LIGHTWAVE ANNOUNCED FOR WINDOWS PC & SGI, PAGE 13

VIDEO TOASTER USER

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THE PERSONAL VIDEO PRODUCTION MAGAZINE

SEPTEMBER 1994 • $3.95 US/ $5.00 CAN

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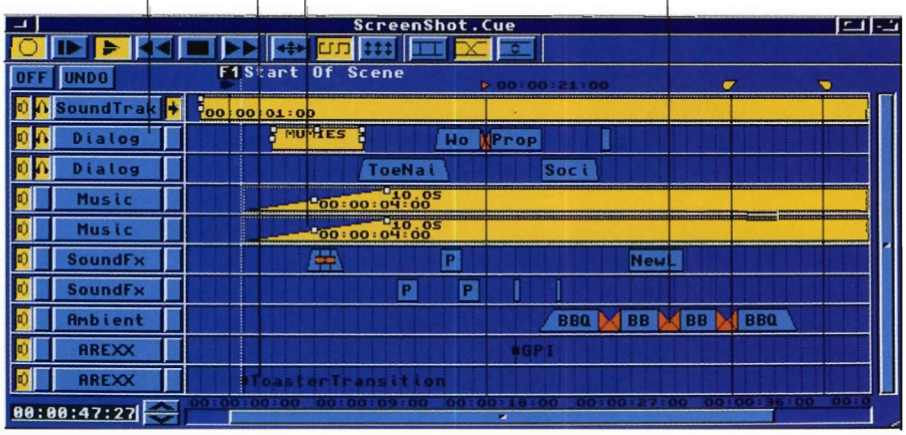

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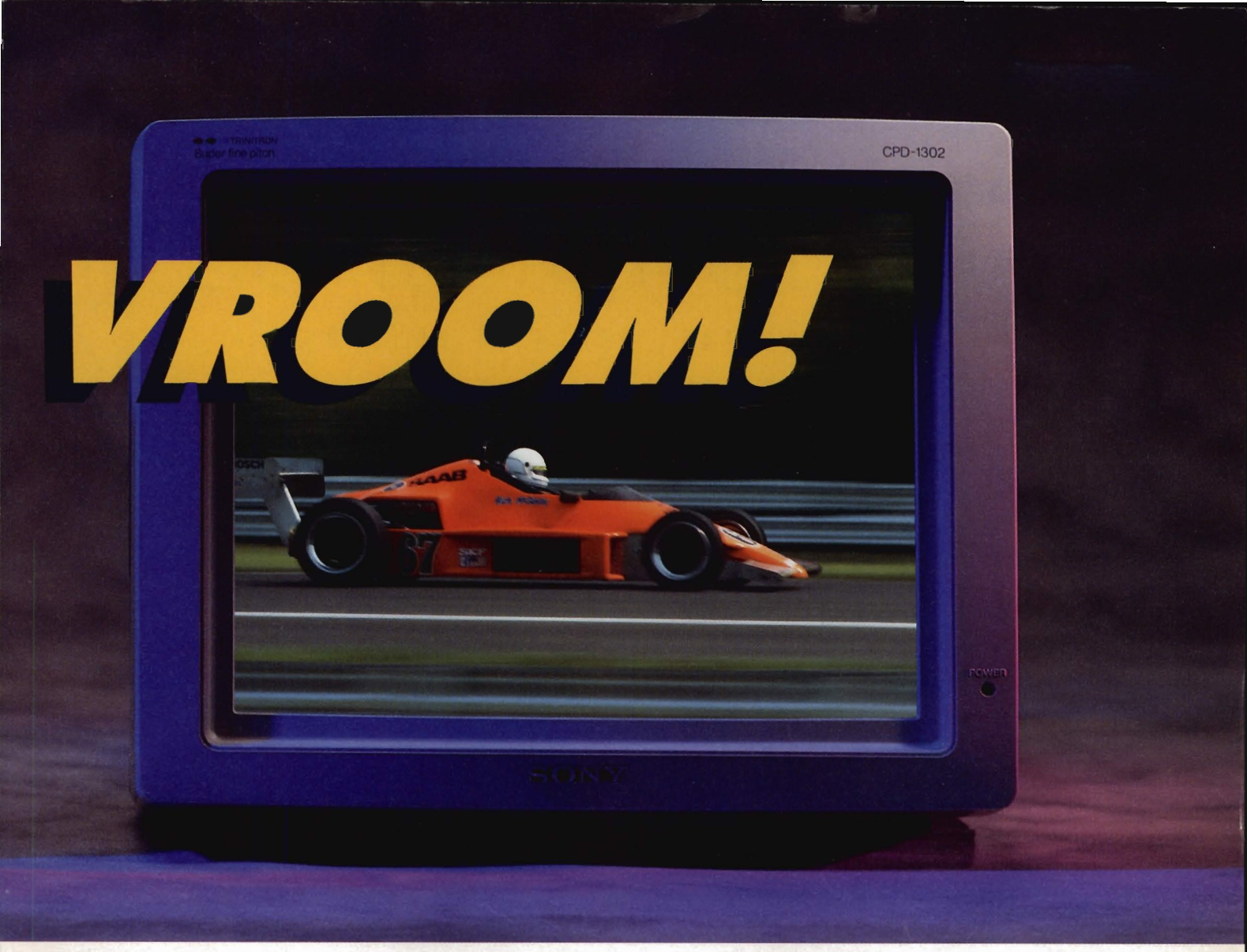

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VIDEO TOASTER® USER

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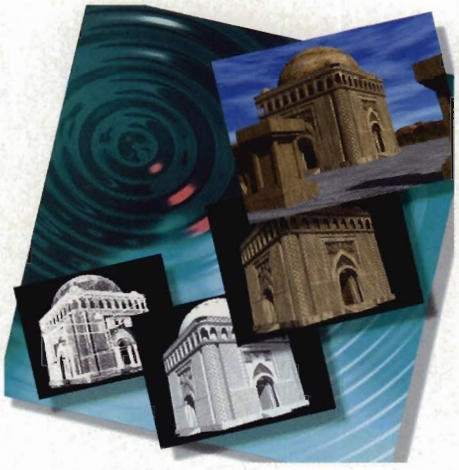

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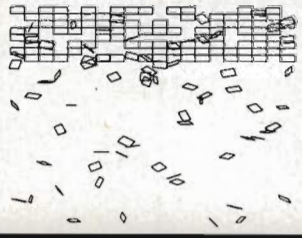

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Editorial/Traffic Coordinator: Douglas Care
Editorial Intern: Joan Burke
Art Director: Helga Nahapetian Taylor
Art Intern: David Smith
Associate Editors: John Gross, James Hebert, David Hopkins, Brent Malnack, Cliff Roth, Geoffrey Williams
Contributing Writers: Matt Drabick, Tim McHugh, Frank Kelly, R. Shamms Mortier

Publisher: Michael D. Kornet
Senior Sales Manager: Mark Holland
For advertising information, call (408) 774-6777.
Circulation Director: Katherine Sund
Marketing Manager: Ann Pulley
Special Projects: Gina DiBari
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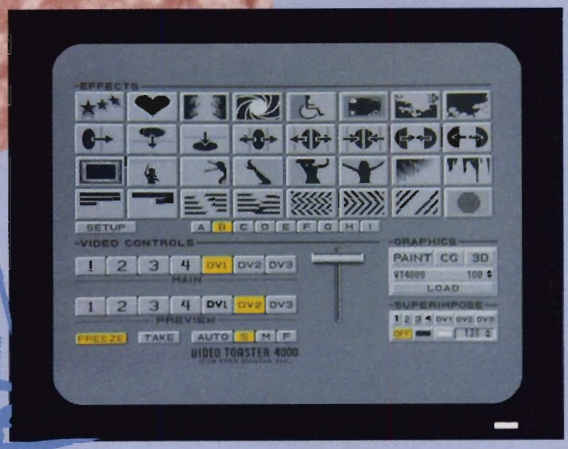

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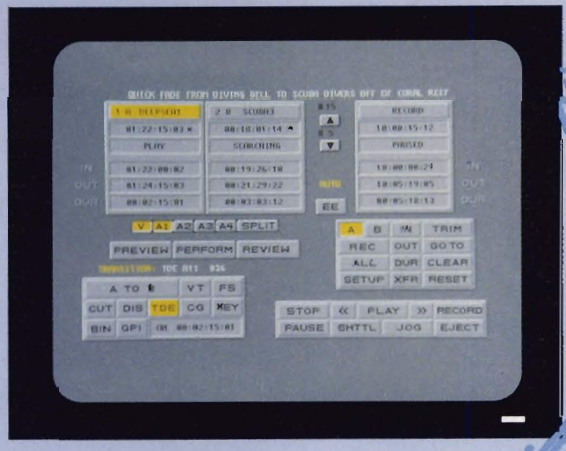

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TOASTER TALK

Taking the Flyer for a Spin

A Preview of the Ultimate "What If" Magic Video Box

by Jim Plant

For several days in early July, the Video Toaster universe revolved around Rave Video, a production house in Burbank, CA. Several top NewTek executives, including Tim Jenison and Donetta Colboch, flew in to conduct and oversee more than 20 interviews of Toaster users. These video producers and animators represented a wide spectrum of the Toaster marketplace; from corporate, educational and government videography to the high-glamour Hollywood 3D community. The main purpose of these interviews was to gather material for inclusion in NewTek's upcoming promotional video called Freedom (the sequel to Revolution). In addition to gathering information about the use of the Toaster, NewTek used the opportunity to demonstrate the Video Flyer and gather important comments and feedback. I even got considerable hands-on time with the Flyer myself.

It is difficult to describe how innovative the Flyer is with mere words. How do you describe picture quality that is so good it's a non-issue? Or an editing process that is so easy that you almost feel guilty? I could try, but nothing I write could compete with seeing the Flyer with your own eyes and putting your own hands on the mouse and keyboard. As I write this in late-July, NewTek is projecting a mid-September delivery of Flyer demo units for dealers and developers. So, as soon as you've finished your first look through this issue you should run down to your local Toaster dealer and experience the Flyer for yourself.

The production of the Freedom demo tape will probably take several months to complete, but thanks to the magic of the Flyer, you won't have to wait for the final edit to see the segments that have already been finished. For instance, most of the interviews shot at Rave Video result in digitized video clips on the hard drives that ship with the dealer demo systems. Later, as NewTek completes additional segments of the video, they will be able to send new video clips, animations, CG pages and TPaint graphics to the dealers to load onto their Flyer hard drives. New Project files (the Flyers' internal EDL) can also be sent to provide the edit parameters to shape these resources into a complete video. That's the beauty of the Flyer; it allows you to quickly and easily manipulate and modify your audio, video, and graphic resources and then get instant, top-quality gratification just by hitting the PLAY button. Updating a video or your demo reel is a piece of cake. The Flyer is to video what the spreadsheet is to number crunching: it's the ultimate "what if" magic video box.

I Feel the Need...to Scream?

You're probably well aware of some of the old truisms like 'you can never be too rich' or 'you can never be too thin.' LightWave users always add 'you can never have too much rendering speed' to that list. This is, of course, why there was so much excitement at last year's SIGGRAPH when NewTek announced the Screamer for only $10,000. Everyone quickly recognized the significant time savings and resulting productivity that could be achieved. That is also why there was so much wailing and gnashing of teeth when NewTek later announced that there would be no Screamer after all. Instead, NewTek decided not to play the CPU hardware game, opting to license the software, called ScreamerNet, to independent hardware manufacturers. At least one company has already picked up the ball, and even though their first offering was slower and more expensive than the original Screamer specifications, there are strong indications that the initial promise of the Screamer will soon be met and even exceeded. NewTek sources say they've been testing ScreamerNet on Intel processors with amazing results. The legacy of the Screamer is ScreamerNet, and with low-cost versions for 486's, Pentiums and other processors just around the corner, the promise of affordable speed solutions for hard-core LightWave users will soon be fulfilled. Stay tuned.

Throw the Book at 'em

Another well-known truism is 'you can never be too smart' and that, of course, is why you read *Video Toaster User*. The sharpest videographers recognize the value of information and the importance of staying ahead of the learning curve. That is why I am recommending that you pick up a copy of a new book titled "The Low Budget Video Bible." Written by Cliff Roth, a Communications Arts teacher at St Thomas Aquinas College, a long-time video producer and, of course, a columnist for many video magazines (including *VTU*), the aptly titled "Low Budget Video Bible" is a must-read for any serious video producer. It covers the full gamut of video production from the technical to the creative with a special emphasis on low-cost solutions. Roth's educational background and his talent for making complex or technical information understandable is showcased in this book. You can get your copy directly from the publisher for $27.95 plus $3 for shipping. Call toll-free with your credit card ready at 1-800-247-6553 or make your check payable to Desktop Video Systems and send it to: P.O. Box 668-Peck Slip Station, New York, NY 10272.

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LETTERS TO THE EDITOR

Dear VTU:

What has happened to *Video Toaster User*?

I have been a loyal reader of your magazine for more than a year-and-a-half. I used to pick up an issue of your magazine and not put it down for weeks. The information would be flowing out of every page. James Hebert would cut through Toaster quirks with his Slices column. David Hopkins proved time after time why he could Tame the Wave. And let us not forget everyone's favorite "Toaster Guy," Lee Stranahan, who would not only give his social commentary of the Toaster world, but also do a TPaint tutorial now and then.

These days, I am thoroughly disappointed when I receive my *VTU*. LightWave is covered extensively, but let's face it—most people don't use it for the day-to-day stuff. I can't remember the last time there was a TPaint tutorial. I have learned so many great tricks on the new CG without any help from *VTU*. What's going on over there?

The Information Superhighway that you keep talking about will need other things besides 3D animation (CG and paint, for starters). In short, I wish *VTU* would get back to the basics. There are a lot of people who need this information without paying $50 a pop for a Lee Stranahan tape.

Your magazine used to be a forum for tips and tricks. Every once in a while, it would be good for you to look at the past and examine what made you great—instead of always looking toward the future.

Michael A. Park
Producer/Director
WRLH-TV; Richmond, Va.

Editor Responds:

Your letter is representative of many similar messsages we've received in the past few months. Several readers have written to say they felt that VTU *had strayed off its original course. But fortunately, letters like yours and other messages we receive via regular mail, e-mail and telephone help us to understand exactly what it is you need from* VTU, *and this gives us the opportunity to make necessary adjustments to get back on track.*

As you thumb through this issue of VTU, *you should be happy to note the return of Taming the Wave by David Hopkins and Slices by James Hebert. Since Lee Stranahan is now working for NewTek, it may be difficult for him to give us his "social commentary" of the Toaster world, but he has indicated his interest in providing ToasterCG, LightWave and ToasterPaint tutorials in the near future. As you read upcoming issues of* VTU, *you will note an even greater emphasis on the Toaster tips, tricks and tutorials that you need to maximize your investment in your Toaster system and, of course, to make better videos.*

Dear VTU:

In the June 1994 issue of *VTU*, I was very interested in the dubbing quality question featured in the Dr. Video column. We had gone through this same dilemna ourselves. I agree with everything that Rick Lehtinen said; however, there's more to it than that. We master on Betacam-SP and 1-inch C. We have the TBCs, the waveform monitors and we do know how to use them. But we still weren't getting the quality on the VHS product that we thought we should. Then we purchased a set of Panasonic AG-684OH dubbing recorders and bingo—there it was. We finally achieved the quality. I am sure there are other manufactureres besides Panasonic who make excellent dubbers. You have to expect to pay in the $1,5000 price range for this type of machine.

Stephen S. Andrews
Pataskala, Ohio

Dear VTU:

I ordered two VCRs for a client of mine from B&H Photo and Video out of New York. My client did not place the order until the day before he needed the VCRs for a video display. I called B&H and ordered two AG-1280 VCRs if he would promise they would be here by noon the next day and he said he would overnight air them so I would have them by 10 a.m. by UPS. The UPS plane was a little late due to weather, but only by about an hour.

The new UPS driver could not find my address so I did not receive my VCRs until about 5:00 that evening. All UPS would tell me was that they were sorry. Due to a lack of communication between the local UPS depot and the main office, they said it was due to weather and would not reimburse me the air freight charges. I called B&H and the man I talked to said regardless of the reason of the freight being late, they (UPS) would use the excuse of inclement weather (they are noted for this procedure).

I accepted this and was very upset with UPS and forgot about it. Now I receive a postcard from B&H stating that they had given me a refund for the air freight charges ($60). What a surprise from a mail-order house from New York, nonetheless. I urge everyone to at least give B&H Photo and Video a call before your next equipment purchase. I know I will continue to do business with them.

Darrel Goheen
Hays, Kan.

Dear VTU:

I am writing in regards to the article referrred to as a "Tutorial" in May 1994 issue of VTU, titled "LightWave 3D Top Down." The authors, Victor and Geetha Ramamoorthy, are credited to publishing more than 50 technical papers—and it shows in this article; it is more akin to a technical treatise and the farthest from a tutorial in the subtle sense of the word.

To give the Ramamoorthys their due, they appear to be extremely knowledgeable on the subject. While I am impressed with their knowledge, they have failed to teach me "how" to do what they are talking about.

While it may appear to be a good article in its own right, the Ramamoorthys could do well by taking the premise that we are not all dancing to their knowlegeable tune and perhaps it would behoove the author and the reader (ie. the teacher and the student) if they could slow the pace down a bit so the rest of us could catch up.

Al Williamson
Gainesville, Fla.

SOUND OFF!

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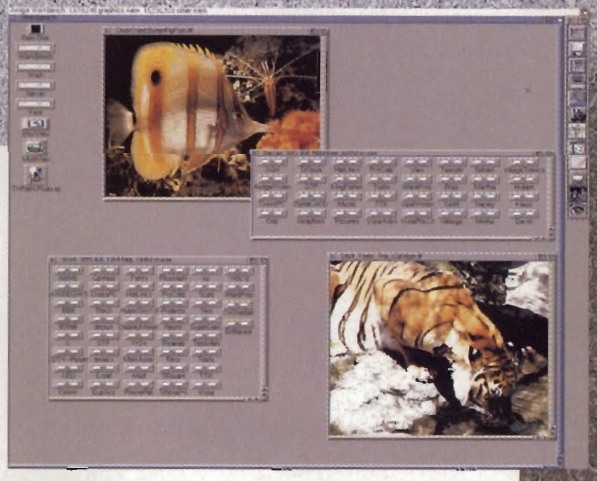

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Providing greater resolutions and more speed than AGA systems and the ability to run system friendly AGA software, the Picasso II is a next generation graphics display system. Your Amiga will be able to run all the latest software at resolutions up to 1280 x 1024 with 256 colors on screen. The Picasso II also supports custom screen modes with up to 16.7 million colors at resolutions as high as 800x600.

Picasso II RTG means *No Waiting for Specially Programmed Versions of Your Favorite Software.*

The Picasso II RTG emulator is completely integrated into the system. Imagine being able to run the latest software packages like ProPage 4.1, PageStream 2.2, Cygnus Ed 3.5, Deluxe Music Construction Set 2.0, AmigaVision Professional and many others at resolutions up to 1280x1024 and up to 256 colors. All system friendly Amiga software packages will be able to take advantage of the new screen modes offered by the Picasso II.

Picasso II RTG means *Hi-Performance.*

The Picasso II has an on-board Blitter which supports drawing speeds up to 30 megabytes per second. The Picasso II Blitter has been fully integrated into the RTG emulator. Any program running under the RTG emulator will automatically take advantage of the Blitter. Off screen displays are moved into Picasso II display memory using the Blitter for super fast screen updates.

Picasso II RTG means *No More 'Chip Ram Blues'*

The Picasso II RTG emulator has been designed so that it uses no chip ram for its emulation. Only the currently visible display is kept in the Picasso II display memory, all other screens are stored in standard system memory. This means that all system memory can be used as graphics memory. A system equipped with 16 megabytes of ram would be like having a 16 megabyte graphics board!

Picasso II RTG means *Maximum Compatibility.*

The Picasso II RTG emulator supports Workbench 2.04, 2.1, 3.0, and beyond. The Picasso II is compatible with any Zorro II or Zorro III equipped Amiga system, such as the A2000, A3000, or A4000.

Picasso II AutoSwitch means *One Monitor.*

The Picasso II comes with a built in electronic switch that automatically routes the proper signal to your monitor. When the AutoSwitch detects non-Picasso II screens, such as those used by games and older software, it automatically routes the signal directly to your monitor. When the AutoSwitch senses a Picasso II screen mode, it will automatically switch back.

The Picasso II comes packaged with TVPaint Jr. (24 Bit Paint Program), and drivers for ArtDept Professional, ImageFx, ImageMaster, and Real 3D 2.0.

***Re•tar•get•ab•le Gra•phics** *adj.*: The ability to run software on any third party graphics board. *See also*: Picasso II.

Expert Services

7559 Mall Road
Florence, KY 40142 U.S.A.
TEL: 606-371-9690
FAX: 606-282-5942

Village Tronic

Braunstrasse 14
D-30169 Hanover-Germany
Tel:+ 49/(0)511/13841
FAX:+ 49/(0)511/1612606

The following names are trademarks of the indicated companies: Picasso II RTG; Expert Services, Professional Page; Gold Disk Inc., Pagestream; Soft-Logik Publishing, Deluxe Music Construction Set; Electronic Arts; Amiga, AmigaVision Professional & Workbench; Commodore Amiga, Inc., Art Department Professional & Cygnus Ed; ASDG Inc., ImageFx; Great Valley Products, Inc., Imagemaster; Black Belts Systems, Real 3D;RealSoft International, TVPaint Jr.; Techsoft Images.

NEW PRODUCTS

Compiled by Joan Burke

Sparks 2.1

Sparkling Software

Product: Sparks version 2.1
Description: Particle animation software
Price: $179.95
MetroGrafx
625 Newton Dr.
Lake Orion, MI 48362
(810) 693-5134
FOR INFORMATION CIRCLE 1

While taking over publishing and support of Sparks animation software, MetroGrafx has developed an updated version. *Sparks version 2.1* contains improvements in both features and packaging. The new software includes motion interpolation, moving targets, animatable velocity, auto parenting and auto loading. Sparks version 2.1 fully interpolates LightWave splines between keys. New macros have the ability to explode objects into a user definable subdivision and allows control over center of explosion and extent. With Sparks 2.1 direction and origin can be keyframed in layout. Video transitions can be made with the automatic rotations and bounce controls included in the new package.

Accurate Signals

Product: RFM 150 SignalScout
Description: RF signal level meter
Price: $2,250
Tektronix, Inc.
P.O. Box 500
Beaverton, OR 97077
(503) 627-1555
Fax (503) 627-5801
FOR INFORMATION CIRCLE 2

Tektronix has announced the release of *RFM150 SignalScout* a new signal level meter which features guaranteed accuracy of ±1dB over temperatures ranging from 0-50 degrees Celsius. The SignalScout delivers consistent readings across all units. In addition to providing basic measurement capabilities, the SignalScout can measure and display important information such as, in-service Carrier-to-Noise and Hum, the frequency spectrum of a channel and FM deviation which is needed to properly install and maintain a cable TV system. A non-volatile memory allows storage of individual measurement results and measurement sequences. The SignalScout also features worldwide compatibility and is designed to work with NTSC, PAL, and SECAM cable TV systems.

Computer Corner

Product: Corner Mini Consoles
Description: Accommodations for computer/video combinations
Price: starting at $1,700
Winsted Corp.
10901 Hampshire Ave. So.
Minneapolis, MN 55438
(612) 944-9050
FOR INFORMATION CIRCLE 3

The Winsted Corporation has designed wrap-around consoles that provide easy access to multimedia systems. The *corner mini consoles* feature edit and VCR shelves which adjust up and down for a custom fit. The work surface provides space for keyboards and other table-top electronic equipment. The base section features lift-off rear panels for easy access to the back of equipment. Dual wire raceway on back of the modesty panel allows separation of AC and COAX cables. The corner mini consoles are designed to be mixed and matched for expansion.

Objects in Motion

Product: GP-12 XL8
Description: 3-D digitizer
Price: $11,700
Science Accessories Corporation
P.O. Box 825
Shelton, CT 06484
(203) 925-1661
Fax (203) 929-9636
FOR INFORMATION CIRCLE 4

Adding to its family of 3-D digitizers, Science Accessories Corporation (SAC) has released *GP-12 XL8*. The new digitizer allows the user to capture data from an object in motion within an 8ft.x8ft.x8ft volume. Eight sound emitters are attached to the target object to be digitized. The object can be constructed of any material, even the human body. The GP-12 XL8 monitors the movement and transmits the data to a host computer in X,Y,Z Cartesian coordinates. Features of the GP-12 XL8 include a three unit microphone array that makes the system expandable and a simple on-screen installation menu. The DOS compatible digitizer can be used for virtual reality, tracking motion for database entry, robotics and motion studies.

