the image does not move, go into an image-processing program and make a mask for that area. Batch process all of the subsequent frames so that the same area from the first frame is stamped-down into that area. It is important to do a soft blend around the edges of the stamped-down area so that it blends in better with the other frames. This area will now have no changes from frame to frame, and thus the size of the video will be dramatically decreased, as will the playback speed.

I have used this technique on talking head videos in which the background was locked in, and I even made a traveling matte to lock in the sky in a video of a jet taking off. The original videos played at a very slow rate, but they came up to full speed after the image processing. They also looked a lot crisper, as I was able to remove a lot of the graininess.

Of course, for this to work, you need video where you don't have the camera panning across a scene, as everything will be moving in this case and there will be no way to do an effective mask unless you are panning across a surface with a lot of uniformity, such as the sky in my airplane example above.

Size also plays a role in playback speed. The smaller the window, the faster the playback. With programs such as ImageFX, where an entire animation can be scaled, it is possible to render out the largest size you want, try it to see how well it plays back, and render it out at a smaller size as well. You could even put out a product that uses a smaller window when it detects a slower processor.

The Amiga has the advantage of being able to convert a full-color video clip into AGA format, which plays back quite fast in a window. With masking of the non-moving areas, you can get some very impressive speed on even a moderately accelerated system.

As usual, if you want the utilities mentioned in this column and don't have the resources or time to hunt them down yourself, I have slapped them onto a disk that you can have by sending \$5 to Geoffrey Williams, Animation 3 Disk Offer, 1833 Verdugo Vista Drive, Glendale, CA 91208. You can also reach me directly on the Internet at gwilliam@netcom.com.

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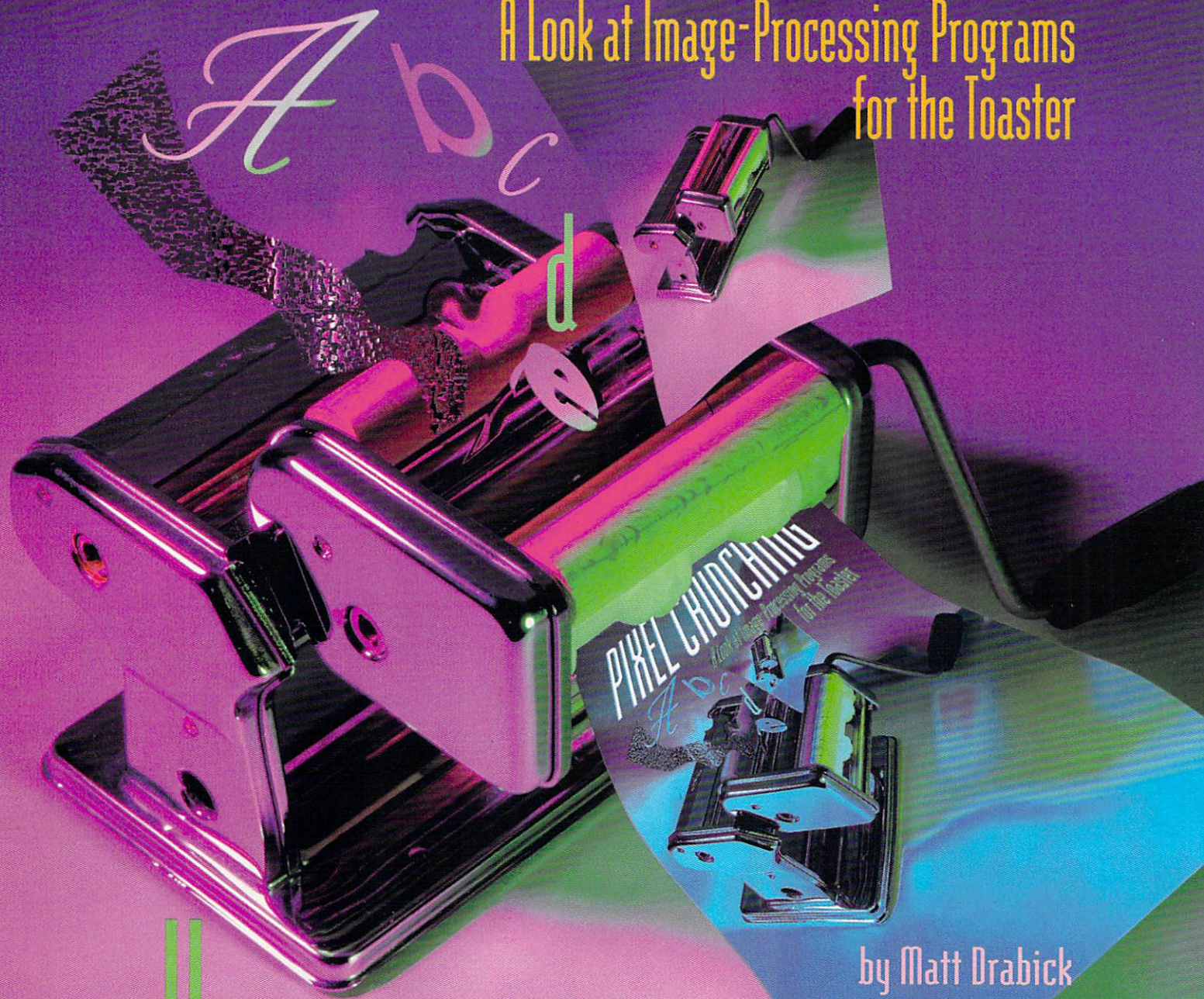
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# PIXEL CRUNCHING

A Look at Image-Processing Programs  
for the Toaster



by Matt Drabick

Video Toaster users enjoy an abundance of powerful and full-featured image-processing software for manipulating their video images. From simple scaling, cropping and file format translation to adding ripples, waves and other special effects, Art Department Professional (ADPro), ImageMaster R/t and ImageFX provide exceptional image-processing capabilities for the Amiga and Video Toaster.



## "Image Processors provide conversion capabilities."



Significant differences exist in the way each program functions and in the capabilities that are offered. In general, however, an image processor works by first loading an image, then manipulating or applying a process to the image, and then displaying and/or saving the image to a hard drive, floppy disk or other storage device. Image-processing software performs a wide variety of functions, including, but not limited to, converting an image's color depth. (An example of this feature is changing a 24-bit image into a 256-color image as part of a multimedia presentation.) Other uses for image processors are adding text to 24-bit images and scaling images (for example, stretching a 640x400 pixels image into a 752x480 pixels framestore). Image processors also provide conversion capabilities. They are used for converting between various Amiga file formats (for example, changing an IFF-24 or framestore image into a JPEG or Sculpt file) and even popular Mac and PC formats (FLC, GIF, Macpaint).

Other functions include adding or subtracting shades of color to or from an image; compositing images or layers together with or without an alpha channel; creating an Amiga RAM animation from a sequence of 24-bit frames for previewing before laying off to videotape; scanning or printing an image; displaying an image on graphics cards like the Retina or Picasso II and creating incredible special effects such as blurring, embossing, or morphing with still images or sequences of moving images.

To varying degrees, all three programs include batch-processing of multiple images using user-defined ARexx scripts or ready-made ARexx scripts included with the software.

### Art Department Professional

Elastic Reality's ADPro (formerly from ASDG) has long been the standard for performing image processing on the Video Toaster. With its easy-to-use controls, extensive and well-written documentation and good third-party support, plus a wide array of special effects, ADPro (\$299) is an extremely powerful program. And many new features have been added since the original version.

Currently at version 2.5, ADPro requires Workbench 2.04 or higher and at least 4MB of RAM. A fast CPU and hard drive are highly recommended. Unlike earlier versions, ADPro 2.5 uses draggable and resizable windows that open onto the Workbench or public screen instead of the previous low-resolution custom screen.

### Loading Images

ADPro's intelligent loader loads images without requiring the user to identify the image's file format. ADPro loads various file formats, including Alpha, ANIM, CDXL, FLC, Framestore, GIF, IFF, Impulse, JPEG, PAR\_PEG (Personal Animation Recorder JPEG files), PCX, SCULPT and YUVN. The Toaster's framegrabber can be directly accessed to capture images from within ADPro. The Backdrop and Backline loaders generate full-screen backgrounds using single or multiple shades of color or gray. Savers include ANIM, BMP, CDXL, Framestore, GIF, IFF, Impulse, JPEG, PostScript, QRT and SCULPT. In addition



An image before manipulation with image-processing software.

to displaying images directly on the Toaster's framebuffers, ADPro can access the Harlequin, Retina, Picasso and Resolver true-color graphics cards. While ImageMaster R/t and ImageFX support various Amiga graphics cards, neither can easily display images using the Toaster's framebuffers.

Though ADPro doesn't include painting and drawing capabilities, patches are included for working directly with the paint programs DPaint, AGA and OpalPaint. This allows images to be shared in memory between ADPro and either paint program. FRED (FReame EDITor), the batch processor included with ADPro, allows sequences of images (either animation frames or images digitized from videotape) to be automatically processed by ADPro's operators using user-defined ARexx scripts or various pre-made ARexx scripts bundled with the program. While useful, third-party batch-processing software such as





ProControl (\$90) by Elastic Reality and MultiFrame (\$129.95) by MacroSystem Development provide more intuitive front-ends for batch processing with ADPro. MultiLayer 2.0 (\$199) from Prime Software also uses ADPro and batch processing to create DVEs (Digital Video Effects) and other special effects using multiple layers of moving and still images.



ADPro's fresco effect was used to manipulate this image.



One of ADPro's special effects operators, line art, was applied to this image.

## Special FX

One of ADPro's biggest strengths is the operators or special effects functions that can be applied to images. Standard utility functions include broadcast limit, scaling, cropping, deinterlacing, and horizontal and vertical flips. ADPro also provides powerful special effects operators such as antique, blur, collapse, convolve, line art, mosaic, negative, roll, twirl, color charcoal,

emboss, fresco and solarize. The convolution matrices or convolve operator allow images to be sharpened, blurred or turned into woodcut versions.

To perform morphing with ADPro you'll need to purchase MorphPlus (\$295), also by Elastic Reality. MorphPlus functions as a standalone product or as part of ADPro. System requirements are Workbench 2.04 or higher and 4MB of RAM. MorphPlus works with ADPro version 2.1 or higher. Additional RAM and a fast CPU are highly recommended.

MorphPlus includes the morphing software Morph, MorphPlus and a version of FRED. Morph is a vector-based program that uses an onionskin display for overlapping pairs of images and applying vectors. MorphPlus functions similarly to ADPro but provides additional special effects operators not found with ADPro, including perspective, refract, ripple, rotate, sphere, swirl and warp.

Finally, the Professional Conversion Package (\$90) by Elastic Reality provides additional loader and saver modules for working with Targa, Rendition, TIFF, X Windows and Sun Raster files. The modules can be seamlessly added to ADPro or MorphPlus. Additional driver modules are available for Epson and HP scanners, Abekas digital disk recorders and Polaroid digital film recorders at additional cost.

According to Elastic Reality, either ADPro, MorphPlus or both will be upgraded later this year. No details were available at press time concerning any additions or enhancements or the intended release date for these long-overdue upgrades.

## ImageMaster R/t

ImageMaster R/t (\$99.95) by Black Belt Systems was released approximately the same time as ADPro. What began as a simpler product with a cluttered user-interface but a useful collection of image-processing tools has steadily grown and improved over the years. The current version, ImageMaster R/t 1.5, is a nicely polished program with all of its special effects, compositing and painting tools neatly integrated together in a highly ordered fashion.

System requirements are Workbench 2.04 or higher, ARExx, 1MB of Chip RAM, 6MB of Fast RAM and a hard drive. As expected, a fast CPU, 2MB of Chip RAM and additional Fast RAM are highly recommended.

ImageMaster R/t loads and saves various file formats, including IFF-24, DCTV, TIFF, JPEG, Sculpt, Framstore, Targa, BMP, PCX, GIF, ANIM and Rendition, plus RGB, CMY and CMYK color separations. FLI and FLC animations can be created and saved. Note that images can't be loaded and displayed using the Toaster's framebuffers. Images can be loaded, manipulated, painted on



and displayed in real-time with ImageMaster R/t using the Amiga's ECS and AGA chipsets and the HAM-E, Firecracker24 and OpalVision true-color display devices—hence the name R/t, for retargetable graphics. Images can also be processed and/or displayed (but not previewed or directly painted on) using the DCTV, Harlequin, Resolver, Vivid-24 and IV-24 true-color display devices.

## Image Manipulation

After loading an image or images, three modules are available for manipulating images: paint, compose and process. The paint module provides standard straight- and curved-line tools; filled and unfilled circles; rectangles and polygonal shapes; stencils; text support; custom brushes that can be cut from the screen and stamped onto the screen; gradient fills with many types of fill patterns; a magnify tool; undo and redo; RGB color palette controls; and many other features.

The compose module provides tools for compositing images using merge and RubThru tools; color keying; algebraic and logical blending functions; selectable red, green and blue transparency; embossing; warping; shading; X-Specs conversion; and morphing and perspective tools. The perspective tool moves 2D images through the X, Y and Z axes. The morphing tool displays pairs of images to be morphed using control points that are placed and moved on both images. The morphing tools are very complete and thorough.

Finally, the process module provides the bulk of the image-manipulation special effects included with ImageMaster R/t. There is a wealth of controls for adjusting the hue, saturation, gamma, contrast and brightness values of an image; colorizing and antiquing images; motion and spiral blurs; waves and swirls; oil and watercolor effects; antialiasing; NTSC color and luminance limits; CMYK color separations for printing; convolution matrices; gradient backgrounds; and many more. The film strip, available with the paint, compose and process modules, allows special effects and morphing to be added to sequences of images.

Because ImageMaster R/t uses a secondary buffer and an undo buffer for many of its image manipulation functions, it often requires more memory than ADPro or ImageFX to perform similar operations. While the undo buffer can be disabled, a secondary buffer or swap screen is required for all compose module functions, such as morphing, embossing, perspective and compositing. ImageMaster R/t also fails to provide virtual memory support to compensate for its higher memory requirements.

ImageMaster R/t is unique in that it doesn't include a printed manual. Instead, an on-line help guide is provided for explaining how the

software works. While I was initially intimidated by the absence of a standard manual, the on-line help is extremely well-done. A thorough index is provided for finding detailed information on specific subjects while the introductory table of contents explains how the program works in general. Best of all, the on-line help is completely cross-referenced, allowing the user to go back and forth between related subjects. Finally, all or any part of the on-line help guide can be easily printed out on paper for those requiring printed documentation.

An upgraded version (1.6) of ImageMaster R/t should be shipping by the time this article appears. According to Black Belt Systems, new special effects will include inverse gaussian sharpen, lightning, fire, turbulence and refraction. Support for retargetable EGS graphics cards such as the Retina, Spectrum, Piccolo and Picasso may be added.



ImageMaster R/t has a caricature effect to manipulate images.



ImageMaster R/t contour effect.





## ImageFX 2.0

The third and final Video Toaster heavyweight image-processing program is ImageFX 2.0 (\$399) by Nova Design. Like ImageMaster R/t, ImageFX combines image processing, painting and morphing capabilities using a nicely integrated user interface. Recently upgraded to version 2.0, ImageFX provides a wide array of image-processing tools for creating original images and stunning special effects.

System requirements are Workbench 2.04 or higher, 1 MB of chip RAM, 3MB of fast RAM and a hard drive. Additional RAM and a fast CPU are highly recommended. To create MPEG sequences with the included MPEG module, a 68020 or faster CPU is required.

Like ImageMaster R/t, ImageFX loads images into a preview buffer, letting the user apply and preview an effect or paint directly onto an image in real-time before rendering and display-

ing images. Rendering and displaying can be done with various Amiga graphics cards, including the DCTV, IV-24, Firecracker24, EGS, HAM-E, OpalVision, Retina and Picasso, plus the ECS and AGA Amiga chipsets. While images can't be painted on or processed using one of the Toaster's framebuffers, included ARexx scripts allow images to be captured or framegrabbed and displayed using the Toaster. In the past, ToasterFX by Byrd's Eye Software allowed images to be manipulated using ImageFX and the Toaster, but ownership of ToasterFX changed hands and the software apparently is no longer available. Nova Design is promising full Toaster support for previewing, manipulating and displaying images with a future version of ImageFX.

ImageFX 2.0 loads, converts, displays and saves various image or file formats, such as Abekas, Anim, BMP, Framestores, GL/DL, IFF, FITS, JPEG, Koala, MPEG, PCX, PIC and PICT. Loaders (but not savers) include PostScript, FLI, PAR (Personal Animation Recorder files) and PhotoCD; a FLC saver and Harlequin renderer are provided. Automatic batch processing of frames via the ARexx program AutoFX allows sequences of images to be processed using many of the special effects operators included with ImageFX, such as scaling, lightning, lens flare, perspective, compositing, RAM animations, etc. Note that ImageFX versions of MultiFrame and MultiLayer exist for batch processing image sequences with special effects and DVEs.

Support is also provided for Sharp JX100 and Epson scanners, Progressive Peripheral and Software's Framegrabber, GVP's IV-24 and MacroSystem's VLab framegrabbers, and PostScript and Primera printers.

## Modules to Work With

ImageFX can be neatly divided into five main modules: Scanner, Palette, Toolbox, Render and Printing. Secondary modules include load, save and preferences. Disabling the undo function to save memory and virtual memory support are also included.

The toolbox module provides access to ImageFX's painting and image-processing tools. The painting area has a comprehensive collection of painting and drawing tools, including curved- and straight-line tools, filled and unfilled shapes, multiple pen or brush tips and sizes, area fill, airbrush, text and custom brush tools and an undo button. The real-time airbrush works with brush or pen tips up to 255 pixels in size. The color palette module allows up to 256 colors from a 32-bit palette to be displayed and manipulated. ImageFX supports RGB, YUV, YIQ, CMYK, CMY and HSV color spaces. Images can be painted on using OpalPaint and directly shared with ImageFX.



An ImageFX lens flare was applied to this image.



ImageFX's edge and detect function was used on the image above.





ImageFX's straw effect was applied to this image.



The punch effect featured with ImageMaster R/t gives a cracked look to an image.

The toolbox offers 15 drawers full of image-processing tools, including convolve, brush, filter, composite, transform, distort, hook, effect and ARexx. Effects include solarize, posterize, antique, halftone, color balancing, blur, relief map, convolution matrices, image compositing, alpha channels, antialiasing, perspective tools, mosaic, sphere, video limit, straw, crystallize, polar mosaic, lens flare, radial star, swirl, oil paint, text support, wave generator and lightning. The Cinemorph morphing module displays pairs of images using a mesh or grid with ready-made vectors. When a vector is moved on one image, the corresponding vector moves on the other image, providing a quick and easy way to generate morphs.

A small preview window is now included with most operators and special effects. By previewing the effect or operator before rendering the full-screen image, a great deal of time can be saved while providing the opportunity for experimentation. The browser utility creates and displays IFF, JPEG and MPEG full-screen images and texture files, plus objects as thumbnails or miniature versions for quick-reference purposes. The printed manual is well-written and provides tutorials, a table of contents and an index.

An upgrade to ImageFX is under development. According to Nova Design, new features will include chroma matting or blue screen effects, film grain to add to images, plus real-time painting and easy display of images using the Toaster's framebuffers.

All three programs have their strengths and weaknesses. ADPro is a mature product with an easy-to-use interface and very good documentation. But you have to buy MorphPlus for morphing capabilities and the Professional Conversion Pack to get a Targa or TIFF loader/saver. Short of adding MorphPlus and the Professional Conversion Pack to ADPro, both ImageMaster and ImageFX offer more features and capabilities, plus fully integrated user-interfaces. ImageMaster R/t lacks a printed manual but has a very nice on-line help system. Unlike ADPro, both ImageMaster R/t and ImageFX have been recently upgraded. Whether you work with just one program or a combination of all three, powerful image-processing software is available for the Video Toaster user.

VTU

#### Companies mentioned:

Elastic Reality  
(Art Department Professional 2.5—\$299, Morph Plus 1.3—\$295, ProControl—\$90 and Professional Conversion Pack—\$90)  
925 Stewart Drive  
Madison, WI 53713  
(608) 273-6585

#### FOR INFORMATION CIRCLE 22

Black Belt Systems  
(ImageMaster R/t 1.5—\$99.95)  
398 Johnson Road  
Glasgow, MT 59230  
(800) 852-6442

#### FOR INFORMATION CIRCLE 23

Nova Design, Inc.  
(ImageFX 2.0—\$399)  
1910 Byrd Avenue, Ste. 214  
Richmond, VA 23230  
(804) 282-5868

#### FOR INFORMATION CIRCLE 24

MacroSystem Development  
(MultiFrame—\$129.95)  
24282 Lynwood, Suite 101  
Novi, MI 48374  
(810) 347-6266

#### FOR INFORMATION CIRCLE 25

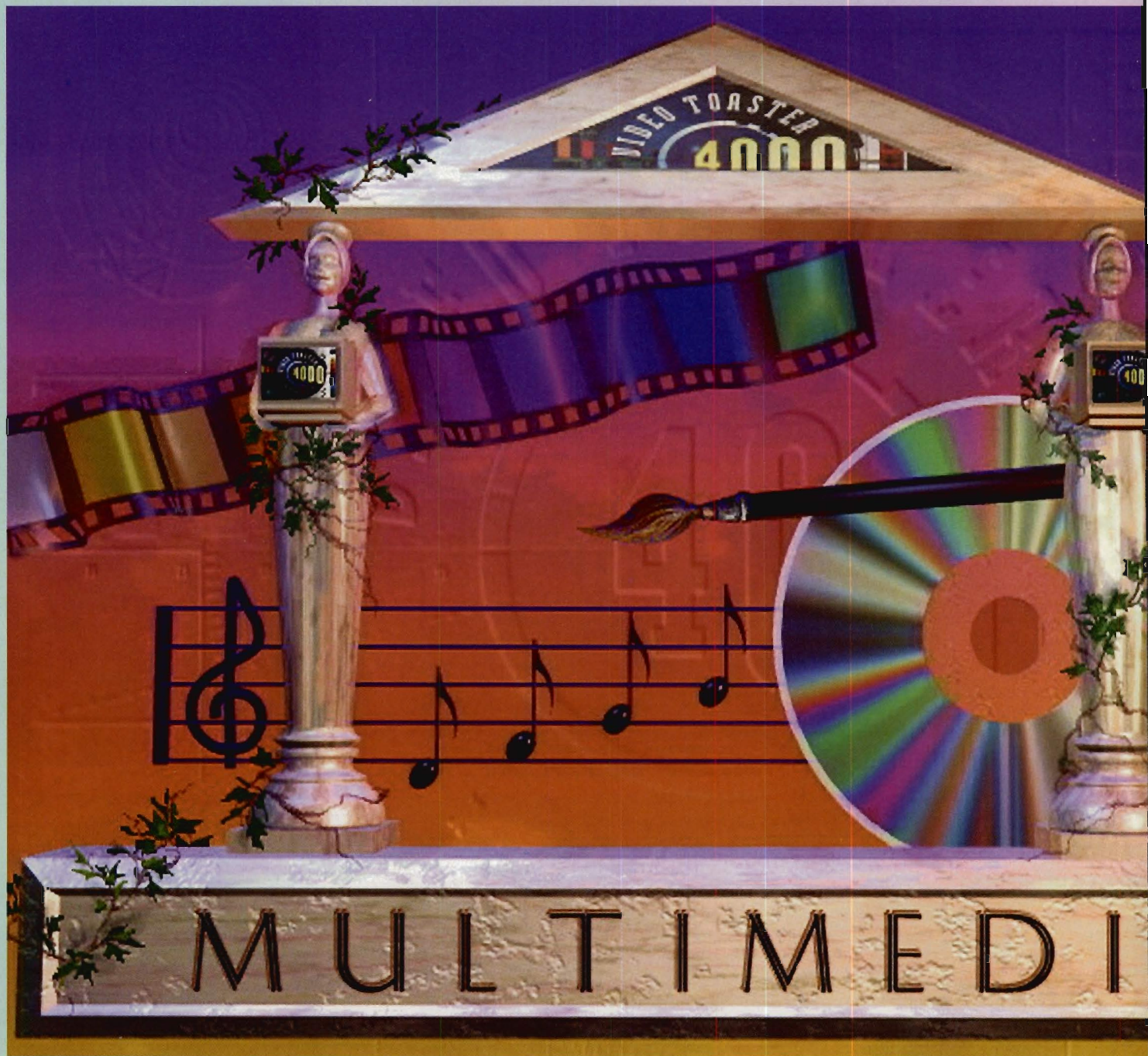
Prime Software  
(MultiLayer—\$199)  
31164 Country Way  
Farmington Hills, MI 48331-1035  
(810) 661-3393

#### FOR INFORMATION CIRCLE 26





# Multimedia *and*



Turning Your Video Production Skills  
Into Multimedia Jobs



# the Toaster

by Joe Clasen and Susan Ishida

**I**f you define "multimedia" as the merging of computer graphics, video, audio and interactivity, then many of the Video Toaster's Amiga owners have been creating multimedia for the last 10 years. The rest of the computer community is just now catching up. This current explosion of interest in multimedia on all computer platforms is creating a wealth of opportunity for skilled Toaster users. After all, who better to produce the dazzling 3D graphics and animation, the video clips, the titling and even the graphical interfaces than experienced "personal multimedia producers" like you and I?

