ADDING TO YOUR LIGHTWAVE ARSENAL, PAGE 52

# VIDEO TOASTER® USER™

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JULY 1995

## The Mighty Effects of Hercules

## Speed: Animating in the Fast Lane

## TPaint and CG Shoot-'em-up

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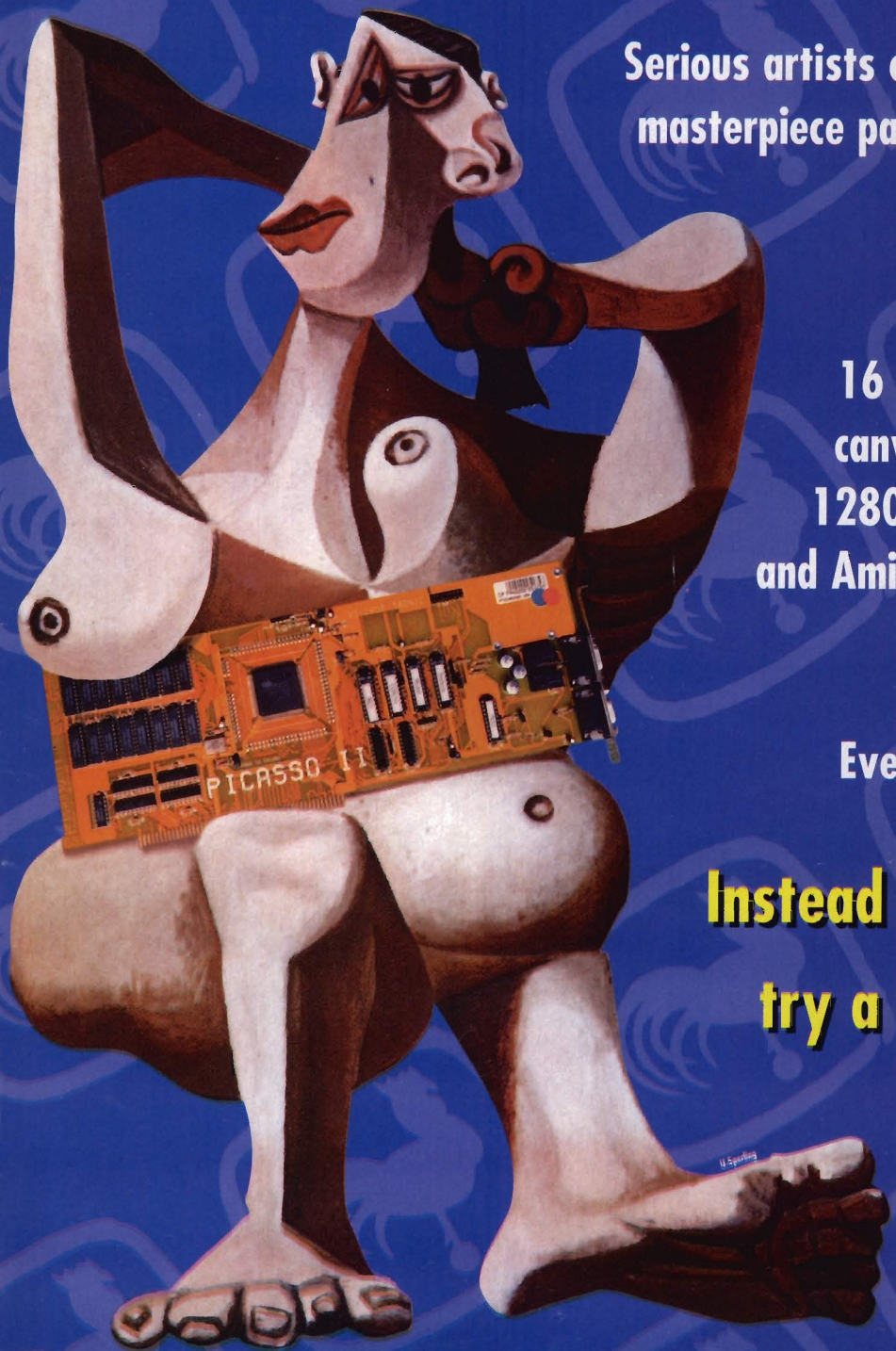


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YOUR GUIDE TO VIDEO FX/LIGHTWAVE 3D/TV GRAPHICS

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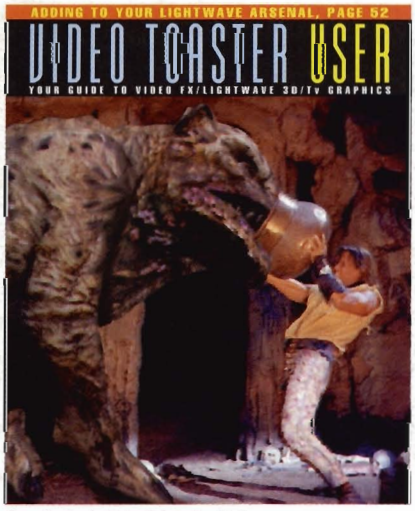


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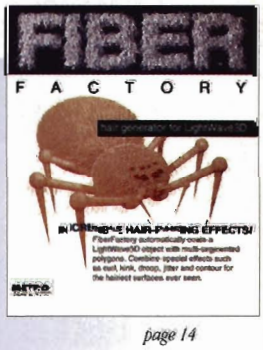


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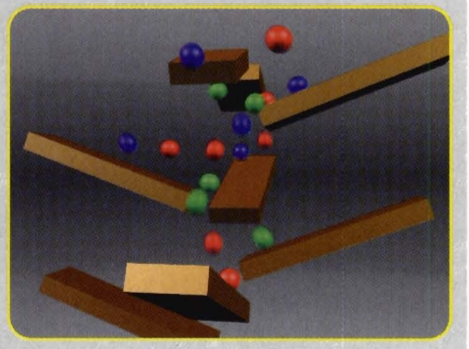

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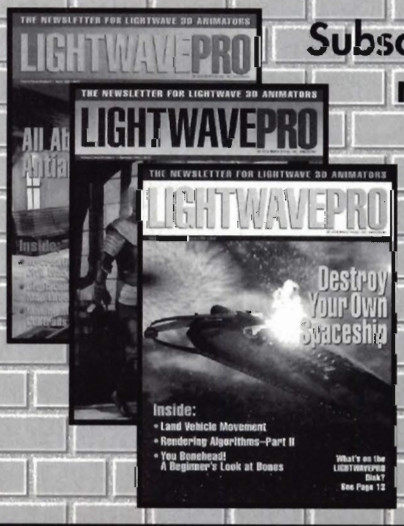


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This month we recognize Ann Pulley for contributing extraordinary accomplishments to our company.

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# TOASTER TALK

## More and More LightWave

### Educate Yourself with Tutorials, Tapes and Training

by Jim Plant

Under extreme pressure from its user base, NewTek recently released a preliminary version of LightWave 3D for PC-compatibles running the Windows operating system. Although the majority of LightWave's functions were available in this release, it was dubbed "preliminary" because a few major new features, like the plug-in architecture, were not yet fully implemented. Also, this introductory version was somewhat deficient in the documentation department. Separate reference manuals for LightWave's Modeler and Layout sections were included, but the still-in-progress user guides and tutorials were conspicuously absent. Those items will be shipped free of charge to all early purchasers when the final 4.0 version ships in June.

Fortunately for both new and experienced LightWave users, there are many sources of information regarding the use of LightWave, even the newer versions. Of course, *Video Toaster User* always has a wealth of LightWave-related information to choose from. Our regular "Dear John" and "Taming the Wave" columns are largely LightWave-specific, and there are always LightWave tutorials, user profiles and new product reviews. Our companion publication, *LIGHTWAVE-PRO*, is a monthly newsletter featuring a half-dozen or more LightWave tutorials by some of the world's hottest animators. Avid Media Group recently authorized a UK-based Amiga magazine, *Amiga Computing*, to publish a special compilation issue of *LIGHTWAVE-PRO*. *AC* included the *LWPRO* compilation as a premium in the newsstand copies of its June issue, so if you have access to a source for British Amiga magazines, you might want to pick up a copy.

Probably one of the timeliest sources of LightWave information can be found on-line, especially in the LightWave news group in the Internet's Usenet section. Every day there are dozens of new messages with LightWave hints and tips, animation techniques, user reviews of related products, bug reports, and all kinds of information of varying degrees of usefulness. Top LightWave experts like *VTU* columnist and *LWPRO* editor John Gross visit regularly, as do dozens of other professional animators. Get yourself on the net and cruise over to **comp.graphics.packages.lightwave** for a regular dose of LightWave information.

Besides magazines, newsletters and on-line services, watching tutorial videos is one of the most effective ways to quickly flatten the LightWave learning curve. One of the best producers of Toaster and LightWave tutorial videos in the market is Desktop Images of Burbank, Calif. I have always been very impressed with the way Desktop Images presents information and the production quality of their work. Because they are in the Los Angeles area, Desktop Images has been able to benefit from their proximity to some of the top Hollywood-based LightWave animators. Their *Pro Flying Logo Techniques* video is a good example. Desktop Images arranged with Amblin Imaging Vice President and CGI Supervisor Tony Stutterheim to provide professional tips, techniques and advice on modeling and animating impressive 3D logo animations. The resulting videotape provides students access to instruction from one of the world's top LightWave animators. (The multi-talented Stutterheim is also the author of WaveMaker, an excellent program that automates the LightWave logo animation process.) [Note: WaveMaker 2.0 was reviewed in the June '95 issue of *VTU*.]

### Tapes from Ron Thornton

Desktop Images has continued along this path, having just completed the production of two tapes from LightWave God Numero Uno Ron Thornton. For those of you who are new to this market, Thornton is most well known as an Emmy-award-winning animator and chief of Foundation Imaging, the company providing visual effects for the weekly TV series *Babylon 5*. Somehow, Desktop Images was able to pull off a real coup by getting Thornton to find the time to sit down long enough to share his methods for creating his signature "mech," or high-tech, mechanical modeling techniques. They've even persuaded Thornton to reveal some of his most valuable secrets, such as the diffusion and specularity-mapping techniques that give his models that real-world, weathered look. The "Thornton Tapes" should be available for sale soon after you read this. Give Desktop Images a call at (800) 377-1039 or (818) 841-8980 for more information. You can also reach them and order on-line by surfing over to their World Wide Web page at **http://www.desktopimages.com/desktop/**

### Win a "Wavey"

As long as we're overdosing on LightWave 3D, I invite you to check out the details of *VTU*'s first-ever animation contest. Co-sponsored by NewTek, the 1st Annual LightWave Animation Awards will be handed out at a special awards ceremony during the week of the SIGGRAPH show this August. See our announcement on page 45 for more details. Also check out the announcement on page 59 for information about our "NewTek U. Across America" LightWave 3D and Video Toaster training tour.

VTU

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FOR INFORMATION CIRCLE 123

# TOASTER TIMES

# Around the World In Just Under a Year

## The Commodore Resurrection

Jason Compton

The long search for a new home for the Amiga started in France, moved to the Bahamas and New York, and finally settled in Germany and China.

On April 29, 1994, Commodore International Limited, the ultimate parent to all Commodore subsidiaries worldwide, entered involuntary liquidation procedures on a debt payment requested by the Banque Nationale de Paris. Although Commodore was incorporated in the Bahamas, extreme circumstances and the convoluted nature of Commodore's structure resulted in parallel bankruptcy procedures in New York.

Legal wrangling, deal-making and, most of all, waiting, stretched out for almost a year, but an auction date was finally set for April 20, 1995, in New York. Despite months of posturing and promising, neither David Pleasance of Commodore UK nor Alex Amor of Creative Equipment International placed a bid at the proceedings. Only Escom AG, the German clone-maker who had expressed some interest in the Commodore assets since September, placed a valid bid. Dell Computer's bid, with the support of Amor, was rejected due to Dell's conditions on delivery and payment. A bid from Computer Connection of California was rejected for lack of a sufficient deposit.

The following day brought the U.S. court hearing, at which Dell attempted to file a bid three times that of Escom's accepted $5 million. Dell's conditions remained attached, however, and by increasing its bid to nearly $12 million, Escom was able to win its prize.

A week and a half later, the Bahamian Supreme Court approved the deal. Escom paid in full and the sale was concluded.

In the interim, Escom's various executives have attempted to quiet the fears of Amiga users and professionals, and fill the seemingly endless thirst for news and information. Promises include strong Internet support and interaction, easy licensing terms for innovative Amiga-based products, and immediate production of the Amiga 4000, 1200, CD32 and 600.

Escom also plans to revive the Commodore 64 line for Eastern Europe and possibly China as a way to introduce low-cost personal computing to markets that to date have not been widely exposed. Tianjin Family-Issued Multi-

# Working on Cloud 9

Joan Burke

Nestled in a quiet two-bedroom apartment (converted into an office) amid the hustle and bustle of Burbank, Calif., the home of major television studios, is Tanker Media (818-845-1200). This two-man 3D animation and graphic design company consists of Greg Nelson and Jake Carvey, who use a multi-platform network of computers including an Amiga 4000, Pentium PC and a Macintosh Centris 650 to create 3D animation.

Not very often do 26-year-old animators score jobs doing animation work for major networks such as CBS. But the guys at Tanker Media have managed to line up several high-profile opportunities since the inception of their company in August 1994. Projects have included several on-screen display animations for the Pierce Brosnan film *Night Watch* and logo and character animation for *Here Comes the Bride...There Goes the Groom*, a CBS special.

### Heavenly Opportunity

One of Tanker Media's most recent projects was a corporate promotional video package for DreamWorks SKG,

A moving cloud sequence was digitized to animate the original print logo.

the coalition between Steven Spielberg, Jeffrey Katzenberg and David Geffen. The video package will be used to raise funds for SKG's new film studio and multimedia company. Tanker Media was responsible for four major

continued on page 10

media, a Chinese company, has been named as a manufacturing contractor.

One of the most promising and significant developments so far has been the appointment of Dr. Peter Kittel to the position of Head of Amiga Engineering at Escom. Kittel, a longtime veteran of the recently bankrupt Commodore Germany, has already made a broad statement of intent to the Amiga community, reaffirming the announcement of production of existing machines and promising future development of the Amiga technology. As of yet, no former Commodore engineers are known to be working for Escom, although Escom employs a considerable number of former European Commodore employees and is reportedly contacting more.

Another critical commitment was made by Manfred Schmitt, majority owner and president of Escom, to have Amigas in North America by September. At press time, no solid commitment had been made to either establishing an Escom office or to specific North American distribution channels.

Escom is clearly on a path of expansion. In addition to the Commodore assets, they recently purchased the Rumbelows chain of electronics stores in the United Kingdom, which joins an already impressively large chain of Escom outlets in mainland Europe. This acquisition has led them to be called by some the largest computer dealer in Europe. In 1994, Escom was second in PC clone sales in Germany.

Of course, no new Amigas are available on the shelves yet, particularly because Escom obtained less than 5,000 machines in the acquisition of Commodore's assets, and all were CD32s. But as Bernard van Tienen, an Escom Netherlands executive and former vice president of Commodore International, pointed out, "We didn't buy the Amiga just to have it."

VTU

## Sorry...

Our review of Village Tronic's Picasso II (April 1995 *VTU*) identified Expert Services as the product's US distributor. Actually, four companies market the graphics board in North America: Creative Computer (310-787-4520), Expert Services (606-371-9690), Select Solutions (800-322-1261) and Software Hut (610-586-5701). We regret the omission.

# The Way I See It

## Super Rumor Hero

**Mike Danger**

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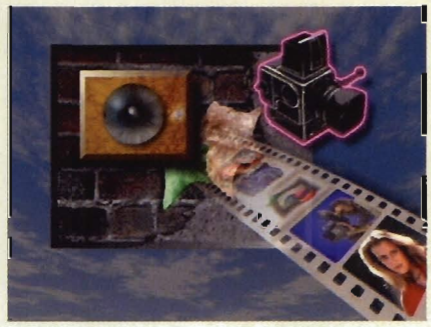
Before we go any further, the following information has exploded from my fax machine and the Internet. (Not to be confused with a volleyball net, butterfly net or fishnet stockings.) Good news, kiddies. German-owned Escom has won rights to the Commodore company name and assets. Lo and behold, these former Commodore over-minimized wagers are planning on releasing Commodoreish Macintoshes, PCs, and those machines we've grown to love—the Amiga—all under the Commodore name.

Though the Flyer and LightWave have become one with the IBM format, I still hold hope for the Amiga and other platforms. The only problem I can foresee is that the state-of-the-art Toaster card will not work in the IBM due to no video slot or lack of blitter chip technology. Also, on-line soothsayers have informed me that a Toaster chip will be available to give your Video Toaster card TBC enhancement. The Amiga is still the big dog of high-end desktop production, but if we are forced to convert to the big blue platform I am sure the crew at NewTek will keep us on-line. I was also assured that as long as you have a Flyer or LightWave in your sweaty little hands you will still be sitting pretty as technology moves ahead.

### Amigas Abound

Fear not! For those of you wanting the Amiga, machines are still abundant. It has come to my attention that crazy Dave has moved his company Area 52 to a top-secret location and has been shoving Amiga 4000s out the door in much the same fashion as McDonald's does with their happy meals. The funny thing is while he actually sells more than most dealers have ever had in stock, he dropped the price to an affordable level. Would you like fries with that?



Framegrab of the Month goes to Mark Pleasant.

### NAB News

For those of you who haven't heard, NewTek made quite a splash at the National Association of Broadcasters convention in beautiful Las Vegas. As if it wasn't enough that Mr. Bill's creator was present and Dwight Pascale is now the big cheese in charge at NewTek (that's CEO for you three-piece-suit types), founder Tim Jenison announced the new standalone Flyer and more. This multi-task machine—about the size of your average lunchbox—

continued on page 12

## Working on Cloud 9 continued from page 8

elements of the package—the letters S, K and G as well as the actual logo animation.

"They [DreamWorks SKG's ad agency] designed a logo on a Mac and used it as their basic print logo," Carvey said, "The ad agency gave it to us and we sized it down with Photoshop and created a matte underneath the cloud."

DreamWorks SKG liked the look of their print advertisement, which featured a man leaning on a crescent moon with a fishing line cast into a cloud bank.

"In keeping with that theme, we used a 16-millimeter time-lapse cloud plate shot specifically for this project." Nelson said. "We used the Video Toaster and a TBCIV to digitize all of the cloud sequences." LightWave was used for compositing and the moving clouds were done in an on-line editing session.

LightWave 3D and Photoshop were used to create the image above.

In addition to converting the print logo into animation and digitizing the cloud sequences, Tanker Media was required to incorporate the individual letters S, K and G and make them fly out of a huge cloud bank.

Nelson said, "The whole thing required a close-up look at the letters SKG. We needed to go in and redo the letters because there was only an image of them and it was very small and looked choppy. I traced around the letters in Modeler and beveled and extruded them." Extruding the letters provided the depth that the client was looking for. The entire project from start to finish was completed in approximately two weeks.

One thing that Carvey and Nelson both like about the Toaster is its low cost. According to Nelson, many of the things they did with the Toaster could have been done on a high-end machine, but it would be severely expensive. "The Toaster's a very inexpensive system and it's got amazing capabilities to do high-end graphics." Not only do the animators themselves enjoy working with the Toaster and LightWave, but they believe it is an asset to clients in terms of financial and creative freedom. "With the Toaster [the client] has time to experiment. [Using high end machines] is an expensive process per hour and the dollar value only goes up while experimenting."

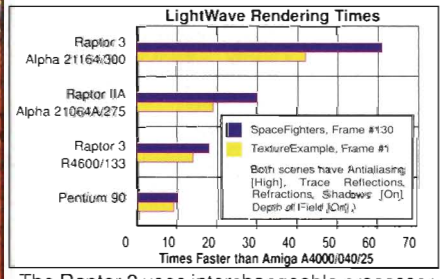
With the experimenting and hard work the end result turned out to be what all animators want—a happy client.

Tanker Media is a growing company with big talent and high-profile projects. Carvey and Nelson are looking forward to starting an interactive CD-ROM program and developing a small television show.

VTU

Raptor
Microsoft Windows NT Workstation

DeskStation's new Raptor 3 Workstations are a testament to DeskStation's world-class engineering leadership in RISC workstations development! The Raptor 3 is the worlds' first ***Processor Independent System*** for Windows NT!




The Raptor 3 uses interchangeable processor modules incorporating both current and future high technology CPU's– allowing you to choose the best processor for today, with the ability to exchange or upgrade to the best processor choice in the future! With a motherboard incorporating four PCI and three ISA slots for support of off-the-shelf video, PAR, network and multimedia components; 2 on-board SCSI II adaptors for doubling disk access performance through disk striping; 8 memory slots for support of up to 1 Gigabyte of memory and a 128-bit wide memory bus to support current 64-bit and future 128-bit processor modules–you will never again need to be concerned about processor trends or system obsolescence!

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DEVWARE, INC. - 12520 Kirkham Court, Suite 1-TU21
San Diego, CA 92064

Video Toaster 4000

FLYER

Use NewTek's non-linear editing solution–*The Flyer*–and get D2 quality video along with 16-bit CD-quality audio right on *your* desktop...all at a fraction of the cost of "other solutions!" We will not be undersold on hard-drives for The Flyer. Give us a call!

LIGHTWAVE 3D

**Version 4 of the hottest 3D animation software is now available for Amiga, Windows, WindowsNT (including MIPS, Alpha and Pentium versions). Call us for the lowest price! Coming Soon...the SGI version of LightWave!**

DIGITAL PROCESSING SYSTEM'S "PAR CARD"
DIGITAL PROCESSING SYSTEMS INC
***Now available for Windows-NT and DOS!***
Create animations without the expense and aggravation of tape decks.

DevWare Video

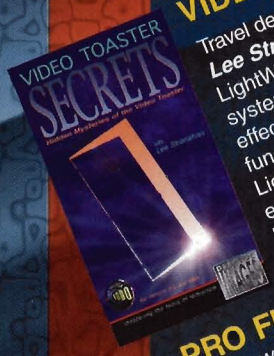
FOR INFORMATION CIRCLE 115

# the secret is out

**Four hot new videotapes from Desktop Images!**

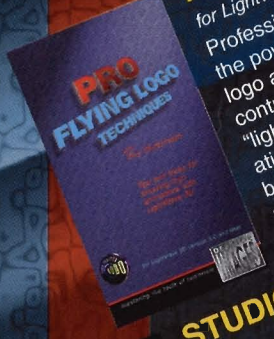
**se'cret** (see'kret; -krit), adj. [L. secretus] **1.** Hidden from others; revealed to none or to few; as "keep this *secret*." **2.** —*n*. The key to the solution of something; as the *secret* of your success.

**se'crets** (see'krets; -krits), noun pl. **1.** Cool stuff you don't know that will really make you smarter and more productive, as in the *new "Video Toaster Secrets"*. **2.** Any of the many powerful techniques and creative tools revealed to you *now* through the entire collection of Desktop Images videos.




## VIDEO TOASTER SECRETS

Travel deep within the Video Toaster as top instructor ***Lee Stranahan*** reveals little-known secrets inside LightWave 3D, ToasterPaint and the Amiga operating system! Create ToasterPaint graphic elements and effects automatically. Discover powerful automated functions in LightWave 3D. Customize ToasterPaint and Lightwave 3D preference files for increased speed and efficiency. Discover the power of AREXX. Plus, learn basic Amiga workbench functions to organize projects, change, move and maintain files. 95 min. **$49.95** + s/h




## PRO FLYING LOGO TECHNIQUES

*for LightWave 3D 3.0 and up*

Professional LightWave artist ***Tony Stutterheim*** shares the powerful techniques he uses in creating high end 3D logo animations. Learn layout tips that give you more control over your logo animation, camera techniques, the "light speed" streak effect, the moving sheen effect, creating curved text, modeling tips to create sharper logos, beveling techniques, tips to reduce rendering time. Plus an overview of WaveMaker, the powerful logo scene creation program. 100 min. **$49.95** + s/h

## STUDIO 16 PRO AUDIO FOR VIDEO

Learn how to use the powerful tools in the Studio 16 multi-track recording system to create a professional soundtrack for your video productions. Sunrize Industries' ***Tony Shannon*** hosts this complete step-by-step guide to Studio 16's Timeline Cue List, Digital Waveform Editor, Automated Mixer, Sample List, and Recorder. Follow along as he creates a soundtrack for a feature film trailer. Plus, ***Emmy award winning dialogue editor David Scharff*** demonstrates techniques he uses on such shows as *The Untouchables*, *Viper*, *Movies of the Week* and others! 95 min. **$49.95** + s/h

## VIDEO TOASTER START-UP

*with Lee Stranahan*

Get up and running fast with this introduction to the Video Toaster. Learn the basics of the switcher's special effects, luminance keyer and ChromaFX. In ToasterCG, load and size fonts, select font colors and superimpose text over live video. In ToasterPaint, learn basic drawing tools and how to colorize and save framestores. In Lightwave 3D create three dimensional text objects, add motion, and create a complete 3D animation. This basic instruction will send you well on your way to operating today's most powerful video production system. 90 min.

~~$49.95~~ NOW ONLY $19.95 + s/h

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DESKTOP IMAGES

## Coming Soon !
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### 2.0 Titles

- *Video Toaster Essentials*
- *Toaster 3D Essentials*
- *ToasterPaint Essentials*
- *Professional Techniques for ToasterPaint & ToasterCG*
- *LightWave 3D Essentials*
- *LightWave 3D Modeler*
- *LightWave 3D Surfaces*
- *LightWave 3D Flying Logos*

**$49.95** each + s/h.

Lee Stranahan, known as "The World's Smartest Toaster Guy", hosts this incredible videotape series providing a complete guide to the most powerful video production system available today! With his unique blend of experience and humor, Lee demonstrates the tricks and tips that will increase your speed and enhance your profits. A must for any serious Video Toaster User! Order individually or in specially priced sets.

## Order Now!

# 1-800-377-1039

***Call today for special package discounts***

RAVE VIDEO P.O. Box 10908 Burbank, CA 91505

Phone 818-841-8980 FAX 818-841-8023

Video Toaster, ToasterCG, ToasterPaint and LightWave 3D are trademarks of Newtek, Inc. Studio 16 is a trademark of SunRize Industries. Desktop Images is a registered trademark of RAVE VIDEO.

## The Way I See It continued from page 9

allows you to use the Flyer along with a new Toaster card on your Windows PC. But wait, there's more. This unit, which can also house a LCD monitor, can readily make your Flyer a portable video editing and shooting powerhouse out in the field. And if that's not enough, you can either edit on this hardware using a convenient hand-held controller or plug into your Amiga. The highlight of this press announcement was when those bad boys of magic, Penn and Teller, interrupted the proceedings and like the Pied Piper of Hamlin loaded the large group into awaiting buses and took them down the strip for a fun-filled evening of laser tag.

Other notables include new products such as the Draco Amiga clone, the Eagle and Anti Gravity/Ambitious Technology towers, the stylish assortment of multitasking software/hardware and Toasterish copy-cats everywhere. There was so much stuff everywhere that it would be impossible to absorb it all in a week.

Rumors emerging from this event include a certain area-ish entrepreneur having his lower-end tower case examined by overseas buyers for immediate consumption. Also, it seems that *VTU* senior sales manager Mark Holland looks more and more like Clark Kent each day. Last but not least, guess what non-seeing columnist is joining forces with Tom of Industrial Light, and Barney of kiddie-show fame to produce a music video about PTL fallen angel Jessica Hahn?

### Editing Tricks

With the Flyer still in its infancy, certain tricks and cool moves are discovered daily. I personally have found that while editing it is better to complete the cut-and-paste portion of your project and insert your effects, fades and soundtrack afterward.