Real Software

Product: Real 3D V2.4
Description: Software program
Price: $1,295 (Windows)
$1,995 (Windows NT)
RealSoft International Inc.
380 Queen St. Unit #2
Chatham, ON
Canada, N7M 2H6
(519) 436-0988
Fax: (519) 436-2429
FOR INFORMATION CIRCLE 5

RealSoft International Inc.

has introduced *Real 3D V2.4*. It is a full featured 3D modeling, rendering and animation program for Windows and Windows NT platforms. The program offers tools for power users including a set of b-spline modeling tools with CSG and polygonal mesh objects. High-end animation/simulation is available featuring collision detection, skeletonal control and inverse kinematics. Real 3D V2.4 also features Open Architecture with built-in language which allows for third party and user expandability. Cross platform files enable the program to be compatible between Windows, Windows NT and Amiga.

Quality Camcorder

Product: CCD-TR700 Handycam
Description: Camcorder
Price: $1,899
Sony Electronics Inc.
1 Sony Drive
Park Ridge, N J 07656
(201) 930-7834
FOR INFORMATION CIRCLE 6

Sony has announced the release of *CCD-TR700*. The high-quality camcorder includes features that make it an ideal addition to any desktop video system. The SteadyShot picture stabilization system captures professional-looking images without amateur shakes and jitters. The CCD-TR700 also makes editing easier and more accurate by incorporating automatic digital recording of RC (Rewitable Consumer) Time Code reference data in hours, minutes, seconds and frames. Some of the recording features include; a high-precision 1/3-inch CCD chip, AFM Hi-Fi stereo sound and Optical 10:1 variable-speed power zoom.

Layer After Layer

Product: MultiLayer
Description: Digital layering, compositing and effects tool
Price: $89.95
Prime Software
31164 Country Way
Farmington Hills, MI 48331
(810) 661-3393
FOR INFORMATION CIRCLE 7

Prime Software has released *MultiLayer*, a digital layering, compositing and effects tool for the Amiga. It offers unlimited layering of motion video or stills with a full timeline/editing interface. Features such as image mapping, luminance-keying, alpha-keying, and Chroma keys makes compositing of multiple sequences of graphics and video possible. Resolution Independence permits layering and input/output in any resolution from lo-res previews or anims to D1 to full film-resolution final output in excess of 4000X4000 pixels. MultiLayer requires Image-FX 1.50 or ADPro 2.5 or higher and AmigaDos 2.0.

Picture This

Product: ProPics
Description: A volume series of photographs
Price: $39.95 (single vol.)
Legendary Design Technologies
25 Frontenac Ave.
Brantford, Ontario N3R 3B7
Canada
(519) 753-6120
Fax: (519) 753-6120 ext. 5
FOR INFORMATION CIRCLE 8

Photography and computers go hand in hand as Legendary Design Technologies presents *ProPics*, a four volume series of photographs in digital format. ProPics can be used in video (with the Video Toaster) and desktop publishing work. It is available for the Amiga, but will soon be available for the PC and Mac. The Amiga version includes ProImage, an image processing program. All versions contain installation software and manuals with thumbnail previews of the photographs.

NEW UPDATES

It's In The Mix

Product: M367 Portable mixer
Description: Improved version of the M267
Price: $795
Shure Brothers Incorporated
222 Hartrey Ave.
Evanston, IL 60202
(708) 866-2200
Fax (708) 866-2279
FOR INFORMATION CIRCLE 9

The *M367* is a six-put, portable microphone mixer designed for professional applications in electronic news gathering, electronic field production and general audio mixing. It handles up to six microphones or line-level signals and can be used with any balanced, low-impedance or condenser microphone. It features a low-noise circuit that makes it quieter than the M267 and allows it to be used for DAT and other digital formats. Other features include, input clipping LEDs, detachable power cord, two XLR outputs, easy-access side battery compartment and a headphones monitor circuit. The M367 has a frequency response of 20 to 20kHz.

Signal Caller

Product: Ami-Back products
Description: Upgrade to Quarterback products
Price: $79.95
Intelligent Designs, Inc.
2925 E. Colonial Dr.
Orlando, FL 32803
(407) 894-1031
Fax (407) 894-2384
FOR INFORMATION CIRCLE 10

Intelligent Designs Inc. offers *Ami-Back* products that incorporate features such as the ability to recover data from crashed hard disks, never seen with Quarterback Tools. Ami-Back Tools have the ability to schedule operations which are performed automatically through Ami-Sched II. Ami-Back also provides SCSI tape and DAT drive support over that of Quarterback. Quarterback owners will enjoy the more reliable hard drive optimization that Ami-Back Tools offers.

Having A Vision

Product: Video Vision
Description: Videocassette
Price: $9.95 each
Azure Media Group, Inc.
214 East 24th St.
New York, NY 10010
(212) 683-5087
Fax (212) 683-2068
FOR INFORMATION CIRCLE 11

Azure Media Group, Inc.

has released *Video Vision*, a videocassette showcasing the latest in special interest video programming and innovative video equipment. Video Vision is a one hour tape aimed at the video enthusiast who seeks information about original titles and high-end video gear. The videocassette is available monthly and can be purchased through video retailers, mail order catalogs and on a subscription basis. Each tape features clips, background and commentary by professional contributors.

Avoiding Jitters

Product: JitterBox
Description: Alloy box for monitors
Price: starting at $395
NoRad
1160 E. Sandhill Ave.
Carson, CA 90746
(800) 262-3260
Fax (310) 605-5051

FOR INFORMATION CIRCLE 12

The JitterBox, newly released by NoRad Corporation, eliminates image jitter and distortion on computer monitors and video displays caused by background magnetic field interference with the monitor's internal fields. Jitter is common in environments that include video editing and post-production, and desktop publishing. The JitterBox is made of an alloy processed for high magnetic permeability and works by attracting and absorbing external magnetic fields. Interference with the monitor's fields is avoided and the screen image remains stable. The JitterBox is made of four identical corner pieces that attach to and slide into each other to form an expandable box that fits externally around a monitor or video display.

Furniture Animation

Product: Interior Design I, II, III
Description: 3D Software packages
Price: $49.95 ea.
Replica Technology
4650 Langford Rd.
N. Collins, N.Y. 14111
(716) 337-0621
Fax (716) 337-3887

FOR INFORMATION CIRCLE 13

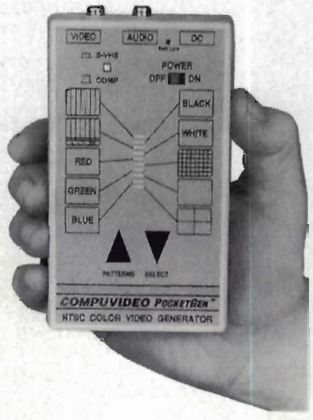
Replica Technology introduces *Interior Designs*, collections of over 50 real-world scaled furniture objects that are fully surfaced and ready to be loaded and rendered. Interior Design I includes objects for the living room, bedroom and dining room. Interior Design II features objects for the kitchen and bathroom. Interior Design III includes objects such as file cabinets, desks and chairs for the office. Procedural Textures were used for the objects so each is easy to modify and customize.

In The Side Pocket

Product: Pocketgen
Description: audio/video generator
Price:$399
CompuVideo
3861 Oceanview Ave.
Brooklyn, NY 11224
(212) 213-6818
Fax (212) 213-6818

FOR INFORMATION CIRCLE 14

Pocketgen is a handheld audio/video generator that can be used for editing studios or video repair shops. Users can use the Pocketgen to record SMPTE color bars with tone in the beginning of the tape and use Black Burst to lay down



black on tapes. The unit provides ten patterns including SMPTE bars and Black Burst switchable. Also included is an AC adapter for studio use. The Pocketgen is available in NTSC or PAL.

Playing Slots

Product: 3AVS
Description: An Amiga video slot
Price: $359
CeV Design
11 Spring St.
Reading, MA 01867
(617) 942-0209

FOR INFORMATION CIRCLE 15

CeV Design has released *3AVS*, a video slot case with 230W of power. Included in the 6 1/2"X17"X16" case is a special adapter that connects to A500, A1000, and A1200 versions. The slot case features Opalvision/Toaster compatible lines. Also mountable in the case are Scsi /removable drives.

New Reading

Product: The Video Producer's Marketing Guide
Description: An 82-page guidebook
Price: $40.75
Columbia Video Services
435 S.E. 85th St.
Portland, OR 97216
(800) 544-7482
Fax: (503) 423-8690

FOR INFORMATION CIRCLE 16

Columbia Video Services is distributing *The Video Producer's Marketing Guide* that shows how to promote your video services to businesses and organizations using low-cost marketing strategies. Also highlighted in the book are ways to create successful sales letters, direct mail pieces, Yellow Pages ads, print ads and project proposals. The Video Producer's Guide also features samples of marketing materials which can be easily adapted to video businesses.

Compress It

Product: Pegger 2.0
Description: Image file compression Program
Price: $49.95
Heifner Communications Inc.
4451 1-70 Dr. NW
Columbia, MO 65202
(800) 445-6164
Fax: (314) 445-6163

FOR INFORMATION CIRCLE 17

Heifner Communications has announced the release of *Pegger Version 2.0*. The image file compression program works in the background of the Amiga operating system. It compresses and decompresses files that are called by programs that can't directly export or import JPEG files. Compression levels of up to 15 to 1 are realized with no visible loss in quality. Pegger Version 2.0 features network support for Parnet, Enlan DFS and Novell. The new Pegger can now sense what file format a program requires and automatically converts the compressed file to that format. This feature can be setup in the snoop window for most popular Amiga software.

NewTek announces LightWave 4.0 for Amiga, PC and SGI

SIGGRAPH REPORT

by Jim Plant

It almost sounds like a cruel joke: meet in Orlando, Fla., at the height of the tourist season, in the humid, sweltering heat to experience the coolest innovations in the 3D graphics market. But 28,000 graphics professionals did exactly that and braved the heat and screaming children to attend SIGGRAPH '94. Fortunately, the exhibit hall at the Orlando Convention Center was air conditioned, so attendees were able to wander the aisles of 3D eye-candy in relative comfort. NewTek managed to turn up the heat by breaking a longstanding company tradition of producing Amiga-only products. They announced that versions of LightWave 3D, which had recently been unbundled from the Video Toaster and offered as a standalone Amiga product, would be produced for PC and Silicon Graphics computer platforms.

NewTek Director of Marketing Donetta Colboch said, "We expect to have these versions shipping by the end of this year." The SGI and PC software will ship as version 4.0 (the currently available version is 3.5), and all versions will list for $995. This includes the Amiga version (3.5), which currently lists for $695 and has a street price of about $600. NewTek also announced that purchasers of the Amiga standalone version of LightWave 3D would be able to upgrade to any version of LightWave 3D for an additional $149.95. This pricing structure offers a $150 savings to the upcoming 4.0 version on any platform by purchasing the Amiga version now and upgrading at a later date. No upgrade information for Video Toaster users was available at press time.

LightWave Product Manager Brad Peebler outlined some of the features that programmers Allen Hastings and Stuart Ferguson are implementing in the 4.0 version of LightWave. They include:

- Inverse Kinematics
- Open modularity for plug-in routines
- New filtering capabilities

In addition to LightWave 3D, NewTek also displayed the latest version of the soon-to-be-released Video Flyer. The Flyer drew large crowds who were impressed by the high-quality video signal and the easy-to-use graphic interface. NewTek President Tim Jenison projected that dealer and developer demo units would be delivered in mid-September, with volume shipments beginning in late October.

Several third-party hardware and software developers were invited to demonstrate their LightWave-related products from the NewTek booth. They included Blevins Enterprises, which showed VertiSketch, a 3D digitizer that works with the LightWave Modeler. Positron Publishing showed the latest version of Dynamic Motion Module. And CineGraphics gave demonstrations of its new program, PowerMacros. Xaos Tools, developers of Silicon Graphics' image processing software, was also in NewTek's booth showing Pandemonium on the SGI. It was not immediately clear what the NewTek/Xaos connection was. According to a NewTek press release, "NewTek, Inc. and Xaos Tools Inc. announced a cooperative technology agreement to explore synergistic technologies developed by the respective companies." Rumors were circulating that Xaos might be developing image processing tools to modify Flyer video clips.

On the show floor away from the NewTek booth were a number of companies with products of interest to Video Toaster and LightWave 3D users. DeskStation Technologies, which earlier this year introduced the Raptor, increased the performance and dropped the price of 3D rendering by announcing the Raptor Plus and the Raptor II. The Raptor Plus uses two MIPS R4600 processors running at 133 MHz and claims to have a 50 percent increase in performance over the original Raptor. The list price of the Raptor Plus is $16,995. The Raptor II is an under $10,000 system that approaches the performance of the original Raptor at a significantly lower price. The Raptor II uses a single MIPS R4600 RISC processor.

Making their first appearance at SIGGRAPH were two relatively new companies that had some interesting video-graphics hardware and software products for Amiga, Toaster and LightWave users. NoahJi's is handling U.S. distribution for Germany-based MacroSystem Development. They showed a shipping version of the VLab Motion System. The VLab Motion board is a JPEG-based, real-time video capture and playback system. With software support for sound, video effects and other video processing functions, the VLab Motion offers several impressive non-linear editing capabilities. The VLab Motion also appears to be ideal for 3D animators who want to composite 3D images with live video.

Sharing a booth with NoahJi's was Cybernetica, which was demonstrating the speed of the Warp System transputer board. Cybernetica was also planning to show Newton's Law, a LightWave 3D physics module that has been heavily advertised in this and other publications. Unfortunately, programming delays prevented them from demonstrating it. Company officials were projecting a late-August shipping date for Newton's Law.

With NewTek's announcement of standalone LightWave on multiple platforms, LightWave will finally have the opportunity to compete on an equal footing with other 3D systems. Considering how popular and visible LightWave is among the high-profile Hollywood crowd, it seems likely that it will have a considerable impact on the 3D community. In addition, considering, how Hastings and Ferguson are restructuring LightWave to allow plug-in enhancements, I suspect there will be a number of companies at next year's SIGGRAPH (in Southern California) that will be offering support for the rapidly growing LightWave user base.

VTU

TOASTER TIMES

Commodore Update

Jim Plant

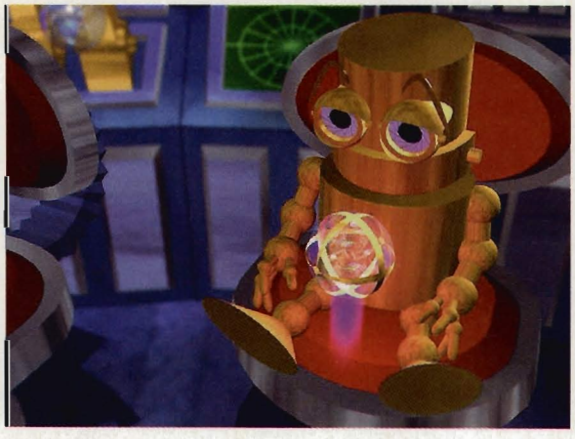
The sale of Commodore assets continues to crawl along at a snail's pace. According to Franklin Wilson, one of the Bahamian trustees responsible for the resolution of this process, the bidding process remained open at press time and bids were still being accepted. Alex Amor of Creative Equipment International confirmed in early August that he was working closely with the trustees to submit an acceptable bid. According to sources, Samsung and Commodore-U.K. have already submitted bids to the trustees.

Commodore-U.K. officials apparently believe that they are in a strong position to win the bidding process and have begun to contact U.K. Amiga dealers and developers to apprise them of their upcoming plans to manufacture, market and distribute Amiga computer products, including the CD-32, Amiga 1200 and Amiga 4000. *Video Toaster User* received a copy of a letter dated Aug. 3, 1994, signed by David Pleasance and Colin Proudfoot, co-managing Directors of Commodore-U.K., which stated, "...we are in the process of negotiating a Management Buy-Out, based in the U.K. This includes all of the I.P.R.s (intellectual property rights), patents, copyrights, etc.—in fact, the Complete Business. This encompasses R&D, which we intend to continue to operate from the U.S., however it is intended that all other aspects: sales, marketing, manufacturing, etc. would operate from the U.K ... and we can confirm that we would continue to produce the current range of Amigas, but more importantly, continue the development of the AAA chipset and future generation machines ...When the MBO is successfully finalised, which we anticipate will be within the next 3-4 weeks, we will be holding several launch events, to fill in the details, which at this moment we are unable to provide..." VTU

Toaster Animation Triumphs at Emmys

Joan Burke

Animators usually hear comments such as "That looks great" or "It looks so real." These compliments are the extent of appreciation expressed for a job well done. Recognition in the form of an Emmy, however, is something artists only dream about. For producer/animator Dale K. Myers, dreams became reality.



The World Premiere of Robo Jr, an animated feature created by producer/animator Dale K. Myers, resulted in four Emmy awards: Best Children's and Youth Programming, Outstanding Animation, Best Program Segment and Original Music Score.

Last May, the Michigan Chapter of the National Academy of Television Arts and Sciences presented Myers with four Emmy awards for *The World Premiere of Robo Jr*, a behind-the-scenes look at the making of Robo Jr.

"I was flabbergasted," Myers said. "By the fourth one I was speechless. It was real exciting."

The 10-year veteran of radio production received one Emmy for Best Children's and Youth Programming, another for Outstanding Animation, and a third for Best Program Segment. The fourth Emmy honored Robo Jr's original music score, which was composed by Martin Liebman.

Robo Jr is a six-minute 3D computer animated short that tells the story of a curious young robot who takes the family flying saucer and gets into trouble. According to Myers, the essence of the story touches human emotion.

"I think the story and characterization attracts eveybody, which was what I was going after," Myers said. "I've heard people say that Robo looks so real and that's a great compliment."

Robo Jr was entirely created with LightWave 3D. Five minutes of the short were rendered on one machine—the Amiga 2000. The final minute was rendered with the aid of an additional machine.

"It's amazing that four years ago I didn't even have a computer," Myers said.

Working in video production for 10 years, Myers not only owns a computer but began working in computer animation and opened his company Microtech Graphics & Animation in 1989. He started with a Sculpt 4D and later purchased a Video Toaster. In 1992, the Robo Jr ideas were conceived.

"I thought of the concept [for Robo Jr] in February of '92. At that time the tools were such that I felt could really output. However, we weren't seeing computer animation that told stories."

Myers had already been toying with ideas of robots and flying saucers when he witnessed a parent leave a child unattended in car with the engine running. That scene served as added stimulation. He spent two weeks sketching his ideas, and another three weeks writing the story of Robo Jr.

By the end of March, Myers began working on the objects. Within a month he created the realistic robots and flying saucers. At that point LightWave

Father of the Amiga Dies at 62

Jay Miner, affectionately known as the Father of the Amiga, died of complications related to kidney failure on June 20 at the age of 62 in Mountain View, Calif. A private memorial service was held in late July.

Miner, who once designed the Atari 800 during his time at Atari, later mortgaged his house and received financial backing from a group of dentists to start the Amiga Corporation, which was subsequently acquired by Commodore in 1984. Following the takeover, Miner maintained contact with many friends by running The Mission, an Amiga bulletin board.

Among his many interests, Miner enjoyed model airplanes, square dancing, camping and backpacking.

In the weeks following his death, Miner was the subject of many Internet messages praising his contributions to the Amiga community. He is survived by his wife, Caroline, and nieces Linda Helsig of Holt, Calif., and Robin Beers of San Diego, Calif. Donations may be made to a charity of choice.

VTU

Myers displays the Emmy statues he received for his work featuring the Robo Jr character.

2.0 was about to be distributed.

"I didn't want to render the whole thing out until I got my hands on LightWave 2.0," he said. "To me, a computer is a tool, but by far there isn't anything that comes close to LightWave. The price/performance ratio is phenomenal."

Once he owned the new technology, Myers increased his production rate to lightning speed. "I worked 16 to 18 hours a day, seven days a week for seven months," Myers admitted. "My goal was to be finished by SIGGRAPH."

Myers' next goal was to have his animation receive airtime in order to be nominated for an Emmy. He was able to set up a deal with WDIV Channel 4 in Michigan and *The World Premiere of Robo Jr* aired on Christmas Eve in time to qualify for an Emmy nomination.

The animated short was then ready for the big leagues—competing against the logos of local television stations and major companies which used high-end machines.

"The fact that Robo Jr was able to compete with the animations of other major companies says something about what LightWave can deliver," Myers said. "LightWave allows you to make magic."

Robo Jr may or may not be magic, but as a computer-animated cartoon, it managed to sweep four deserving Emmys. Although Myers is a firm believer that by the year 2000, 85 percent of Saturday morning cartoons will be 3D animation, his new project is far from a cartoon.

At press time he is working on a photo-realistic re-creation of the JFK assassination, which should be ready for distribution this fall.

VTU

News and Notes

AMUSE on Display

Blenheim's PC Expo at New York's Jacob K. Javits Convention Center last June was a trade show to be remembered. With nearly 120,000 people in attendance, the three-day show provided an introduction to technological innovations. Visitors from across the computer marketplace were able to witness the first East Coast demonstration of the Video Flyer. In addition, the Personal Animation Recorder was demonstrated while multitasking with LightWave and ScreamerNet rendering on the Raptor. The Expo also featured the Scala InfoChannel on an A1200. The New York Amiga Users' Group, AMUSE, was present for the third consecutive year. The organization had a booth in the Multimedia Pavilion, where they were able to present Amiga technology and distribute newsletters. AMUSE, which has been active in promoting the Amiga platform since 1985, once presented the Ami-Expo shows in partnership with a national expo company.

Pictured at the AMUSE booth at last June's Blenheim's PC Expo, left to right: AMUSE members Georgio Gomelsky and Livingston Hinckley, along with Larry Bragg of NewTek.

Animation Competition

Fresno Video Productions is holding an open animation contest. Submissions for 2D and 3D original animations are now being accepted and will be used in a video tape distributed worldwide. Winners of Animation Contest '94 will be determined by a select board of industry professionals. Deadline for contest acceptance is Oct. 14, 1994. For information send S.A.S.E to ANIM CONTEST, P.O. Box 9839, Fresno, CA 93794 or call (209) 277-1188.

And the Winner is

Pro-Kids Productions received a Telly award for the second consecutive year for a Trollies video production. Pro-Kids 1994 winning entry, "The Trollies All New Musical Adventure," received a finalist's trophy in children's entertainment. The show was shot on Beta-SP, mastered on D2 and utilized computer morphs modeled and rendered on the Amiga 2000.

VTU

Compiled by Joan Burke

DEAR JOHN

Working in Modeler

More Perplexing LightWave Questions

by John Gross

This month's column answers mail from my ever-growing IN basket:

Q: I have recently decided to try to model my own objects in LightWave and thought that the objects might be easier to model if I digitize all of the different views (front, left, right, back and top) and then import them into ToasterPaint. At this stage I cleaned up all of the background that I didn't need so that I just had the object by itself.

Figure 1

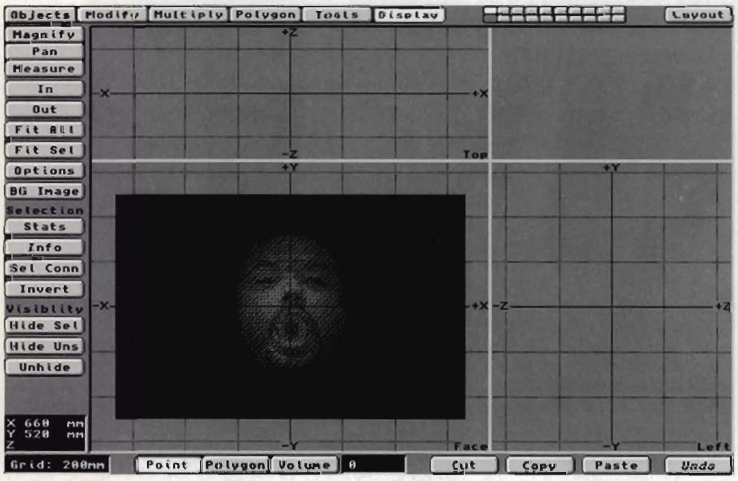


Figure 2

When this was done for all of the views in ToasterPaint, I tried to import them into Pixel 3D to transform them into objects, but the file must have been too big because it gave me a "Recoverable Alert" and I had to reboot my Amiga.