Having experienced, enjoyed and endured a wide assortment of unique jobs with the Toaster and the Amiga as well as a variety of platforms from IBM to Super Nintendo, we can say with some small authority that the best tool for producing multimedia content is an Amiga with a Video Toaster. Authoring the multimedia project, building the script that makes the program run, can also be done on the Amiga, or it can be completed on a more mainstream platform. Regardless of how the project is being authored or what computer it will eventually run on, you can create your graphics and other content with your Toaster and easily translate to virtually any another platform's graphics, audio and video formats.

The great advantage the Video Toaster provides is that it integrates all your video and graphics needs and provides true video resolutions. In addition, LightWave provides the easiest 3D and animation support on any platform. With the third-party products from the cottage industry that NewTek has spawned, you possess the power to engage in multimedia development for a wide variety of projects. So what targets are available?

## Take Aim

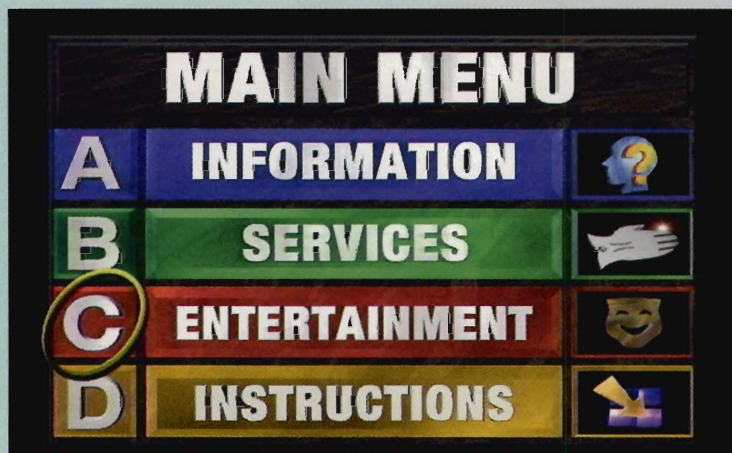
Kiosks that run from laser disc are a natural target for the Toaster. You've probably seen them at the airport or in a shopping mall providing various types of information via a touch screen interface. Video clips, graphics, animations and multiple graphic overlays can be recorded onto a laser disc to provide the content. An Amiga running SCALA or Amigavision can be used to customize and run the application, or another platform (IBM-PC, Mac, UNIX, etc.) can be used to author and run the program. MPEG or Quicktime encoding of video clips or animation is a simple matter of plugging your video deck into an encoder and playing back your compiled sequences. If you have an S-VHS deck, most encoders, like the Optibase machines, will take a direct video and audio input. We have recorded several sequences this way and found it fairly straightforward. If you're good with hardware and comfortable with authoring, you may be able



A LightWave mock-up of a space station and shuttle for a proposed game.



# Multimedia and the Toaster



This template was made in LightWave with transparent jewel bars and 3D-rendered icons and overlaid text.



The same template as above was used, only different 3D icons and text overlays were applied.

to put together a full kiosk yourself. Mere mortals like ourselves will be happy to provide graphics screens, animations, audio and video clips. If you're looking for work in this area, check local malls, specialty stores (particularly music/video/game, sporting goods, electronics), airports or other places where these types of kiosks are likely to be. Information about the makers of the kiosk is often provided somewhere in the program. Trade shows are another good place to see kiosks in action and to speak with the people who make them.

Another booming area, CD-ROM production, is at an all-time high, and the need for experienced graphic artists to produce animations and graphics is growing rapidly. Some of the best-looking IBM-PC games owe their good looks to LightWave 3D graphics. Even games for Super Nintendo, Sega, 3DO and other game machines can be developed using LightWave and then translated into the appropriate graphics format. We are currently developing some applications for Super Nintendo, and even though there are some special

requirements peculiar to that platform, our LightWave 3D graphics are translating nicely thanks to Art Department Professional. Games aren't the only types of CD-ROMs requiring graphics. Every program, whether on floppy disk or CD-ROM, requires an interface, and graphical user interfaces are relying more and more on the quality of those graphics to lure buyers in a very competitive market. We're starting to see a real demand for elaborate 24-bit, 3D-rendered menus, and we're probably only seeing the tip of the iceberg.

One of the newest and fastest-growing opportunities is for suppliers of "On Request" video, shopping and other services. Service providers such as cable, satellite, hotels and airlines are currently building systems to provide a vast array of entertainment, business and personal services that will be accessible from interactive televisions. All of these will need menu systems that will be visually exciting enough to entice both jaded computer users and complete non-users. We're currently creating a menuing system in LightWave allowing us to make dimensional buttons, text and other 3D elements. The system may eventually call for several thousand menu screens as well as ongoing updates. Needless to say, this may become a very lucrative area.

If you're interested in designing interfaces, join the club. The bad news is that there is a lot of competition, but the good news is that there is quite a lot of work available. Toaster users should pay particular interest to menuing systems for cable television. Most companies currently designing menus have only done so for computer software and are just now discovering what even the most novice Toaster user knows: what looks good on a computer's RGB monitor won't necessarily look good on an NTSC monitor. We've already seen a few Mac users look on in horror as they've watched their Photoshop masterpieces fall apart on a regular television screen. Fortunately, you'll know better.

Software companies and design agencies are actively seeking out qualified CG artists at all levels, from senior animators to entry-level interns. A good demo reel, a few good color prints and a clean résumé can get you far these days. For the cream of the crop, check out the latest newsletter from your local SIGGRAPH chapter. This month's issue from the Los Angeles branch featured a full page of help-wanted ads for 3D animators and other CG artists. Companies seeking artists included Walt Disney Feature Animation, Virgin Interactive Entertainment, Angel Studios, Metrolight and SUN.

## Reel Simulations

One of the strongest arguments for using a Video Toaster neatly dovetails with one of the most underutilized areas of multimedia development: product simulation. There are tremendous advantages to being able to easily and effectively simulate, or "mock up," a product. Architects use drawings, industrial designers use foam or resin models. (Both use LightWave if they're smart.) What better way to mock up a multimedia application than with the Video Toaster, a real-time, fully interactive multimedia machine? Rather than spend months programming an



application just to see how it will run or only to find that the client wants something else entirely, you can simulate a multimedia application using the Toaster. We call them "reel simulations."

Approach this as a video project. First meet with the client to learn about the product and to determine what features the company wants to promote. The next step is to come up with a storyboard that includes all the visual and audio information. You can buy preprinted storyboards at many art supply stores or simply make up your own. In reality, a storyboard often starts out as nothing more than a blank piece of paper. A rough sketch of each keyframe of the video should be accompanied by a brief written description of action, sound and any other important elements. You may be able to simply use a good, detailed script in place of a storyboard. The point of it all is simply to make sure that everyone knows and agrees on the sequence of events to be videotaped. The more detailed your script and/or storyboards are, the less likely there will be costly misunderstandings. Also, if your client is prone to indecisiveness, it will be useful for you to have him officially agree upon or "sign off" the script/storyboard stage. Then, if he changes his mind, you can politely remind him that you did exactly what you agreed to do and that you will need to be compensated for making changes. These situations are always easier when you have the terms in writing.

A typical storyline we use starts out with the client's logo flying in, accompanied by appropriately dramatic music. Next we launch into a simulation of the program, starting with its title screen. We usually have a voiceover narration to explain what's being shown as well as very light background music to fill any dead spots. Ideally, this part of the tape should look as much as possible like a live demo of a real piece of software. This can be a powerful tool both for developing and selling the project. This type of realistic simulation can help software designers see how their project is shaping up and help point out potential problems. It can also help programmers visualize how the full program will run, the kind of response times that they need to achieve and other details that might not otherwise be easily pictured or explained. And it is an excellent sales and presentation tool, allowing a company to preview a product at a critical trade show even if the real software isn't ready, or helping a company explain its project to a potential investor even at a fairly early stage of development.

Now you're ready to assemble and/or create the graphics. The first consideration should always be the type of display. Since your videotape will probably be seen on an NTSC monitor, you may need to adjust your graphics a bit to make sure they will look as good as possible. As always, avoid illegal colors, single-pixel lines and single-pixel checkerboard dithering patterns. And make sure all critical information is within your video safe area and that your graphic extends out to the full overscan area. (The graphics for the real product may need to be slightly or very different, depending on what the display device of this product will be.) We often load the graphics as framestores and run the simulation in real time with one person

manning the Switcher and another reading the scripted narration. We run the animations from a DPS Personal Animation Recorder. A Video Flyer would be perfect for editing and playing back video sequences.

If the project includes hardware, we might follow the software demo with a hardware demo. If only technical drawings are available, rather than try to show or explain



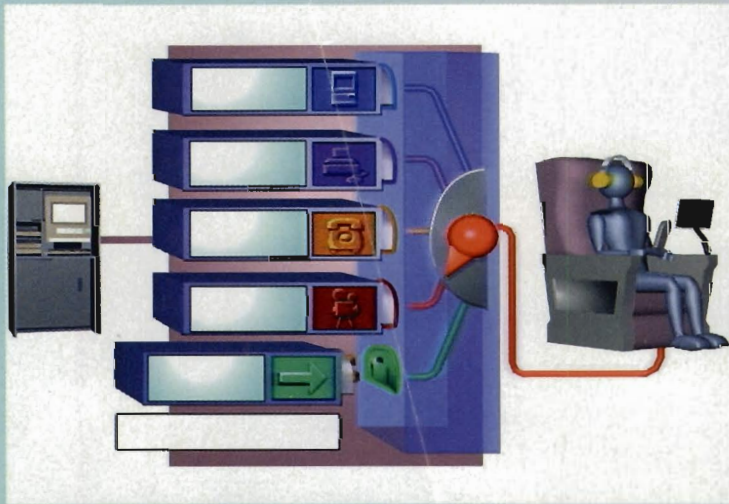
A LightWave sequence of a mermaid speaking and blinking. Studio 16 was used for audio.



# Multimedia and the Toaster

them on videotape, create a LightWave 3D mock-up. Again, this type of simulation can be extremely helpful both as a sales and a development tool. It's generally quite a bit easier and less expensive to create a LightWave model than to create a physical prototype. This kind of flexibility allows a company to try numerous designs and make many modifications before committing to a real piece of hardware.

The video will usually end with a screen of the client's logo. Some clients may allow you to tag on your own company's information as a final credit. If the video is going to be distributed or played often at trade shows, this can be valuable advertising. If the client is cash poor and you're anxious to work, consider bartering your screen credit as part of your payment.



A 3D-rendered illustration of a complex hardware system. The hardware box on the left was modeled from blueprints.

In addition to the videotapes, we often produce hardcopy handouts. LightWave screens print out extremely well on the Fargo Primera color printer in dye sublimation mode. Color copies or overhead transparencies of the original prints can be made for presentations for clients.

No two clients are alike and no two client's needs are entirely alike. As is always the case in life, it pays to be flexible. Our reel simulations have ranged from a mock-up of a snowboarding game complete with boards wired with motion sensors to entire in-flight entertainment menuing systems using everything from Super Nintendo to Sparc stations for graphical output. We've been asked to turn DXF files from blueprints into LightWave 3D renderings to allow the client to see what his designs looked like before they were built. We've scanned blueprints and used them as background images in Modeler. And occasionally, we work from nothing more than a verbal description. Luckily, with a Video Toaster, a scanner, a VCR, a printer and a few solid pieces of software, almost any job can be accomplished.

## Transformers

The two major translations for most graphics involve going to video or switching to another graphic file format. The good news is that since you already work in a video-ready mode, you've bypassed the most perilous translation. Even if your ultimate target isn't video, if you're working in multimedia, video is often an intermediate step. Weekly progress reports on VHS tape can ensure that you and your client both know where your project stands. In a large company, the tapes may be seen by many people in various departments and can generate windfall jobs.

Should you need to translate your work to another computer platform, the Amiga has some of the best translation packages available. Although we tend to use ADPro and ProControl, both ImageFX and ImageMaster R/t are very powerful packages with numerous features. The new ImageF/X 2.0, for example, can read MPEG animations and write translations for your Amiga animations. Our main rule in translation: Never let the programmers rescale your art or change your palette and remap the colors.

There are three things you should do to maintain the integrity of your images. First, deliver your art in the correct number of colors. If you're creating the images in LightWave but the project requires art in 256 colors, do the translation yourself. This gives you more control over the final image. If you're not happy with the first translation, try different types and varied amounts of dithering. If necessary, after translating and scaling your image, you can bring it into a paint program like DPaint or Brilliance in the correct resolution and number of colors, then touch up any areas that didn't translate well. Be forewarned: Indeo and other codecs, types of animation compression, dynamically change the palette unless programmed to do otherwise. You can download their native palettes from CompuServe in the Multimedia Forum and lock to their palettes if necessary. This step will greatly increase frame rate on playback.

Secondly, you should try to deliver the art in the pixel size it will be used. For instance, if the required size is 256x256 pixels, present your images in that size. Because pixels are not square on the Amiga, some scaling and cropping may need to be done in the image-processing program. The basic formula is to scale the X axis by 92% if you're going from square pixels (PC and Mac) to the Amiga. To go from the Amiga to square pixels, scale the Y axis by 92%. ProControl can generate an AReXX script for ADPro that will easily crop, rescale, load a palette, lock a palette, adjust the brightness, contrast and gamma, and save the file to the format of your choice. You can then save the script so the results are repeatable.

Finally, it is very important to check your work on the target platform. A PCX file can be quickly loaded onto a PC-formatted disk using CrossDos and viewed on a standard PC running Windows' Paintbrush program. The disk is automatically recognized and useable by a Mac with System 7.5. If your final target is NTSC, you might want to take the time to view the images on a video projector, a large screen with a VGA-to-NTSC converter, or whatever



video display mechanism your target device uses. NTSC means not only "Never Twice the Same Color," but "Never Twice on the Same Computer." The good news is that almost anything can be compensated for in a good image-



An example of ProFills' texture and gradient fill. Dynamic text is overlaid.

processing program. If you're experimenting with a lot of translations, it's helpful to keep a small journal next to your computer to record settings and results from experiments. Hey, it worked for Dr. Frankenstein.

### Weird Science

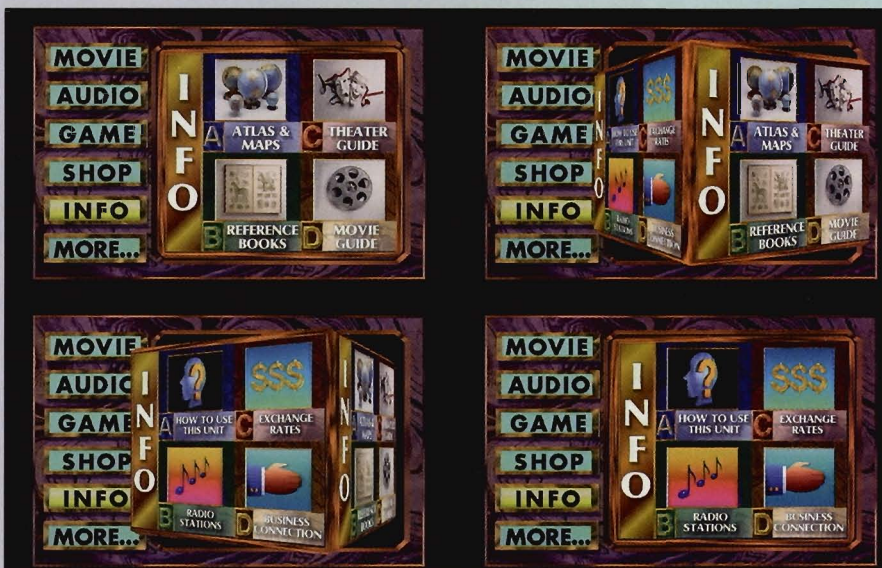
If we could give one absolute rule that always worked for every translation, it would be that there is no one magic formula. Sorry, but the truth isn't always pretty. However, through experimentation we have found that there is no target that we simply couldn't display our graphics on and have them look reasonably good.

The Video Toaster may not have been created for making interfaces, but it happens to be one of the best packages for menu design. With its integrated approach of 3D, ToasterPaint and CG in video resolutions, it's easy to lay out new designs. We usually start in Modeler and arrange boxes with bevels. Working in layers allows quick layout of buttons and picture windows that will have scans texture-mapped to them. Naming the boxes with different surface names allows us to try many textures and colors simply by changing surface attributes or swapping image maps. Scans of movies or video games automatically size themselves onto objects, and LightWave does the scaling for you. Multiple layers, transparencies and shadows are a click of a button away by changing the attributes of the surfaces. Using a background object as a backdrop allows for quick changes of color and surface. By making the backdrop 100 percent luminous, you can obtain a perfectly rendered backdrop scan without shadows and lighting abnormalities. In addition, you can ani-

mate your menus. By simply moving a light you can produce moving shimmer and sheen. Elements within the design can rotate, flash or even play back image map sequences. Making templates without text and graphics allows the CG to add or change text as needed. ToasterPaint allows quick rescaling and touching up of scans and creates gradient fills. There are also dozens of auxiliary programs we use to make us more productive.

### Other Toaster Accessories

Odd as it may sound, a practical accessory for your Video Toaster might be another computer. Like many LightWave users, we're considering a DEC Alpha machine for rendering speed. The Windows NT compatibility may also become useful as more programs go native to NT. As we mentioned, we do use a Power Mac for scanning. We also find that the Mac grants better access to a wider variety of PC software with SoftWindows, and CD-ROMs not available for the Amiga. Some clients are starting to supply their own custom CD-ROMs as source material for projects. British Airways recently sent us a disc that functions as their corporate style guide and design element library. It includes everything from the company's own custom fonts and logos to a quicktime movie of their current tele-



This animated cube was made in LightWave and rotates for more selections. One page is an example of LightWave-rendered icons while the other page is photorealistic icons from the CMCD collection.

vision commercial, complete with sound. Although the fonts and logos can be accessed from the CD-ROM drive on our Amiga, we can't run the full application from the Amiga. An emulator such as Emplant might work, but we've chosen to solve the emulation problem by simply having another computer platform in the studio.

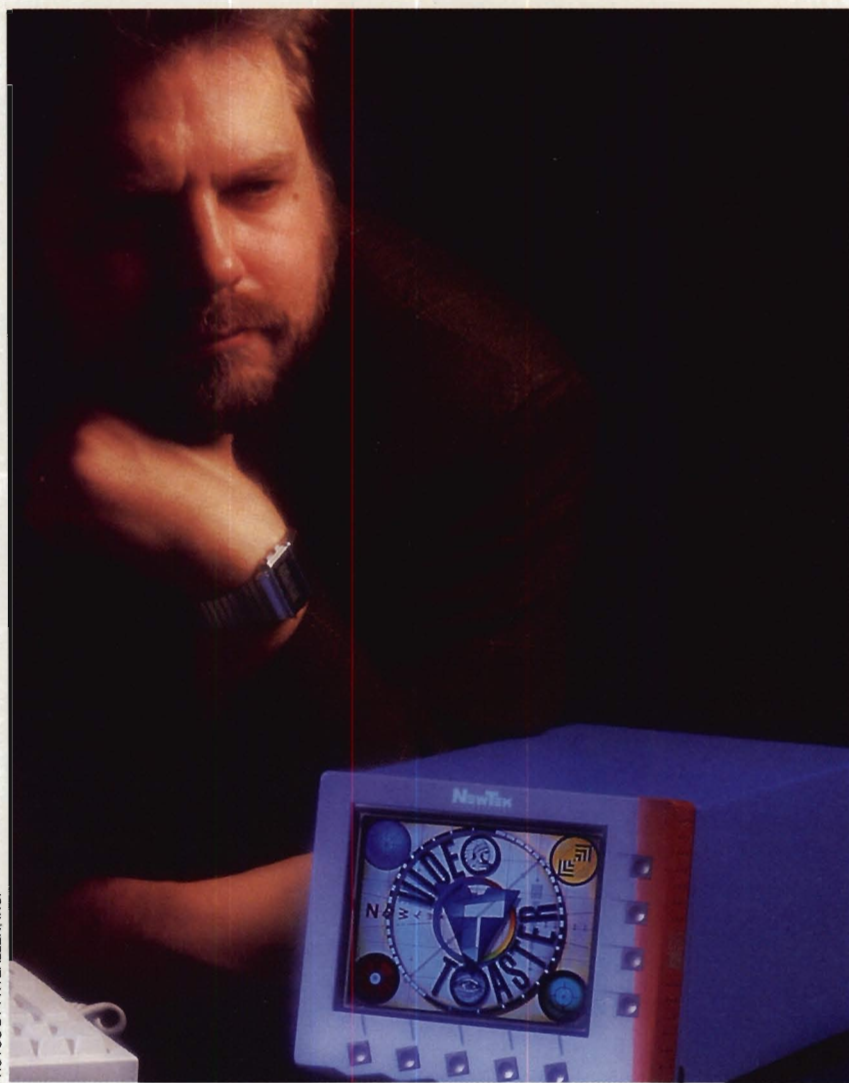
If you're interested in designing graphics for software, it makes sense to have easy access to a wide variety of popular titles and information. Although we create almost all our graphics on our Toaster/Amiga systems, it has become convenient for us to have a Power Mac. Even if

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# The Video Toaster Reborn

PHOTOS BY FRYEALLEN, INC.



by Jim Plant

*[Editor's note: The following is an excerpt from an interview with NewTek President Tim Jenison that originally appeared in a special supplement distributed by VTU at the recent National Association of Broadcasters convention in Las Vegas.]*

**V**ideo Toaster User: We've heard you're planning to introduce a new product at this year's National Association of Broadcasters show. Can you give us some details?