Also, when using this non-linear device, to ensure non-stuttering during crucial moments, it is best to disengage your CD-ROM. But wait, there's more. Certain keys have become hot keys and allow particular functions with just a finger stroke. For example, pushing the right Amiga key changes the croutons (one of my favorite salad bar treats). They evolve right before your eyes into their phonetic meaning. The tilde and other keys achieve other commands. With more and more information flooding the Toaster/Flyer domain, I have installed an after-hours hotline to enlighten you with new and current information. If you call my (904) 469-1001 number after 6 p.m. central time, you can access my Amiga for updates and current Toaster and Commodore trivia. While the cost is not free, it is cheaper than those pesky 900 numbers.

### The Winner Is

This month's framegrab is a combination of Alpha Paint, 3D, LightWave, a live clip or two and implant technology thrown into a mixer and set to puree. This concoction was served to you this month by Mark Pleasant of Small Wonder Studios, located in the Dollywoodish area of Nashville. Mark revealed to me that after seeing other contributions to my column he felt he too could achieve similar results. And you know what, Mark, this montage proves you right.

Well, I've got about as much fizz left in me as a three-day-old Pepsi, but as I boot out of this column, let me thank everyone at NAB who made sure I had enough free pamphlets and magazines to last a lifetime. Isn't recyclable paper worth something? Until next time, keep those phone calls, faxes and framegrabs coming in. Submit all inquiries to:

Mike Danger
P.O. Box 11802
Pensacola, FL 32524

VTU

## News & Notes

### Enter and Win

The London Effects & Animation Festival, Europe's showcase for the creative community, is once again inviting entries for the annual Festival Awards, to be announced at a three-day program of seminars and screenings taking place alongside Computer Graphics Expo at Wembley Conference Centre, Nov. 28-30, 1995. Last year's event attracted computer-generated special effects and animation from around the world, with many commendations for technical and artistic achievement. This year's awards are given in the following categories: art, broadcast graphics, commercials, education and training, feature films, interactive entertainment, music videos, research, short films, simulation, student work, and PC/Mac-based work. The closing date for submissions is Sept. 8, 1995. Entries will be judged by a panel comprising the media, potential clients and fellow professionals. Nominations will be screened at the Awards evening on Nov. 29. For entry forms or more information, call +44 (0) 181 995 3632 or fax +44 (0) 181 995 3633.

### Send It In

A deadline of July 31 (August 15 with late fee) has been announced to submit entries for the summer 1995 Pro-Am Film & Video Awards. Categories include animation (less than 30 seconds), business-related, cable access program, educational subject, entertainment, event coverage, fire or rescue, law enforcement and military. All winners will be awarded software for the PC, Mac or Amiga. For more information, write to Pro-Am Film & Video Awards, 103 N. Highway 101 #2010, Encinitas, CA 92024; or call (619) 753-5310.

### Fun for All

This year's California Computer Expo will be held August 17-20 at the San Diego Convention Center in San Diego, Calif. The annual expo, the largest consumer computer show on the West Coast, combines over 400 exhibits, 230 seminars and hands-on instruction in a festive, family atmosphere. Attractions include computer concerts, art contests, virtual reality, the Internet, business computing, weird software, a kids' corner, and more. Seminar passports are $25 and include all Expo events over all four days, plus reserved seats in up to six seminars (though attendence in additional classes is free of charge). For more information, contact Josie Hairgrove at (800) 573-3247.

VTU

# THE NEW JVC X2-B S-VHS CAMCORDER—ALL THE WONDERS OF THE X2, PLUS SOME TASTY LITTLE IMPROVEMENTS.

JVC PROFESSIONAL

What do you get when you heat-up the already sizzling ingredients of our remarkably successful X2? Red-hot performance features from a new camcorder that's becoming the hottest choice among videographers—the JVC X2-B.

With its all-new, high-density, three CCD chips with micro-lenses, the digitally-controlled X2-B captures a phenomenally crisp image with 750 lines of horizontal resolution and a signal-to-noise ratio of an incredible 62dB. Its improved LoLux technology enables shooting in low-light as dim as 1.5 lux. Eliminating the need to stop and black balance is the X2-B's revolutionary, continuous auto-black circuit, which provides the highest level of black stability in all conditions. Plus, the X2-B also features a quick-record mode with full-time auto white and automatic level control for continuous shooting in a wide range of lighting levels. Its super-sharp viewfinder makes focusing a snap, and optional time code and time/date generators are also available.

By combining the X2-B's lightweight body with an all-new, ergonomically-designed shoulder rest, videographers will truly enjoy a superior level of shooting comfort. And like all JVC products, we've priced the X2-B with all of its hot performance features at a price that won't burn a hole in your pocket.

Satisfy your appetite for the best—the new X2-B from JVC. To find out more about the X2-B, or for the name of your nearest JVC dealer, call **1-800-JVC-5825**.

FOR INFORMATION CIRCLE 162

**JVC S-VHS. The Original. The Best.**

# NEW PRODUCTS

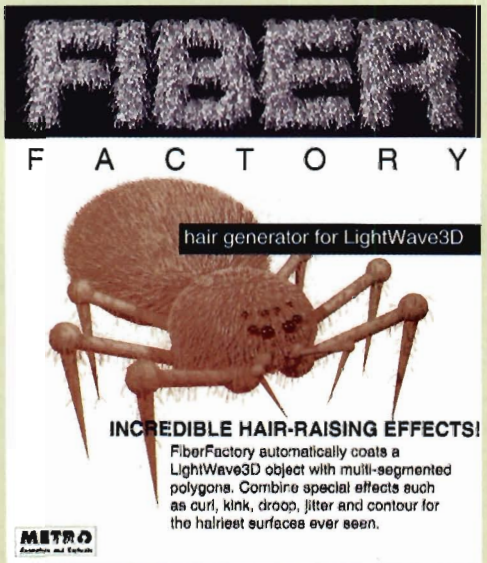
**Compiled by Corey Cohen**

## Hair-Raising

### Tenacious Tendrils

Product: FiberFactory
Description: Hair generator for LightWave 3D
Price: $99.95 for the Amiga,
$149.95 for Windows NT
MetroGrafx
625 Newton Dr.
Lake Orion, MI 48362
(810) 693-5134 Voice/Fax

MetroGrafx's *FiberFactory* is a unique LightWave 3D modeling utility for growing fibers or hair on a LightWave model. FiberFactory can coat a LightWave object with multisegmented two-point polygons and create more conventional geometry. A wide variety of organic structures can be constructed with the program: animal fur, pinetree needles, shaggy tree bark, rock and crystal formations and more. Features include kinky hair, curling hair, contoured hair that lays down, tropism for drooping hair, jittered hair, morphable models, fast calculations, hair with any number of sides, taperable hair and GUI with a wireframe preview.




**FOR INFORMATION CIRCLE 1**

### PAR Power

Product: Version 1.0 Windows NT software
Description: Software for DPS Personal Animation Recorder
Price: Can be downloaded from the DPS BBS (416-754-8368) at no charge
Digital Processing Systems Inc.
11 Spiral Dr.
Florence, KY 41042
(606) 371-5533
Fax (606) 371-3729

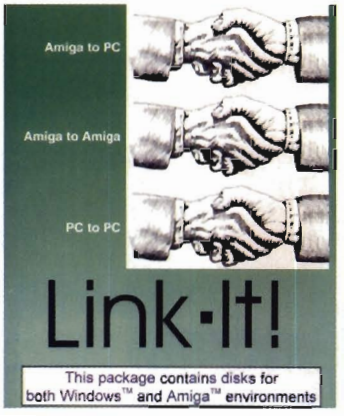
DPS has announced the release of *Version 1.0 Windows NT software* for the company's PC-based Personal Animation Recorder. Compiled for Intel, DEC Alpha and MIPS processors, the PAR Windows NT program enables PC PAR owners to take full advantage of NT-based animation programs such as NewTek's LightWave 4.0. The software supports ANI (PAR), Targa and BMP file formats.

**FOR INFORMATION CIRCLE 2**

### Across Platforms

Product: Link It!
Description: File transfer software
Price: $59.95
Legendary Design Technologies
P.O. Box 1147
Lewiston, NY 14092-8147
(519) 753-6120 Voice/Fax
BBS (519) 753-5052

Legendary Design Technologies has announced the release of *Link It!* This software is the first product to combine the power of the Amiga with the popularity of Windows on the PC. With Link It! and the included six-foot parallel cable, users can transfer files and information of any sort between their Amiga and a PC. Both AmigaDOS and Windows versions of the software are included, complete with a graphic user interface. The product can also be used in Amiga-only or PC-only environments. Link It! supports both serial and parallel transfers and ARexx script programming, and converts file formats on the fly using external conversion programs. Support for GVP's ioExtender and the Multiface cards is also included for those users concerned with using built-in serial or parallel interfaces. System requirements are minimal: an Amiga with 512K running AmigaDOS 1.3 or higher, and/or a PC running Windows with 2MB RAM.

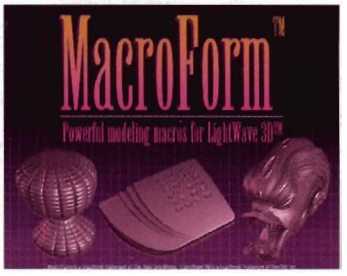



**FOR INFORMATION CIRCLE 3**

### The Power Supreme

Product: MacroForm
Description: Modeling macros
Price: $225
One and Only Media
P.O. Box 218
Vauxhall, NJ 07088-0218
(908) 964-4546
Fax (908)688-6647

OAO Media has scheduled a June release for *MacroForm*, powerful modeling macros for LightWave 3D. MacroForm is made up of 20 modeling tools/utilities designed to enhance creativity while increasing productivity. The program features a RailToolz Environment with tools such as RailMold, RailBend, RailRout, RailStretch and RailScale, allowing users to mold, bend, bevel, stretch and scale data based on curve profiles. Time-saving utilities such as KeyMaster, Dimensions and Align and Center help to further streamline modeling sessions.



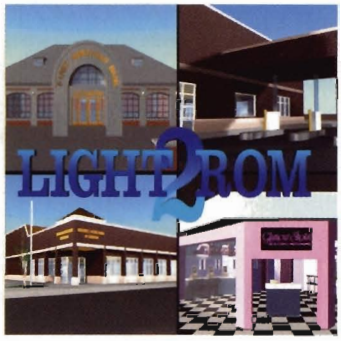

**FOR INFORMATION CIRCLE 4**

### See the Light

Product: LIGHT-ROM 2
Description: 3D LightWave objects
Price: $39.95
Amiga Library Services
610 N. Alma School Rd., Ste. 18
Chandler, AZ 85224

(602) 491-0048 Voice/Fax

*LIGHT-ROM 2* contains 650MB of ready-to-render scene files and 3,700 objects. The CD is multiplatform and 100 percent LightWave/Video Toaster material. All textures, images and objects come with thumbnail renderings for easy previewing. As in LR1, the exclusive Showcase direc-



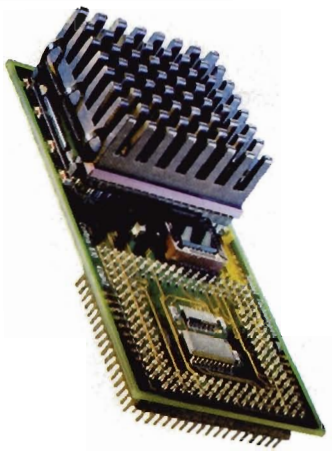

tory is an ideal place to advertise the talents of LightWave artists worldwide.

**FOR INFORMATION CIRCLE 5**

## Swift and True

Product: Doubler 4000
Description: 50 MHz 68040 accelerator
Price: $599
Sonnet Technologies
18004 Sky Park Circle,
Ste. 260
Irvine, CA 92714-2461
(714) 261-2800
Fax (714) 261-2461

Sonnet Technologies' *Doubler 4000* accelerator card—billed as the fastest 040-based acceleration product ever—delivers across-the-board speed increases for all applications and system functions. The Doubler 4000 gives users an affordable upgrade that makes sense: for its moderate price, users get double-speed processing performance, yet retain 100 percent of their Amiga investment, without any software upgrading, reconfigurations or incompatibilities. This powerful plug-and-play accelerator is 100 percent hardware- and software-compatible. The 50MHz Doubler 4000 is an easy-to-install daughterboard



that plugs into the 25MHz 68040 CPU socket on the Amiga 3640 board. Customers are supplied with photo-illustrated installation instructions plus all the tools necessary for performing the installation. And the Sonnet accelerator is completely reliable and safe. An integral cooling system ensures that the Doubler 4000 runs cooler and more reliably at 50MHz than the original processor.

**FOR INFORMATION CIRCLE 6**

## Sounds Good

Product: The Sound of Video Volume 1: Mic Basics and Field Production
Description: Instructional tape
Price: $39.95
Video Expressions
4330 Shadow Wood Dr.
Eugene, OR 97402
(503) 344-1413
Fax (503) 343-5208

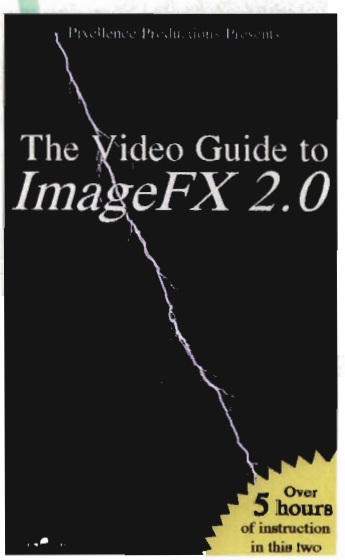
*The Sound of Video Volume 1: Mic Basics and Field Production* is designed to teach prosumers and industrial video producers alike techniques for enhancing audio while using their existing gear, or with a minimum of new equipment. This 63-minute video covers basic mic types and pickup patterns, mixers and accessories, and a large segment of real-life applications, including weddings, seminars, stage plays and dance recitals. Free with each tape is documentation reviewing quick audio tips, audio equipment suggestions and audio terms. *The Sound of Video* is hosted by producer Rob Neidig, who has been producing business promotional, training and educational, and special-event videos since 1989.

**FOR INFORMATION CIRCLE 7**

## More Than Complete

Product: The Video Guide to ImageFX 2.0
Description: Instructional videos
Price: $79.95
Nova Design Inc.
1910 Byrd Ave.
Richmond, VA 23230
(804) 282-5868

*The Video Guide to ImageFX 2.0* is a two-tape video collection on the latest version of this image-processing software. Hosted by Rusty Mills, an animation producer for Warner Bros. Animation, the




series covers the program's many new features in more than five hours of comprehensive explanation and tutorials. To accommodate ImageFX's many parts, The Video Guide employs a constant on-screen visual reminder of which section is being discussed.

**FOR INFORMATION CIRCLE 8**

## Learn From Experience

Product: "Complete Post-Production With the Video Toaster"
Description: Guide to editing video
Price: $24.95
The Burt Wilson Company
690-A Los Angeles Ave.,
Ste. 303
Simi Valley, CA 93065
(805) 520-1128

Producer/writer/director/*VTU* columnist Burt Wilson has announced the release of his new book, "Complete Post-Production With the Video Toaster." Professional tutorials on how to edit videos and TV commercials cover Toaster upgrades 2.0 through 4.0 and the Flyer. Other chapter topics include negotiating a fee, using third-party peripherals, marketing one's post-production abilities and breaking into the cable TV commercial business. An appendix contains a ready-to-use video contract and a glossary explains technical terms in user-friendly, real-world language.

**FOR INFORMATION CIRCLE 9**

## Maximize Efficiency

Product: Photo Max
Description: Photo transfer software
Price: $119.95
Matrix Productions
1111 Dover St. N.E.
Cedar Rapids, IA 52402
(319) 378-9648

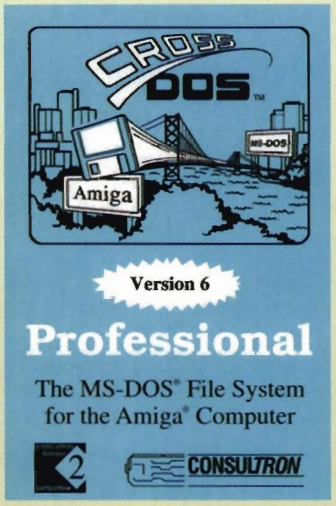
continued on page 17

# NEW UPDATES

## Cross Communication

Product: CrossDOS version 6
Description: MS-DOS file system for the Amiga
Price: $60; upgrade is $15
Consultron
8959 Ridge Rd.
Plymouth, MI 48170
(313) 459-7271

*CrossDOS* is a software product that allows users to read and write MS-DOS-, PC-DOS- and Atari ST-formatted floppy and hard disks directly from AmigaDOS. CrossDOS integrates into the Amiga operating system, allowing access from virtually any Amiga utility or application, including file requesters. Features include an ASCII filter option; translation tables that handle international text character sets; utilities to partition, format, copy and check the integrity of MS-DOS disks; MS-DOS hard disk configuration software; and more. New and improved capabilities in CrossDOS 6 include faster floppy access, faster hard disk writes, the ability to partition MS-DOS hard drives, network compatibility, and improved hard disk configuration and diagnostic utilities. The program will run on any Amiga with 512K or more RAM using AmigaDOS 2.0 or higher.

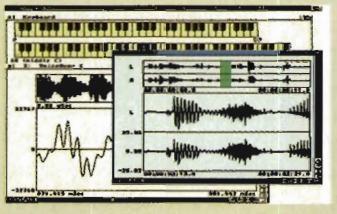



**FOR INFORMATION CIRCLE 10**

## Sample This

Product: Sample Wrench 3.0
Description: Sample editor
Price: $299; upgrade from version 2.X is $20, upgrade from version 1.X is $40
dissidents
10325 Woods Rd.
Utica, NY 13502-6723
(315) 797-0343

dissidents has announced the release of version 3.0 of *Sample Wrench*, its 16-bit visual sound sample editor for the Amiga. Version 3.0 adds a number of special effects to the software's array of audio processing capabilities. Along with digital equalization and amplitude compression, Sample Wrench users now have access to popular effects such as reverb, flanging, chorusing and echo. Fast time stretch and pitch and pitch shift functions have been added, and sounds may be viewed with a variety of axis units, including seconds, samples, SMPTE frames or beats. The package may be used to add editing flexibility to SunRize Industries' Studio16, and also supports playback via MacroSystem's Toccata sound card. The program also offers a very extensive ARexx/macro capability. Sample Wrench runs on all Amiga computers using AmigaDOS 1.3 or higher (2.0 or higher recommended).



One megabyte or more of memory is recommended.
**FOR INFORMATION CIRCLE 11**

## Flowing Words

Product: PageStream 3.0h
Description: Amiga desktop publishing program
Price: $250
Soft-Logik Publishing
315 Consort Dr.
St. Louis, MO 63011

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Fax (314) 256-7773

Soft-Logik has announced the release of version 3.0h of its *PageStream* software, a publishing system consisting of a page layout program (PageStream), a text article editor (PageLiner 2) and a bitmap picture editor. PageStream gives users a blank page on which to mix text and graphics to make a finished page design; text and graphics can be imported from other sources or created directly in PageStream. Version 3.0h offers automatic hyphenation, paragraph spacing and several other features. Version 3.1, scheduled for a fall release, will be sent free to all PageStream 3.0 owners, and Macintosh and Windows versions of PageStream3 are in development. All versions will be file-compatible, so Amiga users will be able to take their PageStream Amiga documents to a Mac or PC service bureau.
**FOR INFORMATION CIRCLE 12**

*Photo Max* is designed to make incorporating framestores, photos and slides into your production easy. This

software lets users with only one camera connected to their Toaster put photos and slides onto video, with effects, in real time without saving a single framestore and without starting and stopping their record deck. And with Photo Max, one is no longer limited to only using the effects in any given project: the program has a "virtual project" for using any of the Toaster effects on your system without loading a different project.

Other features include totally automated framestore saving and playback and an easy-to-use graphical interface. System requirements are an Amiga 2000 or 4000, Video Toaster 3.0 or above, Amiga Workbench 2.04 or higher with ARexx installed, and 1MB of chip RAM.
**FOR INFORMATION CIRCLE 13**

## PRODUCT ANNOUNCEMENTS

Send your company's new product announcements and information to:
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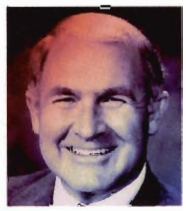
* Limited time offer. Comparison based on specifications as of 3/95; screen shot provided by A. Kashinn, Blue Rose Studio, WI. Alpha Paint is a trademark of InnoVision Technology. Trademarks are the property of their respective holders.

**FOR INFORMATION CIRCLE 117**

# TOASTER POST

## 'Don't Worry—We'll Fix It in Post'

### Tips for Repairing Problem Footage

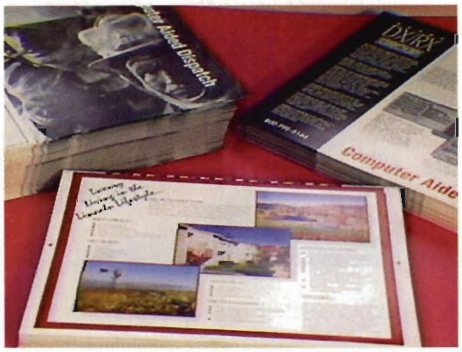


by Burt Wilson

If you're a video professional, you already know—and perhaps cringe at—what's in store for you when the director says, "Don't worry about it—we'll fix it in post!"

Sure, many things are fixed in post. After all, this is TV, not brain surgery, and you can get away with a lot. Of course, the less you have to mend, the better off you are, but the Toaster provides the opportunity to shoot original footage with the knowledge of what this tool can fix later.

For example, if you've done cable TV commercials, you know that all business owners like to see their storefront in their commercial. The problem is that if a storefront has a northern exposure, it's going to be in the dark all day. Thus, when you shoot it against a blue sky, the contrast is going to be so vivid that the store is going to be dark. The result: a storefront that is just not visible on the screen, and an unhappy client.



If you mistakenly shoot a scene that is not exactly level, you can fix it in post with Alpha Paint. This feature of the software will turn amateurs into pros.

Cut out your entire screen as a brush, go to the brush panel and activate the Z Rotation button. Type in the proper number of degrees and stamp it down in the middle of the screen.

Well, here's where the Toaster can really be of assistance. When shooting such a storefront, set up your camera facing the store, get the deck and everything else ready, and then turn off the camera's automatic iris. Now start your tape rolling and widen out the iris to where the storefront looks good. Don't worry about the trees and the sky going white on you. Just get a good shot of the store. If the front is facing away from the sun and is really dark, you might have to overexpose it a bit. Then, while the tape is still running, iris down to where the background is normal. Of course, the storefront will be much too dark now, but the trees and sky will be their natural colors.

Later, in post-production, grab a framestore of the wide-iris shot and a framestore of the normal-iris shot and go into ToasterPaint. Put one normal shot in the Swap screen and the wide-iris shot in front and activate the RubThru mode and the Fill tool. With the smallest square-tip brush and the straightline tool on, hold down the left mouse button and draw a close line around the outside of the store, extending to both the sides and the top of your screen. When you are finished, click the right mouse button. All of the normal-iris areas in your Swap screen will now replace the over-exposed areas around your storefront, and you will have a very workable picture.

Remember this iris trick anytime you are faced with a situation in which outside natural lighting contrasts are too severe for video. Knowing ahead of time what the Toaster can do will provide this kind of flexibility in the field and give you another great tool to work with. And you can point to your work with pride and say: "See that? Hey, I fixed it in post!"

### Straighten Your Still

Another thing you can repair in post—if you're fortunate enough to have Alpha Paint—is a crooked framestore.

Let's say you went to a printing establishment and one of the shots you took of completed materials was crooked. (This actually happened to me!) Before Alpha Paint there wasn't much you could do except reduce your image to 256 colors, go into DPaint, make a brush and rotate it. The problem with this method is you get jaggies—lots and lots of jaggies.

But with Alpha Paint, the solution is simple: Use the cut-out tool to grab the entire frame, go into the brush drawer, click on the Z Rotation button, and enter a number a few points in either direction from 360. Your brush will form and you will see an outline of it on the screen. Simply stamp it down in the center of the screen and you have corrected your framestore—with no jaggies! Save it as a framestore or as an IFF file in your Images drawer.

I cannot speak too highly of Alpha Paint, and I am waiting expectantly for the release of the 2.0 upgrade. It is one of the most useful post-production tools for the Toaster that I have come across.

### Well Done, Please

There are times when you will go out and shoot a cable TV commercial, come back, look at your raw tape and gag. Why? Because you're trying to do a

$5,000 job on a $500 budget and you just don't have time to arrange the background and surrounding areas as you would if you had a larger budget and a full crew. So your raw footage ends up looking empty.

Well, fear not. One of the ways to fix raw footage that looks empty is to letterbox your whole commercial.

Go into TPaint and, using the smallest square brush, the rectangle and the fill tools, draw a rectangle at the top of the black screen about 90 pixels down and all the way across. Then draw another rectangle about 90 pixels up from the bottom of the screen, also all the way across. Make both rectangles maroon for this experiment.

Save your work as a framestore, exit to the Switcher and load in your letterbox frame. It's called a letterbox because that is the term used in television to describe the way a wide-screen movie looks when shown full-width on a normal TV screen.

Put your raw footage in the Main bus and your letterbox framestore in the Preview bus. Go to the Superimpose panel and click on the black button and the DV bus your letterbox framestore is in. Next, click on the number 128 to the far right of the Superimpose panel and drag the mouse to about 35. Now start running your raw footage.

Your letterbox should take shape with some artifacting on the screen, so move the numbers up or down to the point where your key is precise and pristine. There will always be one number that will work for you. When you have it, leave it there.

Now watch your raw footage as it is run through your Toaster in letterbox mode. See the difference? All the action is now concentrated in the middle of the screen and you don't have those yawning empty areas at the top and bottom, as you did before. Think how you can put your client's name in the top letterbox bar and his phone number in the bottom and have them on the screen the whole time the commercial is running. What a sales point!

If it works, do it. Even if you cut off a quarter of a head here and there, it will look much better than the wide-open spaces you had before.

One small warning to those of you with cuts-only systems: You'll have to begin and end with a framestore because the Toaster will not do two effects at once (e.g., a fade-in on or during a key). Also, you will have to do cuts from scene to scene throughout the commercial because you can't fade, dissolve or do an effect while the Superimpose key is running. Nevertheless, what you will gain by using this technique will more than make up for the loss of other effects.

A frame of a building taken with the lens iris pushed to the wide-open side. The features of the building are prominent, but the sky is washed out.

The same view with the iris in an automatic balance position. The sky is normal, showing cloud definitions and a patch of blue, but the building is too dark.

A composite of the two frames above. Use the RubThru tool and a small square brush to trace the outline of the building and the trees on the wide-iris framestore, bringing the darker sky—which is in the Swap Screen—through.

## Super Results

You're probably wondering how to put in text supers between the two borders when every scene is a key. Simple. Just clone your letterbox template and put your text super on the black part of the letterbox. Be sure to set the drop shadows and borders to approximately 30 (you can experiment with the number to get the setting you like best) so they will not drop out or cause artifacting when they are keyed.

Now let's say you want to bring in a text super and take it out during a particular scene. First, load your template with the text super into the unused DV bus in the Main buffer. Then set up your key with your original letterbox template. When it's time to key-in the super during the edit, simply click on the non-highlighted DV bus in the Superimpose panel where your clone template with the super is located. It will cut in neatly, supered over the scene in the letterbox.

Be aware that on a cuts-only system a cut is the only way you can bring in or take out the text super. But that's a small price to pay for such wonderful video sophistication.

Another thing you can fix in post is the brightness or contrast level of your original footage. Just go into ChromaFX on the Superimpose panel and you'll find a whole array of scene-altering effects. Put the effect you want into one of the four Switcher buffers and then exit to the Switcher and use it. Remember, the T-bar control must be engaged in order to get the effect over to the Main buffer.

And here's a tip: The contrast effect brightens up a piece of footage better than the brightness effect. I don't know why, but that has been my experience. If you know the reason, write to me in care of *VTU*.

See you next month and Happy Posting!