If they were transformed into 3D objects, I would have loaded them into Modeler and put all of the views together using the Boolean and Drill tools to make the complete object. Is there an easier way to do this using another program or would it just be easier to model the object from scratch?

Andrew Hogue
Rainy River, Ontario

A: The easiest and absolute best way to do this is to use Modeler from the very beginning. There are a couple of problems with what you are proposing:

First of all, Pixel 3D doesn't accept 24-bit images (which is what ToasterPaint saves out). You could convert the images down to two colors for Pixel 3D, but then you would run into the problem of getting flat extrusions for all of the different views. There is no program available (at least that I can afford) that can look at flat representations of an object from different views and extrapolate a three dimensional object. Pixel 3D only extrudes the "outline" of your object and gives you a flat, extruded representation of your object. If your original object was text to begin with, you may be fine (even though I would bypass Pixel 3D altogether and do it all in Modeler; it would be cleaner), but for anything else, Pixel wouldn't be a good idea. Plus, your object would be fairly messy after piecing it together with booleans.

Your images of the different views of your object saved from ToasterPaint can come in handy, however, if you own LightWave 3.0 or later. You could load them into LightWave (Images panel) and then enter Modeler and use the BG Image button (Display menu) to select and load the image into Modeler so you can use the images as templates to help build your object.

The Backdrop Image requester (Figure 1) lets you select the image from its pop-up requester. Only images that are currently loaded in LightWave will be available. Next, you can select the axis that the image will be projected onto (and consequently which view in Modeler will contain the image). If you were choosing the top view image of your object, you would select the Y axis, the front view would go in the Z axis, etc.

You can also input where you wish the center of the image to appear and what size it should be. If you want to keep the same aspect ratio as the original video image, enter Size values in a 1.333 to 1 width to height ratio. If you used a scanner or have a non video aspect image, you can enter values for Size that correspond to the pixel resolution (width and height in pixels) of the image. You can also elect to choose Automatic Size which will change the image size and center to fit into any existing objects in the Modeler view.

Finally, in the Backdrop Image requester, you have the

standard Modeler Units choices and a slider to adjust the lightness or darkness of the image. Also, there is an Invert toggle to give you a "negative" of the image. This can be useful if you have a solid black background in the image for instance.

Once you input your choices, the image will be drawn into the selected view (Figure 2). You can now use your different "cross sectional" views as templates to help you build your object. The Sketch tool (Objects menu) can be extremely useful here.

The nice thing about an image in Modeler is that you don't have to worry about it if you start zooming in or out of your object as the image will zoom and move as well (Figure 3).

Q: I do A/B-roll editing using a Macintosh-based Sundance System edit controller. It works great with the Toaster, but there are two things I would like to be able to do, but can't. Tech support at Sundance said it was a "Toaster thing," so I was hoping you could provide some answers.

1. How can I freeze a time code specific frame from video tape utilizing the GPI trigger of my edit controller? If not from my edit controller, what other method is available for time code accuracy? As it is now, I must freeze on the fly.
2. Is it possible to begin a dissolve, HOLD, then dissolve out using a time code edit controller like Sundance? We are currently able to time the dissolve via number of frames, but cannot hold it at the mid point. To do it manually with the T-bar eliminates time code accuracy. Are there any time code accurate alternatives?

Betty Wills
Axiom Entertainment, Inc.
Ft. Worth, TX

A: I'm afraid that I'm not going to be able to help much. Currently, there is not a way to freeze a time code specific frame using the Toaster. If you own a TBC that is capable of making a time code specific freeze, you can capture it in the TBC and then freeze that from the Toaster.

I know of no controllers that will allow you to begin, hold and then finish a dissolve. Perhaps some clever ARexx programming could allow this, but it wouldn't be an elegant solution.

Q: In his April 1994 article on the Exabyte tape system, George Avgerakis mentions the potential for doing an Exabyte/Abekas/D-1 film transfer. This sounds almost too good to be true, as I am looking at shooting sub-35mm-gauge and going to D-1 or a film recording system in lieu of an optical blowup with perhaps a couple of 35mm prints from there.

I can buy a Toaster-Abekas setup for a fraction of the quotes I've been getting from mainstream effects houses. Will the setup Avgerakis describes produce acceptable resolution for this purpose? Can I import a LightWave 3D animation to the luminance keyer to interact with previously filmed material? Will I have a problem with the dread "NTSC footprints" that are the bane of foreign markets once I get to D-1?

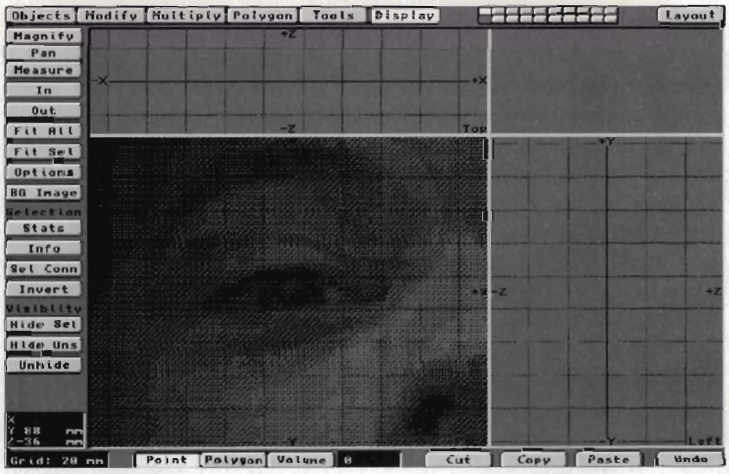


Figure 3

The independent filmmaker is being squeezed today as never before between tightening markets and the majors. If the Video Toaster can be as much of a tool for the filmmaker as the videomaker, you could have an entire second revolution on your hands.

Richard McEnroe
Brie Ventures
North Hollywood, Calif.

A: One thing to keep in mind about using Elastic Reality's Abekas driver and transferring your images in Abekas format is that you are looking at a resolution of 720x486. In many cases, this can be acceptable on film, but close scrutiny often requires higher resolutions for film.

I have seen *seaQuest* animations rendered for video transferred to film and they looked surprisingly good. However, we use a lot of fog and generally have soft edges. A hard edge and sharp angles normally would show up in medium sized resolutions. Film resolutions of 2048x1536 and higher are acceptable for most film work.

The final judgment is going to come after seeing your LightWave output on film. If you decide that you need to use larger resolutions, you will need to get your LightWave images to Exabyte tape in a manner other than Elastic Reality's Abekas driver.

Whenever using LightWave with previously recorded material, I would recommend capturing the footage as a sequence of images and using it as a background sequence in your LW scene. You will get a much better look than if you keyed a LightWave animation on top of it. You can also take advantage of certain LightWave features such as Front Projection mapping that help "marry" your LightWave animation with your live footage.

As far as the NTSC footprint is concerned, if you are going to film, you won't see any video artifacts. If you are staying in the NTSC video realm, then you will always have NTSC video artifacts, limited by many factors, including the quality of the equipment you are using.

VTU

John Gross is a supervising animator for Amblin Imaging and the editor of the LightWavePRO newsletter. He is currently writing the LightWave 4.0 manual. Questions can be sent care of VTU or electronically at jgross@netcom.com, 71740,2357 (CIS), or Bubastis (AOL).

EDITORIAL EVALUATION

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I found this article:

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SOUND REASONING

Monitoring Audio

Listening For Perfection

by Cliff Roth

The most important rule of sound recording makes anyone who espouses it sound like a schoolmarm, but it must be clearly stated: If you want to consistently record good sound, you must constantly monitor the signal you are recording.

You'd never think of shooting a picture without looking through a viewfinder, would you? So how can you record sound without listening through headphones to hear how it's being transmitted?

Of course, the most casual camcorder shooting can make wearing headphones seem excessive. A family trip to Disneyland, for instance, hardly merits maintenance of such high-professional standards. But anytime you're being paid to make a recording or have invested a lot of time, effort, and/or money into the project, monitoring sound is an absolute must.

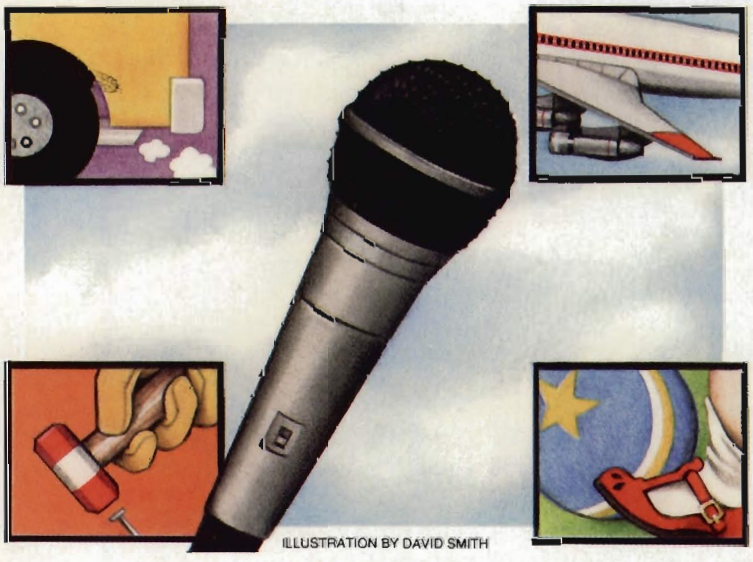


ILLUSTRATION BY DAVID SMITH

Wearing headphones during recording provides the only means of ensuring that audio is free from such problems as wind noise, hum, overload distortion, static from wireless microphone systems, muffled off-axis pickup (which occurs when a directional microphone is not pointed properly), distracting background sounds (traffic, appliances, distant voices) or a host of other potential audio problems.

Headphones

The best headphones for making field recordings are the large, earmuff-style sealed variety, because they do the best job of blocking out all other sounds. For home use, the Koss Pro 4AA (under $100) has been the classic of this genre for decades. Professional models include the Beyer DT48 (about $300) and the Audio-Technica ATH910 (under $100).

Admittedly, even professionals sometimes use the lighter, more comfortable open-air style headphones. For a discrete, casual appearance, you can't beat the light weight and convenience of the in-the-ear Walkman style headphones. But to use such headphones effectively, it's important to distinguish between the sound coming from the headphones and sound heard in the environment.

Professional sound recordists have the luxury of a powerful headphone amplifier circuit that boosts the signal to a respectable level to ensure a rise above the din. A semi-professional videographer working with a consumer or low-end industrial camcorder may not have this luxury. Inexpensive camcorders commonly have a fixed headphone jack output level, and it's not very high. (This is my main complaint about Sony's otherwise excellent CCD-VX3 camcorder. For $3,000 they could have included a headphone level control. Credit goes to Canon for putting such a control on their A1, L1, and L2 camcorder models).

When recording live music at a loud, amplified concert, the problem of distinguishing the headphone sound from the ambient sound becomes particularly acute. The best headphones for such applications include ear-protective casings (similar to the type worn by airline ground crews to prevent eardrum damage) that block out ambient sound.

One recent innovation that may be useful in noisy recording environments is the noise-cancellation headphone system. Such headphones, manufactured by Noise Cancellation Technologies, employ active electronic circuitry that feeds an anti-noise signal to the ears which effectively blocks out ambient sounds and cost about $150.

Because most low-budget camcorders have a headphone jack with a fixed (not adjustable) output level, it is helpful to use high-sensitivity headphones that tend to produce a louder signal for a given input. Typically, the open-air design units deliver more sound per watt (higher efficiency) than the earmuff designs. But this efficiency varies with each unit. As a general rule, headphones with higher impedance ratings usually offer better efficiency. For example, a 2000 Ohm open-air headphone generally produces a louder signal than an eight Ohm earmuff design.

A solid accessory investment for any cost-efficient videographer is a headphone amplifier for the camcorder's headphone jack. These amplifiers, which are commonly sold in music supply stores (for electric guitar practice without disturbing the neighbors), are battery operated and generally cost about $100. Markertek Video Supply

sells a professional battery-powered headphone amplifier, model PO-29, for about $115 (mono), or $160 for the stereo version (PO-45).

Following the Signal Chain

When using wireless microphone systems and/or microphone mixers, you'll have the opportunity to monitor the sound at several different points in the signal chain. Most wireless microphone receivers and microphone mixers have their own headphone jack. At first glance these intermediate monitoring points may seem to offer a distinct advantage, especially if a variable headphone level control is offered. But despite this potential advantage, compared to a camcorder's headphone jack, monitoring the sound at these intermediate points should be avoided because problems can arise further down the signal chain.

For example, you may plug headphones into a wireless receiver and hear everything fine, only to later discover that the signal never made it onto tape due to a faulty connection between the receiver and the camcorder's microphone jack. You may also find that the recorded sound was highly distorted or had a major hum problem which was not audible in the wireless receiver's headphone jack. This is also true for a mixer headphone jack. It is common practice to monitor the sound out of the mixer in a studio where everything has been carefully wired and left the same way for months or years at a time, and where volume units (VU) meters are commonplace on recording equipment as further confirmation. But when you're recording in the field and have just plugged everything together in the past hour, monitoring off the mixer poses the potential of missing a problem at the recorder or camcorder.

Confidence Monitoring

Ultimately, the only reliable method to check the quality of a recording is to play it back. After all, no matter how carefully levels are set and the microphone is aimed, playing back the recording is the only way to detect problems such as dirty tape heads, improper tape threading, or a host of other potential problems.

More elaborate cassette and open reel tape recorders feature three-head design for this purpose. The tape first passes an erase head, then a record head, and finally a playback head. While recordings are being made, it is possible to monitor the playback quality a fraction of a second later. Professional format VCRs often include "confidence heads" to serve a similar purpose for almostimmediate monitoring of video and audio signals.

Unfortunately, no consumer camcorders or VCRs offer the confidence head feature. Even the most sophisticated VHS and S-VHS VCRs use the same head to record and playback the linear-track audio signal, and all 8mm and Hi8 equipment record sound helically (using a spinning head, the same way the video signal gets recorded).

Short of having confidence heads to monitor off-tape while recording, the best strategy for avoiding disaster is to first make a test recording and play it back before serious taping begins, and then periodically play back the last few seconds of the recordings to make sure everything is coming out fine.

Amplified Playback

For some situations, a single pair of headphones is inadequate for sound monitoring--the audio signal needs to be fed through a loudspeaker system so that many people can hear it at once. This need arises when making music videos, so that musicians can lip-sync with studio recordings; and when making dance videos so that the performers can synchronize their actions with the music.

These monitoring situations are rather simple, because the playback audio will be the only audio signal. There's no need to have a live microphone during recording. For these applications you can use a self-contained amplified speaker—preferably battery operated, for location shooting. Try the standard powered speakers commonly sold for dorm room stereo systems and multimedia (such as the Bose Roommate system), or the more rugged portable guitar amplifier systems commonly sold in music stores (Radio Shack sells a simple, low priced battery-powered unit for about $20; catalog #32-2040).

A more complicated monitoring situation occurs when you need to simultaneously play back a previously recorded audio signal while recording a live signal from a microphone. If you mix the two signals together and feed the mix into an amplified speaker, you'll run the risk of triggering a squealing feedback tone when the live microphone picks up its own signal coming through the speaker. This is one of the reasons why all professional mixing consoles incorporate a "monitor mix" feature, which lets the engineer create a separate mix just for monitoring, apart from the mix that's being recorded. In producing a TV game show, for instance, you can feed music and sound effects to the stage monitors without feeding the live microphone signals to the stage.

To let a studio or auditorium audience hear live microphones without inducing feedback, careful attention is paid to put all speakers in front of the stage, and to place all microphones so they are pointing back towards the stage, behind the speakers. At its most sophisticated level, sound reinforcement for a large outdoor concert might include multiple banks of speakers placed various distances in front of the stage, with time-delay circuitry to synchronize the speaker signals with the arrival of sound from the speakers closer to the stage.

VU Meters

So far we've only been talking about listening devices for monitoring sound. Every professional VCR and camcorder, along with some consumer models, also include visual indications of audio level in the form of VU meters. Like the similar audio measuring system of decibels, the VU scale is a relative one. The zero-VU point on the meter represents the optimal average recording level. Quantitatively speaking, the zero-VU level doesn't mean anything (the traditional meaning of zero); rather, it means zero deviation from the optimal recording level. Usually, the manufacturer has allowed for a considerable amount of headroom above this level so that distortion does not occur unless the level exceeds about +6 or +12 VU.

VU meters are no substitute for audible monitoring; they complement what is heard in headphones or speakers. The VU meters offer a gross check that a signal is arriving, a calibrated means of adjusting recording levels, and sometimes help detect the presence of more subtle problems like hum pickup. If the meter never swings entirely to the left of the scale during quiet moments, for example, but seems to remain stuck at a low but visible level, then there's proba-

continued on page 92

TIPS & TECHNIQUES

2D Style Morphing

Expanding the Limits of LightWave

by Brent Malnack

The following tip was inspired by a recent project that Tim Doherty completed (with rendering assistance via my Raptor). Although LightWave's morphing capabilities are primarily aimed at 3D morphing between various shapes, the same tools enable convincing 2D morphing as well.

To begin, two pictures are needed, a starting image, and an ending image. This same technique can also be applied to moving morphs, but for best results, concentrate on using static images. Take a video camera and grab two faces, preferably over a solid color background.

The result of a 2D morphing project completed using LightWave is shown above.

Once the images have been saved, load them into ToasterPaint and carefully cut around the face using the polygon tool. Once the image has been entirely cut out, save the brush. Keep in mind that a bug in ToasterPaint may prevent this operation from working properly. If it does not work, either the screen will flash, or the operation will result in only cutting out the outline of the shape, and not its contents. Using a larger brush tip usually corrects the problem, although it requires cutting out the shape again. Cutting out a large brush may not be possible on systems with only 1MB of chip RAM. In any case, it may be necessary to use the GetSmall project.

After both brushes have been saved, load LightWave. Load both images into the Scene with the Load Image command. Enter Modeler. Under the Display menu, activate BG Image and select the image name you want to display. Select a Z axis projection. If the image is hard to see, adjust the contrast slider in the BG Image menu until it looks right.

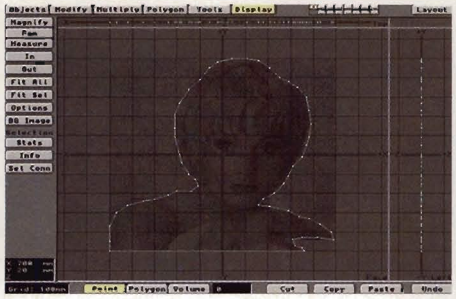
In the Polygon menu, click on the Points button. In the Face view, begin to add points to the work space by clicking on the right mouse button and tracing te object's shape. Somewhere between 50 and 100 points should be sufficient. Place the points in a clockwise manner beginning with the bottom left corner of the image and proceeding up and around the shape until finally ending near the first point. Press the "p" key. This will create a polygon. If any of the points need adjusting, use the Drag tool to get them into place. Once you are happy with the shape, create a surface name for the polygon called "Source Image." Save the object as SourceObject.

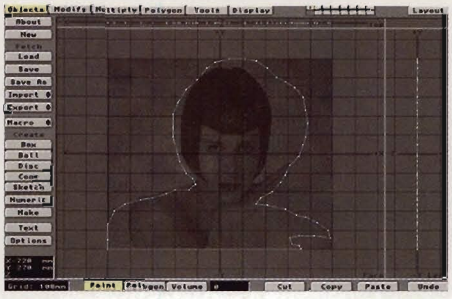
Next, select the destination image in the BG Image menu. This will place it behind the current object. Carefully re-adjust all of the points with the Drag tool so that they conform to the new shape. Keep in mind, that the point that is dragged from the original shape travels to the location that it was dragged to in the destination shape during the morph. So, for obvious reasons, use logic in choosing which points should represent which parts of the object. If you take a point from the bottom right corner of the source image and move it to be the top left corner of the destination image, as Dennis Hopper would say, "Bad Things" will happen. An important lesson in morphing objects in LightWave is that they need to contain the exact same number of points. The procedure described in this tutorial ensures it.

Once the points in the object have all been moved, it is time to designate a new surface name for the second object. Select the Polygon menu, click on the Surfaces button and type in the name "Destination Object." Save the object as Destination Object and exit Modeler.

Now in LightWave, load both objects. If nothing has been changed, the images needed for the texture maps are still loaded into LightWave. Go to the Effects panel and specify "none" as the background image.

Go to the Surfaces Control Panel, and find the surface named Source Image. Click on the "T" button to the right of the Surface Color requester. This will open the Texture Map window. Find the source image and select a Planar Image Map in the Z axis. Click on Automatic Sizing to properly adjust the dimensions of the image to fit the shape of the object. Click on OK. Follow the same steps for the Destination Object surface, with the exception of selecting the destination image to be used as the texture map. Click on OK. This might be a good time to save the objects, as the surface information will now be saved.





Left to right, the starting and ending images for the 2D morphing project.

In the Objects Control Panel, find the destination object, and set the Object Dissolve value to be 100 percent. This will prevent this object from being visible in the rendering process. Find the source object, and click on the "E" button to the right of the Metamorph Level window. This will open up an Envelope Control Panel. For this demonstration, let's assume that we want the morph to occur over the course of 20 frames, which is a typical value for a morph. Since the current value is 0 percent, we are ready to create a key frame at frame 0. Now, click on the Create Key button and type in 20 for frame 20. Set the value to 100 percent. At frame 20, the object completely morphs into the destination object. Click on OK.

Set the Metamorph Target to be the destination object. Click on the Morph Surfaces button. This causes LightWave to change the surface characteristics of the source object to become those of the destination object. It is essentially a dissolve. The morph has now been set up. Make a wireframe preview. The object should change shape from the source object to the destination object. Render the scene.

Advanced Tips

To expand upon this idea, try to direct the morph process. Do not move points to the most obvious position, but to travel more to suggest motion. A swirling process works well.

As with any other LightWave motion file, the spline may be adjusted to alter the speed curve in which the transition will take place. If multiple objects are morphing on the screen at once, vary the settings between the objects for a more natural feel.

Combine some 3D morphs with the 2D morphs. As long as objects contain the same number of points, they should morph properly. If you follow the initial steps described above, but create a cube, the points can be stretched into any shape. A fun experiment is to run the Spherize Modeler Macro on such a cube and morph betwen the cube and the Sphere.

VID

EDITORIAL EVALUATION

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Catch Up on Your LightWave Skills

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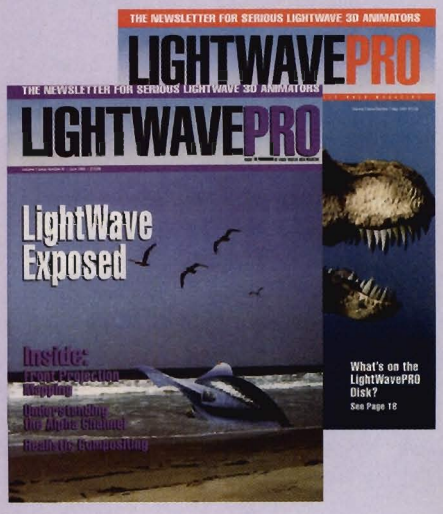

SLICES

Tips and Tricks in Toaster CG 3.1

Aligning Text and Using Three-Color Blends

by James Hebert

This month's column is devoted to helpful hints that will improve your efficiency in ToasterCG.

Lining Up Text (Vertically)

A good character generator is similar to a word processor for the television screen. The downside of this comparison is that ToasterCG does not hold up well when compared to a full-featured word processor. Text selection is awkward and there's no spell-checker. Also, useful formatting features such as margins and tabs are not present. But there are ways to work around the absent features.

In light of this last item, here's a tip to help line up items, such as bullet points, on the page. In a typical session, you would select the font and click the cursor on screen where you want to insert the first bullet point before entering text. Upon pressing Return, the cursor jumps to the center of the next line—not to the far left edge of the screen, nor to the point just below the beginning of the previous line that was just typed (Figure 1).