**TIM JENISON:** Well, actually we're showing several new products at NAB. First, we've got Toaster System 4.0, probably the most ambitious upgrade of the Toaster's operating software that we've ever produced. We've reworked the Toaster Switcher interface to make it even easier to use, we've added a bunch of new effects, and we've made significant improvements to LightWave 3D, ToasterCG and ToasterPaint. Even my favorite program, ChromaFX (laughs), is now easier to use. We've also finalized the Flyer 4.0 software as well, and we'll be showing the finished version at NAB. Of course, we'll also be showing the new 4.0 version of LightWave 3D. Allen (Hastings) and Stuart (Ferguson) have done an incredible job in not only porting LightWave to sever-

al platforms simultaneously, but also adding significant new features along the way. We plan to ship the Intel and DEC Alpha versions a few days before NAB. We'll ship the SGI and Amiga versions a few weeks after the show.

**VTU:** Sounds like you've been pretty busy this year, but what about the rumors we've been hearing about a top secret "stealth" project you've been working on?

**JENISON:** Well, I could tell you but...

**VTU:** Yeah, I know, then you'd have to kill me. Could you at least wait until I submit this report?

**JENISON:** Well, OK, I guess I can tell you that we will be announcing and showing a brand new product at NAB. It's a new Video Toaster for the Windows operating system, and I think you're gonna like it.

**VTU:** Tell us more.

**JENISON:** The Windows-version of the Video Toaster is a complete video production workstation, including non-linear



editing, that connects to a standard PC running Windows NT or Windows 95, via the SCSI II port. The new Windows-version of the Video Toaster is a much more complete product than the original Video Toaster we delivered back in 1990. The new Video Toaster is a standalone device (see cover photo) that contains parts of the original Toaster, in combination with the Flyer, a built-in TBC, and a few new devices to tie it all together. So what you get is all the graphic, special effects, audio and non-linear editing capabilities in one complete, plug-and-play package.

**VTU:** We've always been under the impression that the original Video Toaster card was so tightly integrated with Amiga computer's custom graphics processors that it would be impossible to port the Toaster to other platforms. How have you been able to overcome this?

**JENISON:** You're right about the original Toaster and the Amiga. The Amiga's native video and graphics capabilities are pretty well known now, but very early on, back in 1985 and '86, we saw how we could use those unique features to develop some pretty impressive products. But, as you know, things haven't worked out too well for the Amiga lately and, even though we still have hopes that new Amigas will be manufactured soon, we felt that more people should have access to the kind of low-cost, high-quality video production tools that Toaster users have enjoyed for many years.

So, about a year ago we started looking into ways to bring this functionality over to other computer platforms. One of the things we quickly recognized is that PCs have become much, much faster over the past few years. Because of these speed improvements, we can use brute force methods to emulate many Toaster-type functions in ways that were not possible back in the late eighties when we were first developing the original Toaster.

**VTU:** Does this spell the end of the line for development on the Amiga?

**JENISON:** Absolutely not! We haven't yet accomplished all the things we set out to do with the Amiga, and we plan to continue working toward those achievements. We have a lot of time, money and effort wrapped up in hundreds of thousands of lines of Amiga code. We're not going to just throw that investment away, especially when we have a very large installed base of users that is still working with our products. In fact, we're still looking for good Amiga programmers.

**VTU:** Well that's very good news. Can you give us some more details about the new Windows-version of the Video Toaster?

**JENISON:** Like I said before, the new Video Toaster is a stand-alone device. One of the reasons that we chose to put this technology into an external box is that it gives the video producer a great deal of flexibility in using the technology in a variety of production environments. For instance, if you have a number of different computer platforms in your studio, you'd only need some new software to be able to use your Video Toaster on other computer systems.

The way the Video Toaster is designed, it only needs to send and receive high-level commands to and from the host computer. This means that the Video Toaster's functionality is not necessarily limited by the performance of the host computer. Of course, if you have a real hot-rod system, the Video

Toaster will certainly take advantage of it. But, even if you're down on the lower end of the performance spectrum, you'll still have the same Video Toaster functionality. You can even connect and operate the Video Toaster from a laptop PC.

**VTU:** Wait a second, that means you could have truly portable...

**JENISON:** Yes! In fact, with the combination of the LCD screen and function keys on the front of the unit, you can make the Video Toaster perform a number of its functions, including simple editing, completely independent of any computer at all. Think about the possibilities. We've designed a soft-shell carrying case and a battery system that

would allow you to take the Video Toaster out into the field and record directly from your video camera to the hard drives. Then you'd use the Toaster's built-in editing functions or connect your laptop to the system and edit out in the field, or bring the unit back into your studio and connect it to your desktop PC. You wouldn't even have to waste any time digitizing your footage...

**VTU:** ...and your video signal would never have to touch tape!

**JENISON:** Right. And this is really critical for the small desktop video producer. For the producer without access to an expensive broadcast-quality recorder, tape has been the weakest link in the system. You know, the optics and the CCDs in a decent consumer camcorder are not bad. But as soon as that image hits tape, you're dead. Recording directly to the hard drive and then editing from the same digital sources gives you zero generational loss. This really levels the field for low-budget video producers.

**VTU:** So, it makes sense to have the system housed in an external case...

**JENISON:** Absolutely. We spent a lot of time thinking about the pros and cons of internal versus external. The advantages

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With the combination of the LCD screen and function keys on the front of the unit, you can make the Video Toaster perform a number of its functions, including simple editing, completely independent of any computer at all.



# WaveMaker 2.0

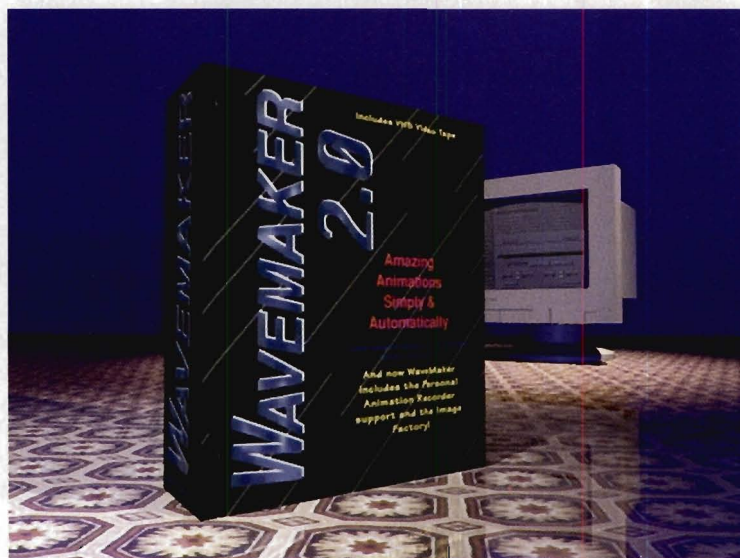
## Smooth Sailing for 3D Animators

by Dan Ablan

**A**n exciting aspect of any new major project release, like the Video Toaster, is the development of third-party software and peripherals. Shortly after the Toaster became available, and word got out how great the product was—especially its bundled 3D program, LightWave—many developers jumped on the bandwagon. Although the Toaster's initial release was a number of years ago, there are still companies making affordable, easy-to-use add-on products, such as WaveMaker 2.0.

With my background in video, the transformation into 3D was a relatively easy process. There were times, however, when I wished I had someone showing me how to set up a proper animation. Unfortunately, there wasn't. By the time I had figured out what I was doing in LightWave, the program became much more popular, and third-party products were being released all the time. A series of products was released from a company in Minneapolis, one of which was WaveMaker. The program let you point and click on a few buttons, and in a matter of minutes, it would generate a LightWave animation file for you to render. Now, there's WaveMaker 2.0, which is published through another company, Radiosity, and produced by longtime LightWave animator Tony Stutterheim.

WaveMaker 2.0 will integrate seamlessly into your Amiga/LightWave workstation. Requirements are minimal: at least 1MB of RAM and a hard drive. You must be work-



*"Given the ease of WaveMaker and the great look it gives, you can save hours of design time in 20 seconds."*

ing under Workbench 2.0 or higher. WaveMaker 2.0 will work with LightWave 2.0, 3.0, 3.1 and 3.5, and LightWave doesn't need to be running to use the program.

### Getting It to Work

Installing the software from the six disks is exceedingly simple. The program comes with a comprehensive manual and a videotape. When clicked, WaveMaker asks what version of LightWave you are using, and automatically creates a drawer for itself and its contents. Once the software is installed, all you need to do is click on the 2.0 icon, and you're off and animating. The layout is good-looking, with an interface that makes a lot of sense. Buttons are arranged in the manner in which you would use them. Figure 1 shows the main menu of buttons. All screens to follow are just as intuitive and easy to

use. Basically, WaveMaker is a set of ready-made LightWave animations without your logo. The scenes that it generates can be broken down into a number of pieces, mixed and matched, and used in your other animations.

One great thing about WaveMaker is its versatility. Let's say that you have made a logo for a cable station and have already set up the motion paths in LightWave. You're almost ready to render, but your scene really needs something. Bring WaveMaker to the rescue with up to eight layers of dozens of background elements. These elements are anything from transparent streaks to diamonds to flying pyramids to falling confetti, and more.



Now, let's say you have no time at all to create an animation. Don't worry, WaveMaker can handle that as well, with any number of prefab animations. Push about four buttons and you have an entire LightWave scene ready to render. WaveMaker will even render it for you, if you like. But what if your client doesn't want to pay for test renders, and you won't give them away for free? You can use Wave-

mately 20 seconds. The rendered image times vary depending on your configuration. If I took the time to create a logo for a client, and set up a prefab, with rendering, I could have the job done in 10 hours. Given the ease of WaveMaker and the great look it gives, you can save hours of design time in 20 seconds.

I was surprised to see so many motions come with the program.

tell WaveMaker how long to render the last frame of the animation once the motions are complete. Although it's a program primarily geared toward logos, WaveMaker can do other things. For instance, if you had a client who wanted a shiny new mug to fly in and sit in front of the camera, then fly off, you could easily use WaveMaker, by replacing the logo with your mug object.

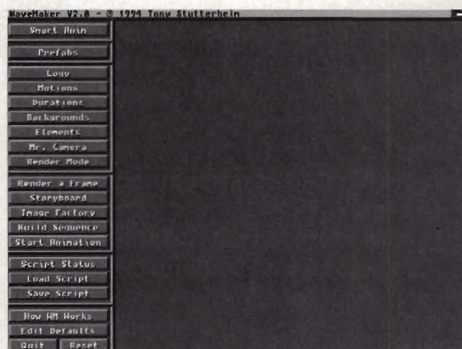


Figure 1



Figure 2

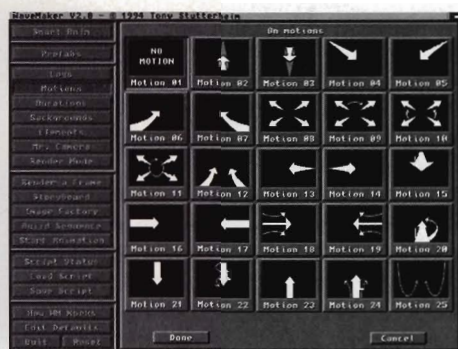


Figure 3

Maker's Storyboard feature to create an overview of any LightWave animation. This is one of my favorite options. With Storyboard, you can render a framestore or RGB image in either nine or 16 panels. WaveMaker automatically divides the entire animation by either nine or 16, and renders out the appropriate frames. Keep in mind that you should be working with at least 2MB of chip RAM to have both LightWave and WaveMaker running at the same time. As with anything, the more RAM, the better.

### Getting It Going

You'd probably think that a pre-made animation package wouldn't have a very high-class look, but thanks to Tony Stutterheim, WaveMaker provides a very professional appearance. The prefab animations cover the bases, from a familiar Universal Studio-logo-around-the-Earth animation to a television station look to traveling down a mysterious tube. When you select the prefab animation you want, you'll be asked what logo to put into the scene (if any), and WaveMaker will automatically scale the logo to fit the scene. After you've set the prefab animation and the logo you'll use, all that's left is to set the length of the animation and the rendered resolution. Figure 2 shows a prefab I set up in approxi-



Figure 4



Figure 5

Figure 3 shows just some of the motion paths to choose from. You have the choice of "on" and "off" motions, as well as letting your logo "hold position" before it exits the screen. An "end delay" setting lets you

I did a test with an object I created a couple of months ago. Figure 4 shows a stack of \$20 bills flying out around Earth. I used the prefab animation "universe opening," and instead of choosing a logo, I chose an object. You could take a frame of someone's face, map it onto a ball, and fly that out around the earth. Of course, why you'd have a stack of \$20 bills flying around the Earth, I don't know, but if you needed to, you could do it.

Another very helpful area of WaveMaker 2.0 is the Script Status menu. This menu provides an overview of the animation you've set up, showing the logo (or object) you've chosen, the "on" and "off" motions, "hold position," background, color, layer elements, and the times of each. Figure 5 shows a sample animation.

Rendering animations is also easy—straight from WaveMaker, or your normal way in LightWave. WaveMaker 2.0 now supports the Personal Animation Recorder and The Image Factory. As in LightWave, you have full control over the saving of images, framestores, rendering resolutions and field rendering.

### Getting It Right

When I first ran WaveMaker 2.0 and set up a simple prefab animation, I had some trouble. Once you've selected the necessary elements, Wave-

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# AutoPaint 3.1

## Compositing Made Easy

by Doug Shannon

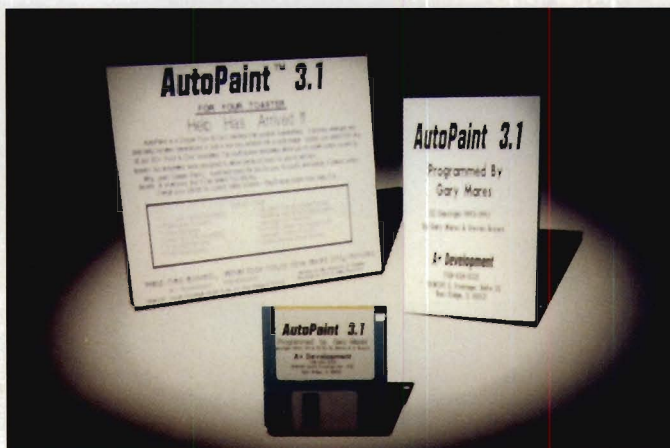
**T**oasterPaint can be used for touching up frames, painting complete pictures from scratch, and doing CG-type effects, but one of its most powerful features is its scaling capabilities, which make it great for image compositing. However, ToasterPaint has a pretty steep learning curve in that particular area, which can make image compositing a daunting task.

That's where AutoPaint comes in. A+ Development's AutoPaint is a tool that offers an alternative interface into ToasterPaint's scaling and compositing capabilities by providing pre-designed multi-image templates. With these templates, composited multi-image frames can be created quickly and easily, without having to deal with TPaint's interface at all.

### How It Works

AutoPaint is very straightforward to use. It starts out displaying a screen full of template icons to choose from. Each template icon represents the layout of the final composited image. The templates vary in complexity and design, with template designs that range from two images all the way up to 13. The templates are all very symmetrical and conventional, with the exception of two that are excitingly scattered across the page. When you see one you want to try, simply click the designated template icon and that template will appear full screen, with picture frames in place of where the composited images will be.

At this point, all you have to do is tell AutoPaint which images you want composited. Do this by clicking on a picture frame, then specifying with a file requester which picture you



want to use. After you've set up every picture frame, select the Render Image pull-down menu and AutoPaint goes to work. It uses TPaint to do the actual image compositing, so when it's done, the final image appears in the Toaster's framebuffer, and the image is in TPaint. This is great if you want to use TPaint to add any additional graphics or effects. Rendering takes between a minute and five minutes, depending on how many images are being composited. At this point, you can either go back to AutoPaint and make changes, or save the image using TPaint's Save command. That's how simple the whole process is.

### Details

AutoPaint offers several options that can be applied to any image in a composite. Each picture to be composited into the final image has a set of rendering options, allowing for some really diverse effects. Clicking on the Opts button inside of each picture frame brings up the Options panel, in which

you can set up various attributes for the image, including beveling, shadow control, box edges, transparency and contrast. Anyone who's ever tried to create any of those effects on an image with TPaint alone knows it's a difficult job. AutoPaint handles these effects in a simplistic on/off fashion. Sliders and buttons control the depth of shadows, and sizes and colors of bevels and box edges.

### Positionables

If one of the 60 pre-made templates doesn't fit a particular need, AutoPaint has a Positionable tool that adds an easy interface for creating a custom template with up to five fore-



ground images on one background image. This extremely flexible feature allows the user to simply drag the picture frames around the screen, adjust their sizes, and set up picture options exactly like the pre-made templates. These templates can be saved for future use, but they are not added to the main template screens. Positionables also have the ability to do vertically oriented images, something the regular templates don't have.

## Verticals

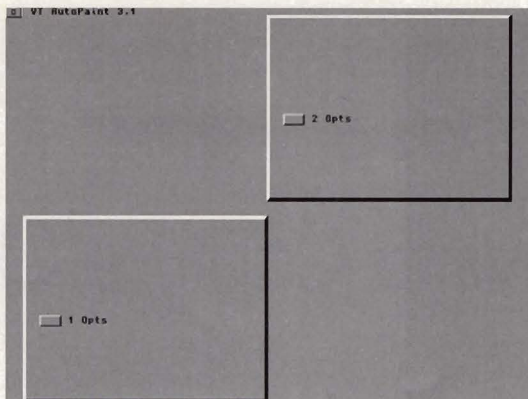
AutoPaint has templates called verticals that just use vertical slices of an image rather than the entire part. The easiest way to use verticals is to load in AutoPaint's supplied shoot-through template framestore. This framestore is a graphic window showing the vertical slice AutoPaint will use. By dissolving the shoot-through halfway with a live video input, you can use the shoot-through graphic as a guide when capturing framestores. If your video is coming from a videotape and you can't use the shoot-through framestore as a guide, or if the subject of your framestore is not centered, simply adjust AutoPaint to take its slice from the left or right of center.

## Multi-File Render

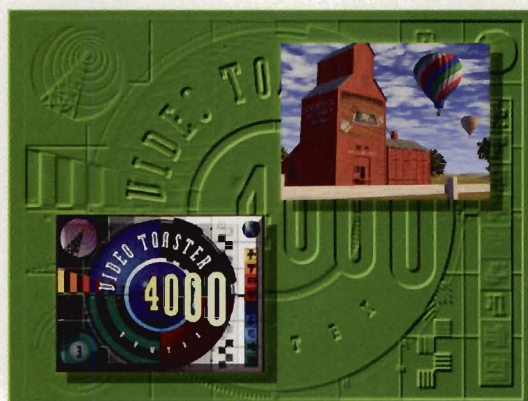
The Multi-File Render feature allows multiple image composites to be set up, then have all the framestores rendered at one time. To do this, set up your image templates and save these settings to your hard drive in the form of scripts. After you've saved all your templates, the Multi-File Render screen lets you create a list of scripts to be rendered. This feature allows you to set up all your templates, then let AutoPaint render away while you do something productive.

## File Tools

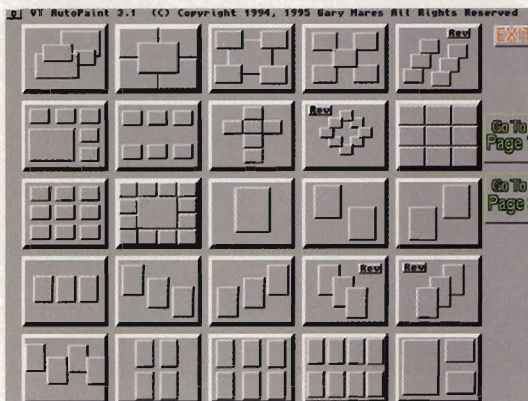
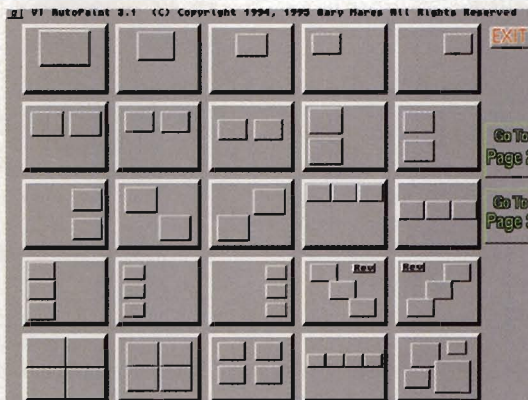
AutoPaint has two features called Flash Directories and Rapid File Selector designed to further speed up the process of image compositing. Flash Directories provides the power to set up five working directories that can be quickly recalled. This is handy when loading images out of multiple directories. The



After selecting a template icon, a full-screen template appears, allowing customization.



After AutoPaint finishes rendering the composite, the framestore is ready to go.



AutoPaint's template screens offer 60 unique composite templates.

Rapid File Selector is a giant file requester that can do multiple picture frame assignments. This function speeds up the picture assignment process by cutting down on the amount of file requesters needed. Both Flash Directories and the Rapid File Selector are optional features that don't need to be learned to use AutoPaint.

## RAM Considerations

Although AutoPaint performed fine in my 14MB Amiga 4000, the AutoPaint manual went into considerable detail about operating the software under low-RAM situations. Due to RAM limitations, AutoPaint's Positionables and Multi-File Render tools can either be run directly from AutoPaint, or from the Workbench as separate, smaller programs.

## Ease of Use

Although AutoPaint is a straightforward, quick and easy program to use, its software interface could be cleaned up a little. Users of AutoPaint should be familiar with Amiga pull-down menus, file requesters, where their framestores are located on their hard drive, and how to Ctrl-Ctrl-Alt-Alt out of the Toaster software. The manual is pretty thin, but its step-by-step instructions took me through the entire compositing process without any troubles. Explanations of AutoPaint's more advanced features are a little wordy and hard to follow, but they work.

## Summary

Overall, AutoPaint is a great tool for framestore image compositing. ToasterPaint can do everything AutoPaint can, but the template-based interface makes AutoPaint a natural companion for ToasterPaint when image compositing is needed. If you make a lot (or you'd like to make a lot) of custom framestores for wedding videos and such, AutoPaint saves hours of compositing and provides professional results.



## Company mentioned:

A+ Development  
(AutoPaint—\$89.95)  
241 S. Frontage, Ste. 32  
Burr Ridge, IL 60521  
(708) 654-0321

FOR INFORMATION CIRCLE 29



# 3D Digitizers

## Two New Ways to Capture Objects

by Erik Flom

When it was released, one of the revolutionary features of the Toaster was its low cost. In many ways, the early advertisements were true: this \$1,500 card could replace over \$40,000 of equivalent broadcast equipment. The Toaster's low price encouraged guerilla videographers, and set a pricing standard in the video industry for years to come.

Similarly, new 3D digitizers and software promise to transform the field of 3D object capture. Until recently, most 3D input devices cost thousands, if not tens of thousands, of dollars. In the last year, several companies have released products that break the price barrier, bringing accurate 3D digitizing to the desktop. I've recently had the chance to test several products that could make the formidable task of digitizing easy—almost pleasurable.

VertiSketch is a software package that interfaces directly into NewTek's LightWave 3D Modeler package, allowing you to create and edit objects with the use of a third-party digitizer, like the Immersion Personal Digitizer. Also reviewed is the DigiMax, a unique combination of software and hardware that promises to shake up the world of small-scale 3D digitizing.