VTU

*Burt Wilson is an award-winning writer/producer/director in Southern California. His new book is titled "Complete Post Production with the Video Toaster."*


**EDITORIAL EVALUATION**

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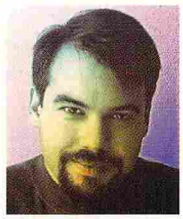
# DEAR JOHN

## Crash Questions

### Dealing with Defective RAM



by John Gross

This time around there are a lot of LightWave questions (and one that's not), so let's get to it...

**Q:** I work at a studio that uses the Video Toaster and have an Amiga 2000 fitted with an Opalvision board at home. I am relatively new to the Amiga environment. I don't have a modem, nor have I ever used one. Are there groups with modems that exchange files and/or information related to the Toaster or other desktop video devices? I produce some graphics that other people might be able to use and I'm always searching for new backgrounds and ideas. Also, what kind of on-line support do software/hardware companies such as NewTek provide?

P.S.— Please feel free to print my complete address, as I'm sure some of your readers could provide some valuable information.

Steven Roark
Alpine Video Productions
1550 W. 5th Ave. #1
Corsicana, TX 75110
(903) 874-8165

***"You should render your original sequence over black if you know you will be using it in composite animations later."***

**A:** Yes, there are a number of places (increasingly so) that you can go to on-line if you have a modem. There is such a wide variety of items available online that we even have a column ("Cyberspace," by Geoffrey Williams) that talks about some of those relating to the Toaster and/or LightWave.

Bulletin board services exist where you can log in, download selected files and log out. Commercial services such as CompuServe, Genie, America Online and others contain Amiga and/or NewTek sections, and the Internet has many ftp sites that allow for uploading/downloading files. The Internet also provides newsgroup coverage of all sorts of topics, including Amiga and Toaster/LightWave topics.

NewTek has a bulletin board service that can be reached by calling (913) 271-9299. The company also has a World Wide Web page on the Internet located at http://www.newtek.com.

**Q:** I have a Toaster 4000, 18MB of RAM, LightWave 3.5 and a PAR. I'd like to ask the following:

1. My system sometimes suffers a "software failure"; that is, it crashes when I try to export objects from Modeler. Do you have any idea why this may be?
2. It also occasionally crashes when rendering is initiated. What a pain!
3. When initiating a render, I sometimes get the message "Z buffer full." What can I do about that?
4. When compositing images in LightWave, what are the advantages and disadvantages of using Alpha images as opposed to simply keying out the unwanted background colors from the foreground image using the settings found in the Record menu?
5. What is HAM, and when should LightWave images be saved in this form?

Tom Desmond
Address Unknown

**A:** 1. Without knowing the statistics of the objects that do not export correctly, it is hard to say why your system may crash during exporting. The problem could easily be some defective RAM, which ties into your next question. Get a RAM-testing program or have a dealer test it for you. In the meantime, I would definitely save before trying an export. Perhaps you can save the object and then try loading it directly into Layout, rather than exporting it in.

Also, make sure that you are running the patched version of Modeler 3.5 (if you haven't upgraded to 4.0), which fixes some miscellaneous bugs. To check which version you are running, look at the file size of the Modeler.FP file. If it is 406112, it is the older version. The size of the file in the patched version of Modeler is 406168.

Furthermore, if you can open a shell and cd (change directory) to the directory where Modeler.FP is kept (usually the Toaster directory), you can type "version Modeler.FP full" (no quotes) to get the version number and date. The date of the patched version is 08/30/94. The date of the unpatched version is 07/4/94.

The Modeler 3.5 patch can be found on on-line services and at the NewTek BBS listed in the previous question.

2. See answer No. 1.
3. Again, this could be a RAM issue. What size images are you trying to render and how complicated is your scene? LightWave needs enough RAM to (a) hold all of your objects and images in memory, (b) maintain a framebuffer that is equal (in bytes) to your output resolution width x height x 4, and (c) enough RAM to actually render the image (output resolution width x height x 24). This last value can be lowered by using multiple segments (Camera panel) to render the image. Then you have to figure the width and height of the segment x 24.

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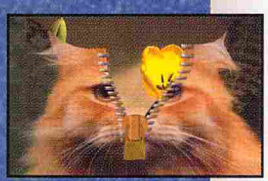

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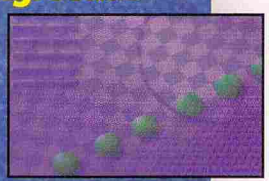

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FOR INFORMATION CIRCLE 110

For example, if you are rendering an image that is 752x480 in one segment, and your images and objects take up 8MB of RAM, you would need the following approximate amount of total RAM in your system:

| | |
|---|---|
| Images/objects | 8.0MB |
| Completed image framebuffer | 1.4MB |
| RAM used for rendering | 8.3MB |
| Total | 17.7MB |

Now, to be exact, don't forget to add in the amount of RAM needed for any images in a sequence that haven't loaded yet, as well as any RAM needed for LightWave itself (close Modeler!), the Toaster, Workbench and anything else you may have going. It's easy to see how quickly you may have problems due to insufficient memory.

4. An advantage to simply keying out colors in LightWave's foreground image is that it is easy. A disadvantage is that you probably won't get a very clean edge when you have rendered your images using antialiasing. If you have rendered your objects over black, saving an alpha version of the images will allow you to use them in the FG Alpha Image channel in LightWave's Effects panel (or in the Image Compositing panel accessed from the Effects panel in 4.0). Using the associated rendered RGB files as the Foreground Image and the image(s) of your choice as the Background Image will result in a perfect digital composition when rendered out.

   If you rendered your original objects over a color or background image other than black, you can toggle the FG Fader Alpha option on to composite the objects over a new background. However, you will see colored edges due to the original antialiasing showing up around the edges of your newly composited objects. For best results, you should render your original sequence over black if you know you will be using it in composite animations later.
5. HAM stands for Hold and Modify. It is a scheme originally developed to allow 4,096 colors in an image to be shown on a standard Amiga monitor. Usually, you will not want to use this for an output RGB format unless you are going to be using your image(s) in computer animations. Any LightWave work designed for video is normally rendered out as 24-bit files.

   If you do not have a Toaster or a graphics card (such as Picasso II) as an output option, 6-bit HAM (pre-Amiga 4000s) and 8-bit HAM (Amiga 4000s) can be useful on the Amiga as a Render Display setting (Record panel). This allows you to view your LightWave-rendered images (as well as surface samples—LW 4.0 only) on a standard Amiga monitor.

**Q:** First allow me to say thanks for all of your articles in *VTU* and *LIGHTWAVEPRO*. They have been of great assistance. And now the question!

Is there any way to render LightWave animations over super black (0 ire) when rendering to a PAR? I have a 4000 running 3.5 going to the PAR. Unfortunately, I can only manage to get a 7.5 black level. As you know, the PAR does not understand Alpha mattes, and it would be a "good thing" to be able to get a cleaner key on logos if super black was an option. Must I run the completed rendering through a TBC and crush the black level, or is there another way?

Dennis Hogan
Brain Isle Productions
Upper Montclair, NJ
BrainIsle@aol.com

**A:** Chances are you are saving framestores to the PAR. When doing so, the Toaster automatically creates a lighter black level. Try saving your rendered images as IFF or Targa files instead. The PAR does understand alpha mattes if you use 24-bit as the Alpha Image Format in the Record panel, but there is no way to use the PAR to composite the rendered images over super black.

If all else fails, your option of running the completed animations through a TBC and crushing the blacks would work.

**Q:** I am presently taking a course in video production and we recently purchased an Amiga 4000 with the Video Toaster 4000 3.0. The instructor hasn't used the system and I have become involved in learning LightWave. I have access to *VTU* and have found it very useful, but I have been trying to locate an address for *LIGHTWAVEPRO* and have not been successful.

Mike Straub
Canon City, CO

**A:** It's the same address as *VTU* (listed in the masthead)—273 North Mathilda Ave., Sunnyvale, CA 94086-4830. You can also reach us by phone at 408-774-6770 or 800-322-2843. Often you will see a form in *VTU* for subscribing to *LWPRO* as well.

VTU

*John Gross is a supervising animator for Amblin Imaging and the editor of* LIGHTWAVEPRO *newsletter. Questions can be sent care of* VTU *or posted electronically at jgross@netcom.com.*

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# SOUND REASONING

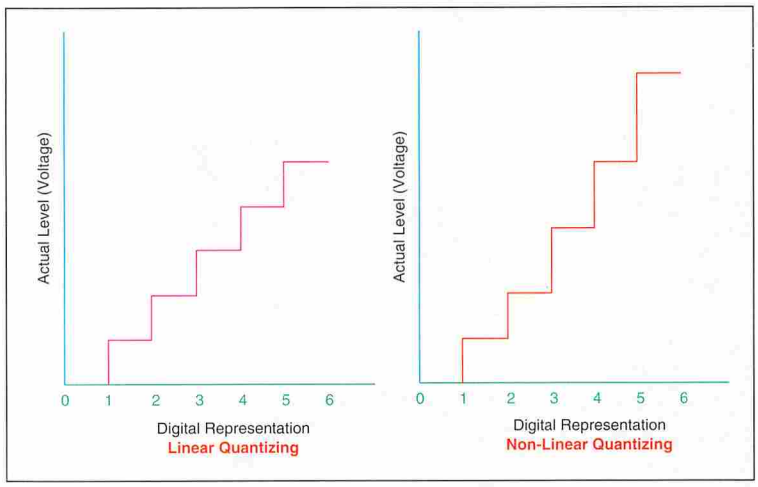
## Digital Audio Recording Formats

### The Search for Dynamic Range

by Cliff Roth

Digital audio tracks are provided on all digital video recording systems, as well as some analog video formats such as Hi8 and VHS. However, as discussed here previously, not all digital audio recording formats offer the same quality as CDs. The two main factors affecting fidelity are the sampling rate, which determines the highest pitches that can be recorded, and the quantizing depth (the number of bits in each sample), which determines signal-to-noise ratio.

In the world of professional recording studios, the 4mm-wide digital audio tape format—DAT—has become the standard for audio mastering. Professional DAT decks offer 16-bit quantizing—the same as CDs—and a choice of three sampling rates: the 44.1 kHz rate used on CDs, an even higher-quality 48 kHz rate, and a long-play 32 kHz mode that, when combined with a lower-quality 12-bit quantizing option, can deliver four hours of playing time from a standard two-hour tape. Some consumer DAT decks lack the pro-quality 48 kHz rate, and some can play all rates but only record at 44.1 kHz.




Non-linear quantizing allows digital audio signals to have a wider dynamic range while using fewer bits.

### Digital Video Cassette Formats

The new DVC (digital video cassette) consumer camcorder format recently agreed to by practically the entire Japanese consumer electronics industry (including archrivals Sony and Panasonic) will include a flexible digital audio recording system that is quite similar to DAT. It can record stereo (two channels) with 16-bit linear quantizing at 32, 44.1 or 48 kHz sampling, or it can be configured as four channels with 12-bit non-linear quantizing at a 32 kHz sampling rate. (Of course, whether manufacturers actually make all these options available on DVC products remains to be seen.)

All of the professional digital videotape formats—D1, D2, D3, D5 and Digital Betacam—incorporate digital audio tracks. Each provides four audio tracks with a 48 kHz pro-grade sampling rate and 20-bit quantizing. (Though in practice, only 16 bits are generally used.) These professional digital VTR formats also feature a single analog audio cue track, for listening to audio even when the tape is shuttling at very fast or very slow speeds. (The proposed consumer DVC format lacks this feature. Like the 8mm cassette design, all information is recorded in the diagonal helical tracks.)

### VHS, 8mm and Non-Linear Quantizing

You'd be hard-pressed to find a VCR in the United States that actually incorporates this feature, but the standards for the VHS (and Super-VHS) format actually include a set of CD-quality digital audio stereo tracks. Introduced in 1991, these tracks have been available on consumer VCRs sold in Japan, but not in the U.S.

For most low-budget video producers, the 8mm tape format provides the first introduction to digital audio tracks on videocassettes. The digital recording system used in Sony's 8mm and Hi8 videocassettes for the PCM tracks, available on most 8mm and Hi8 VCRs (and some camcorders), utilizes 8-bit quantizing with a sampling rate of 32,000 samples per second. By conventional rules of thumb, this would result in recorded audio with a frequency response of 20 Hz to 15,000 Hz (the top frequency is a little less than half the sampling rate) and a dynamic range of 48-dB (you generally get about 6-dB of S/N ratio per bit of data).

However, while the frequency response specification is accurate, Sony claims that its 8mm PCM tracks offer a dynamic range of 72-dB—a big improvement over 48-dB. As a rough estimate, 48-dB has about the same noise level as an inexpensive cassette with no Dolby; 72-dB is roughly the same as a top-notch cassette deck with Dolby C noise reduction and metal tape. It's a very significant difference, readily perceivable by ordinary listeners.

So how does Sony manage to squeeze more dynamic range out of just 8 bits of digital audio data? In two words, the answer is non-linear quantizing.

With digital audio, each available step in the quantizing scheme is usually assumed to be the same size as every other step. Consider an eight-bit system: The available numeric values are 0 to 255, and, to keep the math simple, let's assume those numbers are used to

represent voltage levels ranging from 0 to 2.55 volts. It should be obvious that each increment in this quantizing scheme will represent 0.01 volts. This is a linear, or evenly proportioned, scale.

Psychoacoustic research has shown that the human ear-brain system is quite sensitive to minute differences in level when a signal is small, but as audio signals get louder, fine differences become less apparent. Non-linear quantizing takes advantage of this fact to provide a wider range of representation, and hence a wider dynamic range, without the use of additional bits.

As signals get louder, subtle differences become less audible, thus the non-linear quantizing scheme creates bigger steps for high-level signals. As an example, suppose we picked the numeric value of 200 as the cutoff point, declaring that whenever a signal level goes above 200 (in the range of 0 to 255) it is "high-level." And suppose, to accommodate a wider range of high-level signals, the analog-to-digital and D/A converters are set so that above 200, each increment up to the numeric maximum of 255 represents 0.02 volts instead of 0.01 volts. This extends the range of representable voltage levels (which correspond with loudness levels, of course) up from 2.55 volts to 3.1 volts (200 x 0.01 plus 55 x 0.02 = 3.1). If the strongest recordable level is 3.1 and the lowest is still 0, then the dynamic range is wider than it would be with a maximum of 2.55 volts. Therefore, non-linear quantizing can achieve better sound quality with a limited number of bits.

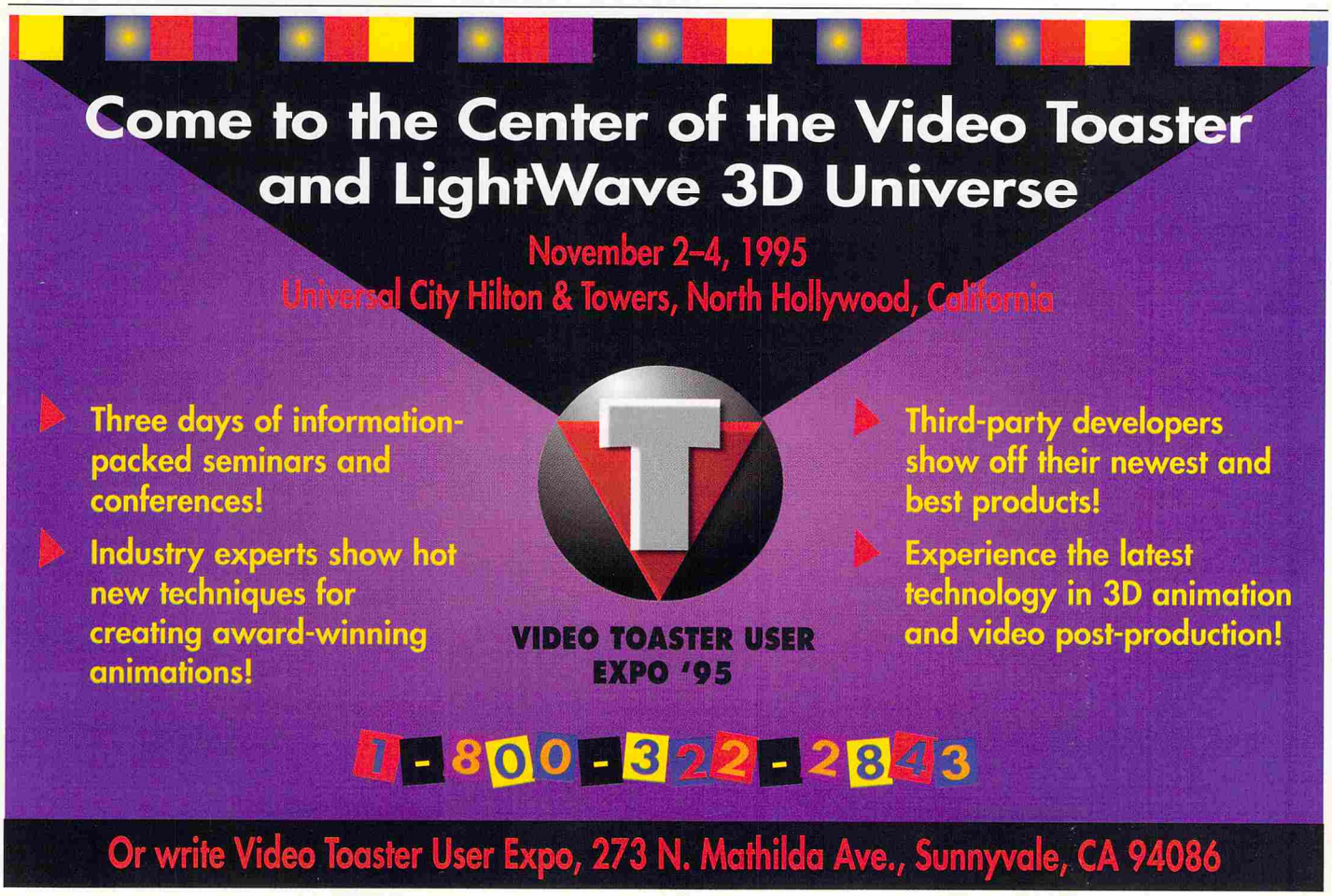
That's the underlying principle of non-linear quantizing. In reality, it's somewhat more complicated: instead of two possible step levels (0.01 and 0.02 volts, in this case), there may be many variations, all based on the idea that as signal levels get higher, the value of each increment should get bigger.

Audio purists complain that such machinations distort the signal, since loud levels get rounded up or rounded down more. Such purists argue that the full 16-bit CD quality of quantizing is needed to get true high-fidelity. But if you've only got eight bits to work with, the non-linear approach may very well be the most efficient utilization of the available storage capacity unless you can compress the data in even smarter ways.

### DCC and MiniDisc

DCC—the digital compact cassette—was the first consumer audio format to really take advantage of the science of psychoacoustics, the study of sound perception. Whereas previous generations of digital audio formats—CDs and DAT—provide a complete representation of the audio signal, DCC focuses its attention on only those parts of the sound that are audible to the human ear.

The spectrum of human hearing (from 20 to 20,000 cycles per second) is divided into nine sections, and separate circuitry is used to process each section. At any given moment in time, only a limited number of digital bits can be recorded. But the allocation of these bits among the nine processors is up for grabs. So a section with a lot of activity gets more bits, while a section with little

going on gets less. The allocation of information bits is also influenced by the DCC computer's understanding of human hearing, which is more sensitive to some pitches than others.

The bottom line, technically, is that DCC requires only one-fifth the number of bits per second as CD and DAT to deliver the same audio quality. This data compression is the key to fitting digital audio onto a compatible compact cassette. Nevertheless, DCC has been a flop in the marketplace.

Sony's MiniDisc (MD) compression system is called ATRAC (adaptive transform acoustic coding). It is based on the same principle used in DCC decks. According to Sony, the data is reduced by a factor of four.

### Computer Audio Formats

Although this is sure to change sometime soon, just about all of today's standalone computer audio files are stored in "raw" form—meaning no data compression gets used.

Generally speaking, if computer audio files need to be stored in less space, a choice is made to use lower bit-depth and/or quantizing rate.

I said "standalone" audio files because once audio and video are combined together into a single file, some form of audio data compression kicks in. MPEG is probably the best example of this. (MPEG stands for the Motion Picture Experts Group.) With current MPEG-1 video/audio compression (as found in the new DSS satellite dish system and Philips' CD-Video titles), there are three available audio compression options: MPEG Audio Layers 1, 2 and 3. They get progressively higher in quality as the numbers go up. Layer 2, which was developed by Philips and is also called Musicam, has become the popular choice. (It's similar to the encoding used in Philips' Digital Compact Cassette audio tape recorders.) All these versions of MPEG audio encode from/decode to 16-bit stereo samples with a 44.1 kHz sampling rate.

Pure audio files intended for use with Windows on the IBM PC platform are generally in the .WAV format, which was adopted in the multimedia extensions found in Windows 3.1 for raw (uncompressed) audio data. These files offer sampling rates of 11 kHz, 22 kHz or 44 kHz, a choice of 8- or 16-bit depth, and a choice of stereo or mono. The differences add up quickly: At the worst available quality (11-kHz sampling, 8-bit depth, mono), a one-minute recording occupies 660 kilobytes; at maximum quality (44 kHz sampling, 16 bits, stereo), a one-minute recording requires 16 times as much disk space—a whopping 10.6MB. The VOC file format, which was the original Sound Blaster standard, offers similar choices for DOS applications.

Over on the Mac side, audio files offer a similar range, with the addition of an ultra-low-quality 4-kHz sampling rate. The .AU file format, which originated with Unix, has become the de facto standard for sending audio files on the Internet. (I stumbled upon this fact during a recent visit to the White House home page. After downloading President Clinton's "Welcome to My Home Page" message, I found that I couldn't play it on my Windows computer because it was recorded in .AU format. Fortunately, the Enhanced NSCA Mosaic browser software includes a conversion utility to transform .AU files into .WAV files.)

The Amiga has two commonly used digital audio file formats. MOD files, which utilize the built-in audio capabilities, are generally limited to 8-bit sample size. The higher quality ISS format is used in such pro-grade products as SunRize Industries' Studio 16, which can sample at the professional 48-kHz rate with 16-bit quantizing.

### Making the Connection

In addition to this bewildering array of digital audio recording formats, there's also a variety of ways to connect two pieces of digital audio equipment. Most computer cards have only analog connections, but just about all professional digital audio recording devices offer either fiber optic or coaxial digital input/output connectors. (CD and LaserDisc players usually have these connectors, too.)

For connecting professional equipment operating at a 48-kHz sampling rate, the standard AES/EBU digital audio interface theoretically provides total compatibility between brands and formats. These AES/EBU (Audio Engineering Society/European Broadcast Union) connections are also semi-compatible with consumer equipment that has a SPDIF (Sony Philips Digital Interface) electrical (not optical) connector—assuming, that is, that the sampling rates agree.

Ideally, you should always be dubbing digital audio from one device to another in the digital domain, to keep noise from leaking into the signal. But the proliferation of so many different standards and file formats can sometimes make it almost impossible.

Fortunately, as a fallback plan, all digital audio recorders—regardless of quality, nationality, or brand—share the common denominator of standard analog audio connections. (Yes, analog voltage levels are the most universal audio language.) In this respect, digital audio has a big inherent advantage over digital video, where no such common denominator exists. VTU

*Cliff Roth is the author of* "The Low Budget Video Bible." *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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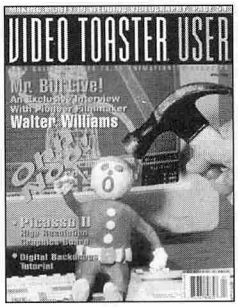


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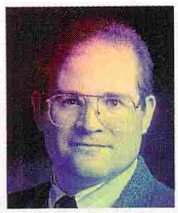


by James Hebert

When faced with scheduling, developing, testing, documenting and shipping a product, I can only point to something that a wise acquaintance once said: "Good. Cheap. Quick. Pick any two."

As I as thumb through the Video Toaster manual I cringe at some of the errors that slipped through the cracks. Portions of it I am justifiably proud of. There was time to write sufficient material, create or capture the appropriate graphics, proof the final layout and text, and ensure that the product really worked the way we said it did. I was particularly content with the opening section on the new sequencer, and with the multitude of examples we were able to include on proper sequencing tips.

For other passages, my pride was short-lived. I had spent a great deal of time installing and re-installing the software, capturing screenshots and graphics, and working up support material so that "no one" could have difficulty installing this revision. In fact, NewTek chose to utilize the standard Commodore Amiga install program this time around, owning up to our less-than-friendly installers of the past in a circumspect way. Still, some things changed too late to correct.

***"Be assured that your comments, complaints, praises and curses do not fall on deaf ears."***

And there are portions I'd rather we hadn't shipped, such as the tutorials, which are error-ridden due mainly to the fact that they were quickly written, barely proofed and hurriedly laid out. Early on we had reasoned that since the Flyer would ship primarily to "old-hat" users of the Video Toaster, tutorials would be better-suited toward introducing new features than attempting to re-introduce the user to the ToasterCG all over again. Therefore, we chose to concentrate on making sure other sections were correct before turning to those lessons.

This does not bode well for a product, and to his and NewTek's credit, President Tim Jenison vowed to correct the errors in the product while at NAB earlier this year so that our loyal users would not have to face the embarrassing errors of a hasty release. Whether that release will be called 4.0.3, 4.1, or something else entirely is still undecided. However, be assured that your comments, complaints, praises and curses do not fall on deaf ears. NewTek has chosen to "go corporate" only in the ways of better communication, greater organization, and more clearly defined support of our products. It has already helped immensely, and can only get better.

Wackiness has not been excised, as you may have witnessed if you attended NAB '95. (Those who won at the free night of laser tag, drinks and pizza can wear their LightWave 3D baseball caps with pride. They earned them.)

With regard to the manual, I solicit your feedback on the quality and content of NewTek's product documentation. Where have we instructed you with ease and directness? Where have we been convoluted and unclear? Was there a particular example that worked especially well? Were there a dozen that failed? What do you need more of? What would you like to see less of?

If you take the time to write, either electronically, via fax, or via mail, please be as specific as you can. Point out page numbers where the errors were horrid, if you have them handy. And if you have only one thing to say, say it. It's one less error that thousands of others will have to endure.

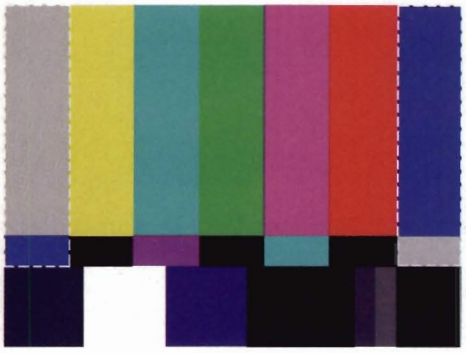
Try to avoid generalities that we cannot correct. "Please include more examples" sounds clear at first, but begs for clarification. More examples of what? More examples for which part of the Toaster? More examples of diagrams, more examples of 3D objects, or more examples of ToasterCG pages? If you write "Please include more tutorials like the seventh LightWave one, where we animated a walking character. Character animation needs more fleshing out," you have given us much clearer direction about your needs.

Your job, thankless as it seems, is to point out those things that we, being too close to the product, have a hard time seeing.

You can contact me at NewTek's offices (1200 SW Executive Dr., Topeka, KS 66615), via NewTek's CompuServe account (76004,3350), or via the Internet at jhebert@newtek.com. If you want a response, please ask for one. If you want to recommend features, go ahead. If you want to offer yourself as a proofreader, please do! (Mind you, I treat the proofreaders tough.) Otherwise, I will consider your feedback private, and one-way, just to save time.

### Of Test Patterns and Hardware

Now I'd like to present very public feedback. A friend asked me about how to use a color bar generator with a waveform monitor and vectorscope to assure himself properly recorded video. I hit the books, wondering how it had been described in the past and



The blacker-than-black, black and whiter-than-black portions of the color bar pattern.

wanting to instruct him by the letter, and found next to nothing about the topic! Very few volumes address it, and I've collected quite a few production books over the years.