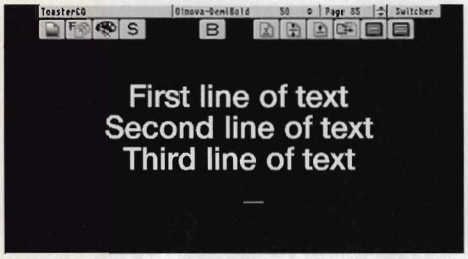

Figure 1

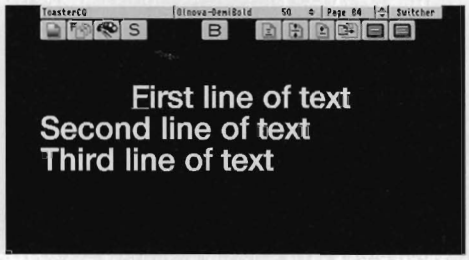

Figure 2

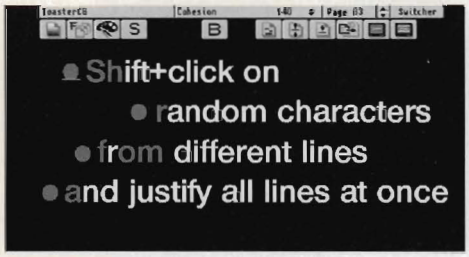

Figure 3

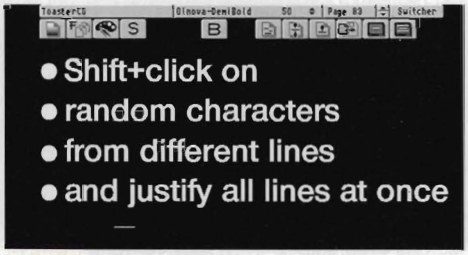

Figure 4

There's a simple way around this minor irritation. Before entering any text, click the Justify Text button. A single click switches this button from its centering action to left justification. Now click the cursor anywhere on screen and press Return. It appears the cursor has jumped to a point just below the previous line, but it hasn't. Begin entering text and watch the characters appear from the left edge of the screen. Press Return and enter a second, third, or fourth line. Each successive line will be justified to the left edge of the page (Figure 2).

When the time comes to position this block of text on screen, drag the mouse over at least one character from each of the bullet point lines. Release the button after you do this. Now go back and click on one of the highlighted characters before dragging the entire assembly into position.

If you forgot to select the left justification setting and you've already prepared each line of text, don't worry. Select at least one character from each line, then click on ToasterCG's justification button three times. This button operates on the selected items only, not the entire page, so the bullet points will remain in place (first click), jump to center screen (second click), then jump to the left edge (third click). They are now justified to the left edge of the screen, still selected, and you can now drag them into position as a unit. See Figures 3 and 4 for the "before and after" examples of this.

Lining Up Text (Horizontally) and Making Curved Text

It can be difficult to line up letters horizontally. In some ways, it's almost impossible. However, a little perseverance will help you score the points you need.

When would you desire to line up letters horizontally? Don't they automatically share the same baseline when you enter them on screen? If you're familiar with ToasterCG, you probably know that they do. When selecting one font, begin entering text, then select another size of that font and continue entering text on that line, the two dissimilar sizes will indeed alight on the same baseline. Note that this also works when you change fonts in the middle of a word or a line, not just font sizes. This is a neat way to use gigantic capital letters at the beginning of a word or phrase.

Suppose, however, that you wish to create a drop cap? Or worse, let's say you wish to re-create a graphic similar to that in Figure 5, as I did, with the word 'gradient' appearing to arch across the screen? In this case, the top of the letters align, not their bases. The effect is appealing, and well worth the effort. Here's how it was done.

The font is called Cohesion, and it can be found in the FontbankA-C directory of the Toaster. I chose it because it was relatively condensed, which allowed me to squeeze more characters on the line. I loaded the font eight times, each time at a different size. The tallest was 320 pixels in height while the shortest was 120 pixels (note that every time you load a font into ToasterCG, a small amount of system memory is consumed. However, loading the same font a second, third or fourth time, etc., in another size, consumes no additional memory).

A bit of experimentation demonstrated that each character should be about 40 lines shorter than the character to its left. ToasterCG does not support character-by-character baseline adjustment, which meant that each character had to be entered on its own line, followed by a Return. I then changed font size, entered the next character, and pressed Return again.

Once the letters had been entered, they needed to be aligned at the top of the screen. Internally, ToasterCG limits the height of each character. I was simply unable to drag them to the top of the screen and let them be, since each stopped at a different point near the top of the screen. Furthermore, neither the Lower Third button nor the Vertical Centering button treated the characters in the manner I desired.

The trick I settled upon was this: I used the menu bar as a straight edge across the screen. I dragged the menu bar at the top of the screen down about an inch from the top. I then selected a character and dragged it until the top edge of its bounding box just showed above the edge of the menu bar. After placing it there, I went after the next character. This allowed me to line up each character visually, using the menu bar as a guide.

There is one "gotcha" associated with this tip, and it can also affect your work elsewhere in ToasterCG. The bounding box that surrounds a character, word, line, or graphic, surrounds the entire item. If that item has a long drop shadow, the bounding box surrounds both the item and its shadow. If it has an outline border as well, the bounding box surrounds it too. The point is that if you attempt to line up items that have shadows and borders of different sizes, don't count on the bounding box's edges for help because it will throw you off.

To avoid this, turn off shadows and borders for the items which need alignment. With these features out of the way, the bounding box for each item will accurately reflect its boundaries. Get the items into position, render the image to make sure they're correct, then reset the shadow and border settings.

And Another Thing...

Two additional tricks came about as a result of this graphic. First, notice how each letter of the word Gradient appears to overlap the letter beside it. The result is a feeling of depth or perspective. This can be achieved by positioning large letters such as these so they overlap slightly. Select the first letter, press the right Amiga key to display the secondary menu, and click on the Bring to Front button (the first button in the row). This places it in the frontmost layer. Select the next letter, then click on the Send to Back button (the second button in the row). This places it behind the first letter. With each successive letter, use the Send to Back button. As a result, each character is placed behind the character next to it. Finally, set up long shadows in the correct direction so that they fall across the layered letters.

The other tip concerns the neon glow behind the phrase ToasterCG 3.1. This was created with two boxes (each one about 1/4-inch high) extending the full width of the screen, one just above the other. Each box was the same color of orange, and had shadows and outlines turned off. The upper box was colored using a gradient blend, with both top and bottom colors being the same shade of orange. The top color had its alpha channel set to 100 percent. The lower box utilized

Figure 5

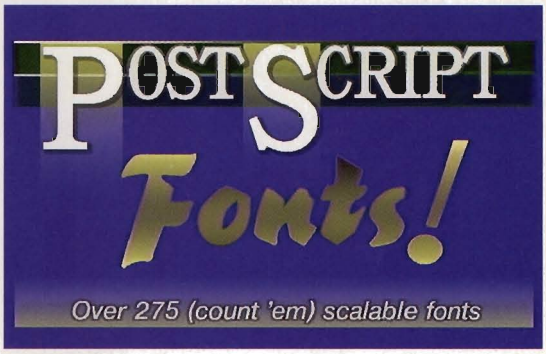

Figure 6

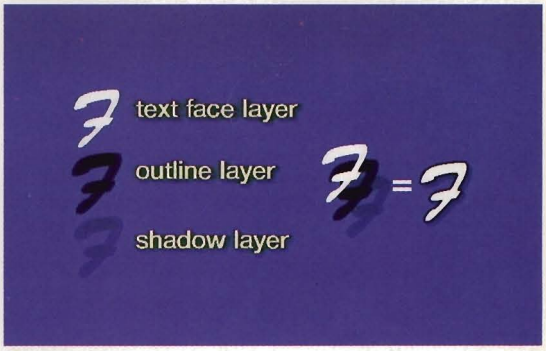

Figure 7

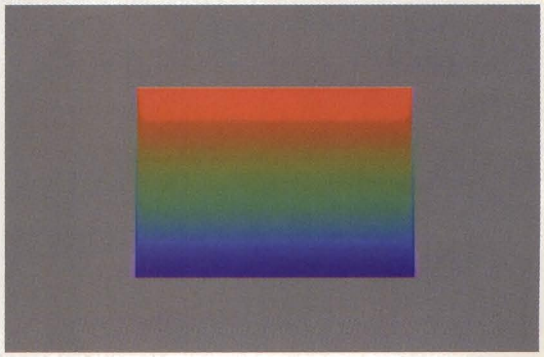

Figure 8

the same gradient color scheme, except that its bottom color had 100 percent alpha channel transparency. When rendered, it appears that the two boxes are one, nice and bright where they overlap, soft and fuzzy where they fade out.

Three-Color Blends

When NewTek released the 3.1 upgrade, a new feature was added into ToasterCG called the "gradient blend." No longer were users limited to single-color text or memory-devouring color fonts. Fonts could now take on a life of their own with some attractive color schemes.

You've probably seen (and used) ToasterCG's two-color blend feature on fonts. With a little fancy footwork, the appearance of a three-color blend can be created. This hack works best when the word or phrase involved has both ascenders and descenders, so that the full effect of the blend (which runs from the top of the ascenders to the bottom of the descenders) is achieved (Figure 6). Note the letter F and the exclamation point. They appear brighter at the top and the bottom and dimmer in the middle. It's a nice, subtle lighting effect.

The trick involves specific color settings and an understanding about how ToasterCG treats the face of each character, the outline for each character, and the shadow for each character. Take a look at Figure 7. This image depicts the manner in which ToasterCG determines how a character appears on screen, based on the three aforementioned elements.

First, ToasterCG draws the face. In this case, a solid white letter F. Second, ToasterCG draws an outline. It is a solid black letter F that is slightly larger on all sides than the white face element. Third, ToasterCG draws a shadow element the same size as the outline. ToasterCG then stacks these three elements, one atop the other, like so: face, outline, shadow. The result appears to be a single character, the white letter F, with a black outline and a semi-transparent shadow.

If you want to make this character transparent, so it appears floating over other elements on the screen, adjust all three transparency settings (face, outline, shadow). Otherwise, results will not be satisfactory.

Using the letter F from before, if only the face transparency is adjusted, a transparent face element is created. When rendering the image, ToasterCG stacks it on top of a solid black outline element with a dark shadow element as well. The result is a dull gray letter F (half-faded white over black looks like dull gray).

Therefore, when items appearing partially transparent are desired, remember to adjust all three elements; the face, the outline, and the shadow. For simplicity, turn off shadow or outline for these items so there is no need to deal with them. This works depending on the items you have on screen, and it's simple.

Now return to the original topic, creating a three-color blend. Use only two elements, the face and the outline (the three-color blend does not work with shadows). Let's try it on a box. In ToasterCG, make a solid color back-

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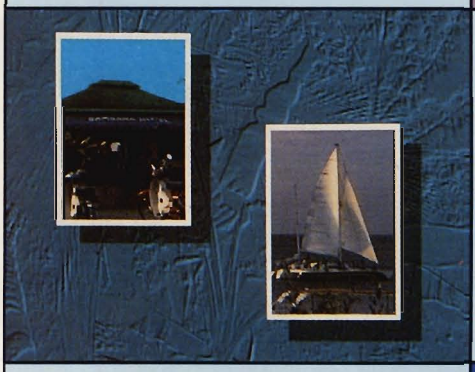

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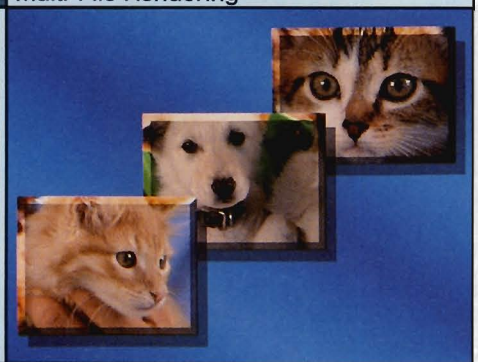
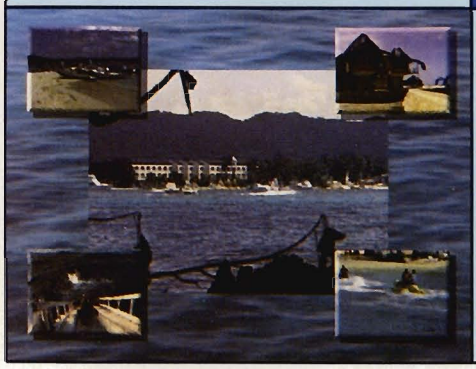
AutoPaint is a simple point and click interface that controls Toaster Paint and will shrink and place your pictures accurately in our templates. Our templates were designed to allow plenty of room for you to add text.





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drop page with a gray background. Create a box and size it to fill a good portion of the screen (perhaps one-third). If the shadow button is active, click on it until it shows that there is no shadow for the box.

Select the Palette button. Make sure the T (face) button is selected, and click on the second of the two T buttons below it (it appears to have a slightly blended face). Two color buttons appear, for the top color and the bottom color. Select the top color button and adjust the color sliders to R 255, G 0, B 0. The alpha channel slider should be all the way to the right (no transparency). (Incidentally, always use bright red carefully in video since it tends to run hot and smear. For this example, ignore this rule). Select the bottom color button, adjust the color sliders to R 0, G 255, B 0, and move the alpha channel slider all the way to the left (full transparency).

A face element that is red at the top blending to green at the bottom has been created. Furthermore, as it blends toward green, the green bottom half fades into nothing.

Select the B (border, or outline) button. The two color buttons appear for the top color and the bottom color. Select the top color button and adjust the color sliders to R 0, G 255, B 0 (the same bright green that you used before). Move the alpha channel slider completely to the left (full transparency). Select the bottom color button, adjust the color sliders to R 0, G 0, B 255. Move the alpha channel slider to the right (no transparency).

A border element that is green at the top blending to blue at the bottom has been created. As it blends toward blue, it grows more and more solid.

Render the image. A box that is tinted red at the top, blending to green in the middle, and blending to blue at the bottom should be visible (Figure 8). The result is two overlapping layers, a red-green blend and a green-blue blend, that fade into transparency as they blend toward green. The effect works on fonts as well, and can be used to create a nice play of highlight across a font as shown in the word Fonts in Figure 6.

If something is incorrect, check the blends, then make sure that the correct elements are transparent. Also make certain that shadows are turned off.

PostScript Troubles

Many people have had difficulty adding PostScript fonts to their collection. There appears to be a great deal of confusion over acceptable versus unacceptable Adobe fonts. Fact is, ToasterCG accepts both Adobe Type 1 and Adobe Type 3 fonts (Note LighWave Modeler, which accepts only Adobe Type 1 fonts), fonts in the Intellifont format, and fonts in the older ToasterCG format (used in 1.0 Intellifont is included with the Workbench operating system, whereas PostScript capability needs to be added to the machine in order to use it. (Intellifont can be considered the Amiga's native form of resizable font.)

Mac users, see Frank Kelly's tutorial on converting Mac Postscript Fonts on page 90.

Read this next statement carefully: The format for Adobe's Type 1 and Type 3 fonts is the same whether you

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TAMING THE WAVE

From Human to Humanoid

Combining LightWave with Live Action

by David Hopkins

Sometimes things just don't work out quite the way they're planned. Things like a multiple-part tutorial on building a slot machine for LightWave, for example. Several months ago I started such a tutorial in this very magazine. It was the first tutorial that covered more than two issues and I made a couple of mistakes. The first, and most critical, was not writing out the entire tutorial before any of it was published. The second was trying frantically to write each installment in scraps of spare time during two of the most intense and lengthy animation projects I've ever undertaken.

Figure 1

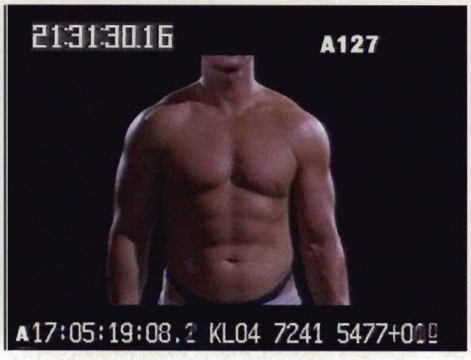

Figure 2

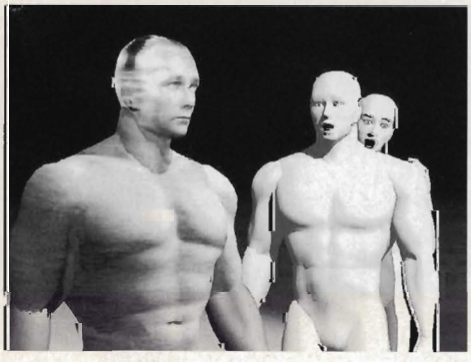

Figure 3

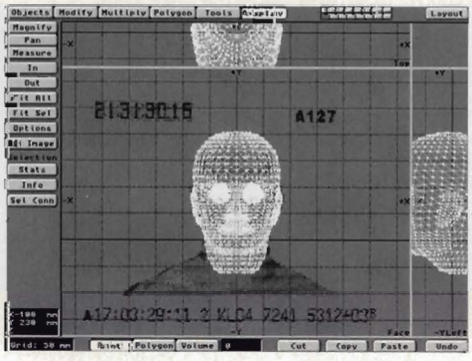

Figure 4

Images Courtesy of SciFi Production/Green Communications/Mach Universe

So why am I writing about this? Because due to the length of time that has passed since the last installment of Taming The Wave, and the fact that I am simply unable to create time to rebuild all of the pieces myself (the originals have vanished), it is just not possible to conclude that tutorial at this time. I apologize for any inconvenience that this may have caused, but I suspect that people who were seriously disrupted by the error have already completed the project on their own. I intend to limit my column to tutorials that can be explained in a single installment in the hopes that this problem doesn't occur again. Hopefully those that were following the project were able to learn from the techniques that were presented.

Rather than dwell on that for the duration of the column, I can offer something to make up for it. At the time of this writing I am working on "Digital Man," a feature film for SciFi Productions in association with Green Communications to be distributed by Republic Pictures late this year. While primarily a live-action film, "Digital Man" makes use of LightWave animation for both background monitor displays and full-screen special effects. One of these sequences, showing Digital Man's construction/evolution at the very beginning of the film, involves him walking through a completely computer animated set. The images accompanying this column show a few frames from an early test. This is not a finished scene, but I felt this trick was just too good not to pass along at this early state of development. Since I was building the entire factory set in LightWave, the question became how to get our actor, Matthias Hues, to appear as if he was actually in the scene. We had Humanoid, the spectacular human object, set from Crestline Software. We had our actor available for photo sessions. I had done previous tests with mapping live video faces onto a 3D face, but would it be possible to wrap the images of our actor around the entire Humanoid in a convincing manner?

First we needed to pick the best Humanoid model to match our actor. Since Matthias is a muscular fellow, the Humanoid StrongMan was selected. We posed our actor in front of a solid black backdrop and shot him using 35mm motion picture film. The images taken included those shown in Figures 1, 2 and 3. The film was developed and transferred to Betacam tape which was then grabbed using the PAR at the highest possible quality factor. These images were then exported as IFF images for

From left to right, a sequence from "Digital Man," a feature film for SciFi Productions in association with Green Communications to be distributed by Republic Pictures later this year.

use in image mapping. As we discovered, the shoot was improperly lit, but the images were useable to determine whether the concept was practical or not.

The next step was to figure out the texture map sizing. The simplest place to start is the head. The Humanoid's head was loaded into Modeler, and the image of our actor's head was used as Modeler's BG Image (Figure 4). If you try this on your own, make sure that you change only the sizing and/or centering for the BG Image, don't move the head (or other body part) around. If the object is moved, Humanoid's hierarchical positioning will be ruined. If there is difficulty seeing the BG Image, try adjusting the contrast, or invert it in the BG Image options. Place the image so that it is in the rough ballpark area needed, then make a note of the Size and Center settings your BG Image needed to get there.

One more thing, with only the head in the current layer press "q" to bring up the surface name requester and name all of the polygons "ManStrong_Face." Save this object as "MapHead" or something else that is easy to remember. If the head surface is not named something other than "ManStrong," the majority of the body will get mapped (incorrectly) because ManStrong consists of most of the skin. Also, we'll want the image of our actor's eyebrows and eyes to match up with the rest of the face, so in essence we're going to want to map onto a "single" surface. Save the object as "NewHead" or something else you will remember and return to LightWave.

It's a good idea to do body part mapping one piece at a time in LightWave, so make sure that only the head is loaded. In the surface named "ManStrong_Face," set the Surface Color Texture to be a Planar Image Map along the Z axis. Then specify the same Size and Center learned in Modeler and render the shot. If the actor's actual face looks squeezed, adjust the Texture Size and/or Center by minor amounts until it seems to fit the Humanoid's head properly. Keep rendering and adjusting until the face seems to fit properly. Make sure that you move your camera around a little to make sure that your coverage is correct from all forward facing angles. When you are happy with it, save the object so that the settings remain on the face.

It's a good idea to do body part mapping one piece at a time in LightWave, so make sure that only the head is loaded.

You may have noticed that the eyeballs are missing. Ideally, we should go through the whole process over again for each eyeball, mapping the same image but with different settings. Different settings are required for a simple reason. The eyeballs don't load directly into position in the face. They are, in fact, created right at the World Center of X0, Y0, Z0 so that they can be rotated in your animations.

It is the Humanoid scene that puts them into position. If the same settings were used, it would be likely to find the tip of the actor's nose in the middle of each eyeball. That's probably not the desired effect. A simple solution to the problem is to permanently attach the eyes and eyelids to the face, in position, with the same surface name as the face. This eliminates the possibility of moving the eyes, but for our sequence the Digital Man is not yet "aware," so unmoving eyes are not a problem. So how do you attach the eyes in position? Load the "ManStrong.Scene" into LightWave. Select the left eye object, and click Save Transformed from the Objects Panel. Save it as "LeftEyeInPosition.lwob" or something similar. Do the same thing with the right eye, and both eyelids. Be sure you are using Save Transformed and not just a straight save. Save Transformed will cause the object to be saved so that it loads up into the exact position that it had been moved to in LightWave.

Once each of these things are saved, go back into Modeler and click New. This is important because it clears out the old head which has the old surface settings (nothing). Now, load the head again (this one has the surfaces you just defined in LightWave), and load the eyes and eyelids into the same layer. Everything should load right into place. Press "q" for the surface requester, locate the surface named "ManStrong_Face" and apply it. This will cause both the eyes and eyeballs to "acquire" the map you placed on the rest of the face. Export this object to replace the head you

continued on page 92

CYBERSPACE

Sound Utilities

How to Find the Best Audio Digitizers

by Geoffrey Williams

It's difficult to imagine a video production without sound. Fortunately, it is possible to create a series of transitions and trigger sound effects at specific times with Toaster sequencing software. The new Toaster software can even add sounds to transitions. There are also a number of freely distributable utilities that help edit and play back sounds, and this month's column reviews the best of them.

Before proceeding, however, I want to take a moment to point out a few basics about sound usage. The first issue to outline is where sounds come from.

There are many audio digitizers available, with capabilities ranging from 8-bit to 16-bit. Connect them to an audio input or microphone and you are ready to record. You can record from almost any source, but that does not mean that you should. Sounds that you create and record yourself can be used in any way that you desire. Sounds from prerecorded sources are typically copyrighted, and using them without permission is illegal.

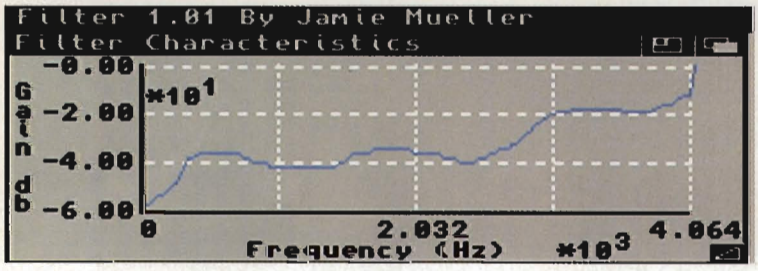

Figure 1

Many companies sell CDs of sound effects for use in video projects, and they can be used in any form short of selling them as sound effects. However, the sound effects CDs found in most record stores are licensed only for non-commercial home use. Check the fine print before making the purchase. They are inexpensive, but they can't be used legally in a commercial (a project where compensation is involved or one which is distributed commercially) without paying an additional fee.

Using any sounds from television, radio, or motion pictures is a clear violation of copyright law. What if you alter the sound? You may be able to use it if the altered sound is so different from the original that nothing from the original can be discerned. Small but recognizable samples from a copyrighted work can't be used, as several rap groups have recently learned in court.