### A Well-Articulated Response

VertiSketch by Blevin's Enterprises is a program and set of macros designed to be run from within LightWave Modeler. Made to interface with a number of third-party digitizers, VertiSketch is the only program that provides a direct link to LightWave, bypassing the need for a standalone modeler or intermediate object formats. It's sort of like adding a 3D mouse to your workstation: data is input directly into Modeler, allowing for easy creation of splines and polygons with the tools LightWave users are most familiar with. Once invoked (with the VS Startup macro), a range of special macros are added to the Modeler macro list, allowing you to calibrate the digitizing



space, enter points, and build and manipulate objects.

The Loft Start and Loft macros create a mesh of polygons by sampling successive rows of points on an object's surface. Using a common 3D technique called "lofting," the procedure involves digitizing successive rows or columns of points. As each row or column is added, polygons are created to connect the points and form a surface. By repeating the process across the surface of an object, it is possible to quickly and simply define a complex, curved shape. The manual includes several step-by-step tutorials detailing the finer points of making lofted surfaces and spline cages in 3D.

VertiSketch currently interfaces with Modeler through the ARexx language. Though ARexx is very powerful, it is not the fastest link between two pieces of code. One thing sorely lacking from VertiSketch is real-time display of the digitizer location, and this is most likely due to the slow ARexx interface. With the release of LightWave 4.0, VertiSketch

will become a plug-in module allowing a direct (higher-speed) link to the Modeler interface. That means it will also be available for most NT versions of LightWave, enabling you to carry your software/hardware investment over to your next platform.

VertiSketch is designed to interface with a number of input devices. I had a chance to use it with the Immersion Personal Digitizer from Immersion Human Interface Corp., an articulated arm with three joints and six degrees of freedom. Looking much like a small robotic arm with a pen in its hand, this precisely machined unit calculates the position of the stylus by reading the angle of each joint. With this angular information it is possible to determine the exact position of the probe tip—with an accuracy of less than 1 mm.

The detachable arm assembly is firmly screwed into a solid plastic digitizing platform that roughly corresponds to the reach of the digitizing arm (rated at 20 to 24 inches, depending on which model you get). A small mini-plug in



the back of the electronics unit allows you to install an external footswitch; otherwise, points are selected by using an assigned button on the keyboard. An optional rotating table can also be fitted into the digitizing platform. While one was not included for our trial, it can be used to rotate the fixed model in exact 90-degree increments, allowing easier digitizing of all sides of a model. (VertiSketch even has a macro to rotate the model to match the position of the table, allowing you to seamlessly digitize every reachable surface.)

As opposed to magnetic, ultrasonic or optical measuring techniques, there are few limitations concerning the type, or shape, of object that can be digitized. Unlike magnetic digitizers, there is no problem with metal objects, or stray magnetic fields (like your computer monitor, AC cords, metal watches, etc.).

The one limitation of using an articulated arm is that the joints are limited to certain angles of rotation. This means that while digitizing a curve, you may often get into a position where one or more joints have "locked out," forcing you to remove the stylus from the object and flip the arm joints around to finish digitizing the curve. The problem is that all the flipping and twisting can result in increased error once you're ready to start grabbing points again. (A good example is a free-standing humanoid model. When digitizing rings of points around one thigh, there will always be a point where you have to flip the arm around to capture the other half of the leg. This process can get quite tedious.) My main complaint is that the arm is fixed on the right side of the platform. Being left-handed, I found having to do a majority of sampling with my right hand somewhat distracting. (Also, since there is some drag and weight to the probe assembly, I noticed some fatigue after using the stylus for a couple of hours straight.)

It should be noted that I was using an older version of the first-generation Personal Digitizer. By the time this article hits the newsstands, Immersion should be shipping an updated digitizer. For about the same price, buyers will receive a unit with slightly greater reach. Other improvements include a counter-weight to reduce fatigue, and a more rugged plastic casing to protect the delicate joint assemblies.

Installation of the Immersion Personal Digitizer is a simple matter of assembling the three main components and plug-

ging it into your serial port. VertiSketch communicates with the digitizer through the serial port, passing information via ARexx to LightWave Modeler. VertiSketch, combined with the Immersion Personal Digitizer, would be a great addition to any LightWave modeling workstation.

### You Say You Want a Revolution?

The DigiMax from Impulse (makers of Imagine, a 3D rendering package for the Amiga and PC platforms) is a rather unique approach to digitizing 3D objects. The design is so simple, the first



A portion of the VertiSketch leg model after patching.



This spline cage was built using VertiSketch.

impression is that it couldn't possibly work well—if at all. Especially for the ridiculously low price of under \$700! For that price, the kit comes with the digitizing hardware, serial cable, software for both PC and Amiga, and a hot glue gun (more about that later).

The DigiMax looks more like a lathe than anything else. To digitize an object, it must first be mounted on a threaded rod positioned to run down its longest axis. (This is where you need the hot glue gun.) Then, like a pig on a roasting spit, the object is suspended between two mounting brackets on the DigiMax. (The left

side of the device has a knurled knob, with a threaded shank to hold the object. The right side has a small, threaded centering pin, just like the lathes in shop class.)

Now that the object (up to 20 inches long and 10 inches in diameter) is securely mounted on the DigiMax, it's ready for digitizing. The actual 3D position data is input using a pointed steel caliper that rides in a track parallel to the object's axis of rotation. The caliper snaps into a small black box attached to the geared track, and sensors in this box detect the left to right position of the caliper. The entire track is free-swivel, allowing the caliper to stretch out around the various curves of the mounted object.

Using the knurled knob, the object is free to rotate a full 360 degrees (or more). An optical encoder transmits that angular information to the software. The 3D position of the tip of the caliper is determined from only three variables: the angle of the object on the spit, the left-right position of the caliper, and the angular position of the caliper. By limiting the number of variables, DigiMax is able to fairly easily digitize points with an accuracy of about 1/64th of an inch. In empirical tests, I found that the accuracy and reproducibility of point data from the DigiMax was noticeably better than that of the VertiSketch installed in the Personal Digitizer. (The Immersion Digitizer was an older demo model, so there's no telling how much abuse it's suffered. It did seem like there was a lot of play in the joints, indicating that it might have been a little worn.)

A small button mounted just next to DigiMax's knurled knob can be used as a trigger to select points, making object creation extremely simple. There is also a socket for an external footswitch. My only complaint is that there's no beep or click when the switch is closed. I kept having to look away from the object to make sure I'd grabbed a point. In discussing this difficulty with Impulse, they implied that it could be easily remedied, but also pointed out that with their system, it is unnecessary to actually look at the model. After using their new software, I could understand why.

It's the software bundled with the DigiMax that makes it truly shine. Since Impulse wanted to allow their Imagine customers to be able to use the DigiMax

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# The Double Punch

## A Two-in-One Keying Effect

by Chris Fenwick

**I**magine a multiple camera show with guests sitting on a stage talking to each other. You're on a wide shot as the host asks a question and you want to go to a single and insert a lower-third name key.

Most people will say that on a Video Toaster you have to do this in two steps: take to camera one (let's say) and load and insert the key. (For argument's sake, we'll call that one step.) The other way of doing this is what we will call a Double Punch.

### Background

The term "Double Punch" comes from traditional television equipment, where by pressing the camera button and the Insert key button simultaneously, you can change sources *and* insert a lower-third name key. Yes, simultaneously, on the same frame. If you're watching some local-level sports and see the director cut to a close-up of a guy shooting a free throw with his shooting average keyed over him, many times you will notice that the key is not there at the exact same time as the take. The reason for this discrepancy is that on many production switchers (e.g., Grass Valley 1680, for many years the standard for sports), the easiest way to achieve this multiple effect is manually, pressing both buttons at the same time.

For a long time I considered the Toaster to be a single-event, single-layer switcher, until one day I made a mistake in rehearsal, and bingo—I had a new trick up my sleeve! Here's how you achieve a Double Punch.

Let's get back to our simple two-camera show. Two cameras are



Preview



Program

*Close-up and the wide shot.*



Preview



Program

*Result of dialing in the CG page number and hitting Enter.*



Preview



Program

*Result of hitting the return key.*



wired to the Toaster, genlocked together and timed. Let's say camera one is the wide shot and camera two has the close-up of the speaker (Figure 1).

Normally you would expect a call from your director (or maybe from yourself, in your head) like this:

"Ready camera one.

Take camera one.

Prepare to insert key number 10.

Insert key (pause for a bit to read the key—duh!).

And lose it!"

However, this is what we will achieve...

"Ready camera two with key number 10 take!

Pause to read the key.

And lose the key!"

### Awesome Power

First let's assume we have a basic working knowledge of the Switcher. For example, the function keys (F1-F7) act as the Program bus and the number keys (1-7) act as the Preview bus. Space bar will trigger the Auto Transition and the Return key is the Take Bar.

Now, if you wanted to insert a lower third over a camera shot, what you would normally do is key in the CG key number (in our example it is key No. 10) and press Enter. This will render the key into one of the frame-buffers on the Preview monitor. Then, by pressing the space bar, the key will dissolve in over the Program output. That's all fine and dandy, but it's not a double punch.

Let's go back to our starting point with camera two on Program and camera one on Preview. At this point we dial in the key number and press Enter, just as we did earlier (Figure 2). Take a look at the Superimpose Panel on the Switcher. The name DV1 or DV2 will be replaced with a clapperboard icon, indicating that a CG page is waiting to be keyed next.

Knowing that the key is "standing by," we can select the input we want to go to on the Preview bus. Don't be fooled: if you look at the Switcher Control Panel only, you will see that camera one is still selected, even though your CG page is visible on the Preview monitor. Go ahead and press the number 1 on your main keyboard. This is a little bit unnerving, because after you press the button, you won't see any change on the preview monitor. You just have to know that you've pressed the button. You will still see camera two on Program, and we still have the lower third "standing by," as indicated by the clapperboard icon in the Superimpose Panel.

All that's left now is to hit the Return key to take to camera one with the lower third. Bingo—you've "double punched" (Figure 3).

### Removing the Key

There are two options for removing the key. It can be dissolved out with the space bar or you can take to another source without the key. The dissolve out is easy—all you have to do is hit the space bar. To take away to another source, preview it and hit the Return key.

### Impress Your Customers

The day I discovered this feature I immediately incorporated it into a live-to-tape show, and believe me, my client put aside a few more doubts that he had about using a Video Toaster instead of a standard Switcher package. Give it a try and see how people like the Double Punch effect. Have fun.

*Chris Fenwick has a background in broadcast television and has directed the PBS series Computer Chronicles. He has also done technical directing for sports television programs.*

## Keys to a Successful Double Punch

Function Keys (F1-F7) = Program bus

Number keys (1-7) = Preview bus

Space bar = Auto Transition

Return key = Take bar

## WaveMaker continued from page 59

Maker creates a LightWave scene file, and then loads the animation directly into LightWave (if running). The manual says it may take a while to load: it took my machine a long time—as a matter of fact, it never finished. I soon discovered that if you leave LightWave, going to the Switcher screen first, then (Ctrl Ctrl Alt Alt) to Workbench and enter WaveMaker, it won't load into LightWave. If you (Amiga + m) to Workbench, then go to WaveMaker, the program works flawlessly.

Since WaveMaker uses ARexx to function, there are other options it can perform, including outstanding batch rendering. Simply set up to 15 animations and leave town. WaveMaker will do the rest. It will render the first animation, save the images, proceed with the second animation, and so on. It's a great feature for a studio that doesn't work on weekends and has a couple of logos to render. If the logos only take 10 hours each to render, WaveMaker could pump out four or five of them over an entire weekend.

### Get It

WaveMaker is an invaluable program. It's obvious after using it for just a short time that an animator produced it. If you animate full time, it's a tremendous time-saver. If you want to animate more, but not spend hours working in LightWave, it's a must-have. To see what an indispensable program WaveMaker 2.0 is, you'll have to try it for yourself. There wasn't enough room on these pages to describe the various possibilities and results of the program. With so many combinations of elements and motions available, most likely, you'll never use them all. Overall, there were no bugs, no crashing, and it couldn't have been easier to use. Well, I take that back—it could have been easier, if I didn't have to lift a finger and it still created an animation. But it came pretty darn close.

### Company mentioned:

Radiosity  
(WaveMaker 2.0—\$249)  
3970 N. Victoria St.  
Shoreview, MN 55126  
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# The Video Toaster Reborn

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of portability between computer platforms, direct-to-disk field recording and editing, and the inherent plug-and-play nature of an external device, are the main reasons we decided to design the new Video Toaster as a standalone product.

**VTU:** Can you give us an explanation of how the new Video Toaster works?

**JENISON:** Sure, it's really pretty simple. After you've installed the software and connected the unit to your computer's SCSI II port, you simply load the Video Toaster software and start working. The user interface looks pretty much like the current Video Toaster Flyer interface except for the Windows look-and-feel. The unit has standard BNC connectors on the back where you can input your video and audio sources to digitize footage on the hard drives, which are also inside the unit. The Video Toaster's front panel is on a hinge that allows access to the three hard drives inside. By the way, we've developed a special hard drive mounting mechanism that attaches to the bottom of each drive and allows for quick insertion and removal of hard drives. With the way hard drive prices keep dropping, it won't be long before you'll be able to carry around a couple of spare 20 gigabyte drives that you can pop in your Video Toaster on a moment's notice.

Once you've digitized your video and audio material, the system automatically creates image croutons that you can drag and drop into a sequence of any combination to create a video. Other components of your video—like transitional effects, CG pages, still frames, graphic images, sound effects and 3D animations—can also be created within the Video Toaster environment and turned into croutons that can be integrated into your editing sequence.

**VTU:** This sounds pretty familiar. It's just like the existing Toaster/Flyer non-linear editing environment.

**JENISON:** Well, yes and no. The way you use the storyboard interface to drag and drop and move and adjust croutons in the sequence is pretty much the same. There are some differences, however, in the way the Video Toaster internally processes the various croutons in the sequence. For instance, transitional effects like fades and cuts occur in real-time, but most other effects will take several seconds to render.

This is a little longer than the original Toaster/Flyer system, but it gives you the advantage of being able to produce really high-quality transitions, free of the aliasing and pixelization you see in some original Toaster effects. In the new Video Toaster, LightWave 3D plays a much greater role in the production of special effects and graphics.



The user interface looks pretty much like the current Video Toaster Flyer interface except for the Windows look-and-feel.

**VTU:** So, this is what you were hinting at when you said at the recent Video Toaster Expo that NewTek's future direction centered around the Flyer and LightWave 3D?

**JENISON:** Yes. As Hollywood can attest, LightWave 3D is an incredible piece of software, and the Flyer is one of the most sophisticated circuit boards ever designed for a personal computer. The two working together is an awesome combination of audio, video and graphic capability. It is a mix that no other desktop video manufacturer can offer.

**VTU:** How will existing Video Toaster users be able to benefit from NewTek's new product direction?

**JENISON:** As I mentioned earlier, we are continuing our development of the existing Toaster system software to bring even more capabilities to that platform. Of course, most Toaster users know they can add a Flyer to their system immediately, to create a very powerful and complete graphics and non-linear editing workstation. I know many Toaster owners are concerned about the status of the Amiga. A lot of people are hesitant to continue investing resources in a computer platform with an uncertain future. We've taken that into consideration in the design of the new Video Toaster. A current Toaster owner can invest in a Flyer and hard drives without worrying about wasting their investment, because the current Flyer hardware plugs right into the new Video Toaster. We will offer a fully equipped external box, called the Video Toaster Bay, minus

the Flyer for an appropriately reduced price. That means you can buy a Flyer now and immediately enjoy the benefits of all the great features our current system has to offer, and anytime later, you can choose to transfer that investment with no financial penalty over to the new Video Toaster solution.

**VTU:** At last year's NAB you announced and showed the Flyer non-linear editing solution for the Toaster system. It's over a year later and you're just now finishing the release version of the Flyer software. Will your customers have to wait that long for the Windows-version of the Video Toaster?

**JENISON:** No. The new Video Toaster was designed with a very short development and production cycle in mind. The most complex part of the system is the Flyer hardware and internal software and we're already done with that. The Windows version of the Video Toaster will ship this summer.



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# Paint Parade: Part 1

## Creative Background Image Options

by R. Shamms Mortier

**W**elcome to the first in a series of tutorials that will demonstrate how you can use a diverse assortment of paint software to enhance and alter your images, whether photographic or graphic, RGBs or framestores. The general procedure of these lessons will be as follows. Each will focus on an image or a series of images requiring a targeted alteration. Then variants of this alteration

and how the results were achieved will be shown, using perhaps three or four paint packages. The May issue of *VTU* contained an overview of the packages themselves: ToasterPaint, AlphaPaint, TVPaint, DeluxePaint, TrueBrilliance, Personal Paint, and the painting/effects software PhotoGenics and ImageFX. As other paint programs hit the market they will be incorporated into our tutorials. All of the software mentioned thus far is Amiga-based, but the movement of LightWave to other platforms signals that we should be aware of painting wares on other machines as well. Future tutorials will take a look at non-Amiga-based products, and incorporate PC software such as Fractal Paint, Corel's PhotoPaint and Adobe's Photoshop. All in all, you'll get a comprehensive overview of the ways that artists and animators work to create and alter images with a diverse range of products.

One word of caution as you peruse these articles. It is expected that you already have a fair degree of familiarity with the tools and techniques of these packages, gained from working through their respective tutorials on your own.

### Our First Contender

As a starting image, I have chosen one that will act as a background picture over which credit text will scroll at the end of a production (Figure 1). It's a beautiful frame of a wide-angled view of Monument Valley in Arizona, with one of the recognizable "Glove" mesas in the foreground. This image could be used exactly as it is as a credit text background. It is so recognizable, however, that our aim will be to keep its character while treating it as part of a unique graphic that will not be misidentified with any other production featuring this image. A common

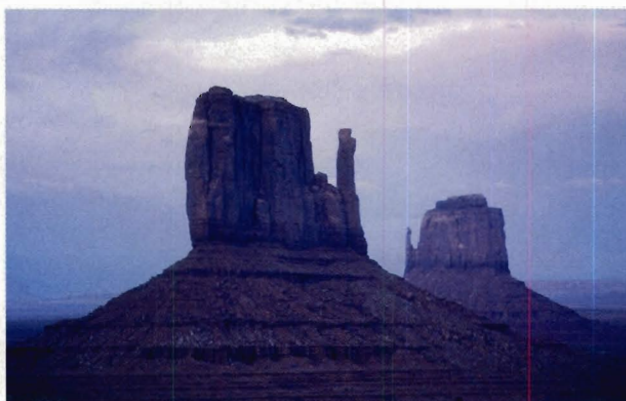


Figure 1: The starter image to which painting and effects will be applied.

application of electronic painting for video use is similar to what we are doing here: using an image from the video as a background for credit text scrolling, but to "do something to it" to make it unique. So let's investigate altering it within the boundaries of several painting wares.

### The First Candidate

If you are a Video Toaster user, you have a ready-made tool at your disposal as far as the electronic painting of video images is concerned: Toaster-

Paint. Other painting software that I will and have mentioned contains alternate tools and effects, but ToasterPaint is included with the purchase of the Toaster. Of course, you could also be a standalone LightWave user (as are many of our PALs in Europe), and you may need to use an image as a background for an animation, but that will be the focus of another tutorial. ToasterPaint, then, is the first painting application we will use to alter our image.

Always choose an image that has a nice contrasted shape if possible. The blue sky of this picture sets off the silhouette of the mesas quite well. In TPaint, take your image, grab it as a brush, and use it as a texture. Now go to the filled polygon tool and draw a shape that mimics a perspective rectangle (Figure 2). The picture fills this shape and looks as if it has been tilted, enhancing its interest. Now use a color fill from dark blue to black and create a faded blue area that is centered behind the image. I have chosen a dark red for the text overlay that will scroll against this. Notice how the text is very visible when it hits the blue sky in the image, while fading out at the top and bottom. With techniques like this available within TPaint, your credits can become an artistic part of your production.

### A Second Approach

InnoVision's Alpha Paint is the premier painting package for professional Toaster users. Unlike TPaint, it does not come with the Toaster, but requires an additional investment. If your digital work is your livelihood, however, you will not complain about having the best tools. My advice is to train on ToasterPaint and graduate to Alpha Paint when ready.



In this example, our first step is to grab the graphic as a brush in Alpha Paint and resize it to about one-quarter of the screen. In the pictorial example, I used two images at about one-quarter screen size and another sized a bit smaller for variety. Image content and contrast determine how many images can be sandwiched for effect. Generally, the more elements an image contains, the smaller the total number of images, just so things don't get too busy and distracting from the scrolling text.

Alpha Paint has excellent "feathering" routines. Feathering is an effect that essentially fades out or vignettes (a traditional printer's term) the harsh edges of a picture, substituting a softer blended edge. If a degree of transparency is added to the feathering, you can create very dreamlike images. Notice how well they overlay each other. This effect can be best achieved by allowing some experimentation time. Alpha Paint's tools are very interactive, so experiment to your heart's content until you achieve your desired effect (Figure 3). In this example, I have kept the background color black to add a degree of mystery to the finished piece. The yellow text also stands out against the black. If the ToasterPaint example can be seen as relating to a standard documentary production, the Alpha Paint example might find its way into a production dealing with the more esoteric side of nature—maybe even a ghost story.

### Yet a Third Painting Effect

Nova Design's ImageFX 2.0 is one of the most awesome image manipulation and painting packages ever produced for any system. In the last few years, painting software has started to include more and more effects possibilities, while effects packages have incorporated more painting tools. ImageFX is a perfect blend of the two. Among the most startling of its new library of effects is the creation of "lightning" over a selected image. IFX's lightning responds to a large list of variables, including Bolt Parameters (radius, color and contrast), Seed Parameters (segment size and angle), Branch Parameters (size, count and angle) and Glow Parameters (inner and outer glow colors and sizes). A random seed genera-

tor assures you of getting a different bolt each time and a "deviation" filter adds even more variability. If you develop a lightning bolt that is worth using again, simply save it in a special load/save area

Get to IFX's Effects/Lightning requester and off you go. For this example, I've created an animated background against which the text will scroll (Figure 4). Animated backgrounds offer more interest to the viewer but distract a bit from the text if too much movement is included. For this reason, the majority of the background remains in a stable condition and I animated only the lightning bolts. With only about 30 looping frames you can create an interesting animated background sequence that holds the audience's attention.

What kind of production might benefit from this painting effect? A segment about the weather would be a natural choice. You might also add it in just for the drama of it all.

### More on the Way!

Well, that's it for Part 1 of "Paint Parade." I hope you enjoyed it, as there are many more to come. Next time we'll deal with other paint programs and a new application target, airbrushing effects. If you have tutorial requests in terms of both specific production effects and your favorite paint wares, contact VTU in care of Shamms Mortier.

By the next issue I should have an Internet address for you as well. Meanwhile, enjoy! And, oh yes, I'll see you in ROMulan space.



### Companies mentioned:

NewTek, Inc.  
(ToasterPaint—bundled with the Video Toaster)  
1200 SW Executive Dr.  
Topeka, KS 66615  
(800) 843-8934

### FOR INFORMATION CIRCLE 32

InnoVision Technology  
(AlphaPaint—\$699.95)  
1933 Davis St., Ste. 238  
San Leandro, CA 94577  
(510) 638-0800

### FOR INFORMATION CIRCLE 33

Nova Design, Inc.  
(ImageFX 2.0—\$399)  
1910 Byrd Avenue  
Richmond, VA 23230  
(804) 282-6528  
Fax (804) 282-3768

### FOR INFORMATION CIRCLE 34



Figure 2: ToasterPaint was used to alter the perspective and color-filled areas of the image. The text scrolls are more visible when contrasted against the blue sky.