However, before you can properly utilize this equipment (and trust what you see!), make certain that your monitors are properly adjusted. With the kind assistance of Digital Processing Systems (who provided the original text on which this procedure is based) and the technical skills of Bob Stratton of Smith AV (also the home of Y/C Plus), I can give you some information about this technique. Next month, we'll get into the proper use of color bars with the waveform and vectorscope.

In order to adjust your monitor(s) properly, you'll need to be able to view them in blue-only mode. If your monitors do not have a blue-only or blue-gun switch, you're still OK. You can use a blue filter. The best source for these filters is Digital Processing Systems, which includes them with its Personal V-Scope. For a nominal fee you can obtain one from them by calling (606) 371-5533 in the U.S. or (416) 754-8090 in Canada. The blue filter is a useful and valuable little tool wherever you need to make sure that your monitor output is accurate.

Once you have a blue-only filter (or you've switched your monitor to blue-only display), follow these steps to adjust its picture quality.

1. Turn on all of your studio gear and let it warm up for at least 30 minutes.

   With the amount of drift inherent in electronic equipment, it's best to make adjustments after a suitable warm-up period. I prefer an hour, but 30 minutes is generally considered sufficient. Otherwise, adjustments that you make in the first few minutes will shift subtly over a short period of time, making this procedure less than effective.
2. Display color bars on the monitor. If the monitor you wish to adjust has any form of automatic tuning controls (in other words, if you are using an old TV set from the back bedroom), turn these features off. Your best bet is to leave them off.

   You can use the color bars from the Toaster or from a color bar generator. You should adjust black first, since a proper color image depends on a correct grayscale. Look at the three black strips in the lower right-hand corner of the screen (the black set signal). These three strips are known as black-than-black, black and whiter-than-black.
3. Adjust the brightness control while watching these three strips. Ideally, you should be able to set the brightness level so that you can just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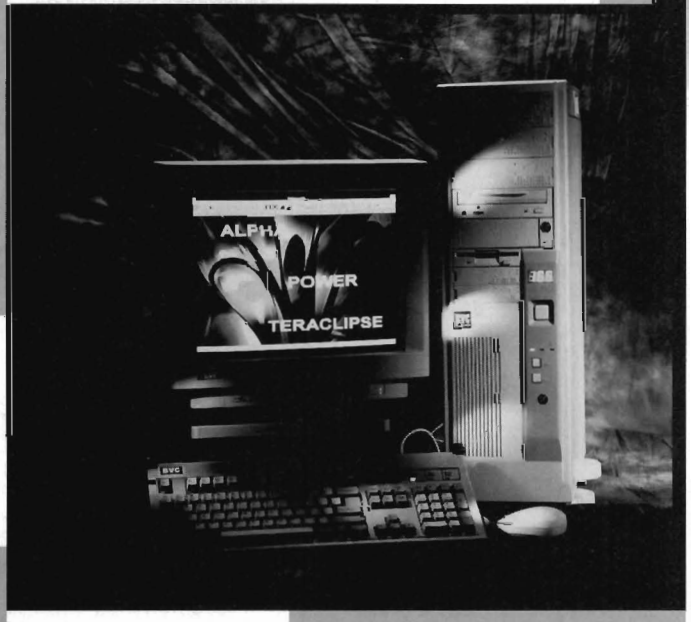


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barely see the whiter-than-black strip, while the black and blacker-than-black strips are not visible.

The black level itself should appear, well, black. It should not be visible, since it represents black in any picture information the viewer sees. The blacker-than-black strip should be equally invisible to the eye, since it dips below the level of signal we use to represent black. Only the whiter-than-white signal should be slightly visible.

There are three "rows" of information presented in the SMPTE color bar chart. The top row dominates the screen and shows color bars. The thin middle row displays something called a color set signal, and the bottom row contains a black set signal.

Your goal in the next step is to adjust the monitor so that the two outermost bars in the top row appear exactly the same as the two colors in the middle row. (In the normal color bar pattern, the pair on the left edge of the screen is gray and blue while the pair on the right side of the screen is blue and gray.)

4. View the screen through the blue filter and adjust the color control (which may also be labeled saturation or even chroma) until the outer two color bars on top match the outer two color set bars directly beneath them. This action sets the correct level of color in the monitor.

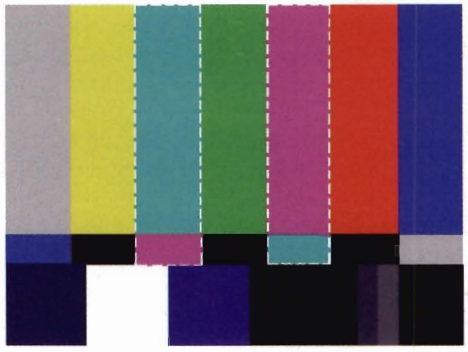
   The next step involves the cyan bar (and the magenta color set below it) and the magenta bar (with the cyan color set below it).

5. While continuing to look through the blue filter, adjust the hue control (which may also be called tint) until the cyan-over-magenta and magenta-over-cyan pairs match exactly. This sets the correct phase for the monitor.

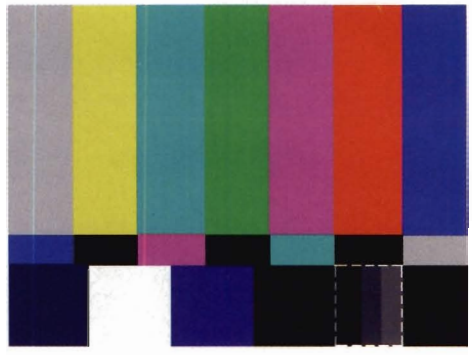
   Color and hue controls often interact, so it may be necessary to go back and forth between the two controls until all four bar and color set combinations appear to match properly.

6. Set aside the blue filter or switch off the blue-only setting on your monitor.

   Note: If you find that your video appears slightly over-saturated after adjusting your monitors, turn down the color control slightly. I have noticed that sometimes a given monitor does not handle these settings well, particularly as it ages, despite the fact that it is calibrated correctly and all sources are correct.



The color bar patches that you need to match to adjust proper color.



The color bar patches that you need to match to adjust proper hue.

## Summary

This simple visual procedure allows you to adjust your monitor so it provides a reliable picture that accurately reflects the picture quality you have recorded on tape. Together with some simple steps for ensuring that your video is recorded and played back correctly (using waveform, a vectorscope and a TBC, which we'll cover next issue), this process can help you be certain of your video quality. VTU

*James Hebert has written, edited, designed and produced user documentation for NewTek since Video Toaster System 2.0.*

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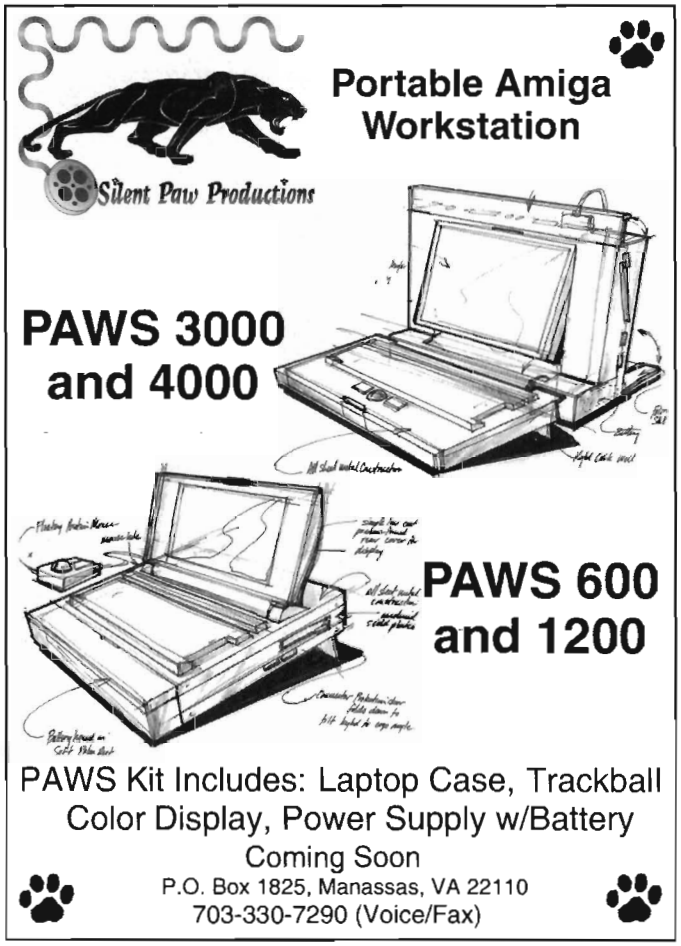


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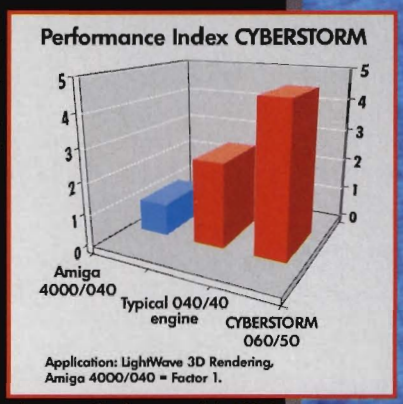


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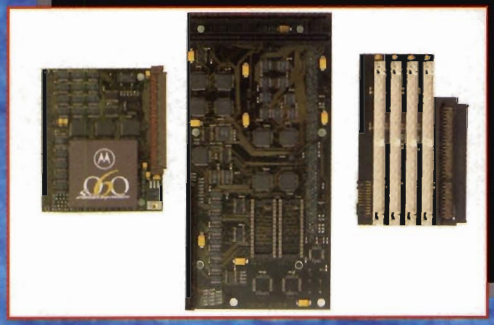

*Picture shows A4000 version of the CYBERSTORM System*

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FOR INFORMATION CIRCLE 147

# CYBERSPACE

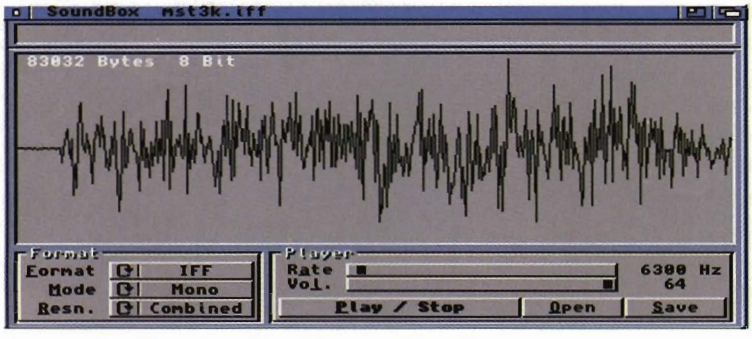
## Stop, Look and Listen

### Investigating Sound Utilities for the Amiga

by Geoffrey Williams

Sometimes we get so caught up in the power of visuals that we pay less attention to the power of sound. Just as an artist can shape an image to a personal vision, a skilled sound editor can shape sound to exactly meet the needs of the production. This month, we'll look at a number of utilities that you'll find useful for working with audio.

You might recall that the last time I wrote about sound I cautioned you about obtaining sounds to which you had no legal right. Let me again bring this up, since the first three utilities I will tell you about could be easily abused in that regard. Remember, if the sound you use is copyrighted and it can in any way be traced back to the original source, you are taking a risk. On the other hand, if the sound is so drastically altered that no one could tell where it came from, then the chances of a problem coming up are pretty slim. You just need to use good judgment.




Convert and modify a variety of sample formats with SoundBox.

### Sound Resources

Frank Würkner's MacResourcer is different from programs that convert audio files from formats common on the Mac to the IFF format on the Amiga. It does something far trickier. Nearly all data for programs on the Macintosh are stored in a special format, called a "resource." If a program has sound in it, this is where it will be. MacResourcer can play and extract two common sound resource types used on the Mac: the "snd" mono and stereo samples in both 8- and 16-bit (compressed sounds not supported) and the "SOUN" format. The program also accepts other resource types and lets you save their raw data.

Software for the Amiga also contains sound samples. Jack the Ripper, by James Ostrowick and Ray Heasman, searches through a program and extracts any sound samples that it finds. It can also sift through a program and extract any of 56 different music module (Mods) formats.

Another place to find sound files is inside MPEG files. MPEG, as I have described before, is the standard method of encoding video and audio into a single file that, with additional special hardware, can be played back to look like regular video. Michael Rausch has ported the International Organization for Standardization (IOS) code to the Amiga. It can be found in a file called MPEGAudi. The MPEG-audio compression standard does an excellent job of compressing audio samples of 32 kHz (DAT-LP), 44.1 kHz (CD) and 48 kHz (DAT-SP) into very tiny files. Compression and decompression, however, are seriously slow. Even on a 4000, it can take 50 times the length of the original sample to encode a 44 kHz sample to a 128 kBit stream. But, the standard will do the job, as long as you are in no real hurry. It works from the command line, so it's not particularly spiffy-looking. I suggest using it with SOX, which I wrote about the last time I covered sound utilities. You can pipe the output directly into SOX.

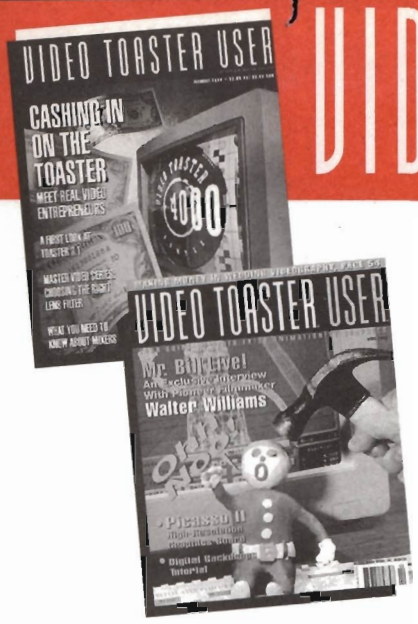
A good site on the Internet for additional MPEG files is http://www.iuma.com. This is the address of the Internet Underground Music Archive, which contains many freely distributable pieces of high-quality music.

I've found a few sound datatypes for Workbench 3.0 users. Christian Buchner's VOC_DT can handle different frequencies in a single file by resampling them all to the highest frequency. And it correctly handles Silence chunks. Buchner is also the author of WAV_DT, a datatype for WAV sound files. This convention can handle 8- and 16-bit mono and stereo samples, and can even load WAV files with that missing last byte that can choke a lot of converters. Both are based on the original sourcecode by David Junod. Another datatype, Frank Hoffman's TX16W, works with sounds in the format used by Yamaha's TX16W 12-bit music sampler. TX16W has three sampling frequencies: 16 Hz, 33 Hz and 50 Hz. The samples can be stored on floppy disks that use the MS-DOS format, so you should be able to read them easily with CrossDOS.

It may not be as high a quality as a dedicated effects generator, but David O'Reilly's TREG is certainly good enough for many applications, and it's also fun to play around with. TREG works with your audio digitizer to take the incoming sound and modify it in real-time. The new sound can then be mixed back into your mixer or used for live presentations.

One of the nice things about the latest version of TREG is that it uses modules, so it's possible to construct your own if you know a little assembler, or save presets to create custom effects if you don't indulge in that programming nonsense. The version I downloaded came with 23 effects modules, each with several presets, so there is certainly a lot to play with. The effects include Chorus, Crossfade, Delay, Distort, Echo, Flange, Listen, Metallic, Pan, Phase Up, Phase Down and Phaser.

continued on page 36

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FOR INFORMATION CIRCLE 152

The program is pretty easy to use and comes with good documentation. It is certainly the best real-time effects generator I have seen for the Amiga. One important note, though. TREG wants an assign, and even if you have one of those utilities that lets you assign on the fly, it doesn't care—it will simply crash. Before using this software, make sure you assign TREG to the directory containing the effects.

### Converting Samples

SoundBox ist ein Tool zur Konvertierung und Nachbearbeitung von Samples. At least that's what the documentation says, which, unfortunately, is in German. For those who don't sprechen ze Deutsch, Soundbox is a tool for converting and modifying sound samples. It was written by Richard Körber, whom I strongly suspect is German. Even without documentation, though, the interface is in English and fairly simple to figure out. You should have very little trouble using this utility for converting samples, even if some of its additional features may be puzzling until you show it off to your German-speaking friends. SoundBox is a useful program that will load, play and convert RAW, IFF, VOC, WAVE, AIFF, MAUD and Maestro samples into each other's formats. Additionally, some effects are available to optimize the sample or amplify it to maximum volume. Since I can't read what the different buttons say, I have no idea exactly what these functions do, but included effects are Restore Rate, Flip Sign, Optimize Length, SoundTracker Init, Reverse Sample, Adjust DC Offset, Max Amplitude, and Fade at End. Other options include viewing information about a sample, an adjustable loop editor, and a handy reload that will load the last sample loaded, sort of like a simple undo.

Loading, playing and converting sounds is obvious and straightforward. SoundBox will load 16-bit samples and, through some magic I don't understand, play them as 14-bit sounds using the standard Amiga audio hardware. Since the Amiga is normally limited to playing back at a maximum of eight bits, this is an intriguing capability.

### Playing Your Tunes

Jamie Mueller's SND is a handy little sound player, especially if you have an entire drawer full. It will list all of the files in the drawer and let you play the sound files simply by clicking on them. You can even play an entire series of files in order. SND also plays sounds directly from disk without having to preload them.

Trevor Andrews' SFX is another little sound player offering script playback capability. You can make a script containing all of the files you want played, how many times each individual sample should be played, and how much time should be paused between samples. If run from the Workbench, SFX will bring up a standard file requester.

Last time I wrote about sound I mentioned UPD, a great little sound player by Jonas Petterson. It was controlled primarily through ARexx, and thanks to George Beasley, there is now a graphical front-end for it. In his SoundOFF archive, Beasley includes a copy of UPD complete with this new feature. I liked UPD

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quite a bit, and the front-end makes it a lot easier to play with and try things out.

If you have a CD-ROM, chances are you are using it as a source for digitizing. It makes sense to want to have some kind of computer control over playing the music CDs to make the digitizing process a little easier. Yves Perrenoud has come up with a solution for users of the Xetec file system. (This system uses the cdx.device, a controller in devs: that makes a CD-ROM work with your Amiga.) Called CDRemote, this program uses ARexx and ToolManager to make a very handy control system. It comes with an Arexx script, little brushes for the buttons, and a ToolManager preferences file. It's very simple and nicely done.

There has been a definite slowdown in the public domain world for Amiga utilities, but it is not nearly as bad as you might think. In fact, you'll find a lot more utilities for the Amiga on places such as the Aminet than you will new products at your local Amiga dealer. The commercial market is almost at a complete standstill, so getting online is your absolute best bet to continue supporting your Amiga. Considering the very low cost of even 28K baud modems nowadays, it makes little sense for you not to be cruising the ol' information highway.

### Disk Data

Here is a little tidbit that you might find useful. I had a call recently from a reader who received a disk from me that didn't work. I format the disks as double-density—a format that all Amiga disk drives can read. The standard drive in a 2000 will not be able to read a disk formatted as high-density. The only disks I am able to buy anymore are the high-density disks, though. They have an extra hole opposite the side where the write-protect tab is. Unless this extra hole is covered, something I usually do but in this case forgot, the disk will be unreadable in a high-density drive such as the 4000's. It uses this extra hole to determine if it is formatted in high-density, regardless of how the disk is actually formatted. Put a little piece of tape or label over the hole, and the drive will then be able to recognize the disk. Otherwise, it will simply inform you that the disk is bad.

Speaking of disks, you should keep in mind that a worldwide shortage is expected soon, perhaps even by the time you read this, The reason: the release of Windows 95 and products upgraded to be compatible with it. If it has not happened already (assuming that Windows 95 is actually released in 1995), now might be a good time to stock up a bit. The shortage is definitely coming, as anticipated demand far outstrips current manufacturing capabilities. During this period, expect prices to be high and availability limited.

As usual, if you do not want to hunt this stuff down for yourself, I have gathered it all on a floppy disk, which you can have by sending $5 to Geoffrey Williams, Sound Disk 2 Offer, 1833 Verdugo Vista Dr., Glendale, CA 91208. You can reach me on the Internet at gwilliam@netcom.com.

VTU

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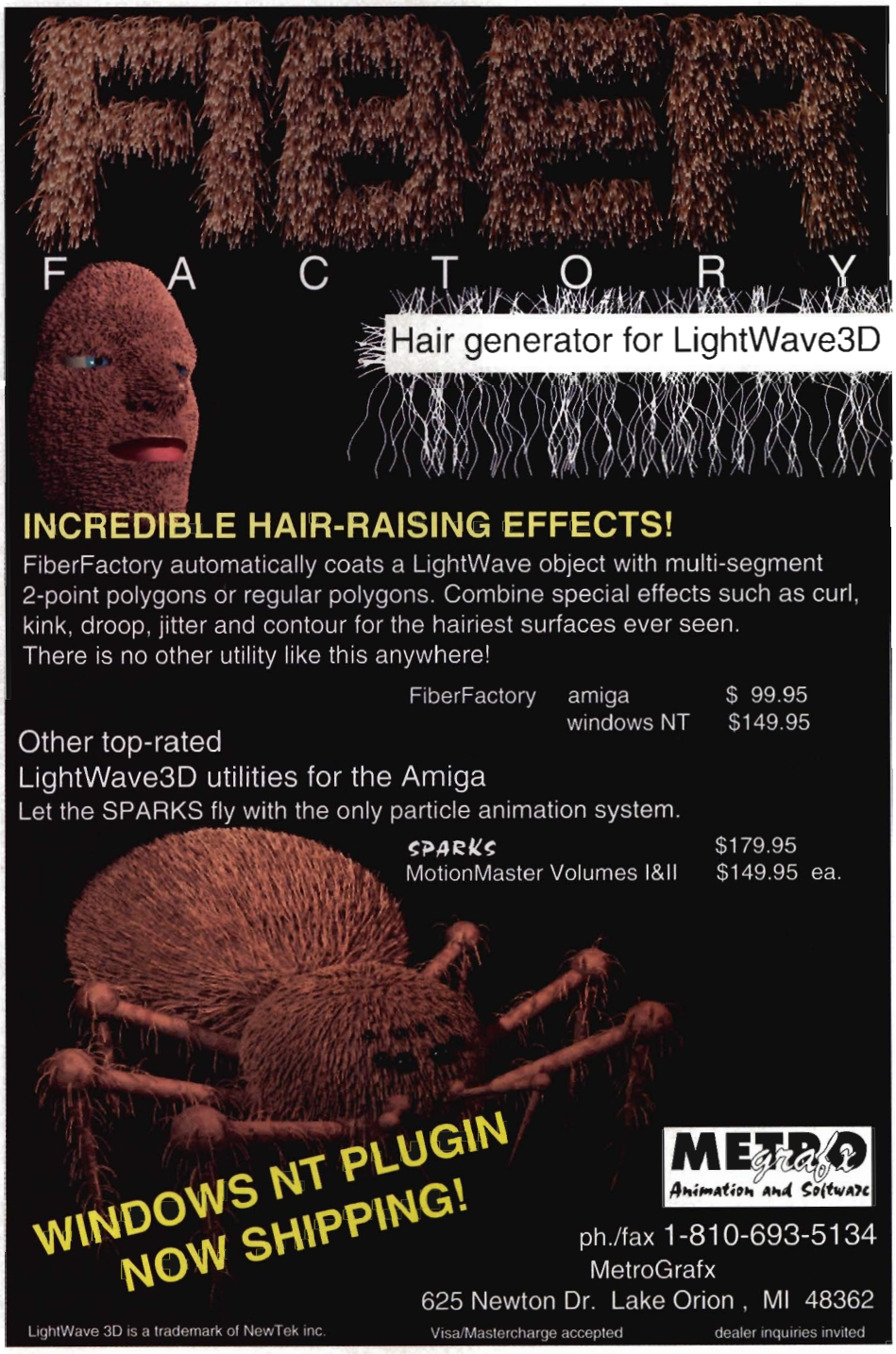



FOR INFORMATION CIRCLE 104

# TAMING THE WAVE

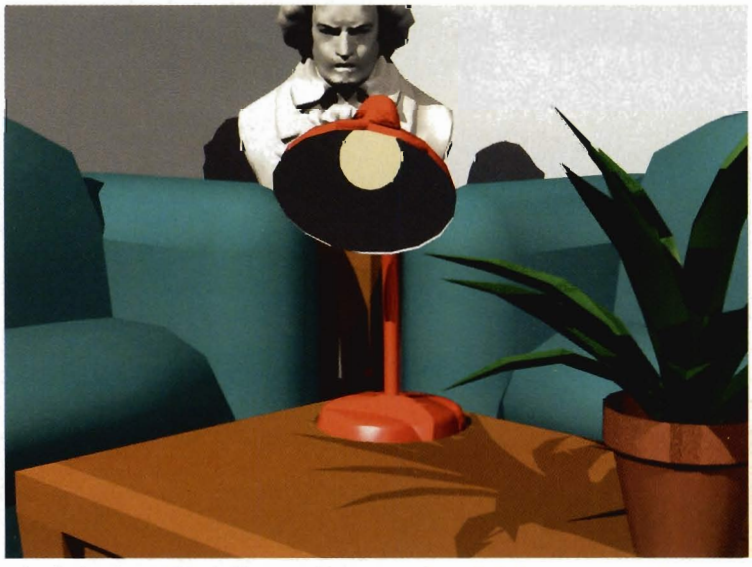
## LightWave Dos and Don'ts

### Avoiding Animation Pitfalls

by David Hopkins

Greetings and welcome back to "Taming The Wave," the column that dares to share the facts about making a living in LightWave. That's right, making a living. I've been a full-time animator now for approximately five years. I make pretty good money (enough to support myself, my wife and two children in Los Angeles) and have a lot of fun with my job. There's a lot of work out there and, since you're reading this column, I figure you probably want some of it. No problem—that's why I'm here.

We've seen about enough of these, don't you think?



Take a look at the rim of this desklamp. Would you want a client to think this is your best work?

This month I'd like to cover some LightWave dos and don'ts. Many of these seem pretty straightforward, but I hear from a lot of people who just don't seem to get it. Let me share with you a few observations I've made over the years.

### Better Objects

First and foremost, don't use the objects that come with LightWave in your animations. Why? Well, let's start with the fact that a lot of them are pretty poor. Many of them were created back in the Stone Age of the Toaster period and were designed with the intent of rendering on a machine with a bare minimum of rendering power and memory. These days are gone, folks, and these objects should be, too. To see what I'm talking about, load up the apple from the Food directory. When was the last time you saw an apple at your grocery store that had so many sharp corners? If your answer is "just the other day," you need a new grocer. Don't get me wrong—not all of them are bad. But the good ones tend to get used to death.

Animations that make use of this type of object suffer from a few different problems. First, they make it look like you are either using an inferior 3D animation program that isn't capable of anything better or that you're not very good at creating models. Whichever impression the potential client comes away with, it spells bad news for you. And if you are producing these animations and showing them to other LightWave animators, they'll know right off. This is *not* a great way to impress those who might send work your way.

The shortcomings of the standard objects should certainly be avoided when making your own. Here's a hint: Things that are supposed to be round should be. I've seen far too many examples of people using spheres made with only eight or 16 segments. Splurge! Use 32. If you can, use more. Nothing looks worse than ragged edges on round items.

Of course, the thing that you as an animator have to keep in mind is the memory and time constraints imposed by your system. So don't go overboard. Use common sense when looking at your rendering. If you are not going to get near enough to a rounded surface to notice polygon cheating, you can get away with it. In that case, it would be foolish to use oodles of polygons. Just think about it and you'll find that you can have both clean, smooth edges *and* efficient rendering.

By the way, another thing you are likely to find problematic with the supplied objects is inefficient modeling. A perfect example of this is the SpaceDestroyer object found in the Space directory. If you load SpaceDestroyer into Modeler and do a merge points you'll find 1,058 extra points lurking in this complex structure. You'll also find 32 polygons defined as double-sided in the LightWave Surfaces

panel that have no good reason to be this way except that the creator failed to properly orient them (it would seem). And still worse, there are 553 non-planar polygons, each likely to flicker and do all sorts of unexpected things when rendered. If you use this object in your animation, guess whose ability gets reflected? Not the original creator's, but yours.