Sound samples that have been posted to a BBS are not usable for commercial projects unless you know that the sound sample was created by the person distributing the file and that person gives permission. The sample might have come from television or a commercial CD, and the copyright laws apply.

In general, if you need sound effects, either make them yourself or buy some of the sound effects collections licensed for commercial work. Some of them are advertised in this publication.

Another issue to understand is the tremendous power received from digital audio. It goes beyond synchronization and the simple ability to record and play back sound. As with graphics, it's possible to be equally creative with audio. One of the great things about digital audio editing is taking existing sounds and turning them into something entirely different. This is an area where it is fairly safe to use sounds from a BBS, because the sound is dramatically altered. With a little experience, you can gain the ability to figure out how sounds can be altered into the sound desired. When I needed a fog horn, I took a car horn and slowed it down before making it deeper and adding a little echo. Explosions were transformed into long, rolling thunder. A single fireworks explosion became an entire show of fireworks, with several modifications of the same sample slightly overlapping.

An example of pure creativity with audio is *Jurassic Park*, where existing samples were heavily manipulated to create dinosaur sounds. Manipulating digitized samples of animals and creating imaginary animal sounds is a good way to get started in audio manipulation.

Sound Manipulation

Most audio samplers usually come with editing software, and there are some good audio editors available commercially. However, if you just want to start playing with existing sounds, here are a few tools to enjoy:

For manipulating existing sound samples, there are not many choices. The only quality shareware audio editor I have found is Sven Buhling's SoundEffect (Figure 4), which offers a wider variety of effects than many commercial programs. It has all of the basics, including copy, paste, cut, insert, delete, loop, swap, reverse, echo, reverb, chorus, free-hand editing, high and low pass filter, and pitch and volume control. SoundEffect also has some more unusual capabilities; the mouse may be used to paint an envelope waveform to modify the frequency, amplitude and panora-

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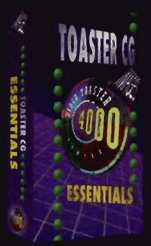

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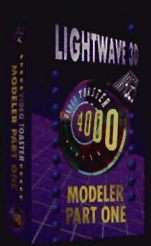

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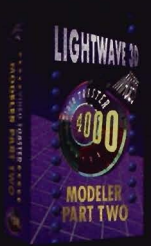
100 minutes



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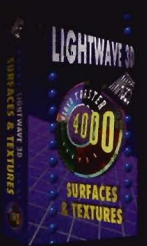
100 minutes



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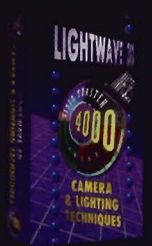
100 minutes



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120 minutes

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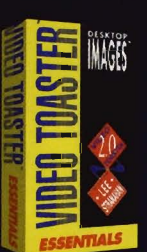
VIDEO TOASTER 2.0

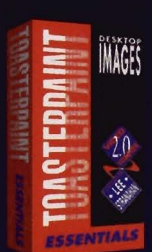


A comprehensive guide to the Video Toaster's switcher and special effects, maximizing memory usage, ChromaFX transitions, and combining effects.

85 minutes

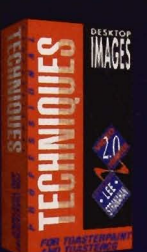
An easy step-by-step guide to the Video Toaster's character generator, font and palette controls, text file loading, and ToasterPaint CG backgrounds.

59 minutes



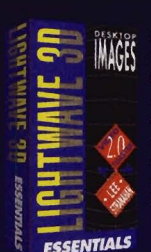
Discover the full potential of ToasterPaint's brush modes, warping & transparency controls, spare page feature, undo and redo functions and powerful keyboard equivalents.

62 minutes



Professional graphics techniques with multi-layered backgrounds, rub through and flood fill, textured ToasterCG titles, creating embossed borders and backgrounds.

59 minutes



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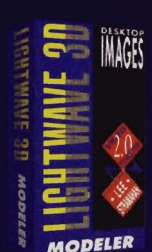
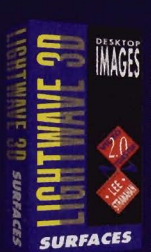
120 minutes



Create three dimensional objects using point manipulation, creating polygons, lathing & extruding, defining surfaces and creating complex objects.

90 minutes



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FOR INFORMATION CIRCLE 108

ma modulation. It can load and then mix up to eight samples at a time, and it even has an expander, compressor, limiter and a noise generator.

As a demonstration set, it is limited in that samples over 10K can only have three operations done on them (then they stop displaying). The preferences can't be saved, and the sample can only be saved once without reloading the software. It is still usable, but, for efficient use, send in the low-cost shareware fee. You also need to launch it from a script as described in the instructions, as running it from the icon forces it into PAL mode and it is unusable.

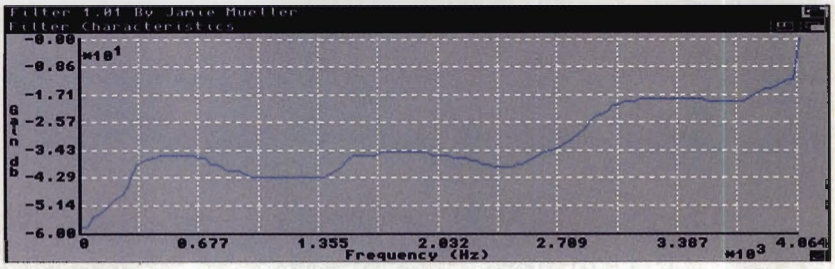

Figure 2

One way to gain a better understanding of sound is to play around with creating it from scratch. There are a number of sound synthesis programs that will help you get started. Christian Stien's FMSynth lets you create synthetic sounds in five octaves, which can be saved as a five octave IFF sound file. It can be used by some music programs and loaded into a sound editor where unwanted octaves can be edited out. It uses the same FM synthesis popularized in the DX7 sound synthesizers.

Samples collected from the public domain, or even those you sample yourself, can have hiss or noise. This may be due to poor sampling or to a flaw in the original recording from your sample. If you know the frequency of the noise, it can be filtered out by using Jamie C. Mueller's Filter. Simply draw a graph on the screen o the frequencies you want to filter ou (Figures 1 and 2). You need to under stand sound in order to use it effec tively, but playing with it should pro vide a good idea of how to use it. The filter is not a speed demon, so use short samples when trying to learn it.

Sound Converters

There are dozens o sound file formats on the bulletin boards The most common file formats on the PC are .VOC, used by the SoundBlaster audio card and compatible hardware, and .WAV files, which use the RIFF format developed by Microsoft. Sun Sparcstation and some other workstations use the .AU format The earliest versions were 8-bit 8kH files, in what is known as the U-Law format. It and A-Law are the official standard for U.S. and international logarithmic telephone sound compres

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sion. The leading Macintosh formats are .snd, .aiff (also used on SGI and the Apple GS) and .hcom.

If you want the most versatile program and a CLI-only interface does not terrify you, then the best choice is AmiSox, the Amiga version of the Sound Exchange. The original multiplatform version which offers plenty of capabilities, was created by Lance Norskog, and the Amiga version was done by David Champion. It handles all of the sound files above, along with the less common IRCAM .sf files and Turtle Beach .smp Sample-Vision files. It also handles many of the raw samples, including formats that do not have header code that determine what format the file is and its playback speed. It also features a number of effects, such as mixing two and four voice samples down to two or one voices, adding echo, the Fender Vibro-Champ effect, and applying low pass, high pass and band pass filters. It is not easy to use, but it does come with a number of scripts that automate most of the basic translation functions.

If CLI programs are over your head, try Syd L. Bolton's Sound Machine. It offers a complete user interface, but less power. It can read and write .VOC, .WAV and many raw formats. It is limited in that it will not handle 16-bit samples, and will not save stereo .VOC or .WAV files. It also includes an Amiga-based player that plays these sound file formats.

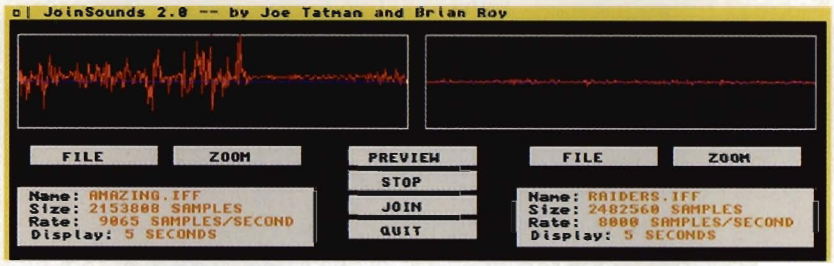

Figure 3

Sound Players

The best type of sound player is one that is controlled easily from other programs. The best way to do that is through ARexx. Jonas Petersson wrote UPD, a simple ARexx-controlled player. You can send it a command to play a sample, stop playing, or stop playing by fading out. You can also send it a command to play another sample and fade out the first sample before starting. Almost any player can play a sample in the background, but only ARexx control lets you stop it or fade it out.

If you are low on memory or have large samples that you would like to play instantly, a utility that can play sounds directly from the hard drive can be quite useful. Some of the older utilities for this don't seem to work on my machine, but one that does is Dave Schreiber's DSound. It is a CLI command that can easily be called

continued on page 32

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from a multimedia program or Toaster sequencer, providing control over speed, volume, looping, and which speakers are used. You could also set it to play sounds using macro keys and Workbench's FKeys commodity. This would make it possible to synchronize sound effects live. You could have every key on your keyboard trigger a different sound effect, and play them back instantly while watching the video. It's the easy way to digital foley.

Rick Brown's EasyPlay will also play sounds larger than memory. For the CLIphobic, it runs from the Workbench with a simple user interface. You can adjust the audio volume and playback rate using slider gadgets. You can also set the number of times you want the sample to repeat.

How do you get sounds larger than memory? Some sampling software records directly to disk, but the public domain utilities I have seen that do this sacrifice quality. Most systems can not dump the sound to disk fast enough. An easier way is to use Joe Tatum and Brian Roy's JoinSample (Figure 3). It provides an easy-to-use and attractive interface that lets you load two samples, even if their combined length is larger than the available memory. You can then do simple trimming and a rough preview playback, before saving the two joined samples as a single sample.

Figure 4

Finally, you may just want a sound player that can play almost any type of sound sample. This would be useful for multimedia work, or as the default sound player for a directory utility, especially if you deal with CD-ROMs from a variety of platforms. Listening to sounds is much faster than having to convert them first, and it is a good way to quickly determine if the sounds are of interest to you before converting them. David Champion's OmniPlay, which automatically figures out what a wide array of samples are and plays them, is the perfect solution. It supports .AIFF, .VOC, .WAV, .AU and U-Law variations, and even Powerpacked sound files if you have the PowerPacker library installed. OmniPlay is an excellent utility with AmigaGuide-based documentation even better than Champion's AG-based documentation for SOX.

When I was testing sound utilities for this article, I was amazed at how many of the older sound programs no longer functioned under the new operating system. If you have an older sound utility in your collection and can not get it to work, this is probably the reason. The utilities described here all work under both 2.0 and 3.0.

These programs are all generally available through your local BBS, commercial on-line services, and on the Fred Fish and Aminet CD-ROM. If you do not want to hunt them down, I have put the latest versions on a disk for you, which you can get by sending $5 to: Geoffrey Williams, Sound Disk Offer, 1833 Verdugo Vista Dr., Glendale, CA 91208. You can reach me through the Internet at gwilliam@netcom.com.

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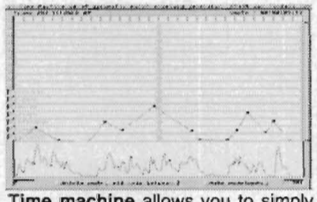

Time machine allows you to simply select the frame and target object for a multiple morph and let it generate the cascading envelopes.

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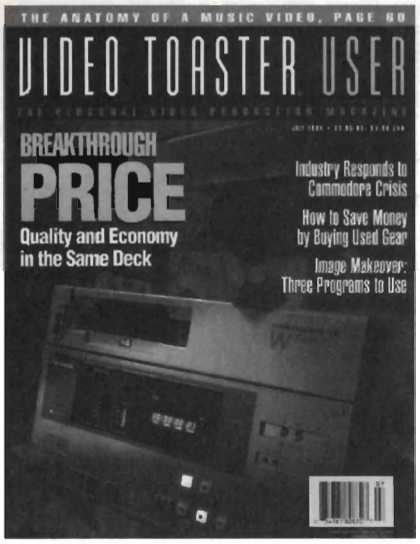

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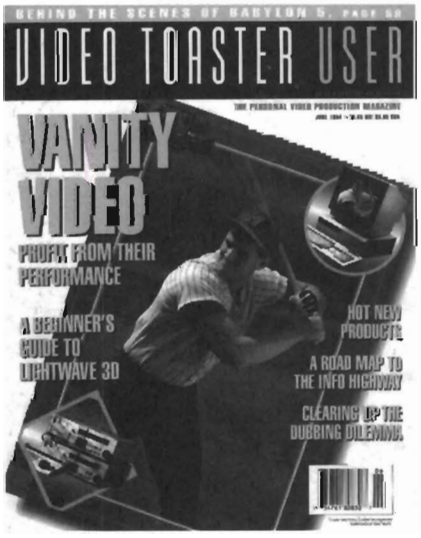

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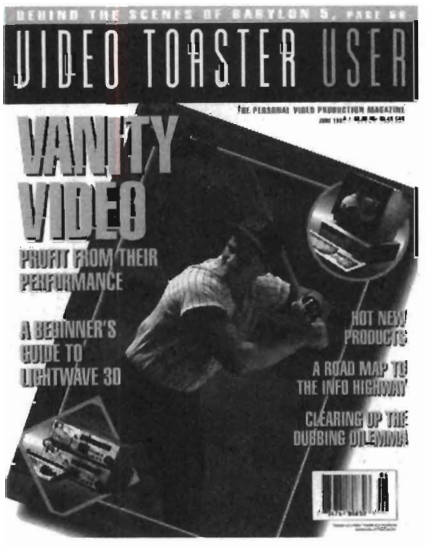

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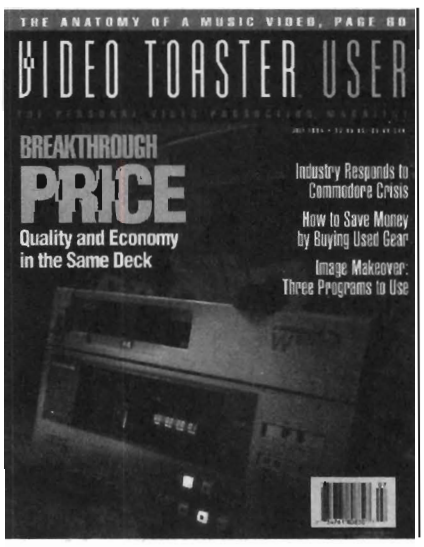

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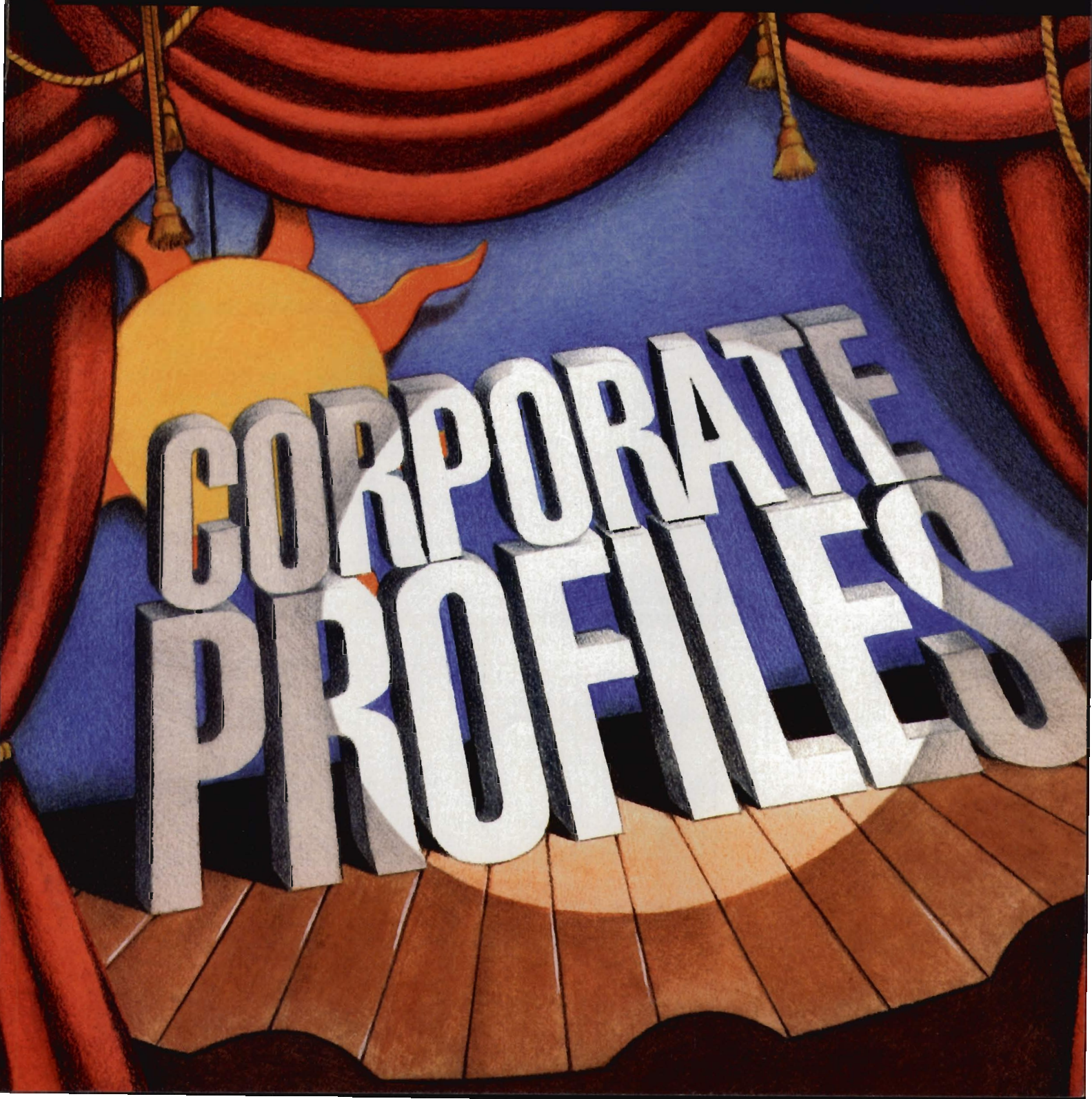

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CORPORATE PROFILE

JVC Rides Momentum of NAB Throughout the Year

Even the most abbreviated history of JVC's contributions to video technology contains a staggering number of crucial breakthroughs that have literally changed the way video is recorded and played today. In 1959, the company introduced the two-head, helical scan system still utilized in VCRs 35 years later. Current VCR formats also depend upon the color-under system developed by JVC in 1969. The 3/4-inch format unveiled in 1970 was the result of JVC's collaboration with Panasonic and SONY. Five years later, JVC presented the VHS format that has become today's standard video technology. That format was significantly enhanced when JVC introduced its S-VHS equipment in 1987. And just this year, JVC added another video milestone to its list with the introduction of the W-VHS system that includes the first affordable VTR capable of recording High-Definition TV signals, with five times the resolution of S-VHS.

"It has long been JVC's philosophy to try our best to allow our customers to remain with JVC and incorporate new equipment with their existing systems," Tom McCarthy, vice president of sales and marketing, said. "The key word is 'enhancement,' rather than 'obsolescence.'"

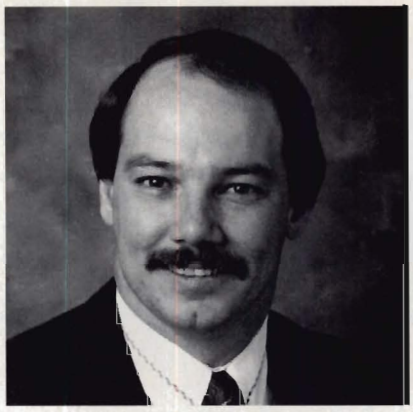
JVC definitely made a splash at last spring's National Association of Broadcasters convention in Las Vegas. The professional video products company introduced about a dozen new products and format enhancements designed to advance S-VHS technology, now recognized as the professional standard.

In addition to the W-VHS recorder, JVC's NAB releases included two new low-light cameras and further additions to the renowned 22 Series' high-end S-VHS editing equipment. Of special interest to videographers was the new, affordable Edit-Desk System with time code, designed to bridge the gap between broadcast-standard and inefficient consumer editing systems.

"We've been building editing machines for two decades," McCarthy said. "This is one of the most exciting systems JVC has ever offered because we've taken our high-end features, like time code, and made them affordable for a wide range of users."

The Edit-Desk System's CTL Time Code method records absolute tape address information directly on the control track of S-VHS tapes, allowing time-code reference points to be used repeatedly. Another advantage of CTL Time Code is that no audio tracks are lost.

As anyone who visited their display at the NAB convention could attest, JVC remains committed to expanding video technology with the broadest potential applications.



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JVC aims to make the latest technology in video meaningful for the typical user, appealing to every area of the professional video community and supporting S-VHS format enhancement through the creation of innovative products designed to solve problems and increase productivity.

Marketplace
All users of the S-VHS format, from professional videographers to universities, corporations and TV news departments.

Specific Products for Videographers
The KY-27B and KY-19U low light, 3-chip cameras; the Edit-Desk System of the BR-S800U editing recorder, BR-S500U player and RM-G800U editing controller, providing professional-level video editing at an affordable price.

Key Contacts
Tom McCarthy, Vice President, Sales and Marketing; David Walton, Marketing Manager.

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The Edit-Desk will surely become the number one choice in the educational, event, wedding and corporate fields. Now that you've done your homework, it's time to test the JVC Edit-Desk System for yourself. For more information or for your nearest JVC dealer, please call **1-800-JVC-5825.**

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JVC. The three most important letters in S-VHS.

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DPS: Putting Video Technology to Work For More People

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Digital Processing Systems was formed in 1988 as a spin-off of Digital Video Systems, a Canadian company which built the DPS-1 Time Base Corrector in the mid-1970s. This TBC set the precedent for outstanding product reliability—many are still in daily service nearly two decades later.

DVS was later acquired by Scientific Atlanta and a group of DVS engineers and managers persuaded the new parent company to spin off the video product line into a new company called DPS.

DPS quickly took its place in the industry vanguard, producing a complete line of Studio products for the professional video production market, including the DPS-265 Universal Synchronizer and the DPS-295 TBC/Synchronizer.

The emergence of the Video Toaster in late 1990 presented DPS with a new challenge: the development of a lower-priced TBC for the desktop video production market. In February 1991, DPS introduced the DPS Personal TBC, the very first infinite window TBC on a PC expansion card. With a list price of only $995, it was wildly successful. "We were the first to put a time base connector in a computer card, which changed the entry-level point of desktop video production systems," Brad Nogar, DPS' Vice President of Sales and Marketing, explained.

The following generations of DPS TBC cards, the Personal TBC II, III and IV, added such features as software proc amp and color balance controls, freeze frame, strobe and S-Video I/0. To help desktop video producers maintain "legal" video levels, DPS also created the world's first combination waveform monitor/vectorscope for under $1,000, the DPS Personal V-Scope. Today, DPS sales are fairly evenly split between traditional rackmount products and desktop video products. DPS' reputation for producing high quality, reliable and innovative products has solidified its leading position in the industry.

The introduction last year of the DPS Personal Animation Recorder (PAR) gave LightWave animators a technological breakthrough many feel more significant then the first Personal TBC. This under-$2,000 system provides broadcast quality video playback directly from a hard drive, freeing animators from the hassles of single-frame recording. DPS PARs are available for both Amiga and PC systems in NTSC and PAL formats.

The incredible price/performance ratio of products like the PAR speak well of DPS' strong commitment to the personal production industry. DPS remains committed to the development and production of reliable products suitable for both the professional production and desktop video markets. You can expect to see more exciting developments from this innovative company in the future. ■

QUICK VIEW OF DPS INC.