Figure 3: By accessing the feathering and transparency routines in Alpha Paint, graphic brushes can be overlaid in a dreamlike fashion.



Figure 4: A series of frames from an ImageFX-altered animation shows how the lightning effect can be used to increase the drama of an animated background.

mean for that purpose. Three lightning bolt parameters ship with the software: red, blue and green. I used the red bolt in this example. All effects are previewed in a small window before applied. Since ImageFX has a multiple Undo option as well, you can't go wrong.

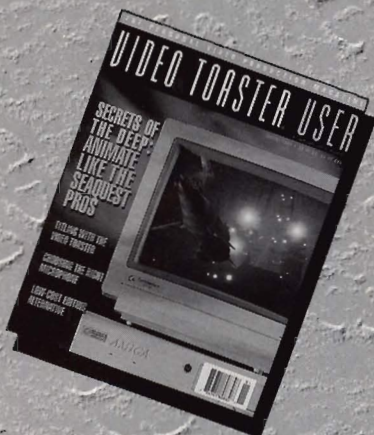


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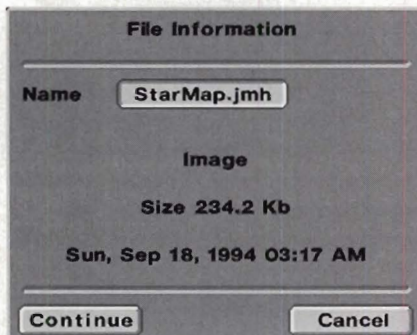
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## SLICES continued from page 35

- If you don't use PostScript fonts at all you can remove the entire PSFonts directory. This entire directory, which includes the Colorfonts directory, totals 37MB.
- This seems like a silly item to mention (what Flyer owner would remove effects?), but I like to be thorough. If you do not use special effects, the entire Effect directory takes up 172MB on an Amiga 4000 system (79MB on Amiga 2000 or 3000



The controls display for a file on a hard drive. Use this to rename files and directories (but not hard drives).

systems). In reality, if you're like me, there are effects you like and others you don't care for. Just head on in to the **Effects** directory and delete those you don't want.

There are a number of smaller files scattered within the **Programs** directory that can be removed without harming the system. However, unless you're absolutely confident about what you're doing, I think it's best not to go in there. The Programs directory contains those files that the Toaster needs in order to operate. Don't mess with it carelessly.

Also, I sincerely doubt that anyone can avoid using ARexx in one fashion or another with the Toaster, so I do not recommend removing any portion of the **ARexx** drawer.

Finally, if you lose your mind completely and delete an important file, and suddenly the Toaster no longer runs, don't worry. Go get the installation diskette(s) and the CD-ROM, and reinstall the software.

Hey, at least it's not 50 disks long again.

### Undocumented Tip

When you are in the Toaster software, at any files window display (where you can use the window to show the contents of hard drives), select

any file and click on the Controls button residing on the main button bar.

The display that pops up serves two purposes. It will inform you of the actual size of the file (useful for determining how much disk space the file requires), and can be used to rename files. Just click in the name field and enter a new name. The software will ask you to confirm this choice. Click OK and let the Toaster handle the rest.

### What's HIIP?

Elastic Reality (formerly ASDG, Inc.) has developed the file format software portion of Art Department Professional into what they now call HIIP, or Host Independent Image Protocol. NewTek has licensed HIIP for this release of the Video Toaster software.

This means that you can load and save images from a wide variety of image formats, all while within the Toaster. Try out the ARexx Import script (in ToasterCG) on the file formats you see listed below. And watch for greater HIIP support through the Toaster.

VTU

## HIIP Formats in Toaster System 4.0

Alias  
BMP  
Cineon  
FLIC  
Framestore  
IFF  
JPEG  
PCX  
PICT  
Pixar  
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Newtek Video Flyer  
Villagetronic Picaso w/1MB-2MB  
Noahji's Vlab Motion Card  
Noahji's Vlab Motion System (Toccata)  
Noahji's Vlab Motion Complete (T&RZ3)  
Noahji's Retina Z3 w/4MB  
Noahji's Retina Z2 w/4MB  
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Noahji's Vlab Y/C Internal / External  
Sunrise Industries AD516 Digitizer (16b)  
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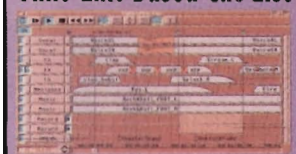
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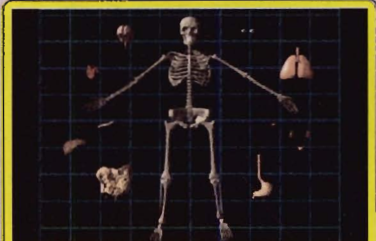
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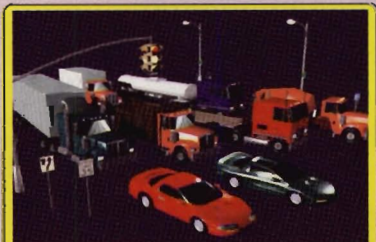
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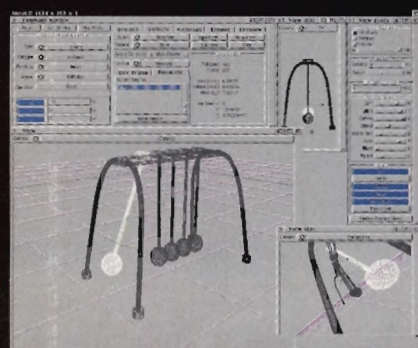
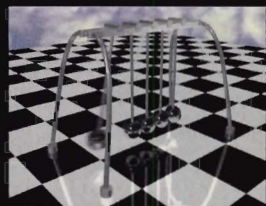


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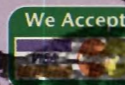


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# Visual Inspirations

## BATCH FACTORY **\$55**

The most powerful & easy to use Batch Processing Utility on the Amiga. It comes with over 350 ARExx scripts that range from creating animations to compositing images to making custom video wipes.



## SURFACE PRO FOR LIGHTWAVE 3D **\$85**



Finally, a collection of useful, ready to use, low memory, seamless surfaces for the

LightWave professional. Surface Pro offers a wide variety of seamless image-based LightWave surfaces. Surface Pro gives you over 60 new surfaces that are instantly available through LightWave: Liquid Metal, Circuit Board, Nebula, Wood, Globe Wrap, Water, Flame, Marble, Chrome, and more.



## DIGITAL SOUND TRACK **\$85**



Add audio to your videos and animations with ease. Simply create an EDL to tell

where you want the sounds to play and Digital Sound Track does the rest. It gives you complete control of your VCR. With over 5 Mb of special effect samples and MOD files.

## ROAD SIGNS FOR LIGHTWAVE 3D **\$45**



Road Signs is a collection of over 50 hand-crafted Lightwave objects, consisting of all major U.S. traffic signs. Ideal for accident reconstruction or any out door scene. Simply add text to the Road Signs Construction Kit to create unlimited signs, and tailor them to fit your scene. Requires LightWave 3.0 or higher and about 1Mb of HD space.

## VISUAL FX **\$125**



**You don't have to go all the way to Hollywood anymore to get first rate fx.**

Volume one by Leo Martin and volume two by Mark Thompson are state of the art fx. The impressive front end of Visual FX gets you into production now, no previous Lightwave experience needed. The transition volumes are perfect for use with the NewTek Video Flyer or the DPS Personal Animation Recorder, just select what images or video sequences you want to use and Visual FX will do the rest. The Logo volumes are just as easy. Simply select what object you wish to replace our default and you are off on your way to creating professional quality animations that you never thought possible. Visual FX requesters actually open up on the LightWave screen and walk you through each step. Visual FX is perfect for batch processing. Each volume comes with 20 effects, each of which has a full 30 frame preview animation attached to it so you will know exactly what the effect will look like. Visual FX works with both the Video Toaster and stand alone version of LightWave.



# Multimedia *and* the Toaster

continued from page 55

the Mac is not ideal for doing video work, with Adobe Premiere and the A.V. card, the Mac will make Quicktime or Indeo movies. Even LightWave animations can be translated into Quicktime movies. No, they won't look even vaguely as good as they do playing from your PAR or Flyer, but these films are a convenient way of conveying animation and sound information without using special hardware. If your client wants Quicktime movies, your Toaster can produce some of the finest.

For print work, Macintosh continues to be an excellent platform. More importantly, the Mac has given us a way to proof the work we create for the PC, the Mac and other platforms. It also provides the ability to get online for a wealth of information on the Internet and other services while the Amiga renders.

## Never Enough Closet Space

Storage and file management take on a whole new meaning with multimedia. Every project seems to require huge amounts of data storage. Gigabyte hard disks fill up weekly. Let us offer a couple of suggestions for handling the crunch of dealing with so many files. First, we use external 2GB hard drives that easily move from one computer to another. Then we partition the drive and always mirror the data on the other partition. Although redundant, this practice has saved us from hard drive crashes and the occasional push of the delete button. Even if you back up your drives nightly, it's amazing how much can be created and lost in one day.

Backing up to a 2GB DAT drive is the next form of protection. A new hard drive back-up program available on CompuServe as shareware is Diavolo. It is extremely fast and good about setting up your tape drive for optimum performance. Because DAT tapes have a reputation for being somewhat flimsy, alternate the tapes you use for backups, minimizing the amount of data you can lose if your drive and your most recent DAT tape both fail. It probably won't ever happen, but an extra DAT backup tape is very inexpensive insurance.

Although it's not quite designed to be a removable drive, on our Personal Animation Recorder, we actually use two drives. Although the PAR accepts two connected IDE hard drives, we simply don't have room for both drives in our Amiga 4000. By popping the lid on the A4000 and keeping the drive in the 5-1/4-inch bay, it takes only a minute to swap drives. We use the Micropolis 1.6GB for animations and motion capture and the old Seagate for still storage. The Seagate can hold 10,000 framestores, and the company's newest software makes it easy to export their version of a framestore to another hard drive. If you need a big hard drive, a great source for multi-gigabyte hard drives and DAT drives is Corporate Systems Center in Sunnyvale, Calif. Call (408) 734-3475 and ask them to fax you the drive prices. They really go out of their way to make you a customer for life, and their prices are great.

The newest addition to the never-ending organization of all the files is a program we picked up at the Video Toaster Expo called Graphic Recall. This software scans your drives and produces thumbnails of pictures in a

database, allowing you to browse through and see a preview of each picture. This is particularly handy if you start to collect CD-ROMS coded in another platform and need to see what's on them without loading every picture. Graphic Recall uses ADPro to translate the files into something viewable.

## Fly Me to the Moon

The next logical extension to the Video Toaster, the Flyer, completes an already great multimedia development system with the addition of audio and non-linear editing and direct animation support. We hope to form a multimedia development system with the Flyer and Video Toaster producing the graphics and audio, so by merely rearranging clips, we can update the menuing choices or content while the core project remains intact. Hopefully, with mul-



DPaint title screen for a snowboarding video game.

timedia in mind, D-1 quality can be substituted with S-VHS quality for more data per megabyte. In addition, CD-ROM recorders are approaching an acceptable price level. CD-ROM production is quickly becoming the next medium to go desktop and personal.

As an example, we've been involved in the development of a snowboarding game for the past year. It is currently in release as a freestanding arcade game machine. The best part (besides our graphics, of course) is that you actually stand on a board wired with sensors that track your movement down the virtual hill. The other cool part is that hidden inside the game cabinet is an Amiga CD32. For some clients, like Budweiser, we've inserted the company logo as a title screen at the beginning of the game and on a banner that is part of the animation sequence when you win the game. A CD-ROM of this version is then pressed and Budweiser has a custom-made arcade machine to use at promotional events.

Personal multimedia production is the next logical evolution of personal video production. As the line between digital video and multimedia grows thinner every day, the future is clearly emerging as digital, three-dimensional and very interesting. Video Toaster users should feel right at home.

VTU



## Digitizer continued from page 63

(as well as other Amiga owners), they chose to develop a standalone modeling package that works directly with their digitizer.

Looking a lot like Imagine's modeler, this package presents the user with the standard top, front, side and perspective views in wireframe. It's possible to zoom in and out, move around, or enlarge any window, and the perspective view offers real-time rotation and scaling. The program doesn't have much in the way of actual modeling tools. Instead, it is designed to quickly create a lofted outline of your 3D object, which can be exported as a DXF or Imagine object file for editing in your favorite modeler.

The nicest feature of the DigiMax software is the real-time update of the probe's position in the wireframe preview windows. Unlike VertiSketch, there's continuous feedback that allows you to get the probe in just the right spot before grabbing a point.

Taking real-time feedback a step further, the beta software included with DigiMax features real-time lofting that virtually *shows* you the shape of each polygon as you grab the points. Based on the position of the pointer, the new lofted section is shown, allowing you to control the exact look of the curve as it's being grabbed. With this kind of feedback, it's possible to digitize an entire object without having to put the usual grid lines all over it, much less even look at it!

The DigiMax is a surprisingly efficient and cost-effective solution for 3D digitizing. A snappy user interface, combined with simple, intuitive hardware, makes for a truly unique product. The weakest link is probably the manual. Written in a conversational style, it may confuse the novice computer user with its rambling syntax and lack of step-by-step tutorials. However, with the included tips and hints, most people should have no trouble figuring out how to use DigiMax.

There's also a DigiMax Pass Thru port on the back of the machine. Impulse representatives reported that it is for a number of add-on products, including a small keypad, a "color picker" to capture color information, and an articulated model arm that will supposedly allow direct input of rotation information to a hierarchical object (like an arm or leg) in the layout portion of programs like Imagine, LightWave and 3DStudio. No

specific release dates were given, but when shipped, prices are expected to be as aggressively low as the original DigiMax unit.

### The Final Chapter

3D object digitizing is undergoing a revolution in price and performance. Software like VertiSketch dramatically expands the range of tools available



A quick rendered sample of the digitized leg. Note the seam along the back side.



The raw polygon data for a human leg, as saved by DigiMax.

for LightWave modelers, while products like the Personal Digitizer and the DigiMax bring the hardware costs down to almost a hobbyist price for users of all platforms.

Both digitizers use a serial interface, so you can plug them into pretty much any computer that has software to run them. (This is an important consideration, since LightWave 4.0 will run on a number of Windows NT platforms.) The Immersion Personal Digitizer is supported by a number of 3D modelers on platforms ranging from the PC and Mac all the way up to SGI machines. The DigiMax is bundled with identical software for both the Amiga and PC platforms, and a promise of free software upgrades until Impulse finalizes the software.

Since there's only one serial port on a standard Amiga, it is possible to use a switchbox to share the serial port with your modem or any other serial device. (After running VertiSketch, I did notice that the serial port didn't seem to work properly. A simple reboot brought it back, but I'd suggest doing any modem transfers before you run the VertiSketch program.)

It's never been easier to capture an object, but each of the digitizers reviewed here has its own strengths and weaknesses. The Immersion Personal Digitizer digitizes a wider range of more oddly shaped objects, and is the one to choose if you have to digitize items that can't be hacked up and mounted on a threaded rod. Conversely, the DigiMax seems to offer a much greater degree of repeatability and accuracy, but can have problems with some curved surfaces. (The overall shape of the probe prevents it from reaching certain areas. Impulse reps say the company is experimenting with a variety of interchangeable probe designs to allow those areas to be reached. These could be swapped out during a digitizing session!) Both units are limited to a relatively small digitizing area, so if you want to digitize something bigger than a breadbox, you'd better find a model of it.

For pure simplicity, the VertiSketch interface to LightWave's Modeler is the closest thing to having a 3D mouse yet. With the release of the plug-in module for LightWave 4.0, great improvements in speed and performance can be expected. DigiMax seems to offer a new level of price/performance, and is comparable to far more expensive digitizers.

For some objects, only a digitizer will do. It's good to see that it just got a whole lot cheaper to get the job done!

VTU

### Company mentioned:

Blevins Enterprises  
(VertiSketch—\$995)  
121 Sweet Ave.  
Moscow, ID 83843  
(208) 885-3805

FOR INFORMATION CIRCLE 30

Impulse  
(DigiMax—\$695)  
8416 Xerxes Ave. North  
Minneapolis, MN 55444  
(612) 425-0557

FOR INFORMATION CIRCLE 31





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## Panasonic

### AG-3 3-CCD S-VHS-C CAMCORDER



- Three 1/3" CCD image sensor system delivers over 530 lines of horizontal resolution.
- New 10:1 2-speed zoom lens 6-60mm F1.6 with automatic and manual zoom. Also features 20:1 digital zoom.
- High resolution color viewfinder lets you preview and shoot scenes exactly as they are.
- Built-in digital TBC (Time Base Corrector) eliminates jitter and skew and assures stable, distortion-free playback.
- **Digital Mix** - for soft fade-over between memorized still and moving images.
- **Digital Still** - freeze a scene for as long as you like.
- **Digital Gain-Up** - delivers clear, distinct images in low-light levels, even down to 1 lux!
- **Digital Strobe & Digital Wipe** - add professional effects.

### AG-455 2-HOUR S-VHS CAMCORDER



- Laminated amorphous heads assure exceptional picture quality, high resolution, and superb color reproduction.
- 12:1 power zoom lens with continuously variable speed zoom.
- Hi-Fi stereo and linear track recording.
- Also has "Audio Out" select switch for Hi-Fi/Normal/Mix combinations. High performance stereo zoom microphone features three different settings: Wide, Telephone or automatic zoom.
- Built-in VTC (Vertical Interval Time Code) time code generator for frame accurate editing.
- Audio/Video fade-in/fade-out for smooth, professional transitions.
- Automatic iris and manual control for fine adjustment.
- **Digital Mix** - soft fade-over between memorized images.
- **Digital Tracer** - to add an after-image effect to moving subjects.
- **Digital Still** - freeze a scene for as long as you like, without interrupting sound recording.
- **Digital Gain-Up** - delivers clear, distinct images in low-light levels.
- **Digital Strobe & Digital Wipe** - add professional effects to your shooting.

### AG-DP800 **UPERCAM** S-VHS 3-CCD Digital Signal Processing Camcorder



- Three high-density 380,000 pixel CCDs with half-pixel pitch offset achieves over 700 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of 18 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits:
  - 1) Consistently reliable up-to-speed performance.
  - 2) Fine adjustment of a wide range of parameters.
  - 3) Memory storage and instant recall of specific settings.
  - 4) More flexible and higher quality image processing, as well as easier maintenance.
- Some of the DSP circuits and their functions:
  - **CHROMA DETAIL** - This function compensates for poor resolution in the high chroma areas of the picture.
  - **DARK DETAIL** - Determines optimum degree of contour enhancement in dark areas to deliver crisp, natural-looking images.
  - **HIGHLIGHT COMPRESSION** - Expands the dynamic range of the highlighted areas and prevents halation. The highlight compression circuit allows a wide dynamic range producing detailed images even against bright backlight or daylight.
  - **FLARE CORRECTION CIRCUIT** - Compensates for unsteady black caused by light or by a subject's movements.
  - **Scene File Modes** - There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
  - In addition to regular AGC (Automatic Gain Control), Upercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
  - **Synchro Scan** function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/61 seconds to 1/253 of a second.
  - Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code.
  - Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR, Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
  - Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

### NEW! WV-F565 Digital Signal Processing 3-CCD Dockable Camera



**REVOLUTIONARY PERFORMANCE LEVELS**  
 The WV-F565 achieves new levels of performance. It provides 850 lines of Horizontal Resolution, 65dB Signal-to-Noise, and 1 Lux Minimum Illumination - specifications unheard of in today's professional CCD Cameras.

**NEW HS-FIT CCD**  
 A key element to the new levels of performance achieved by the WV-F565 is Panasonic's new High-Sensitivity FIT CCD. As with other Frame-Interline Transfer (FIT) chips, the HS-FIT virtually eliminates the vertical smear associated with CCD's. In fact, the F565's smear reduction is measured at -125dB - better than even the most expensive cameras.

**CLEAN-DNR DIGITAL NOISE REDUCTION**  
 The WV-F565 utilizes a newly developed algorithm to reduce noise without any of the image blur or deteriorating image resolution that is conventionally associated with DNR technology. This clean-DNR feature is what allows the WV-F565 to achieve a 65dB signal-to-noise ratio.

**"NIGHT-EYE" MODE WITH DUAL PIXEL READOUT**  
 In extremely challenging lighting conditions, the WV-F565's Night-Eye Mode is unique. In this mode, the camera uses a dual pixel readout to simulate 36dB gain. The camera's high signal-to-noise ratio helps to create a very usable picture at this gain level. This allows the WV-F565 to virtually see in the dark.

**ADAPTIVE SCENE FILES**  
 As with all Panasonic DSP cameras, the WV-F565 has Scene Files that allow you to optimize the camera's performance for shooting conditions. The WV-F565's Adaptive Scene Files let you make quick adjustments that can compensate for lighting conditions, flesh tones, contrast and detail. There are no less than 5 different scene files.

The WV-F565 is a revolutionary camera that sets new price/performance standards for a CCD camera - either 1/2" or 2/3". Equipped with three 1/2" HS-FIT (High Sensitivity - Frame Interline Transfer) CCDs, the WV-F565 delivers an unbelievable 850 lines of horizontal resolution and an unprecedented 65dB signal-to-noise ratio. It also provides a minimum illumination of just 1 lux and 600% high-contrast compression. It docks directly to S-VHS and MII and with adapter can dock to Betacam SP. The camera can be used in a studio configuration and there are four remote control options.

#### I-VECTOR NOISE SUPPRESSION

The I-vector on a vectorscope runs through the red and yellow areas, the colors associated with flesh tones. By reducing noise and detail along the I-vector, the WV-F565 can give flesh tones a softer look - without affecting other areas of the picture.

#### DIGITAL HIGH-LIGHT CHROMA

When shooting in bright lighting, it's easy for color to get washed out in high glare areas. With High-Light Chroma, the WV-F565 can add color gain only in the washed out areas, restoring color and detail without affecting other areas of the picture.

#### PRECISION DETAIL

Detail enhancement sometimes adds unwanted artifacts to the picture. In the WV-F565, Precision Detail makes the detail enhancement look less "harsh", thus allowing you to increase detail without the artifacts.

#### SWITCH SENSOR

How often have you missed part of a shot because you were fumbling for the gain or the white balance switch? With Panasonic's Switch Sensor function, you simply touch the switch and you get an indication in the viewfinder that tells you exactly which switch your finger is on.

#### ADVANCED REMOTE CONTROL CAPABILITIES

The WV-F565 has four (4) different types of remote systems: The WV-RC700A is a full function studio remote that offers either 26-pin multicore or multiplex control. Multiplex control lets you control most of the camera's functions via a single coaxial cable. With the WV-RC500, you can operate the camera in the multicore mode only, but it is much more cost effective. With the WV-CB700, all of the camera's control functions are now in a hand held remote control box. Finally, the WV-PC500 allows for control via RS-232C or RS-422 computer control.

## Canon L2 Hi-8 Camcorder

- 1/2" CCD with 410,000 pixels delivers over 450 lines of horizontal resolution.
- Vt Mount System allows use of a full range of interchangeable lenses from extrawide angle to super telephoto plus, optional EOS-VL adapter allows mounting of over 65 Canon EOS 35mm Autofocus lenses.
- Records RC Time Code while shooting and can also "stripe" RC Time Code to tapes already recorded on other equipment. With RC Time Code the L2 can connect to an edit controller with RC Time Code capability for frame accurate editing.
- Advanced encoding functions mean the L2 can record much more than audio and video. It will mark tapes for speedy identification, and even find recordings by their date.
- Provides stunning AFM stereo with the choice of auto or manual level control. To match the audio with video the L2 has a high performance stereo/zoom microphone.
- High speed Piezo autofocus allows focusing through glass or water. Also provides focus lock and manual focusing.
- Provides two different grips with independent start/stop and zoom controls. Built-in sports finder lets you view the viewfinder from arm's length away.
- Built-in character generator lets you superimpose two lines of up to 16 characters on your recordings. There is also a choice of three date and time displays.
- Variable high-speed shutter from 1/100 to 1/10,000 of a sec.
- Includes a wireless controller which makes it a highly sophisticated edit deck.
- Automatic exposure plus manual control lets you lock the aperture at any setting from fully stopped down to fully open.