### Second the Motion

Another aspect of animation that frequently slips by the wayside is Camera and Object motion. LightWave makes smooth motions very simple. Tweak Tension here, Continuity there, and you've got yourself a move worthy of a motion-control camera. But I still see a lot of jerky motions and awkward moves on otherwise respectable scenes. Don't overlook this part of your work! Proper use of NullObjects as parents can offer multiple sets of motion control (not to mention more splines!), so they should be used liberally.

Another frequent motion mistake is making a move happen too fast. It's funny, but I rarely see moves that are too slow. My guess is that this is a case of the animator realizing the speed of his machine is such that a longer move will take too long to render. While this is certainly a valid reason for rushing things along, excessive speed also serves to decrease the dramatic impact of many animations. Short of joining the masses and purchasing more expensive rendering equipment, I would suggest that you try to allow for more realistic time schedules in your bids. Many clients will happily trade a bit of additional time for the reasonable prices you're charging in the first place. If the animation is one that you are creating of your own accord for the sake of a demo, allow the extra time. It can make the difference between a ho-hum animation and an impressive showpiece.

In the same vein, try to use cinematic influences in your animations. A perfect example is the old dolly or crane shot. A dolly shot is usually a smooth horizontal (for the most part) shot filmed from a camera on a set of rails or a wheeled vehicle. A crane shot, of course, is the result of placing the camera on the end of a crane and raising or dropping it (the crane, not just the camera). These techniques can add tremendously to a shot, giving you the opportunity to provide an "establishing shot" of an item or location and show that you are savvy about the way the industry works. Of course, you'll more than likely want to use Tension at the beginning and end of such moves. Just thought I'd remind you.

Keep in mind that the purpose of 3D animation in many situations is to stand in for a shot that may be too expensive, too complicated, or too dangerous for a live-action crew to perform. The opening sequence of *Digital Man*, the film I recently worked on, could very well have been done entirely as a live-action (or "practical") sequence. It would have required four or five futuristic sets, the actor, crew, makeup effects and smoke machines, among other things. That's a very expensive proposition when working with film—much more expensive than paying for an animator (who makes decidedly less money than said actor alone) and electricity to run the machines. Our crew chose to animate the title sequence not only because of the cool look it would provide, but to save all that money. When you use a crane or dolly shot, you spare the cost of the crane or dolly and required crew. This savings is known as "added production value."

Don't take this to mean that every shot requires such embellishment. I've seen plenty of situations where a camera move was much too great or much too fast for the situation. Frequently, a minor camera move, a focus pull, or even a locked-down camera would have achieved better results. Use your head and make sure to watch plenty of movies. Pick up any of the excellent books on filmmaking and special effects that are out there and become a good director *and* an animator.

### Infinite Wisdom

Next in the bag of animation gripes is the recurring problem of sequential animation. An example would be a camera that moves into position, then an object in view doing something, then another camera move, then an object doing something. This leads to a very mechanical feel that degrades many animations. You can have an infinite amount of action occurring at the same time in LightWave, and you should take advantage of it. Back to *Digital Man* as an example, one shot involves a computer-controlled armature moving a block of raw material onto a workspace, disengaging and withdrawing as a laser beam begins the process of carving away. The camera is slowly moving throughout the entire shot, monitoring the actions. The result is a beautiful feeling of constant activity that negates the computer-generated nature of the entire shot. This kind of thing may seem minor, but the impact is impressive.

Hopefully, these ideas and suggestions will help improve your work, if not your reel. My intention here is not to insult or condemn the work of animators who suffer from these problems. It takes a long time to learn an art. A couple of years ago I released a LightWave training package called, by some amazing coincidence, *Taming The Wave* (which isn't available anymore, so don't go looking for it) that had plenty of animation. Much of it used the objects that came supplied with LightWave at the time. Many of the sequences suffered from problems that I have pointed out here. When I look back on those animations from my current position and abilities, I feel a bit uncomfortable. It is experience that teaches and makes our work evolve. By avoiding these pitfalls now, you can improve your animations and get on with doing what we all want: making more money so we can buy still faster machines! Best of luck to you, and make sure to send a demo to me at:

Mach Universe
Attn: David Hopkins
8102 Dabny Lane
La Palma, CA 90623

**"You can have an infinite amount of action occurring at the same time in LightWave, and you should take advantage of it."**

*David Hopkins is the founding father of Mach Universe, a film-and-video animation effects house in Orange County, Calif. He is currently serving as the animation supervisor on* Space Marines, *a LightYear Productions feature film.*

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# From Myth to MONSTER

**As *Hercules: The Legendary Journeys* comes off a successful first season, learn how the labors of an innovative effects crew are providing weekly doses of the fantastic**

by Corey Cohen

ALL IMAGES © 1995 MCA

With the sci-fi explosion showing no signs of dissipating, a few minutes in front of the tube is becoming increasingly satisfying for the effects-hungry. Spaceships, energy bursts and aliens are in full force. Virtual reality and amazing technology are realized in weird and wondrous ways. For many, dreams are on the screen.

Turn the channel and you'll see the stuff of nightmares.

Each week, fans of *Hercules: The Legendary Journeys* walk an ancient earth rife with the menace of gods and their minions. Relentless hydras give way to treacherous centaurs, while the dog of War poises to strike. Creatures like these—cornerstones of Greek mythology—enter the realm of reality thanks to the growing talent of a dedicated effects team

Led by visual effects supervisor Kevin O'Neil and 3D compositing supervisor Joe Conti, the five-person crew uses a variety of prosumer hardware/software—including LightWave 3D and the Toaster—to deliver the firepower of a high-priced effects facility from their homes. In the midst of working on the series' second season, the group can look back and affirm that they're meeting their original goal: to bring motion picture-caliber animation to the little screen.

## Armed for a New Arena

The professionals behind *Hercules*' visual effects possess an impressive combination of digital wizardry and classical training—and an unbelievable number of film credits. O'Neil and Conti, who met in 1991 while showing the potential of Toaster and LightWave effects on the TV series *Unsolved Mysteries*, bring a wealth of experience supervising visual effects for film and television. Don Waller, *Hercules*' 3D animation supervisor, is a longtime stop-motion animator whose exposure to CG effects came while helping animate the "dinosaur herd" sequence in *Jurassic Park*. 3D animator Doug Beswick has done stop-motion animation for films such as *The Addams Family*, *Terminator* and *Aliens*. And digital compositing supervisor Kevin Kutchaver, whose traditional effects background includes blue screening and shooting miniatures, has worked on projects ranging from light-saber effects for *Return of the Jedi* to 2D compositing for the first season of *Babylon 5*.

Together, the team has been producing an average of 15 to 40 2D and 3D effects for the series' five television movies and 13 first-season episodes, with a turnaround time of three to six weeks per episode. And with the second season expanding to a hectic 22 shows, this time can only decrease. If these figures seem the stuff of lore, here's how it's done.

## Birth of a Monster

The monstermaking starts with O'Neil, who, during the drawing of storyboards, works out technical and design issues around all effects sequences written into the script. Storyboards are broken down into effects shots and O'Neil discusses assignments with various effects staff, the director and producers. For lengthy effects sequences with 3D creatures, he'll fly to New Zealand, where *Hercules* is filmed, to check on the technical accuracy of background photo plates. These plates are eventually modemed from O'Neil's Hollywood office to the other team members so they can begin work.

Creature animation starts out small—with a plastic sculpture of each monster, built by Optic Nerve, a Los Angeles-based design company. Once the effects team has approved a model, it's sent to a service that, using a customized program, digitizes it straight into LightWave Modeler. From there, Conti adds some texture-mapping and incorporates lighting, Bone motion and elements that need to interact with the creature into the scene data produced by the 3D animators and himself. Before the rough CGI model has even been completed, Conti constructs a Bone model and modems it to the animators.

Once Conti has given Waller and Beswick background photography and a monster's armature skeleton, the latter two begin working on the animal's movement using Amiga 2000s, Toaster 2.0 or 3.0, and a beta version of LightWave PC. Their

Top: Rrraagghhhhh! In this scene from "Unchained Heart," the flesh-hungry pet of Ares prepares to feast on another hapless warrior. Like the next six creatures, the dog of War began as Bones animated by Waller and Beswick. Conti provided lighting, texture mapping and other elements.
Middle and Bottom: The Hydra in "Nemesis of Eolus" is a classic reminder of how the simplest effects are often the most dramatic. Essentially one long Bone chain, the monster twists and lunges at Hercules' friends, revealing a detailed head and lengthy torso, but no lower body. LightWave-generated fog served the dual purpose of preventing ground contact and enhancing the scene's eerieness.

Top to Bottom: In an effect reminiscent of the great fantasy films of the fifties and sixties, the Stymphalian swamp bird battles Hercules for a pair of helpless travellers. This sequence from "The Road to Calydon" was one of the crew's favorite—and most complicated—creations. The monster was designed by Waller.

goal: to make the creature move in a realistic fashion within the parameters of the background photography. The motionmakers' work is sent to Conti in a series of stages, to which he adds progressively complete environments, lighting, texture-mapping, and other elements. By the time the pair have completed their animation, Conti has nearly finished tweaking the creature and its surroundings. Once he's done, and after a final render on his two DEC Alpha machines, it's off to O'Neil for approval.

Seems overwhelming. The key to pulling off this maze of interactions, says Conti, is careful planning. "[Using] every step of the way to solve multiple problems simultaneously...lets us squeeze out as much as we can in the limited time amount."

## Building Better Backdrops

While the 3D team is completing monsters, Kutchaver is producing a variety of 2D animation, matte painting and compositing. The artist's work, done mostly on Power Macs, often involves scene extensions, or virtual sets: landscape, buildings and other elements are added to the landscape to make it more interesting or better fit a particular scene. For example, in a scene from the episode "Gladiator" (top and middle of page 43), the script called for several boxes of people cheering above two fighters. "Even if they had money in the budget for that, due to time constraints, they would have been lucky to build cardboard stuff," explains Kutchaver. The solution? A real box is filmed with separate groups of extras inside. Multiple booths are assembled in LightWave and textured in Photoshop, then filled with images of people that have been reduced and mapped onto polygons to match the viewer's perspective. In the final image, only the bottom third remains live action.

The effect that won Kutchaver his job is the centaurs from the episode "As Darkness Falls" (bottom of page 44), written in at the request of Executive Producer Rob Tapert. "After studio executives read the script for the show, they were sure there would be tombstone at the end of the series with 'Centaur' on it," says Kutchaver. O'Neil and Kutchaver pulled it off by using a Macintosh and After Effects to combine footage of live horses with coordinated shots of an appliance-bearing actor on a blue-screen stage. "There are a couple shots I still stare at and think, 'Man, I hope I never see this walking down an alley.' It's pretty freaky."

## Divine Inspiration

At their best, *Hercules*' creature effects capture the spirit of Ray Harryhausen's most extraordinary monsters. So it's no surprise that the stop-motion genius behind such masterpieces as *Seventh Voyage of Sinbad* (1958) and *Jason and the Argonauts* (1963) is a major influence on the animators. In fact, several of them use classic illusions from films such as these as a standard for evaluating their digital marvels.

"[What makes animation good] is interaction between creatures and actors," claims Waller. "That just stems from the kind of effects I liked to see in the Harryhausen movies—whether it's cavemen battling dinosaurs...or a hero throwing a spear at a creature and the weapon actually going into the animated model."

Luckily for audiences, *Hercules*' 3D effects artists have had the opportunity to generate these kind of "interactive effects"

in several episodes. In "The Road to Calydon" (all images on page 42), for example, the pterodactyl-like bird—one of the staff's favorite effects—engages Hercules in true hand-to-claw combat. The demigod pummels the creature with a stone; its beak darts and pecks for his neck. When the hero drags the monster by a CGI tail, the bond between man and beast—actor and effect—is complete.

As is the studio's intent. "Our goal in *Hercules* was to create a world in which monsters and mythological creatures exist," said Executive Producer Rob Tapert. "Hopefully we're using them to enhance the world we've created and show they are an integral part of the society Herc lives in. So people do burn up in a flash and there are creatures here and there." Tapert stressed, however, that Hercules is predominantly an escapist fantasy with a simple moral.

Waller, for one, couldn't be happier about keeping the family emphasis. "I wish we could go to the movies again and see escapism films—films of adventure and fantasy—more than violent, drug culture, police and rape films. We're not doing any of that in *Hercules*. This show, though it's campy sometimes, is adventurous without being gory. The monsters are scary, yet they're not ripping people to shreds, and there's not a lot of blood." Effects like the Cyclops in "Eye of the Beholder" (bottom of this page) pummeling a man into the ground, for example, are often more comedic than repulsive: the victim drops like a spike rather than splatting.

## Keep Your Distance

The effects these artists are producing aren't the only groundbreaking element of their work. The very fact that the effects for a Hollywood television series are being produced on low-end platforms, by a team working from their homes, may seem a bit counterintuitive. Even extraordinary.

To the animators, it's a natural solution. "We sought to organize a group of individual artists who would work out of their own studios—a virtual effects facility without the overhead of a big building and such," said O'Neil. "It seemed to be the perfect way to do the series because [Universal] didn't have much money."

Through an assortment of increasingly accessible technology, information sharing is as easy as angering the gods. The many files the animators constantly exchange are sent mostly via America Online and modeming, and occasionally FedEx'd Exabyte 8mm tapes, one of which can hold an entire show. Rough sketches are usually faxed. For an artist like Waller, schooled in the traditions of stop-motion and cel animation, the leap to now commonplace digitalese is still a bit unsettling: "I feel like we're living science-fiction," he winces.

In that case, the fantasy is a good one. Distance—from both the studio and each other—has some tremendous advantages, says Conti. "The best thing about this show is that there is no committee. Because *Hercules* has distance, we're not constantly looked over and compromised. When we're allowed to do what we know is the right thing, the producers are highly rewarded, and I give a lot of credit to Rob Tapert, who doesn't get so involved. When there's [multiple visions], artists get frustrated. [I know] because I've done it. We spent three months early on in *seaQuest* trying to do one shot. Setting up an in-house facility like Amblin Imaging only works if produc-

Top and Middle: These two shots, from the episode "Gladiator," are an example of Kutchaver's virtual sets. An image of LightWave-created boxes becomes a crowded, elaborate arena once separately photographed groups of people are matted in and the bleachers blended with the live-action bottom third.
Bottom: The illusion of Salamoneus dangling from the hand of a Cyclops ("Eye of the Beholder") was produced by shooting the grimacing actor in front of a blue screen and compositing in the taut strip of material in After Effects.

Top: For this climactic scene from "The Vanishing Dead," Kutchaver's tripled the number of people, matted in their splashes, composited in the clouds and moon, and cloned background elements.
Middle: The illusion of Ares' electrical energy blast was created with a hand-drawn bolt, Photoshop, Elastic Reality and After Effects.
Bottom: The "impossible" rearing centaur from "As Darkness Falls."

ers know what they're doing. If they don't...you end up getting a schizophrenic product that's the producer's vision, not necessarily what's important to the story."

Besides saving the studio money, the use of mainly prosumer equipment on *Hercules* also allowed Conti to give digital newcomers Waller and Beswick their own fully equipped Toasters when they joined the show. "Because the system wasn't really that expensive, it seemed a great thing to just say: 'Here, Don, it's yours. The more you learn, the better you get at it, the better it's going to be for all of us.' And he just took off with it." Though the use of such accessible equipment does raise some occasional skepticism—there have been claims that the effects team secretly uses SGIs—Conti foresees an emerging trend.

## Words of an Oracle

"All of us make good salaries and have been given the freedom to work the way we want to work," said Conti. "This has never really happened before, and it's really just the tip of the iceberg. This will open up new channels for people to produce much more evolved work for less money. And producers now have other options for getting their work produced besides going to a big facility.

"We're starting a new trend in the way the world is going to be producing CGI and producing television shows and network TV-style stuff," Conti said. "It's evolved to the point where it's fairly difficult for me to imagine things we *can't* do. The tools are [all] there—it's just a matter of being creative enough to put them in the right order. Knowing when you need to use Photoshop, when you need to use Elastic Reality...and making sure you don't go against the grain of 3D. If I can do a creature the way I'm doing it—with the artistic freedom I have and the tools I'm using—there's probably very few things that can't be done in LightWave."

## Future Effects

Conti's philosophy, and the skills of the entire effects team, will definitely be put to the test in the coming season. According to Tapert, one of the effects goals is the creation of a CGI monster that is a true nemesis for Hercules. "We're going to do more talking CGI stuff that has personality. More humanlike creatures with goals besides just eating people." Use of mechanical models for close-up shots of 3D monsters will be phased out. A fire being, a person mounted on a centaur's back, and an eel monster lurking in an *Ali Babba and the Forty Thieves*-type environment are other effects either finished or being conceived.

Whatever the illusions, they're sure to leave audiences feeling they've just seen something *legendary*.

VTU


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# Enter the 1995 LightWave® Animation Contest

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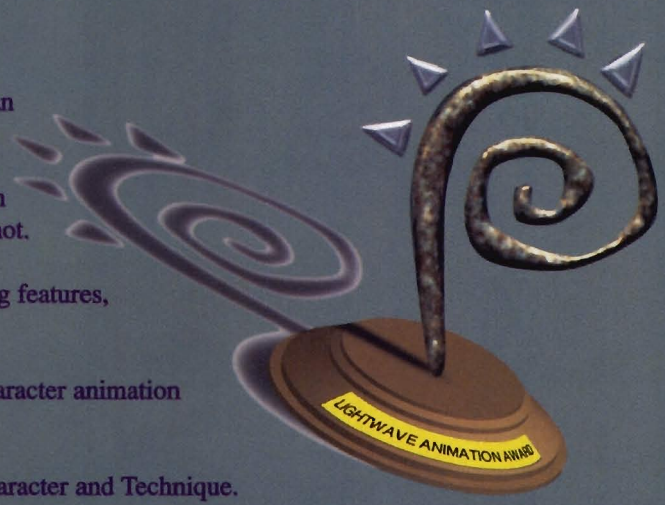
## Categories




1. **Logo Animations** – Show us your best logo animation from an actual commercial project or make up one of your own.
2. **Best Logo Still** – OK, so you and your client only had enough money for a still? No problem. Show us your best still logo shot.
3. **Best Compositing** – Using LightWave's powerful compositing features, create an animation mixing 3D graphics and video.
4. **Best Character Animation** – Enter your best examples of character animation to show off your skills in giving objects lifelike movement.
5. **Best Short Story** – Three things make a great film: Story, Character and Technique. Show us your best animated story.
6. **Funniest LightWave Animation** – Show us your most humorous use of LightWave 3D animation.
7. **Forensic and Legal Animations** – Send us your best accident re-creations and legal forensic animation.
8. **Best Use of LightWave in a TV Commercial** – Send us your LightWave 3D animation used in the promotion of a commercial product. It must have been broadcast on TV, cable satellite, etc. (Maximum length is 60 sec.)
9. **Best Youth Animation** – This award goes to the best overall animation submitted by an animator 16 years of age and under as of July 21, 1995.
10. **Best Organic Effects** – Send in your best fire, smoke, water, explosions or other organic effects in a LightWave 3D animation.
11. **Instructional/Educational** – Show us your best 3D animation for instructional or educational use.

Judges will select one winner from each of the above categories. Additionally, one "Best of Show" animation will be chosen from the eleven winners. Winners will receive the Wavey award and valuable prizes donated by *Video Toaster User* advertisers!

## The Rules

No purchase necessary. Avid Media Group and NewTek employees, relatives or representatives are not eligible to enter the contest. The primary animation program used for submitting animations must be LightWave 3D. All decisions of judges are final. Tape formats must be either Hi8, S-VHS or Betacam SP. Entries for each category must be on separate tapes and clearly marked. Tapes will not be returned unless accompanied by a postage-paid, self-addressed return package. All entrants agree that, by entering, they release their entry materials and will, upon request, provide a signed release in favor of Avid Media Group for all promotional and editorial use of these materials. **Entry deadline is July 21, 1995.** Entries must have been created after July 21, 1994.

Awards ceremony details (date, time and place) will be announced in the next issue of *Video Toaster User.*

Image of beached treasure chest and moored ship courtesy Dan Ablan © 1995

ILLUSTRATION BY DAVID SMITH

# Speed

## A Look at LightWave 3D Rendering Options

by Tim Doherty

In 1990, NewTek began shipping the Video Toaster, a revolutionary piece of Amiga computer hardware with a strange name and an unheard of price. Bundled with it was LightWave 3D, a new, state-of-the-art 3D animation and modeling program that quickly became one of the most popular software packages of its kind. LightWave's sexy interface, affordable price tag and great image quality all contributed to its success. It also had one of the fastest 3D rendering engines available on the desktop.

Today, of course, LightWave has proven so popular that it is has been separated from the Toaster, and has recently been released on a variety of other computer platforms. Currently in its fourth major revision, the program is blindingly fast compared to the first release. As it continues to push the limits of what can be achieved in software, many users find that their thirst for more speed must be quenched through hardware. There are now a host of rendering options available to LightWave animators. Spanning several different platforms, they vary in price from $600 to $15,000, and offer performance increases ranging from moderate to dramatic. I'll take a look at many of the accelerators and systems now available in this quickly evolving market.

### The Benchmarks

I used four LightWave scene files for my rendering tests. Each scene was rendered with two different levels of complexity, for a total of eight benchmark comparisons. The first set of tests was done on scenes that should be familiar to current LightWave users. These scenes are included with the software, and were selected so that users will have the means to gauge their own systems against the results I report here. Benchmark number one was frame one of the Textures Example scene. Antialiasing was set to low, and it was rendered in four segments. This frame is shown in Figure 1. Test number two was done on the same

# Speed

Figure 1

scene, with ray-traced reflections, refraction and shadows all turned on. On a stock Amiga 4000, activating these buttons roughly doubled the computing time, even though there was no visible difference in the rendered image.

Speed test number three, shown in Figure 2, was done on the Starfighter scene, frame 165, with low antialiasing and four segments. As with Textures Example, this scene was then re-rendered using ray-traced reflections, refraction and shadows.

Next, I loaded some of my own scenes. These are actual projects I've worked on, and represent real-world tests of how the different hardware configurations might improve rendering speeds during actual production. Benchmarks five and six were done on frame 36 of a logo I created for PBS station KOCE in Huntington Beach, Calif. Illustrated in Figure 3, this scene incorporates a lot of reflection, refraction and texture mapping. It was first rendered with shadow maps activated and low antialiasing. For test number six, I rendered the same scene again with all ray-tracing options turned on, along with field rendering. The glass objects had a refractive index of 1.5.

The last two benchmarks were done using a complex object, as shown in Figures 4 and 5. This galaxy is an actual 3D model, made up of more than 117 linked objects and heavily layered with transparency mapping and fractal noise. I rendered frame 1,000 of an 1,800-frame animation for the seventh benchmark. Antialiasing was turned off, as were all ray-tracing buttons. Finally, I rendered the same image with antialiasing set to low, but with no other options activated.

All Amiga 4000 tests were done using LightWave 3.5. The Windows tests were done with several different prerelease and beta versions of LightWave 4.0. It is possible that different versions of LightWave render at slightly different speeds.

Figure 2

## Amiga 4000 Accelerators

Every Amiga owner knows that the past year has been a turbulent one for their beloved computer. After languishing in bankruptcy courts, the machine at last appears to have emerged under new ownership. Despite the Amiga's rocky past and uncertain future, there is still a large and loyal user base. Some Amiga owners remain committed to their systems because of their financial investment, while others do so out of simple preference. After all, where else can you find an affordable, real-time, first-class video paint program like Alpha Paint? It is a testament to the Amiga's popularity that there are now more accelerators available for it than before Commodore filed for bankruptcy. I benchmarked three Amiga-based cards: a 50 MHz '040 Doubler 4000 from Sonnet Technologies, a 40MHz '040 Warp Engine from MacroSystem Development, and the new '060 Cyberstorm from phase 5 digital products.

Listing for just $599, Sonnet Technologies' Doubler 4000 is the least expensive option available to A4000 owners who crave greater productivity. Sonnet is an established name in the Macintosh community, and has transferred its low-cost technology to the Amiga market. The Doubler 4000 consists of a 50 MHz '040 seated on a small board that is not much larger than the chip itself. The Doubler board plugs into the CPU socket on the Amiga's CPU daughterboard. As the name implies, it doubles the Amiga's clock rate from 25 MHz to 50 MHz. However, don't expect a 200 percent performance boost. Unlike other, more expensive Amiga accelerators, the Doubler's frugal design does not allow RAM to be added to the CPU board. This results in a bottleneck between the memory and the processor. My speed tests demonstrated increases ranging from 10 to 50 percent, with an average improvement of 40 percent.

The Warp Engine has been my accelerator of choice for the 4000. Unlike the Doubler, which replaces only the 68040 chip itself, the Warp Engine replaces the entire CPU board. By housing burst memory expansion directly on its CPU card, the Warp Engine eliminates memory bottlenecks. My tests were done on a 40 MHz Warp Engine (list price:

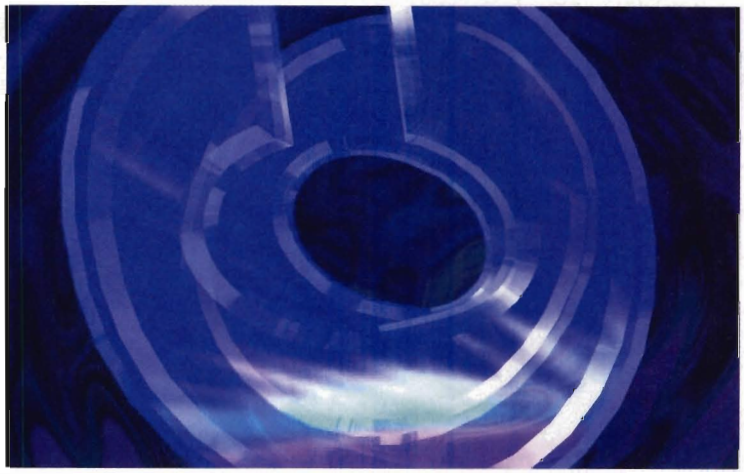


Figure 3

$1,495). As the results in the table below demonstrate, rendering speeds are consistently improved by an average of 2.7x over a stock Amiga. Modeling and Layout redraws are noticeably snappier. In addition, the Warp Engine boasts one of the fastest SCSI-II controllers on the market. Extensive use of this product has proven it to be rock solid and reliable.

Many users have been looking forward to the arrival of '060 acceleration with the expectation that the 68060 chip will allow Amiga LightWave users to catch up to the processing power of Pentium PCs. The Cyberstorm board is the first '060 card available. (MacroSystem reports that the Warp Engine is also '060-ready.)

Like the Warp Engine, the Cyberstorm board replaces the Amiga's CPU daughterboard, and also contains space for RAM expansion as part of the card. Though it still falls short of a Pentium 100 computer, my tests showed that the '060 is indeed the fastest way, so far, to accelerate the Amiga, with improvements greater than 500 percent in some cases. Though I was concerned that it might run too hot, I left the Cyberstorm on for days at a time, and the '060 remained reasonably cool. Suggested retail price of the Cyberstorm is $1,595.

# Windows Options

## The Pentium

The release of multi-platform versions of LightWave has given users a wide selection when shopping for a new system. The Pentium PC is clearly the most mainstream option available. As Pentium prices continue to plummet, fueled by cut-throat competition, it is also the most affordable.

LightWave can be run on the Pentium under either Windows or Windows NT. Windows NT is the more robust and refined of the two, and because it is a true 32-bit operating system—Windows is only 16-bit—it will garnish the best performance from LightWave. (Initial tests indicate that Windows 95 speeds will be close to those of the 16-bit version of Windows.) Be forewarned that NT requires a lot of overhead. The operating system itself consumes 12MB of RAM, so NT-based systems should have a minimum of 32MB; 48MB or 64MB is recommended. Scene files that require 10MB to load on an Amiga need well over 20MB on a Windows NT system. Many users investing in Pentiums may elect to run Windows initially, then upgrade to NT when their budgets allow.