Digital Processing Systems Inc.
11 Spiral Drive, Ste. 10
Florence, KY 41042
(606) 371-5533; Fax: (606) 371-3729
Canada & International: (416) 754-8090
U.K. & Europe: 252-718300

Year Founded
1975

Company Philosophy
DPS is a company that looks for gaps in video production technology, introducing products that expand the creative horizons for more users by combining the highest quality with an exceptional price-performance ratio.

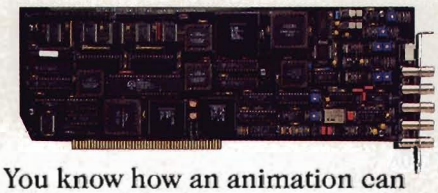
Marketplace
Traditional video broadcast and high-end postproduction professionals, desktop videographers and independent animators

Specific Products for Videographers
The DPS Personal TBC III and IV, PC expansion card–based, high-performance time base correctors with software proc amp; DPS Personal V-Scope, a combination waveform monitor and vectorscope card; DPS Personal Animation Recorder for the Amiga and for the IBM-compatible PC.

Key Contacts
Brad Nogar, Vice President of Sales and Marketing; Dave White, Computer Products Manager.

FOR INFORMATION CIRCLE 112

Save Your Animation From Being Eaten Alive.



You know how an animation can take on a life of its own. Sometimes it takes forever. Or it costs too much. Or a tape machine mistakes it for lunch.

The DPS Personal Animation Recorder™ solves these and other animation-production problems. For just $1,995, it gives you the reliability and capabilities of systems costing thousands more.

A plug-in AMIGA® card, the Personal Animation Recorder functions as a single-frame recording deck. With it, you can digitally record your animation onto a dedicated hard disk* and play it back in real time. Which means you can create 3-D animation without the expense and aggravation of tape decks. The Personal Animation Recorder will even genlock to your system.

Because the Personal Animation Recorder operates in a totally digital environment, you won't be bothered with the time base error, jitter, skipped frames, or botched edit points you encounter with traditional animation recorders.

Since your animation is recorded in a component digital 4:2:2 format, you can produce an infinite number of first-generation tape copies. Plus, the Personal Animation Recorder features outputs for true component analog video (Betacam®, MII®), composite and S-Video (Hi8®/S-VHS).

Rescue your productions from the jaws of traditional animation systems. Produce quality animation for a fraction of the usual cost with the DPS Personal Animation Recorder.

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PROCESSING SYSTEMS INC.
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In the U.S. call (606) 371-5533 Fax: (606) 371-3729 In Canada call (416) 754-8090 Fax: (416) 754-7046

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CORPORATE PROFILE

Cybernetica Turns Newton's Law into Reality

Every once in a while, a company comes along with plans of redefining an industry. Cybernetica plans to be this company with the release of Newton's Law, a physics module for LightWave and Imagine, as well as the release of Reality, a modular package of graphics and cyberspace development software that offers the market innovative and powerful options at an affordable cost.

Mel Landin, President of Cybernetica has a driving vision of what computer software should allow the user to do. In his opinion, graphics software should allow for ones ideas and creativity to find the least possible number of obstructions when using tools to express them. The Amiga platform itself has always held an appeal because of its ability to run powerful software without the cost barriers seen on other platforms. Cybernetica intends to maintain this appeal by bringing features and tools available on high-end systems to the Amiga at a low cost.

Newton's Law began as a project to add more realism and ease of use to animators working with LightWave and Imagine. The goal with Newton's Law was for the program to have a long library of materials and forces that the users can choose from, as well as having the components of these forces and materials be user-definable.

With Reality, Cybernetica is taking an interesting approach to the 3D graphics market, and looking onward to cyberspace development. The reality package contains a series of Prime Engines, each having a unique set of functions. The Morphing Engine, for example, is the only program on any platform that will be able to do completely arbitrary 3D morphing. Each one of these engines can be used as an add-on module for LightWave or Imagine, as well as having the ability to be purchased together as a complete package. Each one of the Engines will have its own interface, but when used in combination with other engines, all features will be accessed from a common interface. "We like to call it an elegant solution," said Andrew Dowd, V. P. of Marketing. "By allowing our engines to work with other programs, we can support their users with dynamic features, while also satisfying a market demand for a completely modular package of powerful graphics applications."

Reality also looks toward the future of computing by creating a series of Cyberspace Development Tools. The Data Engine and Logic Engine, along with the Utility Series of Engines are the requisite building blocks needed to create a low cost cyberspace development environment with an unparalleled ease of use. "Cybernetica wishes to not only to make the creation of cyberspace possible, but also to be able to do so at a price point which is affordable to everyone," says Mel Landin. "With the combination of our Data and Logic Engines, which create an intuitive operating environment, and our Media Series of Engines, we will be able to create and manipulate graphics, sound, and video like no other system available." Reality will also be the first system to integrate Artificial Intelligence within the graphics environment to aid the user in development of sophisticated object behavior and animation. Cybernetica looks forward to bringing this technology to the Amiga and its continued support.

"Cybernetica wishes to not only to make the creation of cyberspace possible, but also to be able to do so at a price point which is affordable to everyone."

Mel Landin
President, Cybernetica

QUICK VIEW OF CYBERNETICA

Cybernetica
310 East Haley Street
Santa Barbara, CA 93101
(800) 292-5001
Fax (805) 730-7332

Year Founded
1993

Marketplace
Software development for graphics, video production and cyberspace

Philosophy
Making affordable cyberspace a reality by bringing high-cost applications to the marketplace at a reasonable price.

Key Contacts
Mel Landin, President; Andrew Dowd, V.P. of Marketing.

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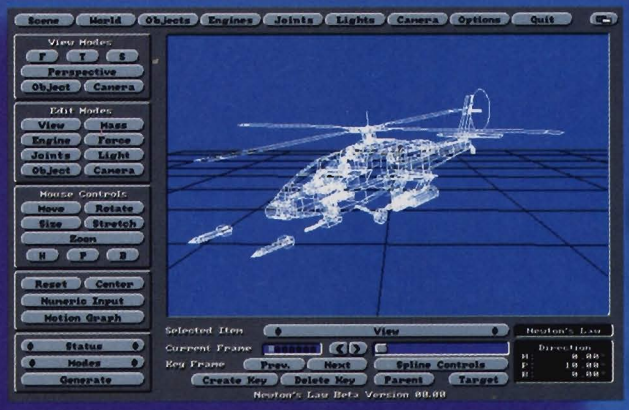
Newton's Law!

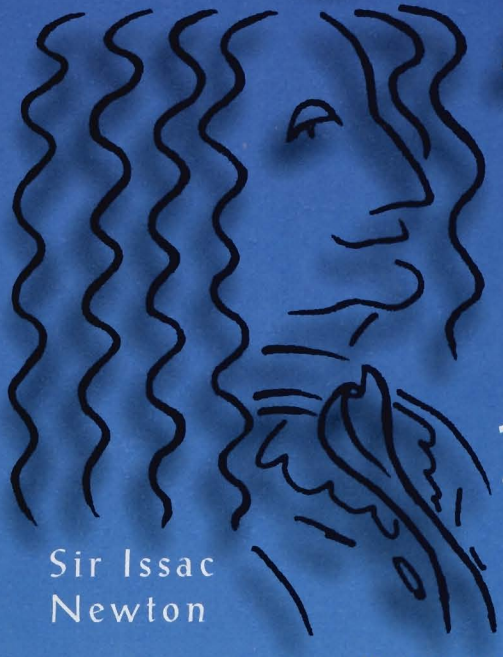
Physics Module

Features:

- Mass
- Velocity
- Acceleration
- Gravity
- Magnetism
- Wind
- Friction
- Envelopes
- Joints
- Engines
- Springs
- Hinges
- Pistons
- Rotors
- Thrust
- Explosions
- Dampening
- Density
- Elasticity
- Rigidity
- Deformation
- Align to Path
- Materials Library
- Inverse Kinematics
- Accurate Collision Detection

- After Frames are generated by Newton's Law, choose to render/raytrace within your preferred graphics package, or on the WARP SYSTEM(TM) using Cybernetica's LIGHT ENGINE(TM).
- Use Newton's Law for the fastest and most accurate physics on the Amiga, and add Cybernetica's PHYSICS ENGINE(TM) on the WARP SYSTEM to get the fastest physics on any platform.





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CORPORATE PROFILE

Prime Image Has the Passport to Excellent Service

"Our official company motto is service, price, performance. Lately, though, we've been thinking of changing it to service, service, service."

Bill Hendershot
President/Founder, Prime Image

A lot of companies promise excellent service," says Prime Image President/Founder Bill Hendershot. "We put it in writing."

Prime Image's commitment to customer satisfaction includes a three-year warranty covering parts, labor, product updating and standard Federal Express charges.

Hendershot, who learned about both service and electronics during his four years in the U.S. Navy, said the company is able to offer such an impressive warranty package because Prime Image's product line continues to exceed customers' expectations.

The company's most recent release is the Passport 4000, an all-digital, multi-purpose digital standards converter that also incorporates time base correction and synchronization.

Using a "pass through" interpolation technique that maintains signal characteristics and operates with 6+ field memory per channel, the Passport 4000 is quickly capturing the interest and respect of industry executives across the world.

"The Video Toaster equipped with the Passport 4000 is going to bring desktop television production to vast new markets," said NewTek President Tim Jenison.

In the past, conversion has been a costly process for Toaster producers in need of a standard other than the North American signal. However, the Passport 4000 offers a variety of cost-efficient digital video signal handling capabilities, including conversion to international video standards such as PAL, SECAM, PAL-M, PAL-N and NTSC 4.43.

The Passport 4000's release also enables video professionals to have affordable standards conversion inputs and outputs with the Toaster. At a list price of $6,750, consumers have helped to make the Passport 4000 a worldwide success story.

"A dealer in Hong Kong recently told me that he could sell 20,000 units in China within the next 12-18 months," said Hendershot, who was awarded an Emmy for his invention of digital time base correction 20 years ago.

Prior to founding Prime Image, Hendershot worked in advanced research and videotape development and founded two companies, Consolidated Video Systems, Inc., and the ADDA Corporation, which pioneered broadcast digital video products.

As president/founder of Prime Image, Hendershot supervises the continued success in each of the company's four product categories: time base correctors and synchronizers, electronic still stores, standards converters and digital desktop video.

Like the Passport 4000, The Little Magic Box Y/C Converter was released by Prime Image solely for the Toaster. Both products provide ample support for all Toaster users—from consumers to broadcast professionals. "Because it hooks to the outside of the computer, The Little Magic Box is able to operate without taking up any of the valuable real estate inside the computer," Hendershot said.

Regardless of the product, Prime Image's relationship with its customers extends far past the point of sale. As Hendershot states, "Our official company motto is service, price, performance. Lately, though, we've been thinking of changing it to service, service, service."

QUICK VIEW OF PRIME IMAGE

Prime Image
19943 Via Escuela
Saratoga, CA 95070
(408) 867-6519
Fax (408) 926-7294

Year Founded
1985

Company Philosophy
To bring broadcast-type products to the industrial and prosumer video market.

Key Products for Video Toaster Users
Passport 4000, The Little Magic Box

Key Contacts
William B. Hendershot III, President/Founder; Keith Mueller, Vice President of Engineering; Jim Aldrich, Vice President of Manufacturing; Bobbie Hendershot, Executive Vice President.

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Introducing

Passport 4000™

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CORPORATE PROFILE

NewTek Pilots the Flyer to Another Desktop Video Revolution

In less than 10 years, NewTek, Inc. has done what only a very few companies ever do—change an industry. NewTek's flagship product, the Video Toaster, almost single handedly launched the desktop video industry and changed the economic equation for professional video products.

How do you top a success like the Toaster? At this year's NAB show, the company fired its latest shot in the desktop video revolution—the Video Toaster Flyer. "The Flyer is really the final piece of the puzzle," said Jenison. "The Toaster has put the power of video in the hands of more and more people, but without the Flyer there are still all the technical problems of video editing. The Flyer makes the process of creating videos easier than ever before."

The Video Toaster Flyer is an entirely new concept in video—a tapeless editor that achieves broadcast quality results. Because the Flyer works with the Toaster, it also allows you to use all of the Toaster's effects and graphics tools. This gives users a complete video workstation that allows you to put together an entire TV show from start to finish.

"One key to the Flyer's quality is the VTASC compression scheme that we developed here at NewTek," said Jenison. "It allows video and audio to be recorded to a hard drive with no noticeable loss in quality, without the artifacts that plague JPEG, MPEG or Wavelet-based systems."

Once the video segments are recorded, they become clips. With a click of the mouse, users can set the in and out points for clips, as well as adjusting audio parameters. Editing is just as simple as arranging the clips in the order you want them. Adding effects, titles, graphics and animation is done using the same simple 'drag and drop editing' method.

Once the user has the clips the way they like, they simply hit the Flyer's PLAY button and their entire video—video, audio, effects and animation—is output in real time. Jenison notes: "The user records their show to any video recorder and they're done. Aside from the Toaster/Flyer combination, the only other video equipment they actually need is a camcorder—to acquire the footage, and then to record the final production.

NewTek also recently announced that LightWave 3D, the powerful modeling, rendering and animation software that has been bundled with the Toaster, will be available as a stand-alone package for the Amiga, PC and SGI platforms. "Although it's always been part of the Toaster, LightWave 3D has really taken on a life of its own," Jenison said. "It's established itself as the professional standard in 3D graphics, but you can't remain a standard by only being available on one computer platform."

LightWave 3D is already one of the most popular 3D packages ever created, and its use on TV shows such as *seaQuest DSV*, *Star Trek: The Next Generation*, and *RoboCop: The Series* are testament to its high-end feature set. Like all NewTek products, though, ease of use and power go hand in hand.

"One key to the Flyer's quality is the VTASC compression scheme that we developed here at NewTek. It allows video and audio to be recorded to a hard drive with no noticeable loss in quality."

Tim Jenison
Founder and President
NewTek

QUICK VIEW OF NEWTEK

NewTek, Inc.
1200 SW Executive Drive
Topeka, KS 66615
(913) 228-8000
Fax (913) 231-0101

Year Founded
1985

Philosophy
Putting the power to produce video in the hands of the people.

Specific Products for Video Toaster Users
Video Toaster, Video Toaster Flyer, LightWave 3D

Key Contacts
Tim Jenison, Founder and President; Donetta Colboch, Marketing Director.

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D2-quality Non-linear Editor

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The amazing Video Toaster just took another giant technological leap forward. Now, the world's first all-in-one, broadcast-quality, desktop video production studio can be turned into a sophisticated editing suite. Fact is, Video Toaster 4000 combined with Video Toaster Flyer delivers the same high-end editing capability you'd expect from a $50,000 digital deck—at a fraction of the cost. Check the list of features on the left side of this page, and start considering the possibilities.

To find out more, call now.

1-800-847-6111

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NewTek, Inc.
1200 S.W. Executive Dr.
Topeka, Kansas 66615

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CORPORATE PROFILE

DKB Casts an Optimistic Look Over the Marketplace

Like virtually everyone heading down the information highway, Dean Brown often finds himself in the middle of a voice mail traffic jam, constantly being shuffled from one message center to the next.

As president of DKB, Dean makes it a point to make sure there's nothing but green lights for people calling his company's headquarters in Wixom, Mich.

"If you call DKB tech support, you'll hear a human voice at the other end," said Dean. "And if you reach a machine after hours, you can be assured that returning your call will be a top priority."

Of course, Dean would be quite satisfied if DKB's tech support team matched the Maytag repairman in terms of its workload.

"The reason we're able to offer such great tech support is that we have quality products that don't require tech support calls," said Dean. "But if someone does need to call, it's reassuring to know that we have tech support that works."

Dean's confidence in DKB's product line stems from the favorable response he's heard about its tradition of leading peripherals and expansion boards.

Founded in 1984, DKB entered the Amiga marketplace three years later with the release of the Insider Memory Board for the A1000. Subsequent releases included both the KwikStart and MultiStart, designed for switching ROM on the A1000 and A2000, respectively; the Keyboard Adaptor; and the Secure Key, a solution for security-conscious schools.

DKB is best-known, however, for the MegAChip, which was released late in 1989 and quickly became a necessity for Toaster owners looking to increase from 1 meg of CHIP RAM to 2 meg of CHIP RAM.

Recently, DKB has continued its string of excellence with the DKB1202, an 8MB RAM expansion board that increases the speed of math-intensive operations.

DKB's recent expansion of the 1200 marketplace included the introduction of the DKB1240 accelerator card, a 68030 accelerator at 40 MHz which features everything from a SCSI controller option to kickstart remapping to a clock.

With the release of LightWave unbundled, Dean said, the DKB1240 and the DKB1228 are becoming must-have products across the globe, especially overseas.

As a company that bases much of its product line on the Amiga platform, Dean said DKB has been watching the recent developments surrounding Commodore's liquidation with a vested interest. At press time, Dean said the company was cautiously optimistic about the future of the Amiga.

"We've been in close contact with the people in the U.K. who appear to have the best chance of making something happen," Dean said. "And I know they are very committed in bringing the existing products into the entire world."

While some companies and users have wavered during the saga that followed Commodore's liquidation, DKB has remained strong. Like everyone in the Amiga community, Dean said he's eager to learn what's next for the Amiga technology.

"We're definitley still committed to the Amiga marketplace," Dean said. "And as soon as the flow of machines restarts, we will be ready to supply the peripherals that the marketplace needs."

"The reason we're able to offer such great tech support is that we have quality products that don't require tech support calls."

Dean Brown
President, DKB

QUICK VIEW OF DKB

DKB Software
29318 Lorie Lane
Wixom, MI 48393
(810) 348-3821
Fax (810) 348-3531

Year Founded
1984

Marketplace
Primarily upgrades to existing products

Philosophy
To provide unique solutions to specific problems

Specific Products for Video Toaster Users
MegAChip Board, 3128 Memory Board

Key Contacts
Dean Brown, President; Jerry Prudden, Sales Manager

FOR INFORMATION CIRCLE 118

Technology on the Edge

Since 1984, DKB has been a leader in the creation of peripherals for the Amiga. From the original Insider for the Amiga 1000 to the MegAChip 2000/500 and beyond. DKB technology remains on the cutting edge. Our innovative products are thoroughly tested before they are shipped. And every DKB peripherals comes with a full 2-year warranty.

Products by DKB

The Insider & Insider II

KwikStart & KwikStart II

MultiStart & MultiStart II

SecureKey

BattDisk

MegAChip 2000/500

DKB 2632

DKB 1202

DKB 3128

DKB 1240

DKB 1228

DKB 4091 SCSI II Controller

MegAChip 2000/500™

2 MegaBytes ofChip Ram

The MegAChip 2000/500 was designed for anyone that is using their Amiga for Video, Graphics, Animation, Rendering, Publishing, or Audio Digitizing.

The MegAChip 2000/500 allows more graphics and digitized audio to be stored in memory, and is great for Multimedia applications. It also allows you to have your graphics, word processor, and desktop publishing programs all running at the same time.

The MegAChip 2000/500 is a must have peripheral when using The Video Toaster 4000 and LightWave!!

The most important thing at DKB is, of course, you our customers. If you have a problem or question our Tech Support Team is always just a phone call away at 810-348-3821.

P.O. Box 438
Wixom, Michigan 48393-0438
Tech Support: 810-348-3821
Fax: 810-348-3531

Insider, Insider II, KwikStart, KwikStart II, MultiStart, MultiStart II, SecureKey, BattDisk, MegAChip 2000/500

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CORPORATE PROFILE

Dimension Technologies Defines its Role with Composite Studio

Shortly after releasing Composite Studio last May, Dimension Technologies' mailroom was awash in praise for the powerful new image compositing program. In fact, the only constructive criticism was directed toward the manual's inadequacies.

Consider the problem solved.

For the August release of the latest version, Composite Studio 1.1, Dimension Technologies answered the call with a manual that was twice the size of the original and far more encompassing. In addition, the newer version raises the total number of templates included from 40 to 70.

"We implemented much of the users' feedback with version 1.1 and included many of the features they asked for, such as a better manual, batch rendering and improved trouble-shooting," said Dimension Technologies President David Hebel, who added the upgrade is free to all Composite Studio 1.0 owners.

While Dimension Technologies has a proven record in the industry, Composite Studio is the company's initial foray into the software field. The result is a product that allows users to easily combine, resize and arrange framestores or RGBs.

"Our goal with Composite Studio was to create a product that took away the tedious and sometimes repetitive nature of making video graphics," said Programming and Design Director John Chacho.

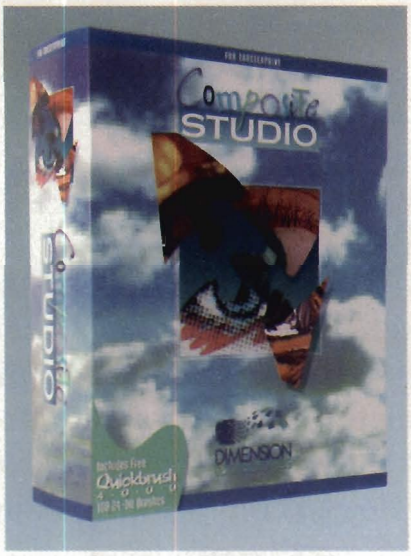
Composite Studio includes textures and fills that can be added to any background, foreground or custom element. And it's just as simple to create custom elements such as beveled bars or lower thirds. Ideal for the video, multimedia or broadcast professional, Composite Studio allows users to create and customize an unlimited number of new templates.

"Most of our users are professionals who need to create hundreds of high-quality graphics per month," said Hebel. "The batch rendering features allow them to be working on other aspects of production while Composite Studio works on the graphics."

In short, the company has designed Composite Studio to satisfy everyone from the beginner to the professional. By allowing users to configure their images to meet their own needs, Dimension Technologies has removed any limitations previously associated with image compositing. So far, the product has received rave reviews.

"The best comment I've heard—and I've heard it several times now—is that the product pays for itself in the first time it's used," Hebel said.

Dimension Technologies has included another feature with version 1.1, QuickBrush, a collection of 24-bit brushes for use with Composite Studio and ToasterPaint. Another plus is the option of purchasing Composite Studio Extras, which adds 100 new templates along with new 24-bit frames, textures, brushes and backgrounds. ■



"Our goal with Composite Studio was to create a product that took away the tedious and sometimes repetitive nature of making video graphics."

John Chacho
Programming and Design Director
Dimension Technologies

QUICK VIEW OF DIMENSION TECHNOLOGIES

Dimension Technologies
2800 West 21st St.
Erie, PA 18508
(814) 838-2184

Year Founded
1992

Company Philosophy
Dimension Technologies is committed to developing new and innovative software for the video and graphics professional.

Marketplace
Products available direct, or through distributors and resellers of Amiga and Video Toaster-related software.

Specific Products for Videographers
Composite Studio, Odds and Ends, Backdrop Construction Kit, The Cathedral, Sports Collection for LightWave, Music Collection for LightWave, Wedding Collection for LightWave, QuickBrush and the Jurassic Collection.

Key Contacts
David R. Hebel, President
John Chacho, Programming and Design

FOR INFORMATION CIRCLE 114

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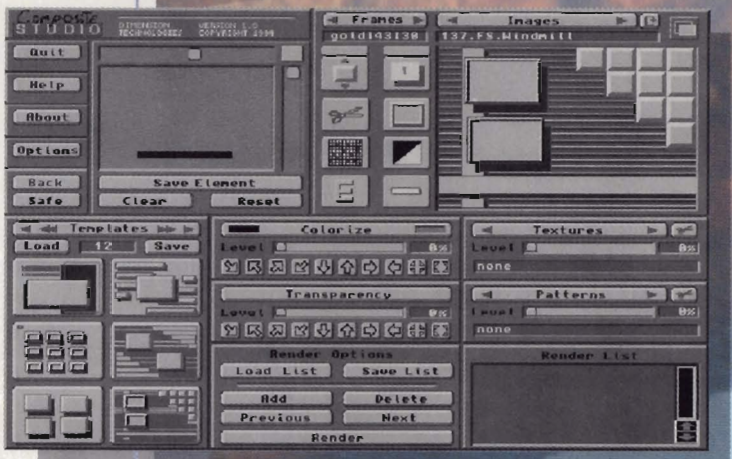
Available for ToasterPaint and OpalPaint

Composite STUDIO

Composite Studio is a powerful user configurable image compositing program. By taking control of ToasterPaint or OpalPaint, Composite Studio allows you to quickly and easily combine, resize, and arrange Framestores or RGBs. Composite Studio is perfect for the video, multimedia, or broadcast professional.