- The L2 has a variety of special effects. Add an extra dimension to your video productions with digital image manipulation and striking scene transitions:
  - Close-up** - instantly doubles the magnification of the lens
  - Slow shutter** - 4 slow shutter speeds allow recording in light as low as 0.5 lux or adds artistic after-images to selected scenes.
  - Overlap** - (dissolve) Slowly dissolve from the last frame of the preceding scene to the action being recorded.
  - Freeze** - freezes the picture while sound recording continues uninterrupted.
  - Art Freeze** - records your scenes as colorful paint-like images.
  - Strobe and Art playback modes** - six-speed strobe playback can be combined with three levels of solarization effects.

## SONY

### EVW-300 3-CCD Hi-8 Camcorder

- Equipped with three high density 1/2" IT Hyper HAD image sensors. Has an excellent sensitivity of F8.0 at 2,000 lux, high S/N of 60 dB, and delivers over 700 lines of horizontal resolution.
- PCM digital stereo and single channel AFM Hi-Fi recording. XLR balanced audio connectors.
- Quick start 1.5" viewfinder with 550 lines of resolution plus Zebra pattern video level indicator and color bar generator. Also, quick-start recording - takes only 0.5 seconds to go from REC PAUSE to REC MODE for immediate recording in the field.
- Built-in 8mm Time Code generator records absolute addresses. (Either non-drop frame or drop frame mode may be selected.) Furthermore the EVW-300 incorporates a variety of time code features such as Time Code PRESET/RESET, REC RUN/FREE RUN and User Bits.
- A variety of automatic adjustment functions for different lighting conditions are incorporated into the EVW-300.
  - **ATW (Auto Trace White Balance)** - when ATW is turned on optimum white balance is always ensured during recording, even for changes in color temperature. Conventional white balance adjustment is still provided with the Auto White Balance.
  - **AGC (Automatic Gain Control)** - in addition to manual Gain Up AGC provides linear gain up in the range of 0 dB to 18 dB.
  - **Intelligent Auto Iris** - for situations where the lighting between subject and background is different (subject is underexposed) the Intelligent Auto Iris automatically examines the scene and adjusts the lens iris for proper exposure.
  - **Intelligent Auto Iris** - for situations where the lighting between subject and background is different (subject is overexposed) the Intelligent Auto Iris automatically examines the scene and adjusts the lens iris for proper exposure.
- **Clear Scan function** - provides a variety of selection of shutter speeds ranging from 60-200 Hz allowing recording of almost any computer display without flicker.
- Compact, lightweight (12 lbs with NP-18) ergonomic design provides well balanced and extremely comfortable operation.



**EVW-300 with Canon 13:1 Servo Zoom Lens, VCT-12 Tripod Mounting Plate and Thermodyne LC-422TH Shipping/Carrying Case ..... \$5995<sup>00</sup>**

## JVC

### NEW! GY-X2B 3-CCD S-VHS Camcorder



- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution and superb signal-to-noise ratio of 62dB
- New micro-lens technology provides exceptional sensitivity of F8.0 at 2000 lux and 1.0 LUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 lux
- Variable Scan View allows flicker-free shooting of a computer monitor.
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.

- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel.
- Genlock input allow synchronization with other cameras.
- Dual output system allows camera output to be connected directly to an external recorder

## TOSHIBA TSC-100G 3 CCD Hi-8 Camcorder



- Three 1/2" CCD chips mounted with spatial offset technology deliver resolution of 700 horizontal lines
- Low noise design provides extreme sensitivity of F8.0 at 2000 lux. Min. illumination 7.5 lux with excellent color reproduction
- New LNA (low noise amplifier) delivers a S/N (signal-to-noise) ratio of 62dB - the highest achieved for this type of camera
- Quick-start 1.5" viewfinder needs no warm up time. Zebra pattern in the viewfinder alerts operator to excessive video levels.
- Genlock capability allows synchronization with other cameras. Full calibration functions are built-in as well as color bar generator.
- Built-in 8mm time code generator records an absolute address to every frame.
- High-performance back electret condenser mic records to all three audio tracks. Low cut filter eliminates wind noise.
- Very low power consumption. Draws only 16 watts per hour allowing 190 minutes of recording time with 1 NP-18 battery.
- Body made of magnesium alloy previously found only on broadcast cameras. Still only 13 lbs. in standard configuration.

**TSC-100G with Canon 13:1 Servo Zoom Lens & Case ..... \$4995<sup>00</sup>**

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## SANYO

### GVR-S950 S-VHS Single Frame Recording VCR

- Built-in single-frame animation controller eliminates the need for separate or computer plug-in animation controllers. Industry-standard protocols, make it compatible with most popular graphic and animation software packages.
- SMPTC Time Code Generator and Reader with Built-in Drop and Non-Drop Frame Read/Write is fully programmable from an external computer and resettable from the front panel.
- Video and Audio Switcher with Two independent Video and Audio Channels. Each video channel contains both composite and S-Video inputs. Each audio channel contains two linear and two Hi-Fi inputs. Switching can be performed either manually, or under RS-232C or RS-422 control. Video and audio channels are switched independently letting you perform break-away edits.
- Auto-Sensing Single RS-422/RS-232C Input eliminates the need for optional external interfaces. Interface requirements are automatically sensed and adjusted within the recorder.
- Input and Playback Video Processing allows adjustments to the video level of the incoming signal. Signal levels and hue can be adjusted during playback.



### NEW! GVR-S955

All features of the GVR-S950 PLUS — The GVR-S955 contains an on-board two input audio/video switcher. Unlike the GVR-S950, the GVR-S955 can be programmed via the RS-422 bus for complete audio/video breakaway editing. As a result of this "audio/video breakaway" feature, time code can be added to tapes with existing video.

## JVC

### S-VHS EDIT-DESK SYSTEM

**BR-S500U Player • BR-S800U Edit Recorder  
RM-G800U Edit Controller**



Fast, accurate and professional style videotape editing is now more affordable than ever. This new "S" editing system, costing thousands less than ever before, consists of the BR-S500U Player/Reader, the RM-G800U Edit Controller and the BR-S800U Editing Recorder. Linked via JVC's proprietary control bus, these three units offer all of the editing features professionals have come to expect. The VCRs feature a fast, heavy-duty tape drive similar to that used in JVC's renowned "22 Series", and the built-in CTL (Control Track) time code provides unparalleled accuracy and flexibility. Best of all the VCRs feature an open architecture for easy system upgradability.

#### OPEN ARCHITECTURE

Two plug-in extension slots on the rear panels (for both VCRs) accept a variety of optional expansion boards. To build a PC-based editing system, add the SA-K27UA RS-232C interface board. To use with more sophisticated editing controllers, plug in the SA-K28U RS-422 board. Other boards include the SA-K28UA 45-pin board for connection to other JVC editing systems, the SA-R50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code reader/generator.

#### CONTROL TRACK TIME CODE SYSTEM

Built-in time code reader (BR-S500U) and time code reader/generator (BR-S800U) utilize JVC's CTL (Control Track) Time Code System. This system records absolute tape address information (hours: minutes: seconds: frames) on the control track, and provides fast and accurate access to any frame on the video tape. This is far superior to control track counters that lose reference when the tape is removed. CTL Time Code can be added to the tape during the recording process, or "just striped". For professional SMPTC time code operation there is the optional SA-R50U VITC/LTC Time Code Reader/Generator card.

#### SUPERB VIDEO PERFORMANCE

Has latest picture improvement technologies for razor sharp images, with over 400 lines of horizontal resolution. Digital Y/C separation, chroma noise reducer, chroma aperture correction and a 3-line cross-talk cancellation all combine to offer outstanding image quality, even when dubbing down multiple generations.

#### 32X VARIABLE-SPEED SEARCH

Front-panel search dials featured on both the BR-S800U and BR-S500U provide fast, accurate picture search at up to 32x normal speed. This is possible due to the incorporation of a heavy-duty direct-drive mechanism similar to that used in JVC's "22 Series."

#### FOUR-TRACK AUDIO

Each features two Hi-Fi stereo channels with a wide frequency response and a dynamic range of over 80 dB and two linear tracks. The linear tracks of the BR-S800U can be dubbed independent of each other and of the video. This is ideal for adding background music or sound effects to an existing audio track. There are two audio level meters, switchable between the Hi-Fi and linear channels. Separate input and output terminals are provided.

#### RM-G800U EDIT CONTROLLER

- Has two GPIs allowing automatic triggering of special effects generators, switches or audio mixers.
- Features automatic assemble and insert editing, auto insert editing, as well as preview/review for checking edits before and after editing, and goto for direct access to any edit point. A capstan bump function is provided to assure greater edit consistency.
- 8-digit LED counter indicates all edit data in either the TC or CTL mode. Switchable between player and recorder.
- The RM-G800U's Jog control is precise and responsive, making it easy to locate any frame on the tape. You can enter the Jog mode directly and switch between the player or recorder at the touch of a button. The Jog dial can also be used to enter and trim edit points and pulse timing from the GPI ports.

### BR-S622U/BR-S822U S-VHS Feeder Recorder/S-VHS Editing Recorder

The BR-S622U and BR-S822U meet the most sophisticated broadcast level requirements. They are equipped with flying pre-rec amp, digital DDC, digital Y/C separator, high precision CNR, improved chroma enhancers, and more. Their "Open-Ended System Architecture" lets you choose from a variety of optional circuit boards and plug-in modules, including a time-code reader/generator, TBC with component out, and several remote control interfaces. They also have a full range of advanced editing functions, including direct player control, precision search/jog dials, RS-422 interface, high-speed search at up to 32x, and a tiltable control panel.



- Built-in digital Dropout Compensator (DDC) performs dropout compensation for the luminance signal on an all-digital basis. With chroma dropout compensation also being performed you get a stable, high-quality picture.
- An SC lock canceler detects and removes very low-level chroma signals on leaked carriers without interfering with overall signal quality. This helps eliminate much of the deterioration often noticed in repeated dubbing.
- Equipped with high-precision Chroma Noise Reducer (CNR). It conducts chroma noise detection on a pixel-by-pixel basis, allowing it to completely eliminate the color streaking normally caused by taps in CNR phase adjustment. This ensures a much-improved chroma signal-to-noise ratio in playback.
- Luminance Signal Enhancer allows you to select frequency responses of 0 dB, +2 dB, and +4 dB with the luminance signal at 2.5 MHz. High resolution is maintained even in multi-generational dubbing. Automatic equalizer prevents deterioration of the luminance signal frequency response when using overplayed tapes.
- A Capstan Bump Function operates during preroll. This assures precise synchronization of the player and recorder during editing. This function can be set to operate at either the player or recorder.
- Features a built-in black burst signal generator. Preparing a black master tape for insert editing is now a simple matter of inserting a blank tape and pressing a button.
- Two Hi-Fi stereo audio channels with a wide frequency response and dynamic range of more than 90 dB. Two linear tracks with Dolby NR (Noise Reducers) are also provided. Audio output is selectable between Hi-Fi and the linear tracks while an audio monitor select switch allows independent monitoring of the Hi-Fi or the linear track. Separate or combined L/R channel monitoring is also possible. Four recording level controls permit separate adjustment of all audio channels in recording.
- On-Screen Menu system with built-in memory which allows simple dial setting and switching of most basic functions while referring to the counter or on-screen display. Mode selection and initialization are all possible via the menu display. Over 70 items are selectable including frame servo, TBC mode, Hi-Fi recording, audio limiter, and preset times. On-screen warning indications are also provided.
- The BR-S822U has a comprehensive set of editing functions including automatic or manual insert and assemble editing. Editing features include Go-to, Pre-roll, Preview, and Review, providing high-performance cuts-only editing even without a controller.
- The BR-S622U features built-in machine-to-machine editing control capability. This permits control of any deck with RS-422 control directly from the BR-S622U. Player/Recorder select buttons are provided, and time code or CTL readings from the controlled player are displayed on the BR-S622U's counter display. You control all operations including search, FF, REW, edit point entry, and more.

## Panasonic



### AG-1290 VHS Video Cassette Recorder

- Four head system provides jitter-free play in Double Super Fine Slow mode. Also offers noise-free Double Speed Playback and Frame Advance.
- Quasi S-VHS playback — playback S-VHS tapes at standard VHS resolution.
- Digital Tracking enhances quality of on-screen picture by automatically adjusting tracking during playback.
- The Quick-Play mechanism keeps the tape fully loaded around the head cylinder and maintains the rotation speed of the head cylinder while in Stop mode. As a result, it only takes about 2 seconds for the picture to appear when going from Stop to Play/Rec mode.
- Built-in head cleaner automatically cleans the video heads as soon as a tape is inserted or ejected.
- On-Screen Display of useful information, such as operating mode, date calendar, instructions for setting the 1-month, 4 program calendar/timer, the initial channel setting, and Standby OTR programming.
- Features 181-channel tuner, full digital quartz timing, real-time counter, Auto repeat/Auto playback, Standby OTR.
- "Sift" in carrying handle.



### AG-5700 S-VHS Hi-Fi RS-232 Editing VCR

- The AG-5700 is an easy to use S-VHS Hi-Fi Editing VCR flexible enough to be used in a wide range of applications from video production to educational, medical and business. It delivers exceptional recording and playback images, plus high quality audio sound. With its platform independent RS-232 interface you can choose from a myriad of software packages to suit your applications.
- Uses amorphous video heads which are clearly superior to conventional ferrite heads. They are better because their magnetizing strength is much greater, yielding a higher signal-to-noise ratio.
- Incredibly accurate with optional AG-A570 Edit Controller, an accuracy of ± 3 frames can be achieved.
- Built-in RS-232 provides machine control of playback, recording and editing functions from a computer. You can use the power of your computer (with optional software) to assemble hundreds of scenes, create edit decision lists and do complex editing jobs. Currently supported by Amilink, FutureVideo, VideoMedia, TAO, and Matrox.
- Auto Repeat function continuously replays a tape which can be used for tape's end or when recorded material ends. Allows the AG-5700 to be used in showrooms, lobbies, or any in-store video display.
- Separate Hi-Fi (Ch. 1/Ch. 2) audio recording level controls with display. There is also a headphone output with volume control.
- For unattended recording there is a Sensor Recording function. When a video signal is detected the power is automatically switched on and the AG-5700 begins recording.
- If you need to do a presentation with video the AG-5700 is ready to go. It weighs less than 13 lbs., is extremely compact and has a "Sift" in carrying handle.
- User friendly design features record, play, and stop switches that are well illuminated during operation.



### AG-1970 S-VHS Hi-Fi Editing VCR

- Uses Amorphous video heads which are superior to conventional ferrite heads and deliver rich, vibrant color reproduction and a high S/N ratio.
- Built-in Digital Time Base Corrector effectively eliminates jitter and distortion. Playback is high quality, stable and with natural colors.
- Two Hi-Fi stereo tracks with a frequency response from 20Hz to 20,000 Hz and a 90 dB dynamic range. (Has one linear audio track.) Also has stereo recording level control, headphones terminal and mic input terminal.
- Does assemble edit, video insert and audio dub. Flying erase head for smooth, clean, seamless edits.
- 5-pin edit terminal makes it easy to set up an editing system.
- Jog/Shuttle Dial for varied playback from slow motion to high-speed search (shuttle) and frame-by-frame picture control in forward and reverse (Jog).
- Outputs the audio track during search operations for bing and quick confirmation of audio recording.
- What makes the AG-1970 the perfect editing VCR? The advanced dual-loading mechanism features a quick response time, exceptional tape protection, remarkable tape control accuracy — all make for outstanding editing precision and ease.
- Automatic head cleaner removes dust and other particles from the heads to help maintain optimum performance.



### AG-DS840/AG-DS850

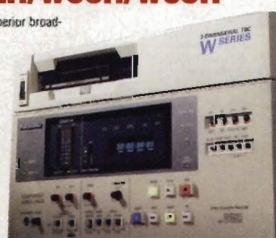
#### S-VHS DIGITAL Slow-Motion Editing System

- They provide clear, noise-free, high quality slow playback. Playback speed, including Digital Still is selectable in 10 steps: 1/10, 1/20, 1/40, 1/80, 1/160, 1/320, 1/640, 1/1280, 1/2560, 1/5120.
- 3-dimensional digital TBC with a correction range of one field. With the VCRs continuously retaining one field in memory, the data is used for 3-D type processing thereby preventing excellent dropout compensation.
- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. A Chroma Aperture Compensation (CAC) circuit eliminates color blurring and expands chroma bandwidth. Other digital processing circuits include: Dig. Noise Reduc. (DNR); Processes Y & C signals separately to boost S/N Ratio by minimizing noise during playback.
- Digital Comb Filter. Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring.
- Switching Noise Mask Circuit. Eliminates noise caused by head switching during slow-mo playback.
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VTC (Longitudinal/Vertical Interval) time code reader/generators for absolute frame accurate editing.
- Equipped with component outputs allowing easy connection to other component video equipment. This allows high quality transfer of S-VHS source material to Betacam or MII.
- 10 (Intelligent Quest) mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting heads and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 4 channel audio — 2 hi-fi stereo channels with dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-DS850 only) and output with individual channel-level setting capability and uses XLR connectors.
- Provide 16:9 wide aspect compatibility, so they are fully equipped for the next generation of televisions.
- 3 rack units high, they are unbelievably compact for easy space saving installation. 19" rack-mountable with optional AG-M730.



### MII "W-Series" AU-W32H/W33H/W35H

- For years, Panasonic's MII VCRs have consistently brought professionals the superior broadcast quality of component recording. Now the "W-Series" brings the power of component recording to an ever wider range of users. They are equipped with 3-D type TBC for exceptional playback stability and excellent dropout compensation and they each feature color framing — essential for animation and editing.
- Uses true component recording technology, with separate tracks for the luminance (Y) and chrominance (C) signals. Delivers vivid colors and super sharp details — thanks to the full 4.5 MHz luminance bandwidth.
- Each is equipped with a digital 3-dimensional type TBC boasting a correction range of one full field (262.5 H lines). Continuously retains an entire video field of information in memory, and is used for 3-D processing, providing excellent dropout compensation and eliminating horizontal and vertical jitter.
- All models have 4 high-quality audio channels — 2 Hi-Fi channels, with dynamic range of 85 dB and 2 linear channels with Dolby NR.
- "W-Series" models offer high precision time code editing, with ± 0 frame accuracy. Both players include SMPTC time code reader, while the AU-W35H has a time code reader/generator. The AU-W35H records VITC and LTC separately, and MII VCRs automatically switch between them during playback, according to tape speed, for consistent, reliable time code identification. User bits are recorded in either LTC or VITC (or both), with the capability of making either one (or both) an internally generated time of day clock.
- At (Auto Tracking) is a standard feature on the AU-W33H player. When used with an edit controller or the AG-A300 Slow Motion Controller, the AU-W33H provides flawless still, slow-motion and quick-motion playback with a range of 1x to 2x normal speed. It also allows fine control over playback speed — highly effective for situations where "Hi and Lm" capability is required.
- They allow TBC adjustment on the VCRs itself. Conveniently located adjustment knobs for all TBC controls, including video level, chroma level, chroma phase, setup level sync and subcarrier phase. A 15-pin terminal allows external TBC remote control.



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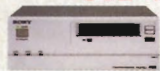
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## SONY

### CVD-1000 Vdeck Hi-8 Computer VCR



Computer-controlled Hi-8 player/recorder. You connect the Vdeck to the serial port of your computer and then, using software that incorporates Sony's VISCA Protocol you will enter a new age of machine control. With the Vdeck and VISCA software you can seamlessly integrate audio, video, text, and graphics to create polished in-house video for training, product demonstrations, and corporate communications.

- Records Sony RC Time Code to any 8mm or Hi-8 tape plus it can dub RC Time Code from any existing tape. Also reads Sony Professional 8mm Time Code.
- With RC Time Code you can search for specific frames of video. The Vdeck reads RC Time Code even in fast forward or reverse so you don't have to switch to playback mode to read the Time Code.
- Has AFM Hi-Fi stereo plus a PCM digital audio track. You can use the PCM track to dub digital audio background music or high fidelity narration.
- Has 3 video inputs (S-Video, 2-composite) and 2 stereo audio inputs. The Vdeck features a built-in switcher for transparent integration of multiple audio and video sources.
- Built-in microphone minijack allows connection of a mic to the Vdeck letting you add narration to your presentations.
- Microphone/Audio Mixer - The Vdeck lets you mix your audio and microphone sources onto the AFM and/or PCM tracks while recording.
- Built-in fader lets you fade audio, video or colors during playback to give your presentations a more professional look. You can also fade live video. Create special effects by fading color to black & white (or vice versa). Fades can be preserved by recording onto a second VCR.
- The Vdeck can read and write data code, allowing date and time information to be stored on the tape as data. Lets you search for a specific date and time on your tape.



### EVO-9720 Hi8 Dual Desktop Editing Machine

#### BUILT-IN EDITING CAPABILITIES

- The EVO-9720 provides two ways for assemble editing when using the supplied RM-E 9720.
- Quick-Edit - By simply pressing the EDIT button at the desired point on the source tape, pressing END at the out-point and repeating the process, a program is easily assembled, segment-by-segment on the master tape.
- Program Edit - assemble video segments that are not adjacent to one another on the original source tape. The EVO-9720 can memorize up to 99 program events and realizes automatic sequential editing of pre-assigned scenes. To change a certain event in the program, simply recall the event and modify as desired.
- Insert Editing - The EVO-9720 provides separate editing of the video and audio signals.
- Using the video insertion function, video and AFM audio segments can be edited into an existing PCM digital sound track. A simulated edit can be monitored by pressing the PREVIEW button before the edit is actually done.
- The EVO-9720 allows audio dubbing on the PCM tracks. Background music or commentary can be added or inserted. During editing, audio from an external microphone can be moved with the original audio from a player or from LINE IN and recorded on both the PCM and AFM audio tracks.
- Incorporates a digital field memory, allowing noiseless 1/5 normal speed slow motion pictures and a clear freeze picture to be played back during editing. This makes it possible to create a program with special effects.
- Built-in 8mm time code generator and reader. When using a tape without time code, you can stripe time code. (Post striping of 8mm time code will not affect any of the video and audio signals) Also reads RC time code.

#### SUPERIOR PICTURE QUALITY

- The player portion employs a digital noise reducer for luminance and chrominance signals, providing superior picture quality. Noise reduction levels are selectable in accordance with picture conditions. CNR (Chrominance Noise Reduction) offers High, Middle, Low, and Off positions. YNR (Luminance Noise Reduction) offers High, Middle, Low, Very Low and Off positions. Jitter and skew are eliminated at the same time to give clear, stable pictures.

#### A/B ROLL EXPANSION CAPABILITY

- When you've outgrown the cuts-only functionality of the machine, the EVO-9720 lends itself to A/B roll expansion capability. Both the player and recorder have RS-232C serial ports that allow for external control. They can be directly connected as Source A and B to an external computer and/or the Sony FXE-100 Video Editing System.
- To further allow configuration into an A/B roll system there are external sync input terminals for both the player and recorder. When the external sync mode is set to Auto, the EVO-9720 synchronizes itself with the incoming reference signal.