My system is a 32MB Pentium 100. I installed and benchmarked LightWave under both Windows and Windows NT. NewTek's technical support team was very helpful in sending me replacement device files for LightWave's dongle when I discovered my install disk had an error on it. As a Win32 application, LightWave averaged a 7.9x increase over a 4000. Under NT, it improved to 8.6x. Considering the low cost of Pentium PCs, many users will find Pentiums an attractive choice.

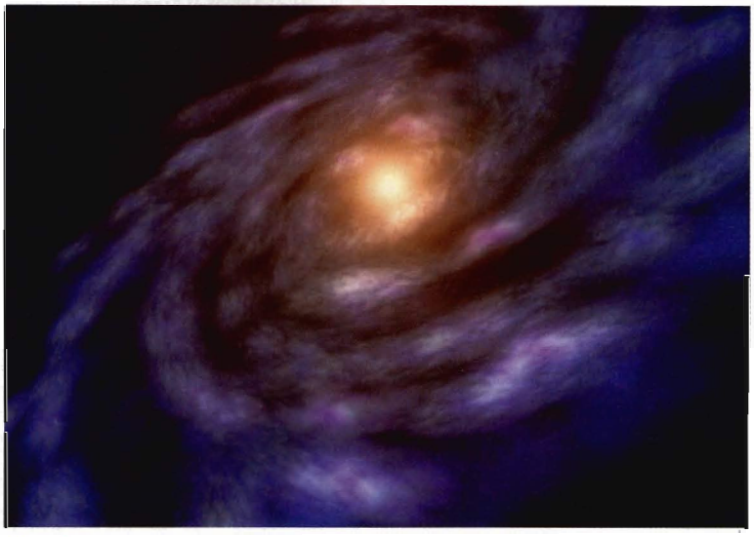


Figure 4

Figure 5

# Speed

## The aNimaTor Booster

ShaBLAMM!'s aNimaTor Booster is unique among the Windows NT systems I tested. A card that plugs into the VESA VL-Bus of a 25 MHz 486 or better, the aNimaTor Booster has a R4600 (or R4700) RISC processor and a whopping 32MB of cache ram. I benchmarked the 100 MHz version; 133 MHz and 150 MHz boards are also available. This was the only MIPS-based device I tested.

I was surprised by the aNimaTor Booster's speed. It was 10x faster than an Amiga 4000, and even outperformed the 166 MHz Alpha computers. The aNimaTor Booster's speed is achieved by its interleaved architecture and high-speed DRAM, which delivers zero wait states to the RISC processor, effectively giving you 32MB of cache RAM. My only disappointment with the ShaBLAMM! card was the sluggish response I got from Layout and Modeler. Previews would not play back at 30fps. Tech support advised me that this appeared to be a defect with the OpenGL card in my test system, and that Layout/Modeler functions are normally very crisp. Internet reports suggest this to be the case, though I was unable to replace the display board in time for this article. The aNimaTor Booster starts at $3,045, including 32MB of RAM and Windows NT.

## The Alphas

Digital Equipment Corporation manufactures the Alpha family of RISC CPUs. DEC is presently on the cutting edge of processor technology, and is likely to remain there for some time. The fastest processors in the world, DEC Alphas have been embraced by LightWave users. There are currently several different Alpha chips available, clocking from 166 MHz to a staggering 300 MHz. Alpha-equipped computers are Windows NT-based, and though they will run most regular Windows software, only programs that are compiled specifically for the Alpha (referred to as Alpha-native) will realize the true speed of the CPU. Computers based on the Alpha chip are produced by a number of different companies. It was not possible for me to test machines from every vendor. I benchmarked three units: the 166 MHz Teraclipse from Bushey Virtual Construction, the 233 MHz LC Power Toaster from NekoTech, and the 275 MHz Cobra from Carrera Computers. A complete list of Alpha manufacturers is summarized in Table 2. Prospective customers would be advised to investigate current prices, configurations, models and service programs from the companies listed before making a final decision. Please note that RAM prices fluctuate daily, and the system prices suggested in this article will vary accordingly.

The Teraclipse from Bushey Virtual Construction (BVC) was voted one of the top 20 hot products at NAB '95 by *VTU*. Listing at $3,995, the Teraclipse tower computer is equipped with a 166 MHz 21066 Alpha CPU. It comes stock with 16MB of RAM; 256K secondary cache; a 64-bit, 2MB Diamond Stealth PCI card; SCSI-II and IDE controllers; a removable 540 med IDE drive; a 4x SCSI CD-ROM drive; a 17-inch flat-screen, low-radiation monitor; and Windows NT. At this price, the system compares favorably with Pentiums, but offers true 64-bit RISC processing. For about $600, an optional upgrade will soon be available to a 233 MHz processor with 1MB of cache. Teraclipse customers receive a subscription to BVC's *Alpha Computing*, a slick mini-magazine showcasing new Alpha-compatible hardware and software. Overall, the Teraclipse averaged a 920 percent improvement over an Amiga 4000.

NekoTech's Mach I-233 MHz Power Toaster pushes the rendering envelope even higher. The company's 233 MHz Alpha system was generally 11.5x the speed of a stock 4000. Listing at $4,599, the LC Power Toaster is a desktop unit with 256K cache stock, 32MB of memory, a 1GB IDE

continued on page 60

| | Amiga | | | | Windows NT | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scene | 4000 25MHz | Doubler 50MHz | Warp 40MHz | Cyberstorm '060 | Pentium Win32 | Pentium NT | ShaBLAMM! 100 | Teraclipse 166 | LC Power I-233 | Cobra 275 | Raptor 266 |
| Textures 1 | 15m 6s | 10m 54s<br>1.4x | 5m 35s<br>2.7x | 2m 55s<br>5.2x | 2m 28s<br>6.1x | 1m 52s<br>8.1x | 1m 18s<br>11.6x | 1m 45s<br>8.6x | 1m 24s<br>10.8x | 43s<br>21x | 17s<br>53.3x |
| Textures 2 +Raytracing | 31m 21s | 20m 23s<br>1.5x | 11m 37s<br>2.7x | 8m 27s<br>3.7x | 3m 59s<br>7.8x | 3m 28s<br>9.0x | 2m 38s<br>11.9x | 2m 41s<br>11.7x | 2m 21s<br>13.3x | 1m 10s<br>26.9x | 33s<br>57x |
| Starfighter 1 | 4m 28s | 3m 50s<br>1.2x | 1m 39s<br>2.7x | 1m 0s<br>4.5x | 49s<br>5.5x | 34s<br>7.9x | 29s<br>9.2x | 51s<br>5.3x | 38s<br>7.1x | 18s<br>14.9x | 7s<br>38.3x |
| Starfighter 2 +Raytracing | 13m 37s | 9m 32s<br>1.4x | 5m 3s<br>2.7x | 4m 38s<br>2.9x | 1m 33s<br>8.8x | 1m 31s<br>9.0x | 1m 15s<br>10.9x | 1m 20s<br>10.2x | 1m 6s<br>12.4x | 34s<br>24x | 17s<br>48x |
| KOCE 1 | 46m 7s | 40m 13s<br>1.1x | 19m 13s<br>2.4x | 9m 56s<br>4.6x | 5m 4s<br>8.1x | 4m 40s<br>9.9x | 5m 26s<br>8.5x | 6m 27s<br>13.4x | 6m 18s<br>7.3x | 2m 41s<br>17.2x | 1m 6s<br>42x |
| KOCE 2 +Raytracing | 4hr 53m 11s | 3hr 23m<br>1.4x | 1hr 52m 45s<br>2.6x | 3hr 9m 25s<br>1.5x | 26m 30s<br>11.1x | 29m 50s<br>9.8x | 27m 30s<br>10.7x | Data<br>Unavailable | 25m 59s<br>11.3x | 12m 52s<br>22.8x | 7m 10s<br>41x |
| Galaxy no AA | 1hr 19m | 55m 4s<br>1.4x | 29m 15s<br>2.7x | 18m 29s<br>4.2x | Data<br>Unavailable | 10m 17s<br>7.7x | 7m 57s<br>9.9x | 10m<br>7.9x | 8m 16s<br>9.6x | 3m 41s<br>21.5x | 1m 55s<br>41.2x |
| Galaxy with AA | 3hr 24m 27s | 2hr 18m<br>1.5x | 1hr 8m 9s<br>3x | 46m 15s<br>4.4x | Data<br>Unavailable | 26m 59s<br>7.6x | 21m 20s<br>9.6x | 28m 46s<br>7.1x | 23m 40s<br>8.6x | 10m 10s<br>20.1x | 5m 22s<br>38.1x |
| Averages | — | 1.4x | 2.7x | 3.1x | 7.4x | 8.6x | 10.3x | 9.2x | 11.5x | 21.1x | 44.9x |

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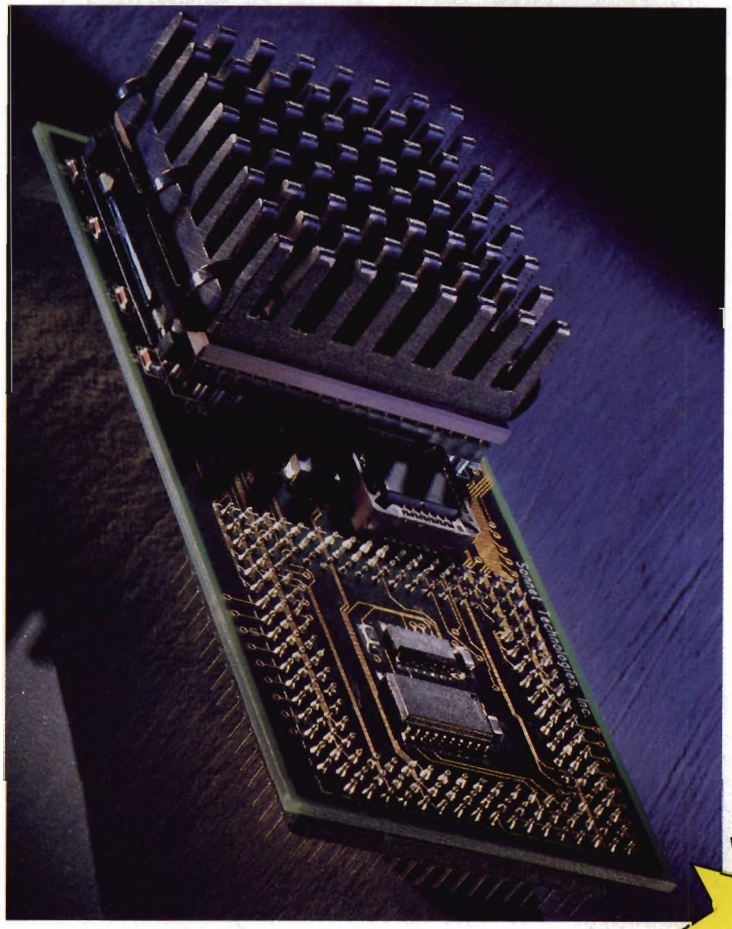

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FOR INFORMATION CIRCLE 125

# LIGHTWAVE EXTRAS

by Dan Ablan

With one of the most powerful 3D packages available, LightWave 3D gives you the power to create just about anything. But as the technology constantly matures, you, as an animator, whether beginner or seasoned professional, must mature as well. Since the Video Toaster's debut, third-party developers have been releasing software and hardware add-ons to enhance the desktop video environment. In addition, as LightWave has grown to its enormous popularity, it, too, has spawned a number of third-party products available as add-ons. These products make life much simpler for any animator, allowing LightWave to perform normally complex functions at the push of a button. Functions that would take the animator 10 times as long to set up manually.

# Tuning Up Your Animations With Powerful Add-Ons

Three-dimensional add-ons should be easy to use, intuitive and affordable. LightWave's interface is so intuitive that many longtime professional animators have preferred it over systems costing $50,000 or more. Now, with the help of third-party developers, LightWave's power to create is enhanced with affordable, and much-needed, software.

## Hollywood FX Professional

The first program in this review is Hollywood FX Professional, from Synergy International. Hollywood FX generates 3D effects using LightWave as a rendering engine. The benefit is that prior animation knowledge is not needed to use this software. In addition, you can use Hollywood FX as a "LightWave Manager," allowing you to

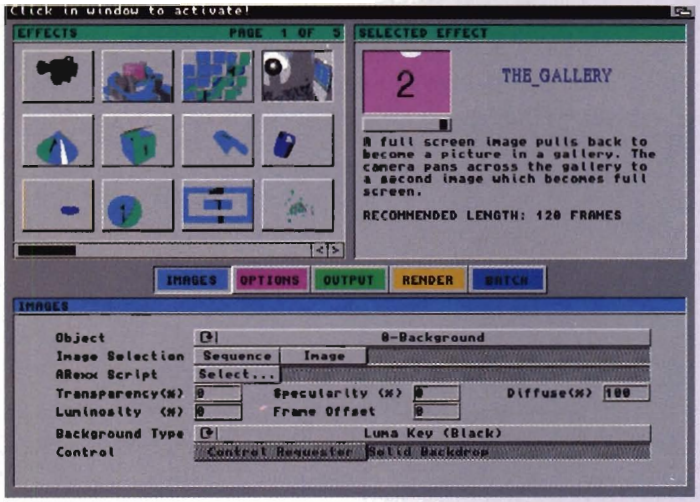



Figure 1: The Hollywood FX interface, colorful and friendly

set up batches of scenes to be rendered, as well as Hollywood FX effects. It also provides post-processing control of rendered images using ARexx scripts. The program includes scripts for post-processing using Art Department Professional and ImageMaster R/t.

When loading Hollywood FX, you'll notice a very pleasant-looking, colorful interface (Figure 1). In the upper-right side of the screen, a window shows the full motion of the selected effect so previewing the motion path and timing can be accomplished without rendering. Each effect may have one or more images, including the background, which can be replaced (mapped) with your own images or sequence of images. One feature I found particularly useful was the ability to import animation sequences from a Personal Animation Recorder. Hollywood FX can output files as RGB images, framestores and Amiga 4000 animations. Working in the Hollywood FX environment is simple and efficient. There is control over rendering options, color and even object attributes. You can change the transparency, luminosity and specular reflection of objects in your effects. Under the Options panel, you can control the antialiasing, shadows, blur, and so on.

From start to finish, I was able to go through a tutorial and render out an effect in less than 15 minutes. The tutorials are short and well-thought-out. Within a few minutes, it was easy to understand how the entire program functions. What's great about the way it is set up is that you click on buttons in the order that you need them. There's no trouble locating buttons or sliders and no difficulty understanding values. If you are already familiar with LightWave, using Hollywood FX is even easier.

Another good option with this product is the ability to change the rendered resolutions. I've seen quite a few effects packages and pre-made wipes for the Toaster, and most of them were created in low resolution. With Hollywood FX, you can render out effects in any resolution. The only downfall is the time it takes to render the effect, but that can vary depending on your resolutions and amount of frames. For Toaster users who want to use LightWave to create new and different effects, Hollywood FX is the program to have.

## MetroGrafx Animation and Software

Jon Tindall has come up with what I think are some of the best utilities for LightWave users, both beginner and experienced. I'll cover the latest version of Sparks, Motion Master volumes I and II, and a new product called Fiber-Factory.

Sparks has come a long way since its original version and is a long-awaited addition to LightWave. This procedural animation program allows the user to animate complex movements of particles and models. The first time I tried Sparks, about a year and a half ago, it was difficult to use. I found that I spent more time calculating and figuring than I did animating. With the latest version, I was able to complete a couple of tutorials in no time at all. The manual has improved greatly, and the program runs faster. The manual presents a detailed explanation of particles, procedural animation and how Sparks works. The interface hasn't changed too much from the original software, but is easy to use. At times, finding a button according to the tutorial wasn't easy, but once it was located, the program worked very well.

The interface is modest, and doesn't even take up a full screen. Sparks allows you to replace single-point polygons with objects. So, let's say you want a basket of apples to fall and spill over. To keyframe each of the apples would be nearly impossible. Using Sparks, it's very simple. By set-

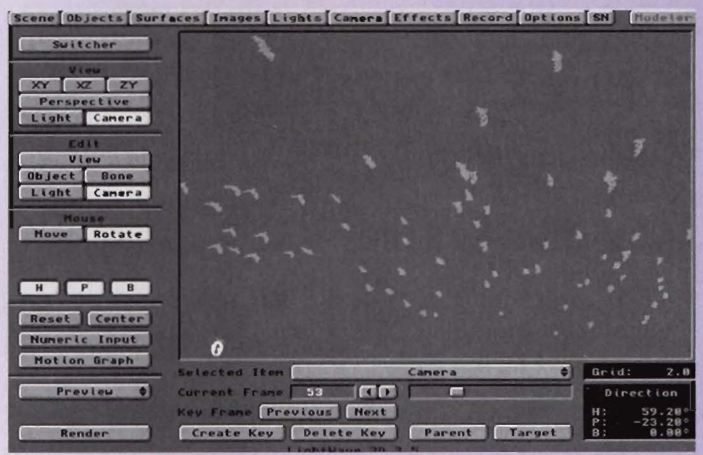



Figure 2: Creating swarming bats is easy with Sparks.

ting the amount of objects, their start positions, which way they will fall, and so on, you can set up a pretty realistic motion in very little time.

Sparks is great because it allows the LightWave user to create particle and procedural animation similar to that of systems costing thousands more. Once mastered and used in conjunction with your existing animation files, Sparks can really help you do some creative things.

## Putting It in Motion

Once you use Motion Master volumes I and II, you'll wonder how you got along without them. These two packages help generate complex motion paths that would normally make you pull your hair out. Volume I has four programs within it. *Time Machine* can really keep you out of the insane asylum if you have to set up a character that is speaking. It is a time line editing program for managing LightWave morphs. If you wanted to have a character speak and lip-synced to existing audio, you would certainly have your work cut out for you. Normally, you would set up multiple morphs to different mouth and/or lip positions over the proper amount of time. *Time Machine* allows you to easily call up the objects you need and set a graph syncing sound events to your animations. *Extract Audio* is another interesting program. It reads amplitude data from audio samples and applies it to an envelope or any channel of a motion file. What this means is, you can read a speech sample and output an envelope to morph from a closed mouth to an open mouth. Or how about when you animate your version of a 1979 discotheque? Sample the audio from *Saturday Night Fever* and have the lights in the animated disco flash to the beat. The third program in Motion Master volume I is *PathFlock*, which creates behavioral flocking scenes. The flock members—birds, for instance—are attracted to a target object's motion file. Chaos factor makes individual bird's flight paths more erratic, and you can set the speed while avoiding collisions. Finally, there's *Mouse Recorder*, a kind of "scratch pad" for setting envelopes or motion files. Grab your mouse, move it up and down, and there you go, a motion file. This is great for random light flares, crazy jumping beans, or whatever else you can think of.

Motion Master volume II is just as effective as volume I. This set also comes with four programs, and works directly with LightWave. First, there's *Child2World*, which really could have helped me on a recent project. *Child2World* allows you to unparent an object from its hierarchy. It is a coordinate frame transfer. In other words, the object, once unparented, will follow the same path as the parented object, and have its rotation preserved. If you had a character dancing around on a stage, holding a top hat in one hand and a cane in the other, the cane should be parented to the hand. The hand would move with the character and the cane would follow as if being held. But what if you wanted the character to throw the cane off stage? The cane would still be parented to the hand and it would be difficult for it to fly off the stage in a straight path. With *Child2World*, this problem is solved. It's great for dropped or thrown objects. Next, there's one of my favorites, *Wobbler*. This program was expressly designed to create springy motions that can be applied to an object or a Bone. When applied to a Bone, the effect is that of a springy lattice. It's perfect for blobby-type objects, like Jell-O. I applied it to the head of a character, and when he walked, his head would bobble. If you wanted a big Santa Claus to laugh, you could use *Wobbler* to shake his belly. *PointAt*, another program included in Motion Master II, simply gives you the ability to parent objects to other objects. Examples of this include eyes following a bee (Figure 3) or a gun following a target. Last but not least is *VolumeCube*. This program can animate multiple objects automatically. Each object is contained within its own bounding box. The objects can bounce around within their volume with curving or straight paths. VolumeCube is great for swarming objects or orderly objects that need to be moving independently within a group.

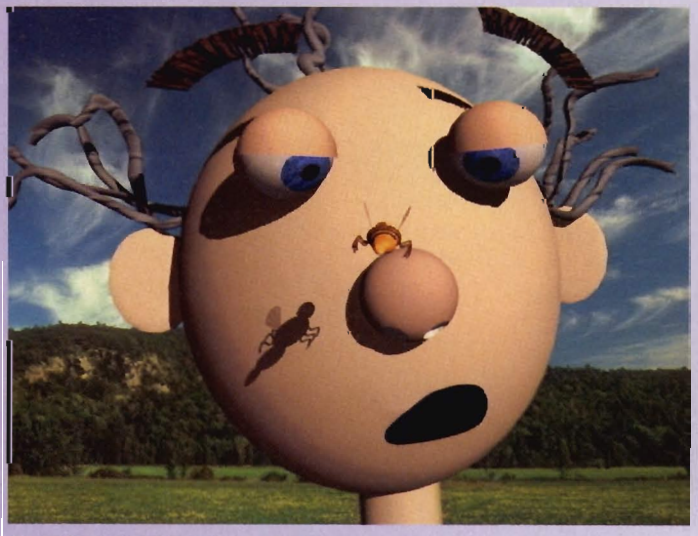


Figure 3: Motion Master's Point-At feature lets you target objects to other objects. This character's eyes are parented to the bee in front of him

This teddy bear illustrates one of FiberFactory's many possibilities.

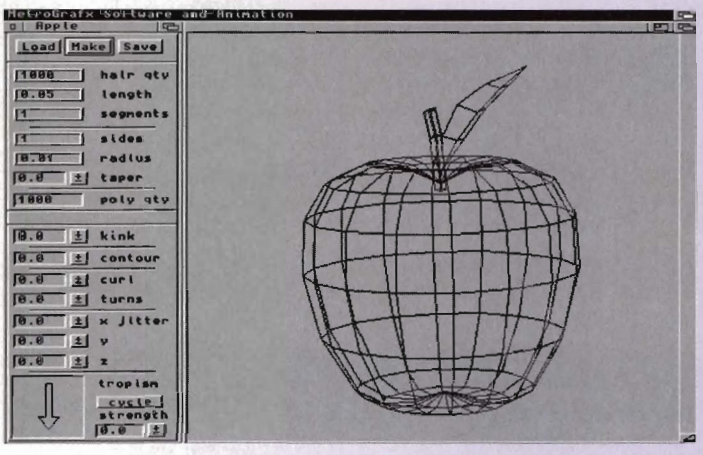



Figure 4: FiberFactory's easy-to-use visual interface

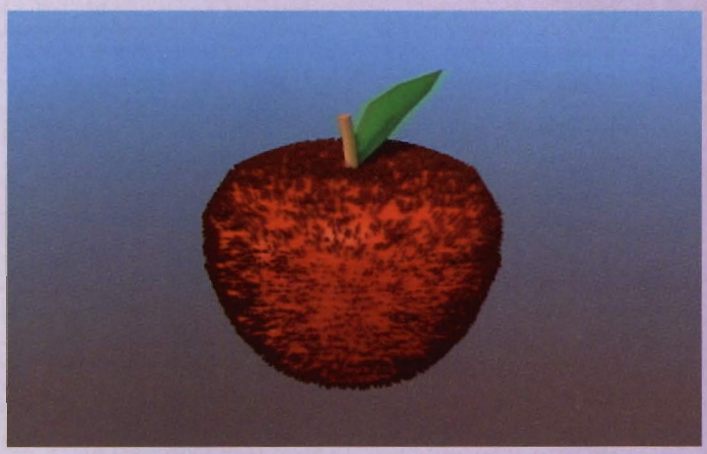


Figure 5: One of the many LightWave objects you can create using FiberFactory

The Motion Master series is not only affordable, but a great timesaver. I certainly hope to see more entries in the future.

The newest of the programs from MetroGrafx is *FiberFactory*. Just before I learned about this product I saw an ad for one of the most popular high-end 3D products, promoting a hair maker. I also saw the price. Enter FiberFactory and LightWave. This program, out of all the others in this review, was the easiest to use. As a matter of fact, it doesn't even ship with a manual, just an on-line help button. It's that simple. The results were immediate, and I saw what was happening within the program's interface. Figure 4 shows FiberFactory's workscreen. Just take any object, bring it into FiberFactory and apply hair to it. You have full control over kinkiness, curls, jitter, contour, length, number of segments in each strand, or the number of sides to each strand, if you choose to make thicker hair. It will surface the final polygons that it creates, naming them "hairy," of course. So, take your favorite human head and put hair all over it. From there, you can apply displacement maps, and surface it like you would any other LightWave surface. One thing to remember with this program is to bring in only the surface you want to create hair for. The image in Figure 5 was made in approximately two minutes. I simply took the Toaster apple and selected the skin in Modeler. That piece was brought into FiberFactory and hair was generated. Then, all that was left was to load the hair into LightWave with the original apple, and voilà, a fuzzy snack. LightWave users who want the most for their money should get FiberFactory. It's one of the coolest things I've seen in a long time.

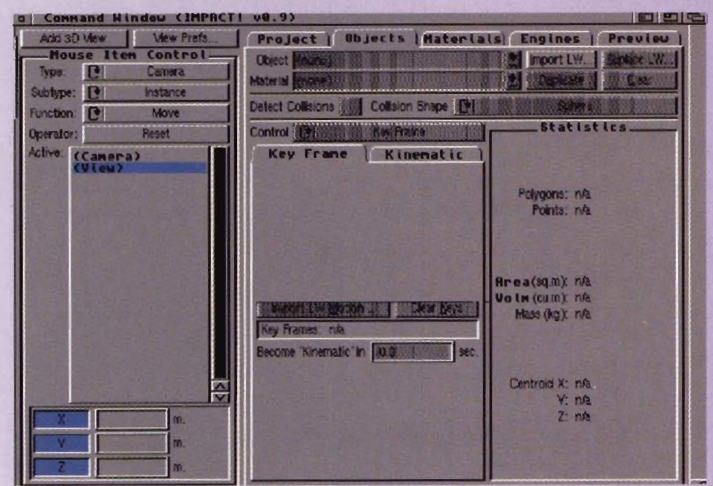
## IMPACT!

This is certainly a long-awaited program. There have been other physics modules for LightWave, yet, from what I've seen so far, IMPACT! looks like it is the forerunner in physics utilities. It lets you create realistic motion using the laws of physics to govern the way your objects move. Objects can be made of different materials that define certain attributes about them, such as how they bounce, how rough they are, and how dense the material is. In addition, there are premade materials supplied with IMPACT! Items such as volume, mass, center of mass and inertia are calculated automatically depending on the object shape. These values can also be varied over time. IMPACT!'s interface is well-laid-out and customizable. You have the ability to make a wireframe preview for any open view, and you can load, move, rotate and stretch objects.

One of the coolest things, about IMPACT! is the collision detection. The simple tests I ran showed pretty accurate results. This program will let you select different collision shapes for each object, such as a box, sphere or arbitrary. For instance, if you have many objects in your scene (most of them balls), selecting sphere for the shape would cut the simulation time down drastically in IMPACT!. I look at these as bounding boxes for working in IMPACT!. It's a really handy feature, especially if you've got a big scene or are low on processing power. Another nice feature is the on-line help. By positioning the mouse over the questioned area and pushing the help button, a brief description of that area will appear.