Using Composite Studio's Power Templates you can choose from 40 predefined templates or quickly **create and customize** an unlimited number of new templates.

With the click of a mouse your composited images can be surrounded by a multi-level bevel or perhaps choose from one of **twenty frame styles** including gold, silver, wood, marble, and antique.

Use the powerful Shadow Button to add a quick **drop shadow** to any image. Composite Studio lets you pick the shadow angle depth,and darkness.

Composite Studio includes **textures and fills** that can be added to any background, foreground, or custom element. You set the level and Composite Studio will automatically blend your texture with the image you choose. Along with the ten textures and fills included, you can add as many of your own textures as you like.

With its easy-to-use interface Composite Studio is perfect for the beginner yet the powerful customizing features are sure to satisfy the professional.

You can easily create your own custom elements such as beveled bars or lower thirds.

Composite Studio allows you to batch process your finished Framestores and RGBs. Simply set an unlimited number of images up and Composite Studio will render and save them for you.

Composite Studio gets your projects done quickly and with professional results!

* Save $50 off the list price of $199.95. Inside United States add $5 shipping and handling. Outside the country add $10. Visa, MasterCard, Checks, C.O.D., and Purchase Orders (net 30) accepted.

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CORPORATE PROFILE

Synergy International: High-End Special Effects without Breaking the Bank

Synergy International started up in 1993, when artist and videographer Steve Gregerson joined forces with software developer Chris Demiris and a team of video artists to create powerful videoproduction software for desktop videographers. Hollywood FX is one of the company's products that has brought high-end ADO effects within the grasp of every Video Toaster user.

"Most people who have the Video Toaster system switch it off when they leave the office. They could purchase our software, leave the computer running overnight, and come up with great effects, as opposed to buying an entire high-end system for $50,000 or sending each job out to posthouse production. The price-to-performance ratio makes our Hollywood FX a worthy, solid product to have," said Gregerson, art director and chief of marketing for Synergy International.

Hollywood FX is for anyone tired of the same old, run-of-the-mill, pixilated effects. It allows the user to map original images and video sequences onto unique 3D video effects. The effects such as Quad Peel, Crumpled Paper, and other innovative, never-before-seen effects are as attention-grabbing as anything seen on *Home Improvement* or *Entertainment Tonight*. Hollywood FX also takes full advantage of many third-party products, such as ImageMaster and Art Department Professional for image processing and batch conversion capabilities.

"Anyone can learn this program in an hour. We made it as easy to use as possible, harnessing the power of LightWave with a user-friendly interface to create eye-catching effects," said Chris Demiris, software programmer and developer for Synergy International.

Feedback has been so positive, an extensive upgrade to Hollywood FX is already in the works, incorporating many ideas and requests received from Hollywood FX users. "The upgraded program will provide the ability of user-defined motions, combined objects and selection multiple morph targets from a library of objects. All this without the difficult learning curve of LightWave!

"We made (Hollywood FX) as easy to use as possible, harnessing the power of LightWave with a user-friendly interface to create eye-catching effects."

Chris Demiris
Software Programmer and Developer
Synergy International

Synergy International is planning an entire line of desktop video and multimedia products. The Video Toaster and Video Toaster Flyer, along with other computer platforms and third-party products will play an important role in Synergy's continuing product line.

"Our goal is to create high-end price-to-performance products that revolutionize the Desktop Video, Special Effects and Multimedia Industries," said Steve Gregerson.

Synergy International maintains both its sales and manufacturing offices in Salt Lake City, Utah. Hollywood FX is available from local dealers, mail-order distributors, and directly from Synergy International.

QUICK VIEW OF SYNERGY INTERNATIONAL

Synergy International
77 West 200 South, Ste. 240
Salt Lake City, UT 84101
(801) 532-0804
Orders: 1-800-SYNRGY-1
Tech Support: (801) 532-0804

Year Founded
1993

Company Philosophy
Synergy International is dedicated to developing reasonably priced high-end video production tools.

Marketplace
Desktop videographers

Specific Products for Videographers
Hollywood FX software

Key Contacts
Steve Gregerson, Art Director, FX generator, Director of Marketing; Chris Demiris, Software Programmer and Developer, Technical Support.

FOR INFORMATION CIRCLE 124

HOLLYWOOD fX

ORDER NOW FROM YOUR FAVORITE DEALER, MAIL ORDER HOUSE, OR DIRECT AT 1-800-SYNRGY-1
(ORDERS ONLY PLEASE)

Hollywood FX creates amazing 3D effects for video and interactive productions, using Lightwave for the highest quality rendering. These effects parallel or surpass ADO systems costing $10,000 to $50,000. There are many effects to choose from, including mutiple full motion video windows, 3D morphing transitions, particle effects, and new libraries of effects available on a regular basis. Use captured video from a PAR, Flyer, Broadcast 32, or V-Lab system for full motion video effects. Post process through the Art Dept or Imagemaster for unique rotoscoped effects like fresco, oilpaint, or embossed video. With the addition of a Raptor, Warp system, or Amiga Network ... and need we say more.

List Price of $499.95

Requirements

Any Amiga with Lightwave 3.1
Amiga OS 2.1 or higher
10MB Ram
Hard Drive with 10MB or more free space

Recommended

2MB Chip RAM
16MB RAM or more for longer A4000 anim playback and some complex effects or post processing functions

One or more combinations of the following:

68040 / RISC / Transputer accelerators
Personal Animation Recorder
Video Toaster Flyer
Digital Broadcaster 32
V-Lab Motion

SYNERGY INTERNATIONAL

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FOR INFORMATION CIRCLE 124

Advertisement

CORPORATE PROFILE

Speeding into the Future with FAST Electronic

Designed in Germany, FAST Electronic's Video Machine is taking the world by storm.

Intended as a single-solution studio for PC and Macintosh users, the Video Machine is a two-channel video switcher with digital transitions and effects, a timeline-style video editor/controller, a keyer for titles, an audio mixer and a frame grabber/still store.

Praise for the Video Machine has come from all angles, and many are focusing on the product's superb digital video effect (DVE) transitions, which display no coarse pixelaxion when shrinking or enlarging a moving image. In addition, the Video Machine will solarize, posterize and make a variety of other color effects.

Last May, FAST Electronic introduced a low-cost version of its Video Machine for PCs, called Video Machine Lite ($2,500). Featuring the same range of functions as the original with the exception of several professional features, Video Machine Lite also combines an edit controller for A/B-roll editing, a video mixer, a freely programmable digital effects generator and a title generator on a single PC board.

Also early this year, FAST entered new market segments with its Movie Line of products, an inexpensive multimedia product family designed for the consumer market. The Movie Line is a modular-based platform which boasts the only video card currently available that offers a TV tuner, an A/B transition switcher frame grabbing, video overlay, special effects and video output all on one board with the option to add high-quality Motion-JPEG digital compression.

The core product in the Movie Line family is Movie Machine Pro, a video capture, overlay and output card which features two video inputs and a TV tuner. Movie Machine Pro also offers dozens of special transition wipes and real-time digital effects, including tumbles, wipes, picture-in-picture and mosaic.

The Motion-JPEG Option adds the ability to edit video from the hard drive. Using high-quality Motion JPEG compression, this add-on card allows compression rates scalable from 1:16 to 1:120.

While FAST has positioned Movie Line for private users, its capabilities extend to high-end applications as well.

"Movie Line offers affordability and ease-of-use for editing family videos, as well as high-quality compression, real-time playback and MCI compatibility for professional uses such as multimedia authoring," said Roland Augustin, FAST Electronic U.S. president.

In addition, FAST also recently introduced the Digital Player Recorder, the industry's first broadcast quality non-linear video editing system capable of both A/B-roll transitions and the simultaneous mixing of analog and digital sources.

"The DPR's hybrid-system operation and affordability will be important benefits to many small-to-medium post production facilities looking for a flexible upgrade path to broadcast quality non-linear editing," Augustin said.

Working in tandem with the Video Machine, the DPR provides all the advantages of digital editing, including fast random access, live trim, digital audio and filmstyle editing.

Also early this year, FAST entered new market segments with its Movie Line of products, an inexpensive multimedia product family designed for the consumer market.

QUICK VIEW OF FAST ELECTRONIC

FAST Electronic U.S., Inc.
One Twin Dolphin Drive
Redwood City, CA 94065
(415) 802-0772
Fax (415) 802-0746

Year Founded

1985

Marketplace

Development, manufacturing and distribution of hardware-based software copy protection and data protection systems. Development and manufacture of digital video systems and other multimedia products.

Key Contact

Roland Augustin, FAST Electronic U.S. President.

FOR INFORMATION CIRCLE 120

For affordable desktop video production, look into the Lite.

Whether you're a beginner or a professional, you can produce top quality videos right on your PC. And, you can do it for a whole lot less than you think with Video Machine Lite.

Over 200 fabulous digital video effects let you stretch the limits of your creativity. Plus, you can easily produce titling and graphics for animation, presentations, and video editing using your favorite Windows applications.

Video Machine Lite's modularity means it'll adapt as your video production needs change. Quality add-on capabilities include digital, non-linear editing and Betacam/MII compatibility.

There's much more to tell. So call us today. Because for eye-catching video production starting at just $2,500, it's time you saw the Lite.

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FOR INFORMATION CIRCLE 120

Advertisement

CORPORATE PROFILE

NoahJi's Distributes the MacroSystem Line of Amiga Hardware

When NoahJi's (no-ah-Gee's) took over distribution of the MacroSystem product line from Germany, some people were surprised. This 'outsider' company is actually a division of a 10-year-old company that's been involved for nearly a decade in the Amiga market. The staff of NoahJi's is thrilled to have the opportunity to sell and support such an amazing array of products. The namesake of NoahJi's, Noah Alexander, recently took time from his busy play schedule to chat with us about NoahJi's.

"My dad's too busy answering the phone and taking care of people," NoahJi reported. "You'll have to do this interview with me. But I'm three [holds up three fingers] years old, so I can tell you about NoahJi's."

NoahJi's corporate philosophy seems most capably summed up by a 3-year-old. It appears to be nothing more complicated than treating customers fairly and with respect. The staff of NoahJi's knows their mission: to distribute and support the award-winning product line of MacroSystem of Germany. They also pride themselves in having some amount of fun. NoahJi's distributes and supports the Retina ZII and ZIII line of display enhancers, the 16-bit Toccata audio card, the VLab Y/C digitizer and the new non-linear editor—VLab Motion.

Donovan Allen, head of technical support, has put VLab Motion through yet another series of incredible tests. He's astounded with what MacroSystem has created. "In no business that I know of can you make a product that has every feature that everyone requests. But in VLab Motion, at only $1,750 list price, we offer an unbelievable price/performance value in our non-linear editor. It's real, available now and it's shipping in volume since late June. Combined with the Toccata, we offer an unbeatable audio/video package. At only 75 percent of VLab Motion's capability on my stock A3000, I'm getting professional quality SVHS/Hi8 equivalent output. Fish are not included."

NoahJi's is thrilled to have the opportunity to support such an amazing array of products. The namesake of NoahJi's, Noah Alexander, recently took time from his busy play schedule to chat with us

Jorg Sprave, head of MacroSystem in Germany, remains committed to the Amiga. "With the VLab Motion we can compress 30 frames per second (60 fields) of video as well as audio in real time. Our blue box/chroma keying feature alone is worth well over $1,000. User friendly intuitive video control capabilities provide ease of use for the hobbyist as well as the professional."

VLab Motion continues a tradition of excellence. As a motion JPEG Zorro II non-linear editor priced at $1750 ($2150 with the audio board), MacroSystem has once again astonished the market. "We've broken price and performance barriers time and time again. Our customers have come to expect technological miracles from us," Sprave related, "and I think with VLab Motion we've pulled magic out of our hat yet again!"

FEATURED PRODUCTS DISTRIBUTED BY NOAHJI'S

VLab Motion Non-Linear Editor

VLab Motion is a real-time motion JPEG card that plugs into a Zorro II slot on any Amiga 2/3/4000 computer. Full motion, professional quality video can be recorded onto a hard disk from any source, then edited and played back. Combined with the Toccata 16-bit sound card, VLab Motion offers simultaneous non-linear and completely flexible editing of video and audio.

Retina Z-III 32-bit Display Adaptor

This is the only pure Zorro III graphics display board with speeds 4 to 10 times faster than other cards. Compatible with LightWave 3D, the Video Toaster and all versions of the Buster chip, the ZIII has an on-board blitter which performs at speeds up to 180MB per second.

VLab Y/C Video Digitizer

A revolutionary software development—Interleave Frame Recording—allows anyone to digitize 30 frames per second to their hard disk. VLab Y/C allows full frame, full color digitization and includes an extensive ARexx interface. ImageFX and ADPro modules are included.

Toccata 16-bit Audio Card

The Toccata is a 16-bit/48 KHz audio sampler with three stereo inputs, one stereo microphone input and one stereo output. Hard disk recording can take place from any source, along with simultaneous recording and playback.

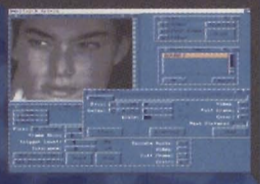
FOR INFORMATION CIRCLE 115

VLab Motion

True on-line non-linear video and audio recording, editing, and playback. No more expensive edit suites or single frame controllers

RETINA Z-III

24 Bit Display Enhancer
AGA emulation / 32 bit blitter
Software screen promotion
Retina Z-II also available



VLab Y/C

24 Bit Video
Digitizing System
30 fps with multi-pass IFR

Toccata 16

16 Bit / 48 khz
Audio Sampling and Playback

NoahJi's

3591 Nyland Way
Lafayette, C0 80026
Voice: 303.499.1975
Fax: 303.499.1979
Tech: 303.433.7031

Please call for more information on Macrosystem products.

FOR INFORMATION CIRCLE 115

Take your Rendering system to Warp Speed with the WarpEngine4040 running a Motorola 68040 at 80/40MHz for over 30 MIPS of Workstation Performance!

LightWave Users - Dramatically Increase your 3D Rendering Speed and reduce your load and save times Dramatically!

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How Fast is the WarpEngine™

Rendering the texture example included with Light Wave:	A4000/040-25MHz	2 minutes, 40 seconds
	A4000Warp40MHz	under a minute - approximately 3 Times Faster!
	A4000Warp28MHz	1 minute, 22 seconds - Two Times Faster!

Diskspeed using 2.1 Gig Barracuda Drive: Read from file: 9 Mbytes/sec CPU Available: 94% - Up to 9 Times Faster!
Screen Redraw Time in Light Wave is reduced by up to a factor of Three - Allowing ***You*** to be more productive

The 40MHz and 33MHz versions include the 040 Processor, four SIMM sockets and the NCR SCSI-2 Fast HardDrive Controller.

It is more cost effective to install a WarpEngine 4028 Accelerator if you have an Amiga 4000/040 than to buy a HardDrive controller/memory board or one of each which will take up expansion slots and won't accelerate your Rendering System (Ram speed is actually slower). This will *double* your Rendering Speed!

The WarpEngine™ uses four standard 72 pin SIMMs and allows the use of up to four different size SIMMs at the same time (4, 8, 16, 32MB SIMMs). GVP only has two SIMM sockets onboard and uses much more expensive (up to 1.5 times as much as Warp SIMMs) custom SIMM modules (only 4 or 16 MB SIMMs can be used but not at the same time) which are only available from GVP.

The NCR SCSI-2 Fast 32 Bit DMA Bus Master Processor makes it the *Fastest HardDrive Controller available for the Amiga.* It provides up to 10MB/s Transfers with 90 to 98% of the 68040 CPU Processing Power left available for Rendering! All 4000 WarpEngines include the SCSI-2 HardDrive controller and 128 MB of Ram Expansion, unlike GVP which has an optional SCSI controller and optional Ram expansion board which are still not available!

All WarpEngines are fully upgradable to 40MHz!

MacroSystem Development is committed to providing the Amiga Market with the expansion products that you need to get your job done, now and in the future.

Coming soon from MacroSystem Development:

The A3000 ImpulsEngine 3040 and ImpulsEngine 3050 - 40 and 50MHz 68030 Accelerator cards with onboard high speed Local 030 Burst Memory expansion and socket for 68882 Math Co-Processor for the Amiga A3000. These two products will be priced in the $400 to $500 Range.

The MSD Network card providing high speed Ethernet Networking capabilities for all Amiga computers with Zorro Expansion slots. This product will be priced in the low $200 range.

MacroSystem Development, Inc.

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WARP ENGINE

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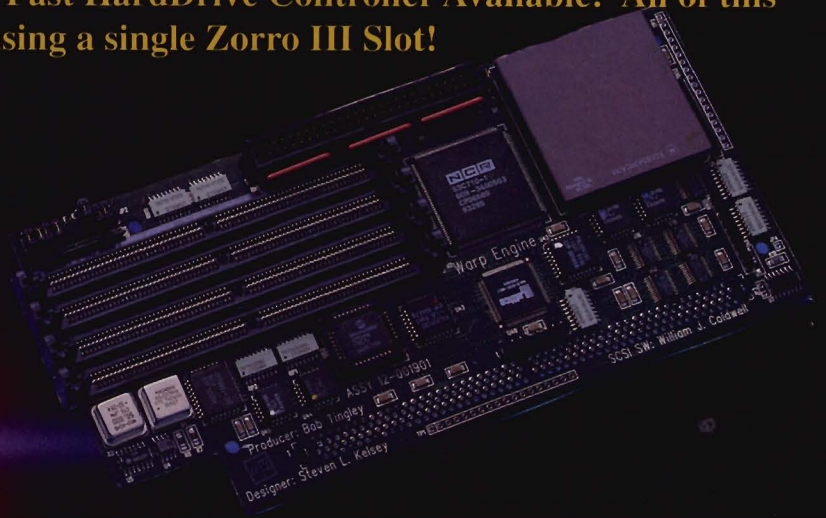

We have equipped half of our Toaster systems with 40MHz WarpEngines and have seen rendering times triple in throughput speed.
Now we are going to install 40MHz WarpEngines in the rest of our Toaster systems.

Lee Wilson
Visual Effects Supervisor
RoboCop: The Series

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Compatibility

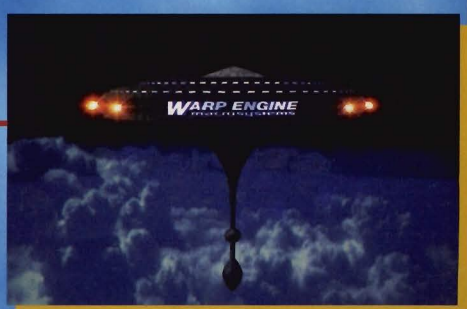
- Compatible with the Video Toaster, Retina, Picasso, Emplant and OpalVision.
- Works in all 3000, and 4000 series Amigas.
- Requires AmigaDos 2.1 or greater.
- Full Two Year Warranty on Board.

Average Street Price

WarpEngine **4040**	
WarpEngine **3040**	**$1425.00**
WarpEngine **4033**	
WarpEngine **3033**	**$1195.00**
WarpEngine **4028**	**$ 799.00**
WarpEngine **4028 w/CPU**	**$1050.00**

The WarpEngine accelerator will pay for itself by saving you your most precious resource - Your time to be Creative. Not to say saving render time isn't great, just take a look at this Space Station Rendering. Originally part of a 30 second commercial (airing on New Mexico cable), the WarpEngine would save a week of machine hours (rendering time). But the place I've felt the biggest change is during the creative process. Some scenes I work on take 20 seconds to redraw in layout mode and modelling that space station, it's a 1.1 meg object, could put you to sleep waiting for it's polygons to get selected. These delays slow creative productivity. But to an animator Warping 20 second redraws into 7 seconds along with harddrive access that feels instantaneous, truly accelerates the creative flow. A WarpEngine will save you rendering time alright, but in saving Creative Time, it's invaluable.

Paul Safr
Media Innovations



This SpaceStation Image took 3 hours to Render with LightWave on an A4000/40 and only slightly over an hour in an A4000 with a WarpEngine4040 installed.

FOR INFORMATION CIRCLE 128

Free Range:

Set against the backdrop of picturesque Albuquerque, N. M., Free Range Digital Imaging's Brad Carvey (left) and Eric Weymueller are creating Hollywood-style effects in the Southwest.

A New Brand of Digital Effects

by Douglas Carey

Having familiarized itself with Wayne and Garth just two years earlier, the press was looking for a new angle when the promotional blitz began anew for last winter's *Wayne's World II.*

Within weeks, many of those same reporters arrived on Brad Carvey's doorstep.

In addition to the inevitable questions about growing up with his infinitely more famous brother, the press also inquired about everything from his unique diet to his childhood foibles. Eventually, the press also learned about Brad's involvement with the Video Toaster, which he helped to design in the late-1980s.

Not coincidentally, the Toaster had a few cameo appearances in *Wayne's World II,* which co-starred Mike Myers and Brad's brother, Dana. Although the movie failed to meet the expectations of industry insiders, the experience was a box office smash for Brad.

Several members of the Free Range Digital Imaging team gather on a windy afternoon outside their facility in Albuquerque, N.M. (left to right): Eric Weymueller, Jason Bickerstaff, Kevin Singer (sitting), Brett Haworth, Brad Carvey and Mark Fleharty.

PHOTOS BY MARK CARVEY

Free Range

While few people are referring to Dana as "Brad Carvey's brother" yet, Brad is definitely making a name for himself in the digital effects community. After working as an independent consultant for NewTek for the past few years, Brad is gaining rave reviews for his work with Free Range Digital Imaging, a 3D effects company he opened last February with co-founder Eric Weymueller.

Based in Carvey's hometown of Albuquerque, N.M., Free Range is the result of a simple conversation between two people who had little in common before their first meeting.

In contrast to his brother, Brad Carvey has managed to avoid the public spotlight for most of his life, save for last winter, when he suddenly found that everyone from *People* magazine to *Hard Copy* was interested in his story. He even managed to land on the cover of a certain Video Toaster magazine (*VTU*, Oct/Nov. 1993).

For the most part, however, Carvey prefers the low-key approach. Which explains why Free Range would never work in Los Angeles, even if that's where most 3D effects houses are located.

An Albuquerque resident for the past seven years, Carvey could work for the city's Chamber of Commerce. In fact, he's already recruited several friends from L.A. to relocate their video production businesses to the spacious city. Carvey said everything about Albuquerque—from the cost of living to the brilliant sunsets with the mountainous backdrop—makes the city a special place.

"If you come to Albuquerque and only see the airport and downtown, you probably won't be too impressed," he said. "But once you see these mountains..."

Not surprisingly, then, Free Range's offices are located 6,200 feet above the ground, a two-story, 5,000-square feet facility nestled at the base of the picturesque Sandia Mountains. It's a perfect site for new ideas and beneficial business opportunities to take place.

And despite Albuquerque's distance from the digital effects capital of Los Angeles, Carvey said the distance is rarely a barrier when it comes to expediting the process.

"With the one-hour time difference and a runner in L.A., same-day turnaround is no problem," Carvey said. "In fact, we're able to get a lot of jobs *because* we're in Albuquerque. If we were in L.A., we'd be mistaken for just another effects house. Here, I believe we're the only facility of its kind in the Southwest."

Furthermore, Carvey said he senses a large amount of enthusiasm from people eager to leave the booming effects world of L.A. in their rear view mirror.

"I think that there are a lot of people who are pulling for us," he said. "I think there are a lot of people who want out of L.A., and a lot of them are hoping that we can prove that we can be in Albuquerque and do the work."

A Strong Foundation

While Carvey handles most of the training and supervising of the effects

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FOR INFORMATION CIRCLE 105

team, Free Range's business dealings are referred to Weymueller, who brings 15 years of film experience to the company. After serving in virtually every possible capacity as president of his own film company, La Bajada Entertainment, Weymueller's chief responsibilities at Free Range involve marketing and negotiating with prospective clients.

Weymueller, who first met Carvey last April through a mutual friend, continues to run La Bajada while he's at Free Range. In fact, Weymueller's film contacts should be a vital piece of Free Range's future success in feature films.

While Free Range is still in its infancy stage, however, Carvey and Weymueller are content to take it slow. After receiving approval from their venture capitalists last summer, the pair opened the Free Range facility last fall with no intention of contracting any business for several months. Instead, they concentrated on laying the foundation for their new company, focusing on their philosophy and training.

In contrast to the burgeoning animation houses in Southern California, Free Range's goal is to break new ground with a refreshing approach.