#### ADDITIONAL FEATURES

- To provide for smoother transitions from scene to scene, the EVO-9720 has a video fader. Black or white fading can be selected as well as a duration time of 0.5 or 2 seconds.
- There is a GPI (General Purpose Interface) output with timing adjustment for controlling external devices. External devices like the Video Toaster or Character Generators can be controlled. GPI timing of between 00 and 60 frames is selectable.

## COLOR MONITORS

### PVM-1350

#### 13" Presentation Monitor

- Employs a P-22 phosphor fine pitch CRT to deliver stunning horizontal resolution of 450 horizontal lines.
- Equipped with beam current feedback circuit which eliminates white balance drift for long term stability of color balance.
- Has analog RGB, S-video and two composite video (BNC) inputs as well as 4 audio inputs.
- Automatic Chroma/Phase setup mode facilitates the complex, delicate procedure of monitor adjustment. Using broadcast standard color bars as a reference, this function automatically calibrates chroma and phase.
- Chroma/Phase adjustments can also be easily performed with the monochrome Blue Only display. In Blue Only mode video noise can be precisely evaluated.
- Factory set to broadcast standard 6500K color temperature.
- Provides an on-screen menu to facilitate adjustment/operation on the monitor. The on-screen menu display can be selected in English, French, German, Spanish or Italian.
- On power up, automatic degaussing is performed.
- Also has a manual degauss switch to demagnetize the screen.
- Sub control mode allows fine adjustments to be made on the knob control for contrast, brightness, chroma and phase. The desired level can be set to the click position at the center allowing for multiple monitors to all be controlled at the same reference level.



### PVM-1351Q

#### 13" Production Monitor

- Has all the features of the PVM-1350 PLUS -
- Is also a multisystem monitor. It accepts NTSC, PAL and NTSC video signals. NTSC 4:43 can also be reproduced.
- Equipped with a SMPTE 259M Serial Digital Interface. By inserting the optional serial digital interface kit BKM-101C for video and the BKM-102 for audio the PVM-1351Q can accept SMPTE 259M component serial digital signals.
- Equipped with RS-422 serial interface. With optional BKM-103 serial remote control kit all of the monitor's functions can be remotely controlled with greater confidence and precision.
- Equipped with input terminals such as component (Y/R-Y/B-Y), analog RGB, S-video, 2 composite video (BNC) and 4 audio terminals for complete flexibility.
- Aspect ratio is switchable between 4:3 and 16:9 simply by pressing a button.
- Underscan and H/V delay capability. With underscan, entire active picture area is displayed. Allows you to view entire H/V delay allows viewing of the blanking area and sync/burst timing by displaying the horizontal and vertical intervals in the center of the screen.
- Color temperature switchable between 6500K/9300K/User preset. 6500K is factory preset. 9300K is for a more pleasing picture. User preset is 3200K to 10,000K.

### PVM-1354Q/PVM-1954Q

#### 13" and 19" Production Monitors

#### All the features of the PVM-1351Q PLUS:

- SMPTE C standard phosphor CRT is incorporated in the PVM-1354Q/1954Q. SMPTE C phosphors permit the most critical evaluation of any color subject. Provides over 600 lines of horizontal resolution.
- The PVM-1354Q mounts into a 19-inch EIA standard rack with the optional MB-5028 rack mount bracket and SLR-102 slide rail kit same as PVM-1351Q. The PVM-1954Q mounts into a 19-inch EIA rack with the optional SLR-103 slide rail kit.

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## SONY

### NEW! SVP-5600 and SVO-5800 S-VHS Player/ S-VHS Editing Recorder

#### SVP-5600 and SVO-5800 features:

- The SVP-5600 and SVO-5800 feature the amazing (400 horizontal lines) of S-VHS with high quality signal processing techniques like DNR, Digital Field DCC and Chroma Process improvement. They deliver the consistent picture quality so essential to editing. They also incorporate a wide video head gap and track width (58mm) for stable and faithful picture reproduction.
- Each has a built-in TBC plus an advanced Digital Noise Reducer (DNR) for both the chrominance and luminance signals to eliminate noise during playback. At the same time, a field memory incorporated in the noise reducer removes jitter to provide sharp, stable pictures. The field memory also includes a Digital Field DCC (Dropout Compensator), which replaces signal dropout with information from the previous field.
- They also incorporate Chroma Process improvement circuitry for excellent color picture quality in the playback mode. This advanced circuitry greatly improves the chroma bandwidth, thus enabling sharper and clearer color picture reproduction.



#### FOUR CHANNEL AUDIO SYSTEM

- They each incorporate four-channels of high quality video. There are two channels with Hi-Fi (AFM) tracks and two with longitudinal (normal) tracks. The Hi-Fi tracks provide a wide frequency response from 20Hz to 20kHz and a superb dynamic range of 90db. The normal tracks incorporate Dolby B noise reduction for high quality sound reproduction. XLR connectors are used for the inputs and outputs for all four channels.

#### MULTIPLE INPUTS AND OUTPUTS

- Both machines employ composite and S-Video connectors. With optional SVBK-170 Component Output Board, they provide component signal output through BNC connectors. With the board, the VCRs can be integrated into Betacam SP editing systems.

#### USER FRIENDLY OPERATION

- They have a built-in character generator which superimposes characters on the "video monitor output" signal. This allows time to be shown on a monitor.

- For more efficient operation they have an on-screen setup menu which allows a variety of customized VCR mode operations. Programmed in the form of a layer structure, you simply go through the menu and initialize VCR operation.
- All parameters of the TBC, such as luminance level, chroma level, setup, hue, Y/C delay, sync phase and SC phase are easily controlled from the front panel, and can be remotely controlled from the optional UVR-60 TBC Remote Control. The UVR-60 also accesses field freeze function in the still mode and allows on/off control of the chroma and luminance noise reducer.
- Quick and smooth picture search can be performed by either using an RS-422 equipped edit controller or the optional SVRM-100 Remote Control Unit. Recognizable color pictures are provided at up to 10x normal speed in forward or reverse.

### REBATES: Buy an SVP-5600 or SVO-5800 Professional S-VHS VCR

or UVM-1600, UVM-1800, Betacam SP VCR with:

- Sony PVE-500 A/B Roll Edit Controller and receive \$500 instant rebate!
- Sony FXE-100 A/B Roll Edit Controller/SEG and receive \$1000 instant rebate!
- Sony DFS-300 Switcher/SEG and receive \$2000 instant rebate!

### EVO-9650 Hi-8 Single Frame Recording VCR

- Facilitates fast and accurate single frame recording which is indispensable for animation control. With a short 3-second pre-roll the EVO-9650 is twice as fast as any other machine.
- Built-in RS-232C interface directly connects the EVO-9650 to an external computer, allowing all of the VCR operation commands to be directly communicated to the computer. The RS-232C baud rate can be selected from 9600/4800/2400/1200 bps.
- There is separate DNR circuitry for both the Y (luminance) and C (chrominance) signals providing playback of superior images.
- Fully compatible with the Video Toaster 4000, no single frame controller required. Most animation programs work directly without a controller. They include Autodesk 3-D Studio, Crystal Graphics Topaz, BYTE-by-BYTE Sculpt 4-D etc.
- Provides a variety of digital effects like 3x3 matrix display, 2x zoom and 1/30, 1/10, 1/5, 1/3 times normal speed in a noiseless slow motion playback.
- Incorporates a memory device for frame/field storage to provide an accurate frame image in recording and playback. This memory can be used in either the BUFFER or the DNR mode.
- DNR (Digital Noise Reducer) A clear and stable picture is played back with no guard band noise and no picture movement. Field or frame can be selected. DNR mode is great for image analysis and medical applications.
- BUFFER for fast recording of sequential frames. Stores a frame in its buffer thus freeing up the computer to proceed immediately to the next frame. During this time the EVO-9650 performs its pre-roll and edit functions. This effectively cuts in half the time needed for single frame recording.



- Built-in 8mm time code generator records an absolute address on every frame allowing absolute frame accuracy.
- Additional audio, such as music or commentary, can be dubbed to existing video. Audio is recorded on the PCM sound track.
- Optional EVBK-65 RGB encoder board allows the EVO-9650 to accept RGB signals, ensuring optimum picture quality recording.
- Optional EVBK-66 VISCA interface board allows communication with VISCA control signals. The EVBK-66 translates VISCA control signals into the Sony standard RS-232C protocol.
- Supplied RM-9650 Remote Control covers not only basic functions, but also provides digital special effects, assemble/insert editing and jog/shuttle picture search up to 19x normal speeds.

### EVO-9850 Hi8 Editing Recorder

- For enhanced picture quality, there is a built-in digital noise reducer for both the chrominance and luminance signals. In the CNR (Chrominance Noise Reducer) mode you can select low or high level of noise reduction according to picture conditions.
- Equipped with four channels of audio. Two AFM Hi-Fi stereo tracks plus two PCM digital stereo tracks. Each channel has balanced XLR inputs and outputs. Plus there is individual level volumes for each track.
- Assemble and insert editing modes. In the insert mode there is independent editing of video, PCM-1, PCM-2 and time code.
- Built-in TBC (Time Base Corrector). With TBC the EVO-9850 outputs highly stable video signals. A digital dropout compensator is also built-in. TBC adjustments can also be remotely controlled with the optional BVR-55 TBC Remote Control Unit.
- Absolute frame accuracy for video editing and single frame recording. Accuracy of +/-0 frames is achieved with advanced servo system, quick response mechanism and built-in 8mm time code reader/generator.
- The EVO-9850 is equipped with a built-in 8mm time code generator. Since the 8mm time code is recorded between the video and the PCM audio tracks in a separate and dedicated location, 8mm time code insertion or overwrite is possible without losing a generation. An RS-422 9-pin connector is utilized for communicating edit command and time code data. The 8mm time code is output as SMPTE time code through the RS-422 connection to the edit controller.
- With the optional EVBK-100 the EVO-9850 inputs and outputs SMPTE time code data via BNC connectors. Accordingly the EVO-9850 can feed time code to another VCR or can lock to an external time code.
- The Jog/Shuttle mode provides high speed picture search from -17 to 17 times normal speed.
- To minimize picture deterioration during the editing process, the EVO-9850 incorporates Dub In/Out (7-pin) connectors.
- With the optional RMM-980, the EVO-9850 can be installed into a 19-inch EIA standard rack.
- External sync input to lock onto external reference video signals. This allows for synchronization with other video equipment.
- For customized operation there is a Dial Menu. You can set VCR operation modes like time code preset, time code superimpose, self-diagnostics display, with the search dial.



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## INNOVATION

### Alpha Paint

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- Realtime free-form painting in 16.8 million colors directly on the Toaster's full-color program output.
- Full-screen WYSIWYG operation with multiple Undo/Redo - no more waiting, re-rendering or HAM artifacts.
- Complete utilization of the Toaster's Hardware Video Mixing Alpha Channel for unique Soft Edge Feathering and Transparency Effects played back over any Live Video source.
- Advanced set of Image Enhancement, Painting and Drawing tools such as Sharpening and Contrast Filters, Oil Painting, Airbrushing, Image Resizing & Unlimited Compositing, Automatic Edging Effects, 3-D Perspective Rotation and more.
- Sophisticated Text Toaster Flyer, all that is history. Now you can record your video direct-to-disk, make edit decisions with the Flyer's drag and drop controls, and enjoy the finished program all in the same afternoon. Don't like the way a sequence looks? Drag the video clips into a new order, insert a new scene, or drop in background music with the click of a mouse. The choice is yours. Best of all, every change is immediate. There's no re-generation loss, no tape generation loss, and there are no botched edits. For a fraction of the cost, the Video Toaster Flyer provides the quality you expect from a \$50,000 digital video deck. Plus, the Flyer seamlessly integrates into the Video Toaster system.

Alpha Paint is the all-in-one professional paint solution for the Video Toaster with NO additional utilities, programs, Chip RAM upgrades required.

## Future Video

### V-STATION 3300 for Toaster A/B Roll Edit Controller

- V-Station 3300 for Toaster is an integrated software and hardware solution for precise A/B Roll editing on your Amiga/Toaster system. The advanced multi-tasking, multiple-event A/B Roll editing software provides you with direct communication and control over your Video Toaster. The three VTR controller unit provides the necessary machine control and computer interface.
- The V-Station 3300 for Toaster system fully integrates the power of A/B roll multi-event edit control with the versatility of the Video Toaster's effects, framestores, and character generation. You'll appreciate the easy-to-read software screens and the comprehensive online help system.
- Provides true A/B roll editing even with low-end industrial and prosumer VCRs. Various VCRs using Panasonic's 5-pin or Sony Control-L editing protocol can be used. Optional VTR Driver kits provide compatibility with VCRs using VISCAR, RS-232 and RS-422 serial control protocols.
- Reads RCP time code and with optional SMPTE LTC option can read SMPTE time code for frame accurate editing.

## The Kitchen Sync

### Dual Channel TBC

- Two complete infinite window time base correctors on one IBM AT/Amiga compatible card.
- Plugs into any Amiga or PC compatible.
- Use more than one Kitchen Sync linked together to synchronize even more channels.
- S-VHS and Hi-8 compatible. Has S-video input with option for S-video out.
- Complete 100% accurate sync generator built-in. Totally regenerates all sync and blanking signals.
- Absolute 100% broadcast quality output.
- Built-in Proc amp with Hue, Saturation, Contrast and Brightness adjustments.
- Complete digital design - no pot adjustments necessary. The Kitchen Sync is completely microprocessor controlled.
- Advanced sync output - useful with any VCR capable of taking an Advanced Sync in. **1279.00**

## HOTRONIC AP41

### STAND ALONE TBC/FRAME SYNCHRONIZER

- Compatible with S-VHS, Hi-8 and U-Matic SP equipment.
- Frame synchronization with full frame memory synchronizes outside satellite, microwave and feeds with studio signals.
- 4 times sub-carrier sampling, 8-bit resolution.
- Adjustable horizontal and vertical blanking.
- Proc-amp controls are presettable. Each control has a maximum useful dynamic range. Front panel buttons select different operational modes.
- Optional pixel by pixel DDC (Drop-out compensator).

#### AP41-SF

- Same as above plus S-video output, freeze frame/frame, Y/C adjustment and 16-speed strobe

#### AP41-SP

- Same as above plus wide-band comb filter (full bandwidth in all modes)

## NewTek

### LIGHTWAVE 3D 4.0

The Ultimate 3D Rendering and Animation System for Broadcast Graphics

LightWave 3D offers all the high-end features you need to produce network-quality graphics. You can model, render, surface and animate three-dimensional graphics, all from within a single straightforward environment. Everything from flying logos and scientific visualization to the most sophisticated effects seen on television are now available on your desktop. LightWave consists of two powerful programs in one easy-to-use package:

- Creating objects is simple with LightWave Modeler. PostScript fonts allow you to generate 3D text easily. You can construct models by combining built-in primitive shapes, or by using Modeler's freehand draw functions. Tools like Lathe or Extrude add depth to 2D shapes. Boolean functions let you cut and combine objects. LightWave Modeler gives you ten different modeling layers to work in. Powerful tools like magnet, level, and clone are all available.
- LightWave Layout lets you design the perfect scene. You can load and position objects, edit surfaces, and design dramatic lighting effects and camera moves. You can even include spectacular effects like lens flare, fog, or depth of field. Bring 3D characters to life simply by using the object parenting and bones features. Check your scenes by creating wire frame preview animations that you can play back in real time. Render still images or entire animations in up to 16.8 million colors.

## Toaster FLYER TAPELESS EDITOR

No editing system in the world compares to the quality, price, and ease of use of NewTek's revolutionary new Video Toaster Flyer. The Flyer is a D2, broadcast-quality, tapeless nonlinear edit system that costs under \$5,000. Forget the hassle of hooking up a complicated A-B Roll editing system. Forget the expense of buying an edit controller and three VTRs. Forget waiting for sluggish tape access in an offline studio. With the Video Toaster Flyer, all that is history. Now you can record your video direct-to-disk, make edit decisions with the Flyer's drag and drop controls, and enjoy the finished program all in the same afternoon. Don't like the way a sequence looks? Drag the video clips into a new order, insert a new scene, or drop in background music with the click of a mouse. The choice is yours. Best of all, every change is immediate. There's no re-generation loss, no tape generation loss, and there are no botched edits. For a fraction of the cost, the Video Toaster Flyer provides the quality you expect from a \$50,000 digital video deck. Plus, the Flyer seamlessly integrates into the Video Toaster system.

#### AFFORDABLE ONLINE EDITING

- For under \$5,000, the Video Toaster Flyer provides the same D2 quality image you expect from a \$50,000 digital video deck. The Flyer integrates so seamlessly with the Video Toaster that you'll be able to experiment with effects, try out different titles, or add animations with ease.
- NewTek's exciting new video compression standard, VTASC, gives you the quality you want without the artifacts associated with JPEG, MPEG, Wavelet and other compression techniques. Your final productions look better with the Flyer since there's no tape generation loss.

- Add a Video Toaster Flyer and a couple of hard drives to the Video Toaster 4000 to form a complete audio and video production suite that fits on your desk.

#### SEAMLESS INTEGRATION WITH THE VIDEO TOASTER

- Since the Flyer has been designed as a component of the Video Toaster system, it seamlessly integrates with your Toaster-based system. Harness all of the effects, graphics and animation features that have made the Toaster one of the most popular video tools ever. Use recorded video clips as easily as video still frames. You can even insert video clips into your LightWave animations. This feature, called rotoscoping, allows you to place live video segments - as many as you want - inside your LightWave animations. You have unlimited control over moving images.

#### EDITS AUDIO

- With the Flyer, your Video Toaster system edits audio as well as video. Its audio capabilities allow you to use it as a sophisticated sound mixer featuring multiple tracks of CD-quality digital audio. Add background music, perform audio sweetening, or bring up the volume of a quiet passage.

#### SIMPLE, FAST EDITING

- With the Flyer, editing is an exciting process of experimentation and creativity. You start by recording clips into the Flyer (a clip is a segment of video along with stereo audio).
- Each clip is represented by a color picture taken from one of its video frames called a croton. You fine-tune each croton - select in and out points, and adjust audio characteristics - until the clips are perfect.
- Next, simply drag a video croton into position, place an effect croton after it, then drop another video croton after the effect. You've just created a transition from one video clip to another. To add a graphic or overlay CG text, drag and drop a graphic croton. With the Flyer it's easy to build a storyboard where every scene, sound, graphic, and animation appears in the order you want.
- Finally, press the Play button. Watch the entire production roll as each of your clips, effects and graphics plays back in real time. Record your finished production directly to another Flyer-controlled hard drive or to any video format.

#### RGB COMPUTER

#### Amilink CIP

Amilink CIP is an Amiga-based A/B roll edit controller. It is a combination of hardware and software that provides flawless control of three VCRs. It is also the most complete personal video editor for the Video Toaster. It controls low-cost industrial VCRs like the Panasonic AG-1970 or with Control-L protocol like Sony EVS-3000 and SLV-R1000. You can use three of the same or in any combination. Best of all, Amilink CIP is upgradeable for professional machine control. To upgrade, you buy an upgrade kit that includes new software and professional level control cards. The system includes a new version of Amilink software designed especially for the Toaster 4000. With the new Amilink VT-4000 software, the Video Toaster is seamlessly integrated into your editing suite.

#### Machine Control

- Choice of joystick, mouse, keyboard and trackball, plus an optional jog/shuttle editing keyboard
- Industry standard keyboard layout (CMX/GVG)
- Auto calculated GPI, plus 48 additional GPI triggers per edit with optional hardware
- Controls industry standard audio mixers

#### Edit List Management

- Sophisticated search list by edit comment, content or number
- Import/Export CMX 3600 edit list on MS-DOS & Amiga-DOS
- Automatic edit list back-up
- Edit list cleaning, list ripping, multi-field sorting
- Optimized edit list auto assembly with special integration

#### Editing Control

- Preview, Perform, Review and Auto review functions
- Multi-set, Multi-trim • Reverse play and auto review
- Pre-Roll, Post-Roll and Preview select

#### Edit Modes

- Provides for multiple audio/video splits per edit event
- Open ended immediate/delayed transition edits
- Performs all edit modes plus "Music Video Mode" for easily synchronizing edits to music.
- Integrate graphics, animation and character generation
- Scene-based editing with advanced park and perform features
- Cut and Paste EDL management

#### Amilink AL-3Ni Professional

Amilink AL-3Ni is the professional version of Amilink. It is designed exclusively for machines equipped with RS-422 9-pin serial interface. Amilink AL-3Ni is actually 2 edit systems in one, including both Windows and Amiga software.

#### Machine Control

- Controls 16 (Sync-rol) to 16 source VTRs and 4 record VTRs
- Choice of joystick, mouse, keyboard and trackball, plus an optional jog/shuttle editing keyboard
- Industry standard keyboard layout (CMX/GVG)
- Auto calculated GPI, plus 48 additional GPI triggers per edit with optional hardware
- Single frame animation module included
- Dynamic motion control/auto tracking support
- Controls industry standard audio mixers
- Reads VITC and LTC time code, plus fully supports SMPTE Drop-Frame and non Drop-Frame, mixed and PAL/EBU

#### Edit List

- Sophisticated search list by edit comment, content or number
- Import/Export CMX 3600 edit list on MS-DOS & Amiga-DOS
- Automatic edit list back-up
- Edit list cleaning, list ripping, multi-field sorting
- Optimized edit list auto assembly with special integration

#### Editing Control

- Preview, Perform, Review and Auto review functions
- Multi-set, Multi-trim • Reverse play and auto review
- Pre-Roll, Post-Roll and Preview select

#### Edit Modes

- Provides for multiple audio/video splits per edit event
- Open ended immediate/delayed transition edits
- Performs all edit modes plus "Music Video Mode" for easily synchronizing edits to music.
- Recorder only edits for recording graphics/audio
- Integrate graphics, animation and character generation
- Scene-based editing with advanced park and perform features
- Six forms of Match-Frame edits
- Cut and Paste EDL management
- Multiple time-code and edit clip-board registers

CIP w/VT-4000 Software .....\$1499.00

AL-3Ni w/VT-4000 Software .....\$2295.00

#### VT-4000 Software (Toaster Control)

- Amilink/VT gives you total control over the Video Toaster as a fully integrated post-production switcher.
- Amilink/VT remembers all of the Frame Stores, CG Titles, and DVEs used for your production in the Amilink edit list. You never lose any of the information you need to recreate your production.
- All of the Video Toaster post-production functions are easily accessed from the Amilink/VT interface screen. Toaster Digital Effects, Character Generator pages and the Digital Video Frame Stores, as well as standard wipes and dissolves, can all be called up automatically during edits, and are stored in the edit list for later auto-assembly.

## SUNRISE INDUSTRIES

### AD 516 and Studio 16

The Complete Digital Audio Solution



- The AD 516 is a professional quality 16-bit high fidelity sound board and hard disk recording system for the Amiga. It includes the feature packed Studio 16 software that allows you to perform all traditional audio post-production tasks. You can create sound effects, edit and replace dialog, and build multi-channel soundtracks in the digital domain.
- Record, edit and playback directly off hard disk
- Play up to 8 simultaneous tracks off one or multiple hard disks in real time.
- Use a mouse to slice up and rearrange sound quickly
- Mix tracks with no generation loss
- Synchronize background music with your productions
- Fade, cross fade, or eliminate sections of audio
- Create unlimited variations of echoes, flanges, and choruses
- Optional Video Toaster Handler expansion module lets you play audio during many of the Toaster's digital video effects.