Unfortunately, you can't see just how cool this program is without using it yourself. To really witness its magic, you'll need to watch it generate a motion for an animation. IMPACT!'s learning curve isn't too bad, thanks primarily to the LightWave-looking interface. The understanding curve is very easy, thanks to a comprehensive manual with very clear explanations. At press time, version 0.9 was in release, and I'm anxiously awaiting the 1.0 and future versions.

continued on page 86




The Objects panel from IMPACT!'s intuitive interface

# QuickText

by Matt Drabick

Tahoe Software's QuickText is a brand-new titling program for the Amiga. Deceptively simple, QuickText is a basic but very useful character generator suitable for cable TV, video post-production, simple multimedia presentations or electronic bulletin systems. Besides keying text over video from a camera or VCR and adding text to IFF images and animations, the program provides a real-time "doodler" for writing onto the screen, perfect for sporting events, classroom or business presentations, and more.

QuickText can be installed onto a hard drive or run from the single floppy disk the program is shipped on. A genlock (Toaster, SuperGenSX, etc.) is required for keying text over video. While QuickText can use the Toaster as a genlock, it's strictly an Amiga product with no direct interaction with the Toaster's Switcher. No fonts are shipped with the program, but standard Amiga fonts, including outline fonts, can be used. Color fonts, however, are not supported.

QuickText works with ECS and AGA chipset Amiga display modes up to 256 register-based colors at 320x200 to 640x400 pixels resolution, plus 4,096 colors or HAM mode. Though the program doesn't generate its own backgrounds, normal and overscanned IFF images and animations—including HAM8 files created with an Amiga paint program (DPaint, AGA, Brilliance, etc.)—can be loaded, displayed and have text added to them. When loading an overscanned image, the program provides an overscanned display, essential for video applications.

Using QuickText is simple. After loading an IFF image or ANIM-5 animation as the background or using a clear screen (color 0) to key text over video from a camera or VCR, the user selects the font and font size to be used. Text attributes include bold, italic, shadow and underline. The face of the text can be one color while the outline, shadow and underline can be a second, user-defined color. RGB sliders are included with the palette controls for creating various shades of color. Color cycling and scrolling of text are supported. Text is manually placed on the screen, with an option for each line of text to always use the same lefthand margin.

Once a series of text screens have been created as part of a script, individual screens can be deleted, added, cleared or shuffled around to change their playback order. Transitions include cut, fade in/out, slideup and cover, scroll up, scroll down, and fall and bounce. The display time for each screen between transitions can be defined in seconds. Once the script is completed, screens can be automatically played back in sequence or triggered by the arrow keys. A specific screen can be randomly displayed by typing in its page number.

Nice touches include the on-screen doodler and timer. The doodler lets the user draw anywhere on the screen in real-time using the current foreground color, helpful for drawing player patterns during a football game or highlighting part of a graphic during a classroom presentation. Because the doodler has a record function, the drawing motion can be saved and repeated. The on-screen timer counts up from zero or down from any user-defined setting of hours, minutes and seconds.

Finally, the Workbench screen can be turned off to save memory. The mouse pointer and control panel can also be turned off, important when displaying or recording CG screens. Keyboard commands are supplied for many of QuickText's functions. While no audio support is provided, the ARexx port can be used for triggering sound samples. An on-line help guide contains the contents of the printed manual. And a freely distributable player version of the software is included, useful for saving scripts on a floppy disk or hard drive and playing them back on different machines.

According to Tahoe Software, a professional version of QuickText is under development. Planned improvements include additional screen transitions; the ability to load and title IFF brushes for creating backgrounds and manually placing brushes anywhere on the screen; automatic text justification (left, right and center screen); modem support for remotely updating presentations; and programmable timeslots for displaying specific screens at designated times during the day. This version will sell for $119.

**FOR INFORMATION CIRCLE 59**

## QuickText

**Price:** $59.95

**Product type:** Titling Software

**Minimum system:** Workbench 1.2 or higher and .5MB of RAM

**Recommended system:** At least 1MB of RAM

**Company**
Tahoe Software, Etc.
P.O. Box 9236
South Lake Tahoe, CA 96158
(800) 939-4919

# Amiga Desktop Video CD

by Daniel Barrett

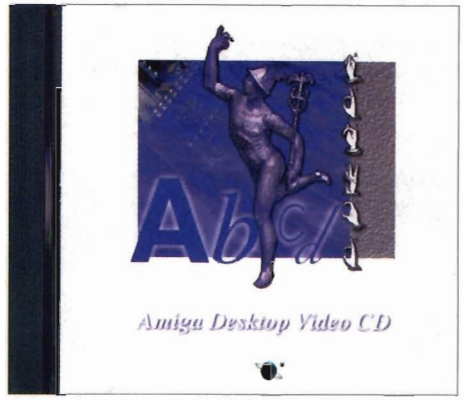
What a great idea: a CD-ROM dedicated to desktop video! Almathera's Amiga Desktop Video CD is stuffed with enough useful images, fonts, and software (634MB to be exact) to make any videographer happy. Most of the files have been collected from the world of Amiga freeware and shareware. Unlike other "compilation" discs, howev-

er, the files are installed and ready to run, not archived. Some of the files are not freely distributable, which means that you can use them in your video productions but cannot redistribute them on disk.

## Images? We Got Images!

The images on the video CD are separated into clip art and background textures. The clip art is all black and white, but if that's what you need, then this disc is an absolute gold mine. Whether you need animals, arrows, road signs, fancy border imagery, Christmas symbols or familiar logos, you'll find bunches of them on this CD. In addition, there are some lovely, highly detailed drawings of old-fashioned objects and scenes. Two viewing programs—Mostra and ViewTek—are provided for browsing the images. To make this process quicker, several files full of thumbnail-sized images are included.

The background textures each appear in five versions: 16-, 64- and 256-color IFF, 24-bit JPEG, and VideoCreator formats. You'll find not only the usual nature scenes (both digitized and computer-generated), man-made materials, abstract patterns and gradient fills, but also the flags of various nations, foods, and computer parts and circuitry. Again, image viewers are provided. The quality of the images varies from excellent to downright awful. I was surprised at how




grainy the 24-bit food and nature pictures look. On the other hand, some of the computer-generated images are quite nice.

## Full of Fonts

Approximately 350 different fonts are included on the disc, most of them large enough for video titling. The first 100 are Amiga bitmap fonts, and better quality than the other freeware fonts I have collected over the years. The remaining 250 are color fonts, and all I can say is, WOW! Some of them are absolutely gorgeous, particularly those in the "TrueColorFonts" drawer. Shiny metal, bright flame and raytraced spheres are just some of the alphabetic images that greet your eyes in full antialiased glory. A large number of the "color" fonts are converted from PostScript in eight shades of gray for smooth curves.

IFF images of each color font are supplied for easy previewing, but with only one font per file, it takes a long time to browse through them. Almathera provides an "All" icon that displays a slideshow of all font images in a drawer, but it would have been better to have IFF files with multiple fonts in them. I also was unable to figure out how to exit the slideshow correctly. None of the obvious keystrokes had any effect, except for (Ctrl+C), which caused the program to hang.

Many font drawers have a convenient icon for quickly reassigning FONTS: to that drawer. Unfortunately, the analogous "Restore" icon blindly reassigns FONTS: to SYS:Fonts, which may not be the way you had things set up originally. A better system would have been for the icons to use "Assign add" and "Assign remove" to modify the FONTS: assignment.

## Powerful Programs

In addition to images and fonts, the DTV CD also contains plenty of software. There are seven programs for generating Mandelbrots and other image types, six video titlers, two video timers, two videotape databases, and a lot of animation, 3D modeling and image-conversion utilities. Since these are all freeware or shareware programs, you could collect them all yourself for free, but it is awfully handy to have them in one place.

## The Presentation

The disc has a consistent look and feel, with README files in every drawer. Documentation is rather skimpy, though the writer's humor cracked me up a few times. An especially nice touch is that the disc includes two handy utilities for overcoming the read-only nature of CD-ROMs. ForeIcon lets you change the location of the CD-ROM icon on the Workbench when you insert the disc, and ToolAlias lets you permanently replace the default tools of the icons.

Overall, this product is worthwhile to own if you are interested in desktop video. Apart from some mediocre background textures, the material is of high quality and very practical.

**FOR INFORMATION CIRCLE 60**

### Amiga Desktop Video CD

**Price:** $19.95
**Product type:** Video CD
**Minimum system:** CD-ROM drive, 512K RAM, AmigaDOS 1.3 or later
**Recommended system:** Graphics card, 2+MB RAM, hard drive, accelerator
**Company**
Almathera
Boundary Business Court
92-94 Church Rd.
Mitcham, Surrey
CR4 3TD, England
+44 (0181) 687-0040

# VisualFX Volumes I and II

by R. Shamms Mortier

Aren't the effects contained in NewTek's Video Toaster neat? You can easily segue between images or video with any number of animated graphics bridges. But what about the producer who needs to incorporate a Switcherlike 3D effect "inside" of a stored animation, perhaps in an on-screen slide show? That becomes more difficult as the needs of the producer range from simple fades and wipes to more complex 3D segues. Enter the creative minds at Visual Inspirations in Tampa, Fla.

When a Toaster user thinks "3D," the obvious source is LightWave— the

environment best accessed for creating 3D image segues. The 3D segues contained in the Toaster's Switcher banks were originally painstakingly designed in LightWave by the NewTek team. VisualFX uses this same environment as the target of a series of onboard scripts to generate dozens of pre-formatted animated 3D segues between user-selected images. That's the short of it. Now for a more detailed walk-through.

All of the VFX scripts and previews come on CD, though those without CD-ROM drives can also request the VFX material on disks: three disks for grayscale previews and seven disks for the AGA version. The volume two set may not have the disk alternative because of the sheer size of the files. Besides, nobody should be without a CD-ROM reader these days. You can choose to either run the software from the CD or dump it to your hard drive.

Whether you're running an AGA Amiga or not will determine the depth of the VFX previews. AGA users can select to see these mini-sample animations running in full 256-color mode, while other users will have to settle for either standard HAM or grayscale. Personally, I find the grayscale animations suitable for checking out the animation script.

There is a five-step process involved in actually generating a VFX animation. First, your rendered RGB images should be set aside for incorporation into the animation scripts. You should have as many images ready as a particular script will call for, usually from two to four. Secondly, access the "Load New Volume" button to load a bank of VFX effects scripts and their associated previews. A bank of VFX effects consists of 20 separate effects per volume.

Next comes my favorite part. By either double-clicking on one of the frames that represents an animation or clicking just once and selecting the "Preview Effect" button, a sample of the complete animation plays in a loop at the bottom of the VFX interface. Be warned that watching the previews is very addictive, especially since they are loaded with sample images that are not only appropriate for the effect, but at times very funny. Currently there are two VFX CD volumes, each with its own bank of 20 separate effects animations. Just by hearing the titles of the effects, you should be able to visualize some of the results. Volume one contains the following: Shrink-Flip-Expand, Shrink-Twirl-Expand, X and Y Fallback-Flip-Expand, Video Cube X and Y rotates, Cylinder Morph Enter and Exit, Quad Scramble, Vertical and Horizontal Flippin' Flaps, Ball Bounce In and Out, Page Peel, Implode to Sphere, Enter and Exit the Tunnel, Flippin' Rings, Flip and Spin Rings, and Expanding Flip Flaps. Volume two adds the following animated segues: Industrial Frame 1 and 2, Curtain Pull and Rise, Ripple Fly Away 1 and 2 and Fade, Remote Control, Shatter Back Together, Balloons, TV Pullback, Stage Hook Pull, Crawl Away, Corner Roll Off, Shatter Apart, Doors, Flap Away, and two Fly Outs. Oops! I almost forgot the strangest one—Hot Peppers. Toaster users, many of whom are familiar with the Switcher animation "Falling Sheep," are treated here to a group of hot peppers falling between two images.

The next effect is set into motion by the "Generate Effects" button, allowing you to interact with the LightWave environment itself (LightWave has to be running in the background). The default number of frames for the animations is 60, but you can alter all of the parameters as you go. I was pleasantly surprised at how easily VFX parameters could be reset, and also how comfortably VFX fits into the LightWave environment. Whatever changes you wish to make to the camera settings, backgrounds and recording options can be made along the way in this part of the process. When your script choices are completed you can either begin rendering or continue and build more scripts to be rendered later in a batch with the "Render" toggle.

If there is a "problem" with this software, it is one that will work out in Visual Inspiration's favor (as well as yours). Obviously, you are going to want a very large library of effects to choose from beyond the two CD volumes offered. As I understand it, the two volumes are already selling like hotcakes in a famine, so expect that a whole slew of new effects discs are already being planned. The only stall in adding even more CD collections is that the whole business is being ported to the PC so the product will work with the PC version of LightWave. The effects have been designed by very professional LightWave animators, and others are likely to be pulled into the process. If you have some effects ideas yourself, and are capable of rendering samples in LightWave, you might want to contact Visual Inspirations and talk to guru Jeff White. Meanwhile, plan to add these beauties to your LightWave toolkit. You can't go wrong if you do.

**FOR INFORMATION CIRCLE 61**

## VisualFX Volumes I and II

**Price:** $199.95 per volume
**Minimum system:** CD-ROM drive, 1MB RAM more than LW requires, AmigaDOS 1.3 or later, hard drive
**Recommended system:** 2+MB RAM, LightWave 3.5 or later, hard drive, 6MB of storage space
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# Speed continued from page 50

drive, a 2x CD-ROM drive, a 2MB SVGA video card and Windows NT. An identical system with an Accel AG300 OpenGL accelerator lists for $6,199.

Carrera Computers was one of the first manufacturers of Alpha-based systems, and its Cobra is still one of the fastest. Clocking at 275 MHz, the Cobra was on average 21x faster than a 4000 system. Coming in at around $9,000, this system is not for LightWave lightweights. But power users will relish the speed of 20-plus Amigas in a single tower case. The Cobra uses an Alpha 21064A processor and comes standard with SCSI-II and Ethernet cards, 32MB of RAM, a 1GB hard drive, a 2MB PCI S3 video card, a 4x CD-ROM drive and Windows NT.

The Raptor 3 from DeskStation Technology is a processor-independent computer with a modular design, so that processor cards can be added or upgraded without an entire motherboard swap—much like an Amiga 4000, but on a different scale. Other companies, such as Carrera Computers, are developing similar modular systems. The DeskStation Apocalypse CPU module incorporates DEC's new 21164 chip, which recently dethroned DEC's own 21064A to lay claim to being the world's fastest microprocessor. Though its clock rate is 266—actually slower than the 275—each clock cycle processes four simultaneous instructions, so that it effectively runs at more than 300 MHz. The 21164 is the first processor in the world to achieve over one billion instructions per second. Though I was unable to coordinate a personal test of a 21164 Raptor system, or supervise rendering on one of their machines, I did send some scene files to DeskStation for testing. The antialiased Galaxy image—which took 3 hours, 24 minutes, 27 seconds on an Amiga—took just 5 minutes, 22 seconds on the Raptor 3 with its Apocalypse module. Averaging 45x the speed of a 4000, the 21164 chip is twice as fast as Alpha 21064A-based machines. But before you rush out to sell your 4000, remember that these systems start at about $15,000.

## Choices

In nearly all cases, the speed improvements I found were smaller than those claimed by the various manufacturers. This may simply be due to the scene files I selected. Certain scenes and tests optimally show off a particular accelerator or system. Mine were not intended to do that, but rather to be real-world, working examples.

Which system listed here represents the best value? There is no black-and-white answer, but the Pentium would be my overall choice. It's a standout as far as cost-efficiency versus performance, and it's universally repairable and upgradeable. Amiga hobbyists who want to improve their productivity might find that a $599 Doubler 4000 is more than adequate for their needs, and no further expansion is justified for their computer. Broadcast animation companies may decide that $15,000 for a Raptor 3 is a necessary investment that will pay for itself in productivity. Most of you will fall somewhere in between, and must weigh the cost, performance, reliability and support of the products or systems under consideration before making a choice. How much power do you really need? Keep in mind that the quantum leap between a stock Amiga and the other choices becomes less dramatic in terms of actual time saved as you move to faster and faster systems. For example, if you move to a Pentium from a 4000, you will save 27 minutes per frame when rendering a scene such as the raytraced Textures Example. Between a Pentium and a Cobra, you save a little over two minutes per frame. Is the expense justified?

Is it better to buy two low-cost workstations rather than one high-priced one? How quickly will the technology become outdated? Can you upgrade? Can you easily have it serviced? All animators crave more speed from their machines. Making the right decision requires a balance between your needs, your wishes and your means. VTU

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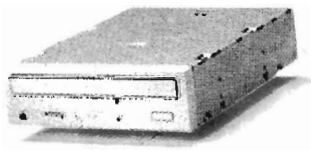

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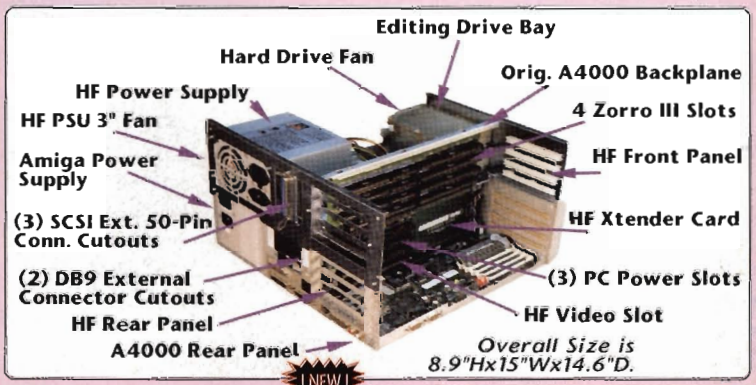


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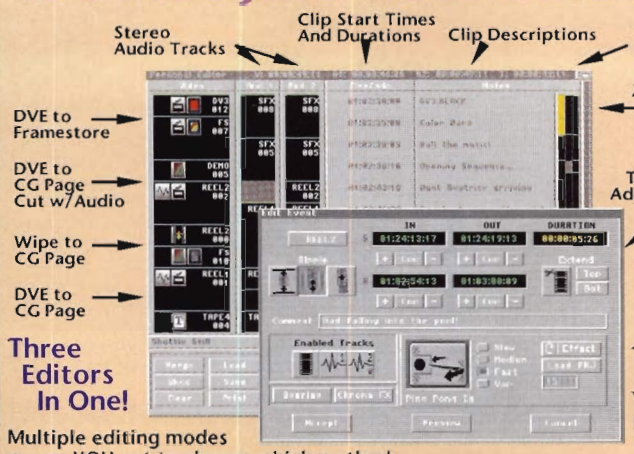


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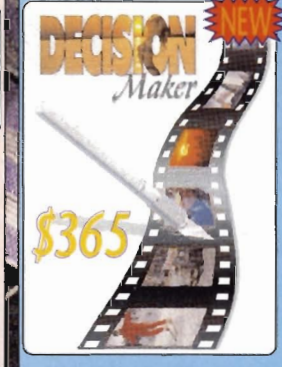

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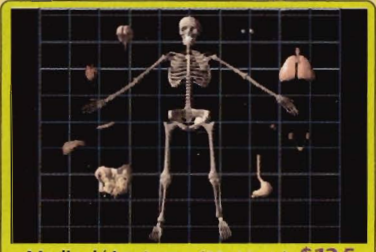

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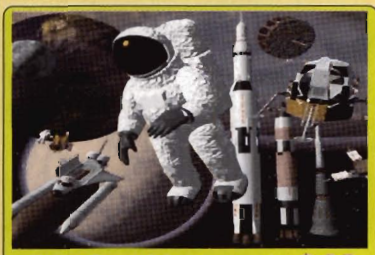

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Let's teach Lucas a lesson about trodding over sacred ground.

I want all of you to do exactly what we've been talking about here. Get a scene, or even a still, from *Star Wars* into your computer and add some new special effects to it. It can be anything you like, serious or comedic. Put a few more X-Wings into the dogfight. Blow up the Millennium Falcon. Morph Darth Vader into a hamster. Anything! We'll send a videotape of the best entries to Lucas along with a note saying "don't bother." Maybe he'll get the message. More importantly, the publicity this "contest" could generate will show the filmmaking community that the technology to alter films is in the hands of everyone. There are many people in the field right now who want to see legislation passed that will prevent this sort of thing from happening. Unfortunately, rich and powerful Hollywood will see the profit-making potential of the new *Star Wars,* fight such laws tooth and nail to keep film alteration legal, and corner the market.

Well, fellow Toaster users, Hollywood must not fool itself into believing that only the rich and powerful will have the ability to "fix" old movies. Anyone can. And they will—unless we help stop them.

---

OK, listen up. I'm serious about this. I want every last one of you to do your best to make *Star Wars* "better." Sadly, we can't make it an official contest because of the copyright laws we're trying to protect. In other words, we can't offer any physical prizes. However, *VTU* and myself will make every effort to bring the winners as much fame as possible. Your name and photo will appear in the magazine (if you like, of course). I'll personally devote an entire "Last Word" column to talking about the winners and how great they are. Not to mention the fact that all our resources will be devoted to making sure that Lucas gets to see what all of you come up with. Who knows? Maybe if the stuff you produce is good enough, he'll offer you a job! In any event, we'll all put our heads together and see if we can come up with a few more legal ways to honor the first-, second- and third-prize winners. Of course, the *real* reward will be knowing that you may help keep the movies of the world safe! More details and a deadline will be announced next month.

On a more personal note, I must address this last paragraph to Mr. Lucas himself. Given his connections to the world of video and computer graphics, I am certain that, sooner or later, this column will be brought to his attention. George, please understand where I'm coming from. I *love Star Wars* and have a deep respect for you. As I've said in this column before, if it weren't for the inspiration you provided, I wouldn't be working in Hollywood right now, living out my childhood dreams. It is because of this love for your work and the integrity for which you have always stood that I feel the direction you are taking must be protested. *Empire* cannot be next and neither can *Jedi*. Please, let our memories of the first trilogy remain intact. Concentrate on making a new trilogy that will inspire the children of today to create a better future instead of a perfect past. And don't hate me for saying so. VTU

FOR INFORMATION CIRCLE 154

# Bulletproof Split Screens

## A TPaint and CG Shootout

by George Avgerakis

Ballistics experts will tell you there is no such thing as a "bulletproof" vest. The correct term for this garment is "soft body armor."

This tidbit of knowledge came to me while recently producing a training video for a national security company that decided to issue soft body armor to all of its couriers.

The video required a series of firearms ballistic tests using several of the weapons carried by today's desperadoes. After each test, the client wanted a graphic that displayed the weapon, statistics about its bullets and a macro photo of one of these bullets before and after impact with the vest.

Figure 1

You can see what we came up with above: a three-way split-screen featuring a dissolve in the lower left corner. Maybe the vest wasn't bulletproof, but our client called the graphic "bulletproof" after it passed his company's rigorous inspection (Figure 1).

You, too, can easily make hardbody graphics that tell a thousand-word story in seconds. Using the above example, you can adapt these techniques to make a wide range of split-screen graphics employing dissolve and wipe transitions in any segment.

### Loading Your Guns

Start by planning a good split screen. Without the benefits of a clean screen-shrinking tool, this could be difficult. If the Toaster could shrink an image without degrading it and then freeze it without generational loss, this tutorial would be one page long. But the Toaster can't and this tutorial isn't, so listen up.

While you're on the shoot, try to imagine what you want in your graphics and position them on the monitor screen so they appear sized and positioned where you want them.

If you don't remember to do your work on the set, or if you are faced with editing someone else's directorial work, you can size and position anything in post using the Toaster's texture-mapping tool, but don't expect me to tell you how to do that here. For that knowledge you'll have to buy another copy of *VTU* (or read your manual).

While taping the ballistics demonstration, I explained to the client that we would need a shot of each weapon positioned on a neutral background and centered in the top half of the monitor. We put the camera on a high tripod, unrolled some white butcher paper and carefully composed a suitable shot for each gun.

Here's an excellent opportunity for good client interaction. Understand that while you're doing all this fussing, your customer may be getting nervous, wondering what this waste of time is all about. Take a moment to explain the process. Ask the client to look at the monitor and tell you when the object you're shooting looks just right. Make your work a team effort and generate a consensus. Later, when you're editing the video, everyone will share your brilliance and pride. Remember, success is collaborative, failure is singular.

By the way, in our case, the client enjoyed the photography of the weaponry so much that he suggested taking the time to shoot each bullet before and after impact, which gave us the idea of building a dissolve into the graphics. However, we suggested that each bullet be saved and that the difficult macro lens shooting be done in the editing room. It was fun going through airport metal detectors with a wide assortment of bullets.

### Sizing the Frame

OK, so now we're in the editing room, armed with video clips of each weapon and before and after versions of each bullet. Where do we start?

First, decide how many ways you want to cut the screen and where you want the cut lines to appear. I began by freeze-framing one of the largest weapons, the 9mm Uzi,

because that would certainly take the most screen space. It's just like starting with the longest name when choosing a font for a credit roll. Always start with the largest "given" so that you don't get halfway into the series only to find out that one of the inclusive elements won't fit.

After freezing the Uzi, I used the Toaster Switcher's horizontal wipe effect and brought the black background up under the weapon. This formed an electronically perfect horizontal border as a guideline. Then I took some masking tape and stuck it to my monitor, marking the black edge of the wipe (Figure 2).

Using the wipe as a "square" is a good technique for lining up something on a screen, especially when using a camera to position flat art. The positionable window tool is also handy for squaring objects to your camera.

Now go into ToasterPaint and import the freeze frame using the Prefs menu. The asterisk tells you which DV bus is active and contains your freeze.

You can use the box tool with "fill" enabled to create solid-colored borders that will divide your screen. I wanted a little more pizzazz, so I opted for a ramped color effect in the horizontal bar that would divide the weapon from the rest of the screen. This requires using the range option. To understand range, look at the little palette bar on the left-top area of the paint menu (to the right of the "current color" box). This is the range painting palette.

Unlike solid color fills, range fills the given area with a sweep of colors, ranging from the color you assign to the left side of the range palette to the color you assign to the right of the palette. I always assign my darker color to the right side and the lighter or highlight color to the left. To imitate my model, put the darkest gray in the right and the lightest gray in the left.

The shape of the sweep and the highlight is controlled in the Warp and Texture submenu. Let's go there by clicking the second button from the left on the bottom row of the TPaint menu. (It has a "ball and square" icon.)

Here, on the left, you can see a model of the screen, expressed as a large box with a ball in the center. Across the top are the types of sweeps and highlights you can execute in range mode. Choose the horizontal bar and you'll notice that the large square model adjusts appropriately as you switch the buttons across the top. The bar represents the position of the lightest color on the range palette. If

Figure 2

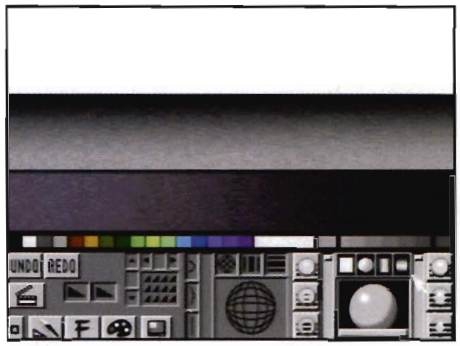


Figure 3

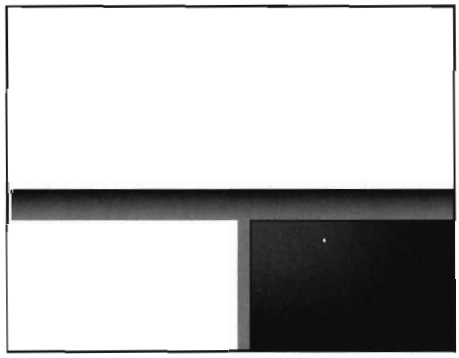

Figure 4

you want to experiment, try the different buttons and use the fill box and the undo/redo commands to test various configurations. To copy my model, set the horizontal bar at the bottom of the model and return to TPaint's main menu (Figure 3).

Assuming you had some kind of horizontal object, like a rifle, in the top half of the picture, use the range-fill-box tool to make a horizontal bar across the frame, under the object. When making the vertical bar, which divides the lower half of the screen in two, I switched to "normal" mode, chose the dark gray color and used the variable polygon tool with "fill" activated to carefully chisel into the horizontal bar for a neat, mitered look.