## DIGITAL PROCESSING SYSTEMS

### DC-2350

#### Personal Component Adapter

- The DC-2350 Personal Component Adapter is a combination 3-Line Adaptive Digital Comb Filter Decoder and Y/C encoder designed for use with the Video Toaster.
- Has two S-Video outputs plus switchable Betacam/MII component output which allows the Video Toaster to be connected to Y/C monitors, S-VHS, Hi8, Betacam and MII recorders.
- Equipped with three S-Video inputs which are converted to Video Toaster input feeds. This allows devices such as TBCs and VCRs with S-Video output to be connected directly to the Video Toaster.
- Its 3-Line Adaptive Digital Comb Filter provides superior diagonal luminance resolution compared to products using two-line comb filter designs.

DC-2350 ..... \$299.95

#### VT-2600 Personal TBC IV

- Component digital transcoding provides S-video input and output. Digital 4:2:2 processing ensures the cleanest possible picture. Composite video signal is also enhanced by a newly developed chrominance comb filter.
- It interfaces virtually any camcorder, VCR or laser disk player to production switchers or computer video systems like the Video Toaster.
- Features Rock Solid Freeze (field and frame), GPI Freeze, Variable Strobe, Forced Monochrome and Advanced Sync.
- Film Effect Strobe Mode - Simulates the 3-2 pull down conversion technique from a 24 frame per second film standard, to a 30 frame per second video standard.
- Can be installed in any Amiga or PC-compatible computers.
- Includes Amiga and MS-DOS software.
- Has a 50-pin CVE (Component Video Exchange) port. When connected to the DPS Personal Animation Recorder you can capture and record real-time video on the animator's dedicated hard drive. This combination is ideal for rotoscoping and other video capture processes.
- Fully compatible with TBC II, III and Personal V-Scope. The TBC IV is operated via software, or by using an optional DPS RC-2000 multi-channel desktop controller.

## DR-2150

#### Personal Animation Recorder

- The DPS DR-2150 Personal Animation Recorder is designed to record computer animation sequences directly to a hard drive and then play them back in real time. The DR-2150 is a card that plugs directly into an Amiga expansion slot and replaces both the single frame record VCR and the single frame controller. Bad edits, dropped frames, tape dropouts and other mechanical glitches common to traditional VCRs are a thing of the past.

- Combines custom ICs and a proprietary implementation of the LSI chip set enabling component 4:2:2 digital recording to a dedicated hard drive.
- The hardware adaptively samples each new video image to determine optimum quality. Although standard compression ratios don't apply you can expect four to five minutes of high quality playback from a dedicated 540 MB hard drive.
- Offers multiple outputs: Can output animation as composite, S-Video and component (Betacam or MII). Also includes a genlock input which enables it to be easily integrated with virtually any video production system.
- Variable speed playback lets you play back 24-bit (16.7 million colors) animation in real-time 30 frames per second, or you can choose a lower frame rate to play back animations in slow motion.
- Has composite, S-Video and component (Betacam/MII) outputs. Also has a genlock input enabling it to be easily integrated with virtually any video production system.
- Supports direct rendering of all common image formats including 24-bit IFF and Video Toaster frame store files and is fully compatible with all popular animation packages including Morph Plus, Lightwave 3-D, Fracture Pro, Imagine, Vista Pro, and Cinemorph.
- Real-time video capable rotoscoping and other video capture applications is possible when used in combination with a DPS TBC IV card.



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## SAMSON

### MR-1 Wireless System

- The MR-1 micro receiver is a professional VHF wireless receiver measuring less than 4" long and 2" wide.
- FCC licensed in 14 channels from 174 MHz to 213 MHz.
- Truly switchable balanced mic level (600 ohms) to unbalanced (-10 dBm) output.
- dbx noise reduction to simultaneously increase dynamic range and eliminate noise.
- Receiver squelch, level & headphone level output controls.
- Can be powered by a 9V battery for 10 hours.
- SH-2 hand-held transmitter can be used with mic elements like Shure SM 58 dynamic mic or Audio Technica Pro 4.
- ST-2 (L) body pack transmitter can be used with leading lavalier mics like Sony ECM-144 or Audio Technica 831.

### Lavalier (clip mic) Systems

- ST-2(L)ECM-144 Transmitter with Sony mic & MR-1 Receiver ..... **367.95**
- ST-2(L)ECM-44 Transmitter with Sony mic & MR-1 Receiver ..... **419.95**
- ST-2(L)AT 831 Transmitter with Audio Technica unidirectional mic & MR-1 Receiver ..... **419.95**

### Hand-Held Systems

- SH-2/P4 Audio Technica Dynamic mic element & MR-1 Receiver ..... **369.95**
- SH-2/S8 Shure SM58 Dynamic mic element & MR-1 Receiver ..... **434.95**
- SH-2/S8 Shure SM-85 condenser mic element & MR-1 Receiver ..... **592.95**

### SUPER TD SERIES TRANSMITTERS

For the serious professional who wants true step-up quality features. Lavalier (clip mic) systems each includes:

### MR-1 Micro Receiver, TX-3 Body-Pack Transmitter, Lavalier Mic with Multi Pin Plug

- Sony ECM-144 ..... **507.95** Sony ECM-44 ..... **544.95**
- Sony ECM-55 ..... **553.95** Sony ECM-77 ..... **724.95**
- Senheiser MKE-2 ..... **747.95**

## SENNHEISER



### MKE-300 Short Shotgun

- Lightweight electret condenser mic to support the excellent video capabilities of most camcorders with the superior audio they deserve.
- Ideal for mounting on camcorders with an integrated shoe assembly and an extremely lightweight compact design.
- Tight, supercardioid polar pattern has the ability to pick up only those sounds that correspond to the scene being filmed and rejects any disturbing ambient noise.
- Integrated wind screen eliminates handling and wind noise.
- Operating time of over 200 hrs. using its own built-in battery so will not put added strain on your camcorders already limited power supply. .... **189.95**

### K6 MODULAR ELECTRET MULTIMIKE SYSTEM

This rugged system has separate capsules and a powering module that can be combined to produce a wide variety of microphones. It converts quickly from one type of microphone to another by simply threading together various system components. All capsules use back-electret technology for uncompromised quality. Output of the powering modules is balanced, low impedance (200W) and terminates in a standard 3-pin XLR connector. The K6 series was designed to bring studio quality sound to the broadcast and field recording market. The K6 power supply can accept microphone capsules ranging in polar pattern from omnidirectional to highly directional shotgun, as well as special application lavalier microphones.

#### K6

Microphone handgrip and power supply capable of battery/phantom powering all microphone capsules in this series. One "AA" battery supplies power for approximately 150 hours of operation (12-48 volts). The K6 power supply has an integrated bass roll off switch and on/off switch with LED indicator for battery condition. .... **194.95**

#### ME 66

Short shotgun capsule. All sound coming from the rear and sides of the ME66 is greatly attenuated. Its low handling noise and ability to pick out specific sounds in noisy environments. Great for interviews in crowded situations, as a camera microphone for electronic news gathering (ENG), for unobtrusive theater sound reinforcement and as a podium mic. Frequency response: 50-20KHz ± 2.5 dB. .... **204.95**

ME66 with K6 Powering Module ..... **397.95**

#### ME64

Cardioid capsule. Feedback resistant due to its well defined directional polar pattern. This feature, as well as its extended frequency response, make this microphone capsule ideal for use in sound reinforcement or recording in noisy environments. Frequency response: 50-20KHz ± 2.5 dB. .... **144.95**

ME64 with K6 Powering Module ..... **334.95**

#### ME62

Omnidirectional capsule. Very broad and smooth frequency response, without proximity effect. Its low handling noise and integrated pop screen make it ideal for interviews and live recording. Frequency response: 20-20KHz ± 2.5 dB. .... **119.95**

ME62 with K6 Powering Module ..... **309.95**

## WACKIE



### MicroSeries 1202

Ultra-compact 12 channel audio mixer featuring the same specs and performance as the proven CR-1604. In less than 1 sq. ft. of work space it provides 4 low-noise/high headroom mic inputs with +48V phantom power, 4 balanced, mono inputs, 4 stereo inputs, 2 AUX sends per channel, 2 stereo effects returns, 4 channel access inserts, tape in/out, 2 band EQ, headphone monitor w/level control, 12 LED peak meter display, sealed potentiometers, rugged steel construction and built-in power supply.

### CR-1604

Sixteen-channel audio mixer designed to deliver exceptional performance in a wide range of situations, including studio recording, live recording, live music PA systems, broadcast studios, and high quality installed systems. Exclusive mix amp technology delivers 2X more headroom than ordinary mixers, along with the lowest distortion and highest possible S/N ratio. Convertible design allows physical format to be changed between 1600, 1600, 1600 and rack mount with jack pot rotated 90° to back. Rack mount brackets included.

## TASCAM



### 688 Midistudio

The 688 MIDISTUDIO is a compact, 20 input audio mixer combined with an 8 track cassette recorder system. Designed for the MIDI-based studio, this unit will work well for both the production facility and the individual artist. In the MIDI environment, sources can be selected, destinations assigned and routing designated, all from the remote MIDI controller. With its wide input range and ability to be remotely synchronized, the 688 can be the heart of a high tech, compact 8 track studio.

- Full featured 20 input mixer (10 balanced XLR inputs)
- 4 x 2 cue monitor mixer
- Built-in dbx noise reduction system (defeatable)
- Unique "Scene Display" system to monitor MIDI-controlled setups
- Gapless auto punch in/out and rehearsal modes
- Serial interface for external synchronization



## Quick-Draw Professional

FOR CAMCORDERS OR STAND ALONE CAMERAS



- Designed for working from the back of a van or the trunk of your car. The top loading case has a wide open fold back top that stays neatly out of the way. It's lighter and more compact than shipping cases, thus saving valuable storage space. With other equipment crowded around it the sturdy built-in frame provides added protection.
- Heavy duty shoulder strap & comfortable leather hand grip.
- Carry it in crowds - crush proof aluminum guard protects viewfinder.
- Fits into back seat and fastens securely with seat belt.
- Holds camera with on-board battery attached.
- Lid closes with Velcro for quick-opening or secures with full-length zipper.
- Two trim exterior pockets and clip board pocket.
- Dual purpose rear pouch is an expandable battery chamber or all-purpose pouch.

## NRG

### POWER BELT SERIES

NRG power belts are the ultimate power solution. They provide the power to run lights, camcorders and decks without the fear of shutdown. Advanced high-density nicad power cells provide the lightest weight and longest service life of any power products made. Innovative features such as dual power outputs, power indicator, removable packs, plus accessories like high-speed chargers, solar panels and high-current cables combine to form the complete power solutions for any kind of users.



### 880 Power-Pro +

- High capacity quick-charge capable 12-volt 10-amp sintered nicad power pack (removable).
- Power chassis with dual 3-pin XLR inputs allows for pack interchange without shutdown.
- 2500-cycle cell life provides lowest cost per cycle.
- Microprocessor-controlled 5-step multi-color power indicator display.
- Belt with cellpack weighs only 4.9 lbs for all day comfort.
- Dual outputs allows simultaneous powering of two devices (eg. camera and light). Output configurations include cigarette lighter and 4-pin XLR in any combination.
- Charge in under 2 hours with the optional 650-III charger.
- Includes Power-Pro belt and power chassis, 12-volt 10-amp cell pack, model 600 overnight charger and comprehensive owner's manual. Fits waist size 30" - 40" (Available in large size 40" - 52" needed).

### 970 Power-MAX

- Same features as 880 Power-Pro + Belt Plus-
- Highest capacity quick-charge capable 12 Volt 14-AMP sintered nicad power pack (removable).
- Rugged high-grade, black leather belt case; chassis assembly with dual 3-pin XLR inputs for pack interchange without shutdown.
- Belt with cellpack weighs a comfortable 7.5 lbs.
- Includes Power-MAX belt and power chassis, 14-amp cell pack in 12V or 13.2V configuration, model 600 overnight charger, comprehensive owner's manual. Fits waist size 29"-44".
- Also available in 13.2-Volt 14-amp version. The 13.2-Volt version offers 15-20% longer runtimes because industrial VCRs shut off at higher voltage levels. By not shutting off the Power-MAX is allowed to fully discharge, thus the longer running time.

### VARA-LITE PRO

Professional DC On-Camera Light

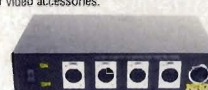
The revolutionary new NRG Vara-Lite Pro combines the ruggedness, light efficiency and versatility of NRG's best selling Versalight Pro (DC only) with a sophisticated electronic light management system. Thanks to on-board control ICs using NRG's Light-Gate technology, light intensity can be infinitely adjusted by the user within a range of 10% to 100% of the lamp's rated power. Now instantly adjust light output to exactly meet changing light requirements. Best of all, the Vara-Lite Pro virtually eliminates color shift and dramatically serves precious battery power by using only the power required for the selected light level.



- Accommodates bulbs from 20W to 100W DC.
- Prismatic dispersion grid provides smooth even light output and reduced glare without changing light intensity.
- Sturdy all-metal click tilt mounting bracket with ratchet action. Eliminates shake under action shooting conditions.
- Optional barn doors enhance light control capabilities.
- Front retainer assembly pops off for instant bulb access without the bother of screws.
- Rugged milled aluminum light head disperses heat and provides years of service under adverse conditions.

### POWER STATION-2 SERIES

Just plug the PowerStation-2 into any AC outlet in the world and out comes perfectly regulated 12-volt DC power through four 4-pin XLR connectors and one cigarette lighter connector. It uses an advanced pulse-width-modulated power supply which allows for ultra-light weight and small size. It operates with little heat even at full output. The PowerStation-2 is the ultimate multiple-output professional power source for cameras, decks, lights, monitors, and a host of other video accessories.



- 85-264 volts worldwide auto-adjusting input (just plug in).
- Supply is fully protected from overcurrent.
- Ultra-light weight - under 3 lb.
- Outstanding 500,000 hour mean time between failure is far in excess of any other manufacturer.
- Ultra-efficient PWM regulation generates far less heat than linear type supplies.
- Provides the ultimate in performance and reliability in a universally compatible and compact package.

## PROFESSIONAL VIDEO TAPE



M471S S-VHS Double Coated	
ST-30	7.69
ST-120	8.49

M221 HI 8 Double Coated	
ST-30	7.69
ST-120	8.49

Metal Particles	Metal Evaporated
P630HMP	4.99
P660HMP	7.99
P6120HMP	15.79

## maxell.

BQ Certified 8mm High-Grade	
P6-60 HG BQ	5.09
P6-120 HG BQ	6.69

BQ Certified Hi-8 Metal Cassettes	
P6-60 HM BQ	5.89
P6-120 HM BQ	7.89

P/PLUS Expitaxial VHS	
T-30 Plus	1.89
T-90 Plus	2.09

HGX-PLUS Expitaxial VHS (Box)	
HGXT-60 Plus	2.69
HGXT-120 Plus	2.99

BQ Broadcast Quality Expitaxial VHS (Box)	
T-30 BQ	4.39
T-60 BQ	4.99

BQ Certified Professional S-VHS (In Box)	
ST-31 BQ	6.09
ST-126 BQ	7.39

ST-182 BQ	6.69
ST-182 BQ	13.59

## SONY

### Hi-8 Professional Metal Video Cassettes

P6-30 HMPX	4.95
P6-60 HMPX	5.95
P6-120HMPX	9.49

P6-30 HME	7.99
P6-60 HME	11.49
P6-120HME	15.49

PR Series Professional Grade VHS	
T-30PR	2.39
T-60PR	2.59

T-120PR	2.79
PM Series Premier Grade Professional VHS	
T-30PM	3.49
T-60PM	3.99

T-120PM	4.79
BA Series Premier Hi-Grade Broadcast VHS (In Box)	
T-30BA	3.59
T-60BA	4.09

T-120BA	4.89
MQ Master Quality S-VHS (In Box)	
MOST-60	7.99
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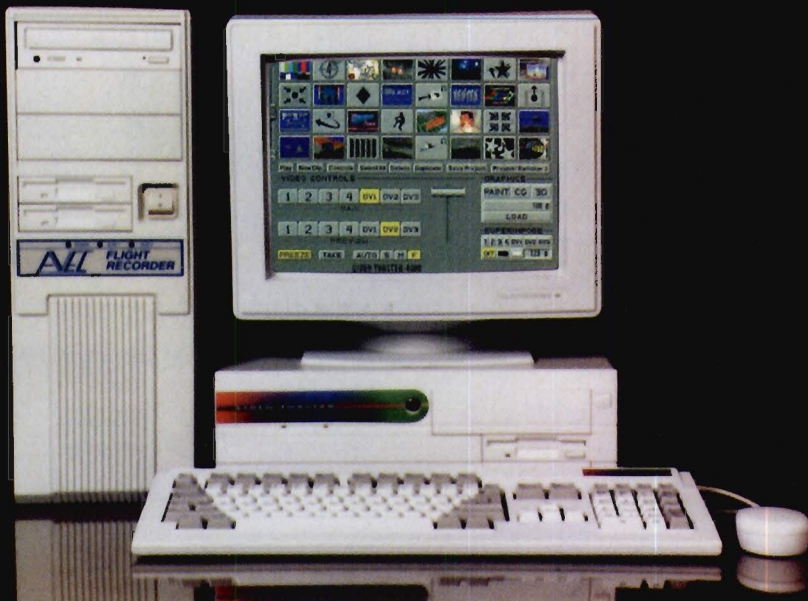
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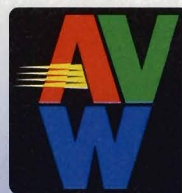
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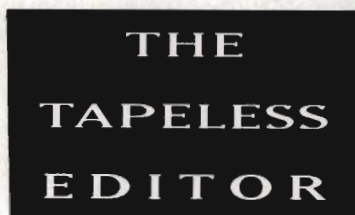
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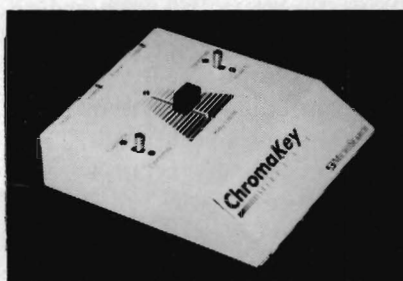
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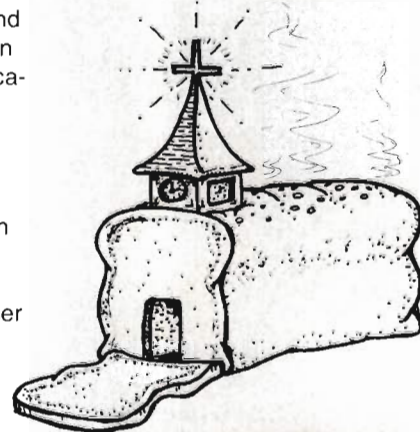
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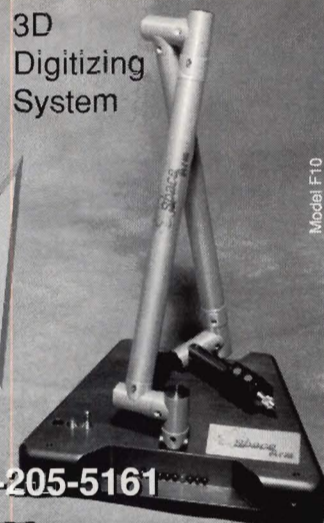
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# LAST WORD

## Relax, It's Only a Column

You May Actually Learn Something



by Mojo

**A** few people out there are unhappy that I suggested buying a PC a few months ago. Some of you even wrote in to *VTU* screaming bloody murder. You questioned the validity of wasting the precious paper it's printed on to so much as *mention* another computer.

Listen up, airheads. Those of you who are blindly screaming "Amiga Forever!" have got a lot of growing up to do. Stop sitting on your brain! Isn't there a project you need to get done? Have you *never* wished for a faster machine? Is there not *one* feature you need that your Amiga software doesn't have? Gimme a break. The main reason any of us bought the Amiga was that we believed in using the right tool for the job.

For some applications, it still is. But if they stop making flathead screwdrivers, and all the screws that are manufactured are Phillips head screws, sooner or later the carpenters of the world are just going to have to break down and buy a Phillips head screwdriver. Maybe the old flathead screws are better for some people, and these users may have very good reasons for preferring them, but in the end they must face the winds of change or get left behind.

It seems like there are still a lot of flathead Amiga users. Some of them just aren't going to see the light, and frankly, I don't care. Let them reread old issues of *AmigaWorld* and go nuts trying to make ToasterPaint perform like Photoshop. The rest of us will simply miss the old machine and

collect bigger, more frequent paychecks. Case closed.

Speaking of mail, I've been informed that there are people out there who aren't quite sure what I'm trying to accomplish with my less-than-orthodox "Last Word" columns. I must admit, instead of providing you with the hard facts about a dream studio, I've been spending a lot of time preaching about life, the universe and everything. "What's the point?" you've been asking.

Well, I'll tell you. The first job I ever had in the world of film and television was an internship at *STARLOG* magazine while I was in high school. It was my favorite science-fiction magazine and the publishers were getting into producing TV shows and home videos. However, when I went on my interview, the publisher, Kerry O'Quinn, told me that they weren't actually making anything yet. All the projects were in the development stage and most of my chores would involve office work and assisting producers.

That wasn't what I had in mind—I wanted "Lights, Camera, Action!" In fact, my school's internship program had previously sent me on interviews to movie and TV studios where I could get just that.

But still, it was my favorite magazine! I knew it was going to be a mistake, but I took the job and gave up the glamour I had longed for.

So for six months, I photocopied scripts. I took notes at meetings and organized minutes. I tracked down an old smoke machine. I called all sorts of people with other people's questions. I organized a film contest that no one else had time for. I typed out budgets and retyped screenplays and outlines—lots of hum-drum tasks that made me wish I was on a set somewhere.

But then something odd happened. The next year I went to film school and began to learn what I had set out to—all the nitty-gritty details of making a movie. It was a lot of hard work, and most of it was very technical and unexciting: How to set up a light stand. What the different lights are called. Memorizing different film stocks. How to put the camera on a tripod. How to cement film together for editing. Boring. Necessary, but boring.

Then one day a friend showed me his written proposal for a film he was going to hand into class. I looked it over and was shocked—it was all wrong! The ideas were good, but the proposal itself needed work—it was poorly written, it didn't look good, and it didn't address the topics the teacher was hoping for. But wait—how did I know? They never taught us any of that in film school. Then I realized it was from typing up so damn many of them at *STARLOG*. I knew how to write! I also knew how to organize a crew, how to track down equipment, how to break down a script and budget it, how to schmooze people—all from my days at *STARLOG*! All things they didn't teach us at film school but were vital to an education. Things I never wanted to learn because I never even knew I needed to. In the end, those six months at *STARLOG* (and the inspiring editorials inside the magazine) gave me the best education I ever had for all the wrong reasons. I had no desire to learn any of those things, yet they have proven to be the most valuable.

There's a lot more to making your own videos and hitting the big time than learning how to fine-tune a TBC and create an alpha channel. That's what the rest of this magazine is for. This page is here to offer a different perspective and provide you with some ideas and answers you may not even be looking for. I can't promise that you'll ever find anything I have to say to be the least bit helpful. Lord knows, when I was at *STARLOG*, everything I learned was completely useless. Or so I thought...

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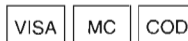
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