My client wanted a simple look, so we went with normal fill. You can get fancy by switching back to the Warp and Texture submenu, setting the range configuration button to the vertical bar and then positioning the bar in the middle of the model. Give it a try.

## Filling in the Squares

You can also choose a solid fill or range fill for the square on the right. I used this quadrant for the statistical information on each bullet, derived from CG. Using the Warp and Texture submenu again, I set the configuration to the "highlight" mode (second button from the left, above the big ball). Notice that the bar on the model changes to a small square, representing the highlight point. I set this point to the lower right corner and changed the colors to light blue and dark blue. Use the range-fill-box tool with a square pen to carefully fill this quadrant without eating into the border colors.

It's a good idea to stay with the standard palette choices and put the highlight in extreme limit positions. That way, if the client comes back for more work at a later time and you've erased your IFF files, you can resurrect your color schemes accurately enough to intercut with your old material. If you opt for unusual colors or highlight positions, write all your settings down carefully and store them with your master tape.

If you haven't already done so, render the design up to one of the DVs so that you can see it on the video output.

## Freezing the Bullet

Now it's time to go back to the camera, so save this picture under a master name like SPLITMAS and return to the Switcher. I keep my editing room camera mounted on a vertical sliding mount bolted to the wall. Somehow, set up your camera so that you can

keep it steady while you focus on whatever small object you are placing in the lower left quadrant (Figure 4).

Since I was planning to do a before-and-after dissolve effect with various bullets, I chose the largest, a 12-gauge rifled shotgun slug cartridge, as the first. The client wanted a ruler lined up under each cartridge, so I used an inexpensive wooden one, which unfortunately had some brand name lettering within the shot. Using a very conservative color scheme, I chose a simple white card as my background. You can choose any color paper you wish to add design quality to your work.

For lighting, I used two side-mounted lights that eliminated most of the shadows but lit the reflective brass of the bullets well. In paint, you can "erase" the shadows by using the scissors tool and the filled-polygon tool. More on this later.

Using the horizontal wipe bar again, I lined up the ruler and the cartridge so that it was positioned in roughly the same spot on the screen where the lower left quadrant was in my master design. Now assign the camera input to your Preview bus and the DV that holds your master design to the Program bus. With the Dissolve crouton active, pull the fader bar down until you can see both images on the screen. Slide the card on which you've positioned the bullet and ruler (or whatever you are using for this tutorial) until the assemblage falls well within the quadrant of the master design.

With the camera input on both Program and Preview buses, freeze the camera's input. Keep in mind that when you are going in and out of the Switcher, the Toaster will occasionally forget where it is programatically. You may see the Switcher Screen, but the freeze will not activate. Resolve this dilemma by clicking on any crouton to tell the Toaster you are in the Switcher. The freeze will now work.

Next, return to TPaint, and before you import your freeze frame, copy the existing composite picture (weapon, horizontal divider, etc.) to the background TPaint framebuffer. This is done under the Picture menu by highlighting Swap and selecting "Copy this picture." The background TPaint buffer is an invisible place that can store one full picture and hold it there as long as you remain in the program. Caution: returning to the Switcher, even without quitting, will erase the buffer's contents.

With your original picture in the buffer (and on the TPaint screen), import your freeze frame from either DV1 or DV2. Now, under the Picture menu, highlight Swap and select "Exchange pictures." This switch command instantaneously flips the picture in the background buffer to the work buffer, and vice versa. Neat, huh?

Figure 5

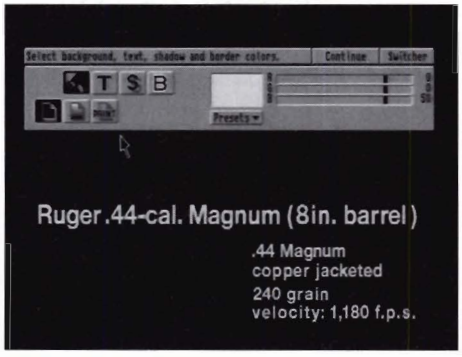


Figure 6

## Painting Through

Ready for some magic? Change your mode to RubThru. Select the filled-box tool with a square pen and carefully make a rectangle that fits perfectly within the lower left quadrant of your picture. When you lift up the button on the mouse, instead of seeing a color or range fill the box, you will see the corresponding area of the scene that is in the background buffer. RubThru works with any of the paint tools and is a powerful design implement.

If you've done everything right, your lower left quadrant will be filled with the object and background you selected. If you make a mistake, don't worry. Simply click undo and try again. This procedure does not affect the data in the background bus.

I also took time at this point to dress up the quadrant a bit. Using the variable polygon with fill, I selected the scissors tool and cut out some little brushes made from the white background color. With these brushes I was able to erase any shadows of the bullet left by the two side lights. I also cut a bit of the wood texture from the ruler and used it to remove the brand name.

## The Before and After

Your master design is now complete and ready for CG work. But I did say that we were going to execute a dissolve within the quadrant, didn't I? Let's do that now. Save the master design under a new title, perhaps named after the objects in the quadrant. I used something like "Uzi Before." Render the finished design to the program output and return to the Switcher (Figure 5).

During the shooting of my training video, I managed to dig out and save each of the slugs from the Kevlar innards of the protective vests. These were pretty nifty-looking objects: blunt, warped, some with the Kevlar weave pattern imprinted on their brass faces.

You don't have to be too careful putting the "after" object in exactly the same place as the "before" object just yet. Remember, you only have to repaint the portion of the quadrant where things change.

Thus the placement of the ruler in the "after" version was immaterial, since the original ruler was retained, as you will note later. Do not allow the camera, however, to zoom between your before and after freezes.

Using modeling clay, I set up the slug sideways so that it would be in the same screen position as the original bullet. In a before and after dissolve situation, you can easily adjust the position of the second camera-grabbed object by setting up a dissolve between the camera source and the first grabbed object. Pull the fader bar halfway and adjust the object under the camera until it matches the DV source.

Once your match is satisfactory, kill the dissolve and freeze the camera source. Go back to TPaint. As it loads, it will restore your original graphic, or you can reload your original graphic from the hard drive. Copy the picture to the background buffer and import

your newly frozen graphic. Do a filled-box RubThru on just the bullet, being careful not to touch the ruler or any other object in the first graphic that will remain the same after the dissolve.

If, however, your "after" object affects something in the "before" image, you'll have to do some tricky painting-through. For instance, in several cases, my "after" bullet slugs were huge mushroom things that had to cover part of the ruler and actually go out of frame on the top of the quadrant. Simply use the variable polygon-fill tool in RubThru mode to cut the shape of the slug out of the ruler. You can even use a pen stroke: any paint tool works in RubThru.

Now save this image under the same name as the "before" image but change the second part of the name to "after." Send this image to one buffer, the "before" image to another buffer. In Switcher, a simple dissolve effect between each DV bus gives you a perfect transition. I like to add a sound effect for every visual effect. In this case, I used a slow-motion sound of the bullet being fired.

OK, here's how to do the CG part.

If you're not familiar with the CG, here's a brief run-down on how to set up your graphics for titles. Enter CG and, in the leftmost button, change the "key" to a button that looks like a color-swept graphic page. This tells the Switcher that you want the CG letters to appear over some background image instead of being keyed over video (Figure 6).

Now click the button that looks like an artist's palette. This brings up the color menu. Next, click on the button that has a big paint brush. A new set of three buttons appears. Choose the one that says "Paint." Click on Continue and then type out your text roughly positioned to fit over the graphic you designed.

When you've typed everything out, press the first button on the right (to render the CG page to the Preview buffer). When a new button appears further to the right, click it and the composed image will appear on the Program bus. If you get everything positioned right the first time, write a letter to the Vatican saying you're back. The rest of humanity takes at least three tries.

Incidentally, though there's no such thing as a truly bulletproof vest, the models we tested stopped Dirty Harry's .457 magnum, the rifled shotgun slug and an Uzi (which was a real disappointment from a hardware point of view). But after you see what happened to the background clay when we fired an M-16 at the vest, well, you'd be better off without one. OK, enough macho chatter—get back to work!

VTU

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*Anthony Caviello, a senior animator at Avekta, contributed technical assistance to this article.*

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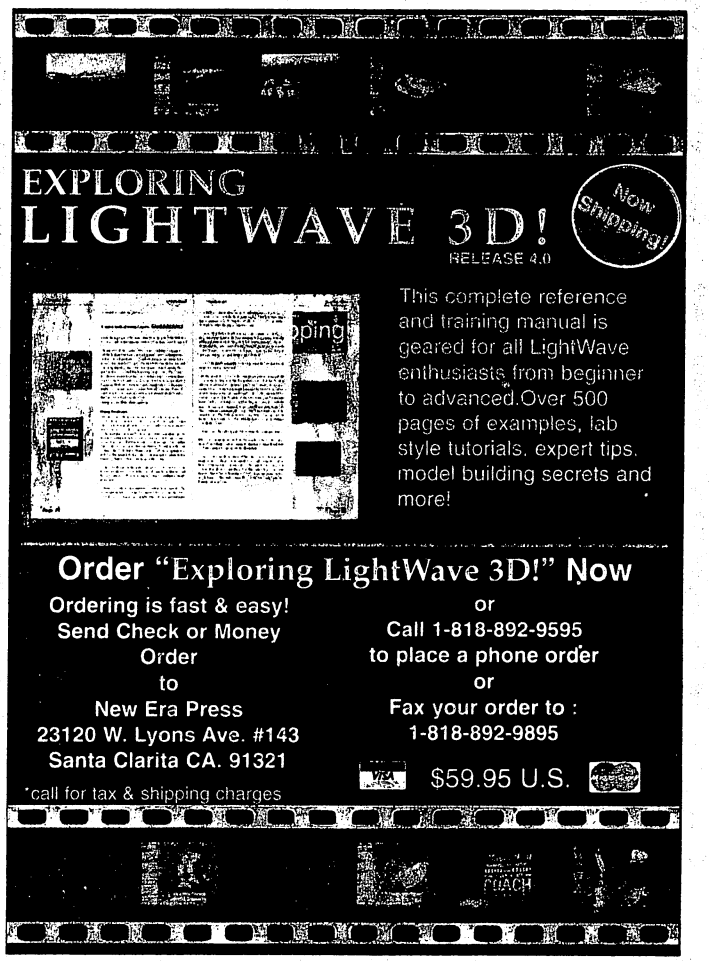


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  4) More flexible and higher quality image processing, as well as easier maintenance.

- Some of the DSP circuits and their functions:
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  - DARK DETAIL - Determines optimum degree of contour enhancement in dark areas to deliver crisp, natural-looking images
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  - FLARE CORRECTION CIRCUIT - Compensates for unsteady black caused by light or by a subject's movements.
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**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.

**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.

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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-RC550, 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 WJ-PC500 allows for control via RS-232C or RS-422 computer control.

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- 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.
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- 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.
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## SONY

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## TOSHIBA

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- 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.
- Variable high speed shutter from 1/60 to 1/2000 second
- 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.
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### 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.
- SMPTE 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 RS232 or RS422 control. Video and audio channels are switched independently letting you perform break-away edits.
- Auto-Sensing Single RS422/RS232 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 exisiting 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/Feeder, 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 upgradeability.

#### 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-K26U RS-422 board. Other boards include the SA-K28UA 45-pin board for connection to older JVC editing systems, the SA-N50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code generator/reader.

#### 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 "post striped". For professional SMPTE 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, switchers or audio mixers.
- Features automatic assemble and insert editing, audio 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 DOC, digital Y/C separator, high precision CNR, improved chroma enhancer, 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 (DOC) 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 leak 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 lags 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 Reduction) 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 preroll 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-S822U features built-in machine-to-machine editing control capability. This permits control of any deck with RS-422 control directly from the BR-S822U. Player/Recorder select buttons are provided, and time code or CTL readings from the controlled player are displayed on the BR-S822U'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.
- Also features 181-channel tuner, full digital quartz timing, real-time counter, Auto repeat/Auto playback, Standby OTR.

### 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 package 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 cued 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 built- 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

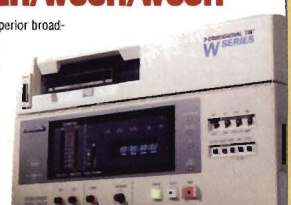
- Uses Amorphous video heads which are superior to conventional ferrite heads and deliver rich, vibrant color reproduction and a high S/N ratio.
- Built-in Digital Time Base Corrector effectively eliminates jitter and distortion. Playback is high quality, stable and with natural colors.
- Two Hi-Fi stereo 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, headphone monitor 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 cuing 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 (-½, -⅔, -⅓, -⅙, -⅛, +⅓, +½, +⅔, +1).
- 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 providing excellent dropout compensation.
- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. A Chrome Aperture Compensation (CAC) circuit eliminates color blurring and expands chroma bandwidth. Other digital processing circuits include:
  - Dig. Noise Reduct. (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 slo-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/VITC (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.
- IQ (Intelligent Quest) mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes 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 a SMPTE 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 noiseless 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 "fit and fill" 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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# 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 to 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 mixed 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-232 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**

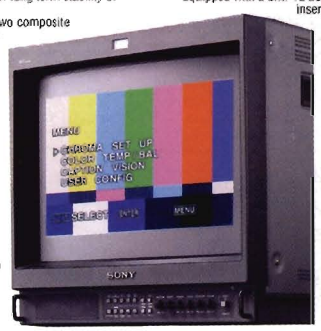
- To provide for smoother transitions from scene to scene, the EVO-9720 has a video fader. Black or white fading can be selected as well as a duration time of 0.5 or 2 seconds.
- There is a GPI (General Purpose Interface) output with timing adjustment for controlling external devices. External devices 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 image and check the picture edges. 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-502B 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:**

- By combining the high resolution (400 horizontal lines) of S-VHS with high quality signal processing techniques like DNR, Digital Field DOC 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 DOC (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.

**ADVANCED EDITING FUNCTIONS**

- For frame accurate editing, both machines employ a sophisticated servo system, an improved quick response mechanism and built-in LTC/VITC time code capability. This makes them ideal for animation and computer graphic recording, where a frame-by-frame editing function is indispensable.
- They are equipped with industry standard RS-422 9-pin serial interface. The 9-pin connector carries edit commands and time code data between the VCR and the edit controller.
- When connected to an RS-422 equipped edit controller, the SVO-5800 functions as an editing recorder. It performs assemble and insert functions and also provided audio split editing capability of norman audio tracks 1 and 2. In the insert mode, video, audio and time code can be inserted independently, or in any combination.

**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 code data, control track, menu setup and VCR function status 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 to10x normal speed in forward or reverse.

**REBATES: Buy an SVP-5600 or SVO-5800 Professional S-VHS VCR or UVW-1600, UVW-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 creation. With a short 3-second pre-roll the EVO-9650 is twice as fast as any other machine.
- Built-in RS-232 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-232 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 drop-out 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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## INNOVISION
## Alpha Paint
### The New Paint Standard for the Video Toaster

Alpha Paint elevates painting quality and performance on the Toaster to unprecedented new heights with 36-bits of painting power! It breaks new ground with Full-screen Realtime 24-bit Painting and exclusive 12-bit Alpha Channel support for Anti-Aliasing, Blending and Compositing.

- 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, redering 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 Tool with full support for Toaster, Chroma and Postscript fonts including XYZ Text Rotation, Postscript Circular Text Wrap, Texture Mapping, Glow and Neon Effects.
- Pressure Sensitive Drawing Tablet supported.
- Compatible with Video Toaster 2.0, 3.0, 3.1 and Toaster 4000.

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

## FutureVideo
### 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 VISCA, RS-232 and RS-422 serial control protocols.
- Reads RC 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 DOC (Drop-out compensator)

### AP41-SF

- Same as above plus S-Video output, freeze frame/field, 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, bevel, 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-recording, 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 studio. 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 crouton. You fine-tune each crouton - select in and out points, and adjust audio characteristics - until the clips are perfect.
- Next, simply drag a video crouton into position, place an effect crouton after it, then drop another video crouton 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 crouton. 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

## 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 tail cleaning, list rippling, 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

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

## 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 up (Sync-roll) 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 tail cleaning, list rippling, 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

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.

## SUNRIZE 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 roto-scoping 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, missed 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, Fractle Pro, Imagine, Vista Pro, and Cinemorph.
- Real-time video capture for roto-scoping and other video capture applications is possible when used in combination with a DPS TBC IV card.

Minimum Shipping USA (Except AK & HI) $7.00, up to 3 lbs. Add 60¢ for each additional lb. For ins. add 40¢ per $100. © 1995 B&H Photo-Video. Not responsible for typographical errors.

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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/PR4 Audio Technica Dynamic mic element & MR-1 Receiver ..... **369.95**
- SH-2/58 Shure SM58 Dynamic mic element & MR-1 Receiver ..... **434.95**
- SH-2/85 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 ..... **653.95** 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 or phantom power (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, thus allowing this microphone 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**

## MACKIE

### 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 bal./unbal. 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 potntiometers, 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, broadcasting 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 tabletop, jacks-to-top and rach mount with jack pod 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)
- 8 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

## porta brace

### 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 zippers.
- Two trim exterior pockets and clip board pocket.
- Dual purpose rear pouch is an expandable battery chamber or all-purpose pocket.

## 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" if 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 13.2 volt 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 IC's 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-Light Pro virtually eliminates color shift and dramatically conserves precious battery power by using only the power required for the selected light level.

- Accomodates bulbs from 20W to 100W DC.
- Prismatic dispersion grid provides smooth even light ouput 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

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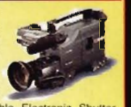

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continued from page 55

## PowerMacros

Introduced last year, PowerMacros is one of the most useful utilities ever released for LightWave. How many times have you needed to create a pie chart? With PowerMacros it's as easy as pushing a button. Have you ever needed to batch render your animations? There's a macro for that. Everyone runs into problems when it's time to blow up something. Well, now it couldn't be easier. PowerMacros installs with one floppy and is compatible with LightWave 3.0, 3.1 and 3.5. To use the software, simply enter Modeler and run the macro (Figure 6). That's it. The manual is quite detailed and lists the values for each macro, such as the velocity, strength, etc., for the BlowUp macro. PowerMacros includes business macros, layout macros, energy macros

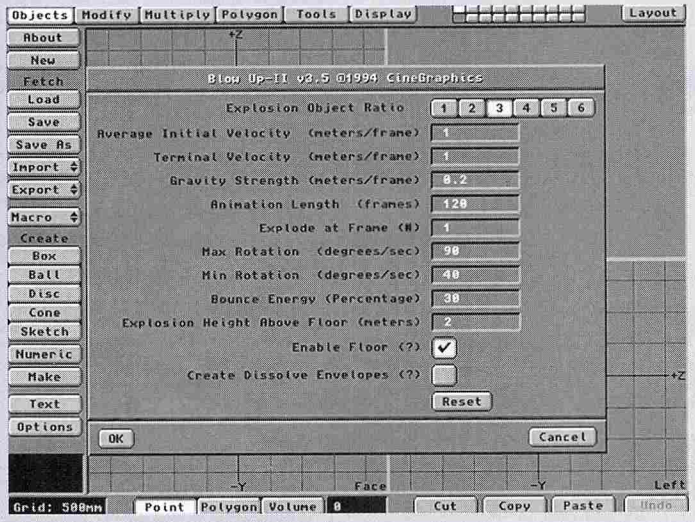


Figure 6: PowerMacros uses Modeler's interface to generate a number of complex functions

and Modeler macros. There isn't enough room in this article to go through each one, but I'll list some of my favorites. The Batch Render macro is well worth the money. Too often, I'm away from LightWave for a good amount of time. And, as any animator knows, that computer can be rendering if no one is using it. But, if the first scene is done in seven hours and you're not back for two more days, it just sits there. With PowerMacros, you can set up multiple scenes and save images as RGBs or framestores to any drive, including the Personal Animation Recorder. Another favorite is the Snake macro. If you've worked with Bones, you know how tedious it can be to set up just two Bones and animate them. With Snake, you can instantly set up a swimming fish or slithering snake using Bones. The macro creates a scene file with as many Bones as you specify over the set amount of frames. That's all it takes. All that's left is to go into Layout and render the scene.

The other PowerMacro I think is great is Blow Up. You can load any object into Modeler, run the Blow Up macro, set the parameters, and the macro will randomly cut up your object, surface the inside polygons, save each individual object, and create a scene file. Used effectively with a program like Sparks, Blow Up lets you create a pretty spectacular explosion in no time.

Overall, PowerMacros is a well-needed addition for LightWavers. It is so affordable and simple to use, there's almost no reason to not have a copy. Every animator I know can benefit from at least two of these macros, if not all, sometime in their work.

## Final Thoughts

I can't really finish the article without addressing what many of us are wondering: what about using these programs with LightWave PC? As great as they are, you need an Amiga version of LightWave to use them, and there will be many new LightWave users with only a PC. At press time, there is no formal word from any of the companies about a PC version of their software. However, there is no formal word that there won't be a PC version.

It goes back to that old saying "work smarter, not harder." If you think about it, these utilities take care of both. All you do is push the buttons. VTU

*Dan Ablan has been using LightWave since the early 2.0 days. He works full-time as a LightWave animator for his Chicago-based company, AGA, and can be reached at (312) 239-7957. Or e-mail him at dma@mcs.com.*

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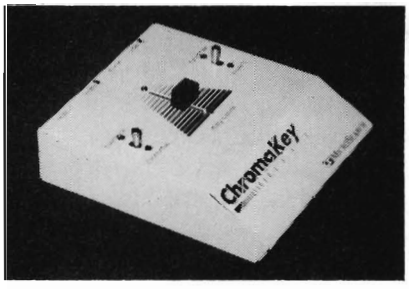


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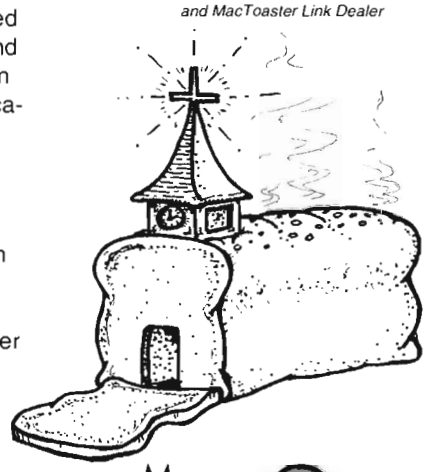

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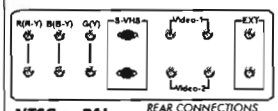


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# LAST WORD

## American Graffiti

### George Lucas Takes a Spray Can to Our Favorite Movie

by Mojo

For those who haven't heard yet (and if you haven't then you probably don't care), in May 1997, George Lucas is releasing a special edition of *Star Wars*. To commemorate the 20th anniversary of the legendary film, he's preparing a new version of the movie that will include previously deleted scenes and be spiced up by brand-new, state-of-the-art digital effects.

Why?

Lucas has repeatedly gone on record as being the one person on the planet who doesn't like *Star Wars*. Even though in 1977 $10 million was considered high budget, it wasn't nearly enough to satisfy his vision.

He felt the sets were too small. The Cantina creatures were mostly rubber masks and looked fake. The special effects were not what he had hoped for. All in all, he simply wasn't happy with the final result. I'm sure if he could have, he would have remade it the next day with a lot more money.

Well, it took him six years, but armed with over three times his original budget, he finally got to remake *Star Wars* in 1983. Of course, he tried to fool everybody by calling it *Return of the Jedi*, but we knew.

In fact, during interviews conducted at the time, he talked ecstatically about finally being able to do the Cantina scene and the Death Star battle "the way he always wanted to."

Now, 12 years later, new technology has possessed him to take another crack at making *Star Wars* a better movie.

Excuse me, but am I missing something here? Call me naive if you like, but I remember *Star Wars* as being one of the best damn movies ever. In fact, if memory serves, just about *everyone* who saw it simply loved it to death. Millions of people saw it over and over again. Kids like me ate, drank and breathed it. Hell, the entire *world* went crazy over *Star Wars*. It made more money than anyone could even count and went on to become the first modern blockbuster. It alone influenced a generation of young people to make movies, as evidenced by hundreds, maybe even thousands, of individuals like myself who are in the business now because *Star Wars* inspired us. Without a doubt, it is still regarded as one of the most influential and enjoyable films of all time.

But I guess all this just isn't good enough for Lucas. He *still* isn't happy with the best movie ever and has now taken it upon himself to go back and desecrate the original film itself. What is his real motivation? Is it simply to draw people back into the theaters to squeeze some more money out of a classic? Just about everyone I've talked to about this shares the attitude, "If it ain't broke, don't fix it." Lucas has stated that he wants to bring the movie to a more modern level of technical sophistication so a new generation of effects-savvy youngsters can enjoy it. Perhaps he forgets that what made *Star Wars* great was its balance of special effects and a solid story with memorable characters. I think Lucas is simply pandering to the long-term neurosis of his own personal dissatisfaction, and I think this is dangerous.

Why dangerous?

Lucas is a very respected and influential filmmaker. If the new *Star Wars* is successful, he will be sending the message to Hollywood that meddling with old movies is OK. His precedent will pave the way for others to alter film history, and, unlike in the case of Lucas, many films may be irrevocably changed by people other than the original artists.

Maybe a studio head will decide to "fix" *2001: A Space Odyssey* so people can better understand the ending. Perhaps *Blade Runner* could be altered so Harrison Ford looks more like a replicant and the finale is less ambiguous. Hey, why stop there? Let's go back and re-write old novels to bring them into the present. After all, wouldn't Shakespeare be more easily understood if people didn't have to struggle with all that Old English? If you don't think the original works would be lost, let's just wait and see what version of *Star Wars* is available on video 10 years from now.

I don't know, maybe I'm a Luddite at heart. I believe that films are like file folders of our past: journeys into the days of yesteryear that remind us how people acted, how they talked and what the places they visited looked like. Films like *Star Wars* reveal our progress as technology and our ability to use it improve over time. If you alter this, in a sense you change history forever. I feel Lucas could be setting the stage for a series of colossal mistakes. Why is he wasting his energy and his money on trying to erase a past "mistake" when he could spend it on bettering the future? Why not devote his resources to making the next, *new Star Wars* trilogy even better than the last? Maybe he should spend less time sticking Jabba the Hutt into a movie from 1977 and more time deciding on the fate of the Ewoks in 1998.

I think Lucas needs a reality check. He needs to come to terms with the fact that no one is going to be impressed with his "improved" *Star Wars* effects. For crying out loud, anyone with a Toaster could do that! Just use a PAR board or Flyer to digitize a few scenes from the laser disc, load them up into LightWave, and presto! New special effects. You don't need some million-dollar computer and a degree from Industrial Light and Magic to do that! Hell, all of us could do it! Come to think of it, I think we should.

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# ImageFX 2.0

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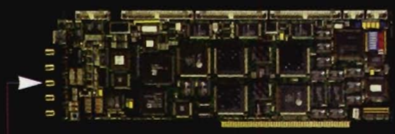
*"The technology of the Flyer will fundamentally change our lives. Now. making changes in your videos is interactive. The results you get are something so much better than anything you could have imagined."* Brad Carvey. Free Range Digital Imaging, Inc., Albuquerque, NM.



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*Flyer Requires: Amiga 2000 or 4000, Video Toaster Card and Video Toaster System 4.0 software with 9MB of RAM minimum, 100MB free on hard drive. Single SCSI II drive required for LightWave recording. For A/B roll editing two SCSI II drives and one SCSI drive is required. Input from video tapes must be time base corrected. Consult your dealer to configure a system suited to your needs. Some features require an Amiga with the AGA chip set. Specifications subject to change without notice. Amiga is a trademark of Commodore, Inc. Windows 95 and Windows NT are trademarks of Microsoft Corp. Video Toaster, LightWave 3D, Video Toaster Flyer, Video Toaster Bay, ToasterPaint, ToasterCG and Toaster are trademarks of NewTek, Inc. Design FryeAllen, Inc.* © *NewTek, Inc. 1995.*