"The company was generated on the idea that we wanted to be able to produce really high-quality graphics much cheaper," Carvey said. "Because of our location and because of training, it's let us get into a position that other people have taken much longer to reach."

Carvey's initial trainees ran the gamut from a former Amiga salesman to an advertising graduate who once competed as a nationally ranked gymnast. With Carvey's guidance, each pupil was able to make a seamless transition from hobbyist to professional animator.

Four months after training began, Free Range accepted its first project. What was first supposed to be 12 seconds of animation for the Discovery Channel's "Stargazers" series eventually turned into more than seven minutes of 3D graphics. Series director/producer Ned Judge said he contacted several other companies before deciding to work with Free Range.

"I knew Brad Carvey was associated with the Video Toaster, and then a friend of mine went over and saw a demo at Free Range," said Judge, whose Talking Turkey Pictures is also based in Albuquerque. "I later saw a demo and was very impressed with the quality."

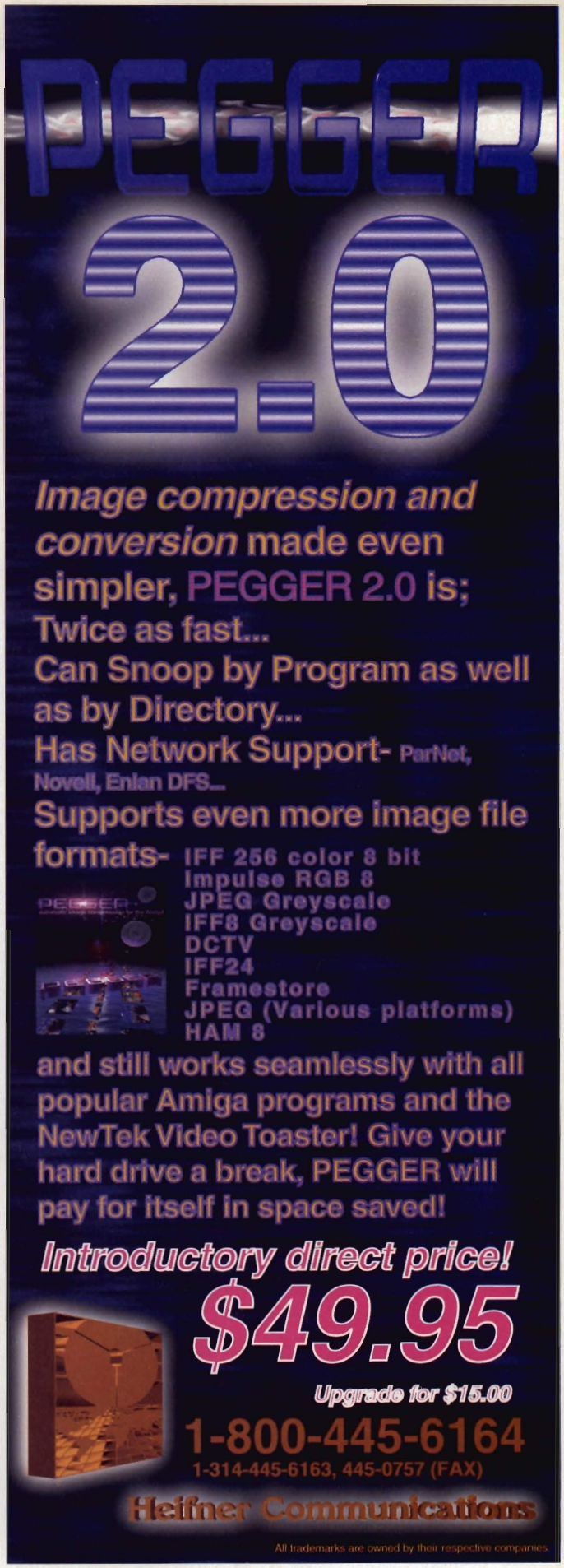
Judge contacted Free Range to handle 99 percent of the graphics for the hour-long documentary about the 100th anniversary of Lowell Observatory. Free Range animators created major sequences and 2D animations.

"They're an interesting group of young, enthusiastic artists who used the Screamer and were able to render in a short amount of time," Judge said. "They knocked off a 20-second demo in a couple of days, and such speed makes them unique. In my business, time equals money."

Free Range's Brett Haworth, who was praised for his effective use of Bones in creating an alien baseball game for the "Stargazers" series, said he delights in amazing each new audience.

"We've been able to achieve some motions that people have never seen because we're always learning,"

continued on page 62



FOR INFORMATION CIRCLE 122

Free Range

Haworth said. "Some of the tricks we've accomplished haven't even been documented."

One reason for Free Range's limitless potential is the number of resources available because of the Carvey/Weymueller partnership. LightWave author Allen Hastings and digital effects guru Joe Conti serve as frequent consultants, and Carvey's relationship with NewTek resulted in Free Range's ownership of one of the few Screamers in existence.

Weymueller, meanwhile, has already proven to be an invaluable resource when it comes to working with clients. He said Free Range plans to work on several Saturday morning television shows and a few feature films before long.

"(Carvey and Weymueller) really set us apart from everyone else," said Haworth, who worked in an Amiga store before becoming Free Range's first hire. "It's difficult to compete with their connections."

While Carvey is renowned for his Toaster knowledge and associations, many are surprised to learn of his passion for LightWave. Carvey, who calls LightWave his "favorite part of the Toaster," learned many of its nuances from Hastings. Before long, Carvey and his wife, Andrea, were proofreading the LightWave manual. (Updating the manual has since become a personal project for Andrea, who spent much of the past year making her own annotations.)

Despite the enthusiasm Carvey cultivated while working with LightWave, he wasn't looking to broaden his base when the concept of Free Range was first discussed.

"I never even considered the possibility that I would be co-founding an effects house," Carvey said. "I always envisioned myself working with Joe Conti, fully expecting to deal in hardware and software development."

When the idea was broached, however, Carvey was immediately entranced. If there had been a wish list, each item would have been checked. The concept featured everything Carvey wanted in an effects house—location, resources, time and training.

Carvey the Teacher

The consensus opinion appears to be that the key to Free Range's success is Carvey, who became well-known in both computer and entertainment circles thanks to his national exposure last winter. In addition to his name recognition, Carvey is also pointed to as an excellent instructor.

Asked to outline his teaching philosophy, Carvey said, "I just let them try different things until I see they're entirely off-course, and then I redirect them in the right direction."

Others say there's much more to Carvey's training talents. Only Carvey, they claim, could have taken such a diverse collection of talent and built a reputable effects team in just four months.

"Brad's a true genius in every sense of the word," said Haworth. "He's increased our learning curve by a 1,000 percent."

Jason Bickerstaff, who once studied at the Cleveland Institute of Music, works with Haworth as part of Free Range's primary LightWave 3D animating team. After meeting Carvey at SIGGRAPH in 1993, Bickerstaff was hired later in the year when Free Range went looking for animators eager to work in an atmosphere conducive for experimentation.

Like each of the people Carvey asked to join the Free Range team, Bickerstaff quickly agreed to join Free Range. And while detractors might say that Carvey has gathered a group of eclectic, inexperienced animators, the atmosphere at Free Range would suggest the opposite.

"I think it's really beneficial that we all come from very different backgrounds," said Bickerstaff. "The look from L.A. studios is very common, while we have an individual style here because of the freedom we're given."

As word of Free Range's innovative work spreads, of course, clients will undoubtedly come calling to Albuquerque. It may be some time, however, before Free Range can accomodate all of its requests.

As Weymueller said, "Our biggest problem could turn out to be that we have to turn people away. We can become fully booked rather easily, and we want to be careful not to overexpand. Of course, it's also a nice problem to have."

VTU

The animation still above was modeled in LightWave by Free Range's digital effects team.

The image above shows an egg in the center of a nest, which features more than 30,000 individually modeled twigs.

Created as part of a Discovery Channel project, the animation still shown above was completed in Modeler.

Free Range animators completed the above image in less than one week for Discovery Channel's "Stargazers" series.

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FOR INFORMATION CIRCLE 110

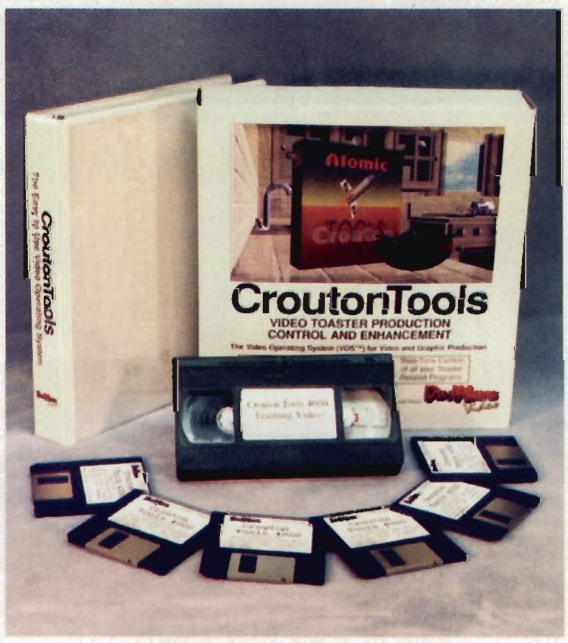
CroutonTools 4000

A Front-end Utility for Transporting

by R. Shamms Mortier

The Video Toaster system has not only generated a large amount of profits for NewTek, but has motivated other developers to create utilities that make Toaster operation easier and faster. Among these packages are a handful that act as batch processing front-ends for Toaster operations.

Even if you know nothing about programming in ARexx, porting images created in ToasterPaint of LightWave over to image processing software is still possible. Manipulate the images as needed and store the results. If the utility software has been designed correctly, all of this can be done without even realizing when it is taking place. The problem with front-end software is the abundance available and that often it requires as much expertise as the Toaster applications it addresses. So it is an auspicious time to introduce an all-encompassing, front-end utility that takes the other major utilities under one wing—CroutonTools 4000.



This is an auspicious time to introduce an all-encompassing, front-end utility that takes the other major utilities under one wing—Crouton Tools 4000.

Touring CTools

The installation of CTools begins with a call to DevWare's technical support number (619-679-2825) for a special code number that the software asks for.

CroutonTools is nothing less than an operating system for the Video Toaster and all major utilities that address it, but it allows much more to be done than expected from that vantage point. For an example of what can be done from the CroutonTools interface, we'll peruse its Section Selectors. These are the main interface buttons that direct the user to other intervention paths in an almost limitless hierarchy of options. There are nine main branched choices, and each one offers the possibility to be redirected to any of the others as well.

The Configure selection allows you to tell the software where other programs that you might want to run from the interface are located (ImageFX, ADPro, DPaint, etc.). It's an easy point-and-click process. At the moment there are three pages of selections with a total of 69 choices. There are 15 which are user definable, so that you are not limited to interface with pre-selected software in CroutonTools alone. Some of the options include PageStream, Scala, Quarterback, VistaPro, Montage and much more. In fact, it would be easier to list what isn't here. Once the Configure module is told where the software is located, it can be automatically loaded in when needed.

"Program" allows access to any of the choices that were targeted in the Configure section. Again, access is made by a simple to understand and use graphic interface with appropriate buttons. With a simple click any of the programs listed on the graphic croutons in the Programs section can be found and started (including any of the 15 user-selected options). Except for the Configure screens, the standard Toaster screen buttons listed at the bottom (Switcher, DVs, inputs, TPaint, CG, and LightWave) are always available. Moving into these specific areas is a literal snap.

All that can get in the way of jumping from one application to another is the lack of RAM. Remember that some programs (like image processing) can demand a lot of memory. 16MB is barely enough in some cases and more may be required if running several memory users simultaneously is planned.

Did you ever dream of sending an image directly from ImageMasterRT, ImageFX, ADPro, DPaint or Brilliance directly to DV1, DV2, or ToasterPaint, or perhaps in the opposite direction? If so, then you'll love the 'Images' section of CroutonTools. Image processing can be added to any DV1, DV2, or ToasterPaint image, shipping it back and forth in the process. There are separate screens for the three best known Amiga image processing packages. ADPro and ImageMaster use a great deal of memory, so if running an image processing program with a couple of other programs is necessary, I suggest using ImageFX because it's kinder and gentler on memory requirements. Either that or use more RAM (add on boards can now hold up to 128MB in A3000s and 4000s).

And what about Audio? With CroutonTools, Sunrize's Studio 16 can be controlled with either the AD1012 or the 516 board, Bars & Pipes Professional, SuperJam!, and other music wares. The three main audio programs that are addressed have specific screens that allow targeting sound files to videotape. Be aware, however, that doing this while a wipe is occurring is not presently possible, and insert editing is still needed. This section needs to be expanded with more specific screens for other music utilities (Digital Sound Track, DMusic, MusicLabIFS, Sequel, MusicX and more). Maybe this should be a separate product altogether.

"VTR" controls the Single Frame Controller that is connected through the serial or parallel ports, with all the appropriate VTR buttons. Currently the Sanyo GVR-S 950 is not supported, but that will change in version 2.0. All of the necessary tape controls are in a large graphic button format.

"Logger" allows the Toaster user to log tape positions where specific data has been recorded for additional editing tasks later on. If you've ever logged tape by hand, you know what a nightmare it can be, not to mention tedious. It's best to work with a VTR that has addressable time-code. To help in the logging process, CT allows names, projects, clients, subject headings, element types, dates, tape formats, reel numbers, time code positions/numbers to be tagged. Working with a VTR that doesn't offer timecode is an option, though it's always a bit more shaky than timecoding logs.

The button marked Utility allows the user to copy, move, rename, and delete any files on the system (or via Local Area Networks through software like Interworks' ENLAN-DFS; see review on page 88). As long as the correct load path is configured, DiskMaster, SID, or Directory Opus can be called up from this same screen.

The Once and Future Package

Crouton Tools is classified as a "Video Operating System," and excites DevWare President Scott Pincus into animated descriptions of the product.

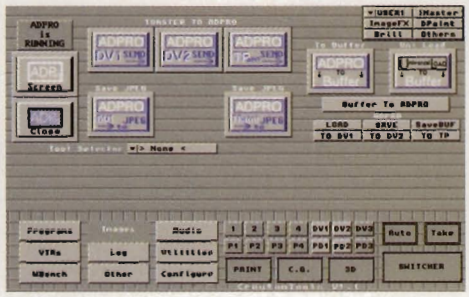


Figure 1: The CroutonTools "Images" screen

Figure 2: The CroutonTools "Program" interface

According to Pincus, there would be a new 1.1 version out in June, followed by a 2.0 upgrade in the Fall. DevWare is becoming the largest Toaster and Toaster utilities marketing service in the U.S., and supports all of the NewTek and third-party wares.

Central to the release of Crouton Tools is a modular approach, allowing add-ons to be marketed in the future. One of these will be the "Canvass Module," a super-batch processor for the main program, allowing those neat animations to be done on a list of frames that the best Amiga image processors can provide such as StoryBoard. Future modules will make the Toaster a full video solution. Support for the PAR animation controller should arrive with version 2.0, while Sanyo GVRS-950 single frame recording is also planned. Mac "Quicktime" movie translation is also in the works. With eventual Toaster support for PAL users projected in about a year, CroutonTools could be an international hit.

I also spoke with Harold Russell, CroutonTools designer, who told me the Sanyo enhancements would be in the 2.0 version, and went into far more detail about the modules soon to be released. The "Canvass" module ($129 or less) will be three connected CroutonTools programs: Canvass (plays back thumbnail B&W animations and more), 3D module (loads all 3D objects into LightWave and Modeler and renders a sample of them in a thumbnail), and Minder (lists all pertinent client info so billing for projects is easy to handle). There will also be "Storyboard" (automates storyboard creation from selected frames and priced at around $79), TimeLine (mixes linear and non-linear editing sequences with the help of NewTek hardware; to be priced between $250 and $300), and Toaster Tango (which will run two CroutonTools screens on one Amiga for those who are two-Toaster owners via either ENLAN-DFS networks or other networking solutions, priced at around $129 or less). All of these modules will also be geared to operate from a CroutonTools interface.

Conclusions

RAM is the name of the game to run this software. With an Amiga 4000 with 16MB of Fast RAM and 2MB of Chip RAM, Montage 24 wouldn't give me a render screen while CroutonTools was operating. I was, however, able to run both DPaint and Brilliance at the same time as ToasterPaint (a miracle in itself). It must be emphasized that CroutonTools is a front-end driver that requires an ARexx be installed and run on the system, and 2MB of Chip RAM must be used as well. This is a program worth the investment if you need to use your Toaster along with other programs simultaneously. This software is ideal for driving the creative process from a central location.

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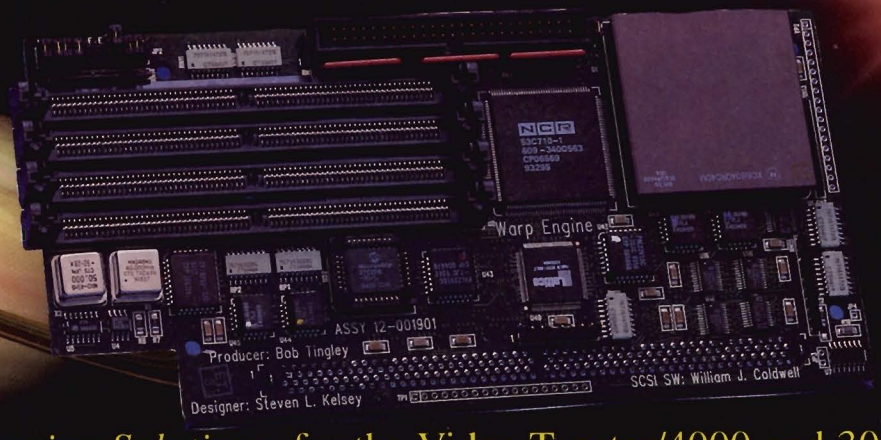

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FOR INFORMATION CIRCLE 103

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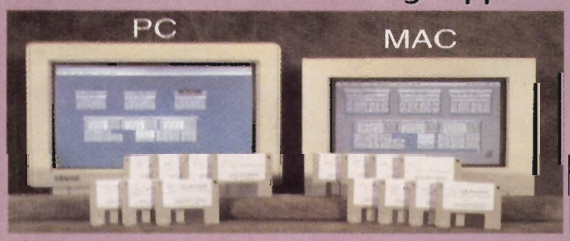

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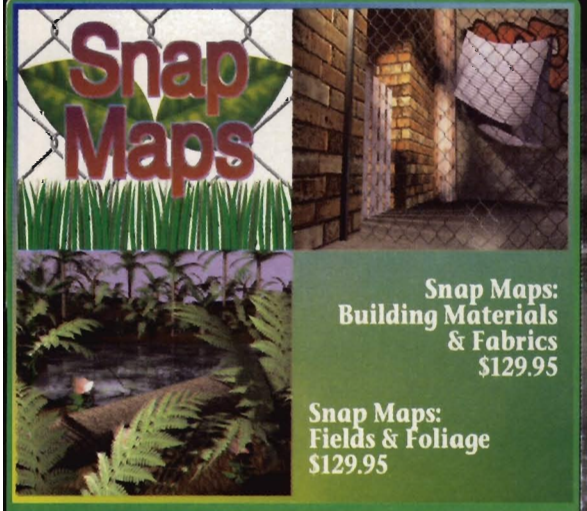

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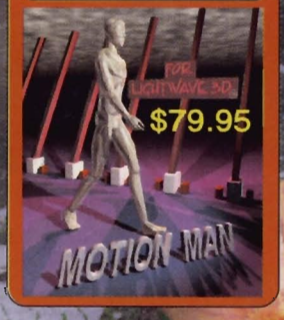
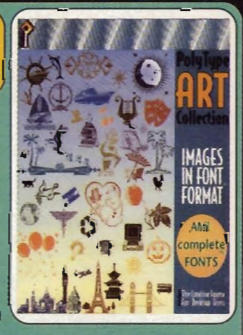


FOR INFORMATION CIRCLE 101

ANTI GRAVITY PUBLISHING™ PRESENTS:

PolyType ART Collection™ IMAGES IN FONT FORMAT™



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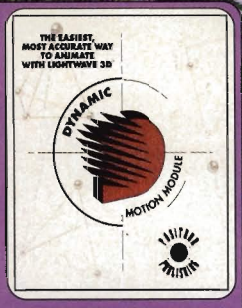

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POSITRON PUBLISHING

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Answers To Telvision Technology by Cecil Smith is a compilation of his answers to questions posed in his *AV Video* column, and seminars.

Mastering Toaster Technology by Brent Malnack and Phil Kurz is the step-by-step guilde to using the NewTek Video Toaster. Designed to walk readers through important Toaster tasks.

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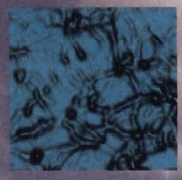

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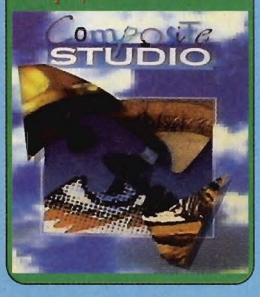

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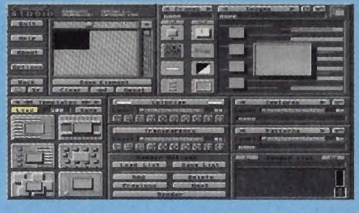

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Very High Speed Local 040 Memory Bus with full 040 burst access.
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- Supports 4, 8, 16, 32 MB SIMM Modules.
- Uses the Memory that is installed on the Amiga 4000 MotherBoard.
- Supports DMA access from Zorro III Devices to onboard Memory.
- A3000 Version Supports up to 64MB of 32Bit Memory.
- A3000 Engine will clock 16MHz MotherBoards at 25MHz.

Compatibility
- Compatible with the Video Toaster, Retina Z-III and OpalVision.
- Works in all 3000, and 4000 series Amigas.
- Requires AmigaDos 2.1 or greater.
- Full Two Year warranty

The Warp Engine Series of Accelerators is a break-through in Amiga Expansion design. The Warp Engine comes in three versions for the Amiga/ Toaster 4000 and three for the Amiga 3000. All Warp Engines are fully upgradable to 40MHz by just changing the CPU and the Clock Oscillator! The Warp Engine uses standard 72 Pin SIMMs (NO CUSTOM SIMMS)and allows the use of up to four different sizes of SIMMs (4, 8, 16 and 32MB) at the same time. Unlike other companare only available from them, and/or they only allow the same size SIMMs to be installed making it necessary to remove your old SIMMs before you can add larger SIMMs. The NCR53C710-1 SCSI-II Fast 32Bit DMA Bus Master Processor makes it the Fastest available with its direct connection to the 040 chip—this provides up to 10MB/s Transfers and allows the 040 to retain 90% to 98% of processing power! Zorro III Memory boards cannot even reach 70% of the speed of the Motherboard Memory while Warp Engines Local 040 Burst Memory is many times faster than the Motherboard Memory!

40 MHz 68040 Accelerator for the VideoToaster/4000

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The 3000 Series: There are three versions available for the A3000 which in all aspects are the same as the 4000 except that the Ram expansion is 64MB.

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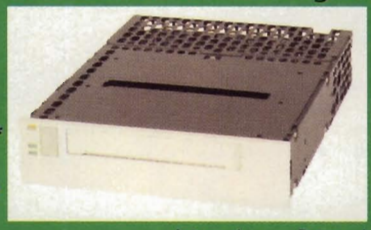

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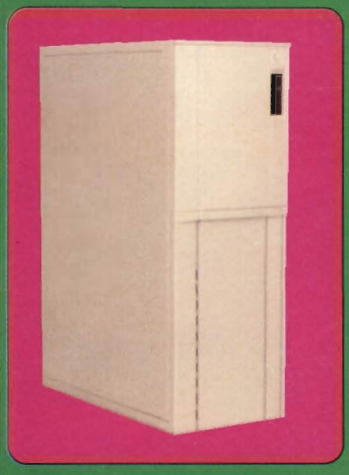

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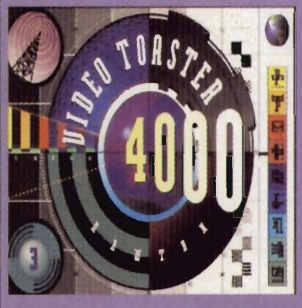

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LightWave 3.5

Capable of Standing on its Own

by John Gross

LightWave without the Toaster? The solution is LightWave 3.5!

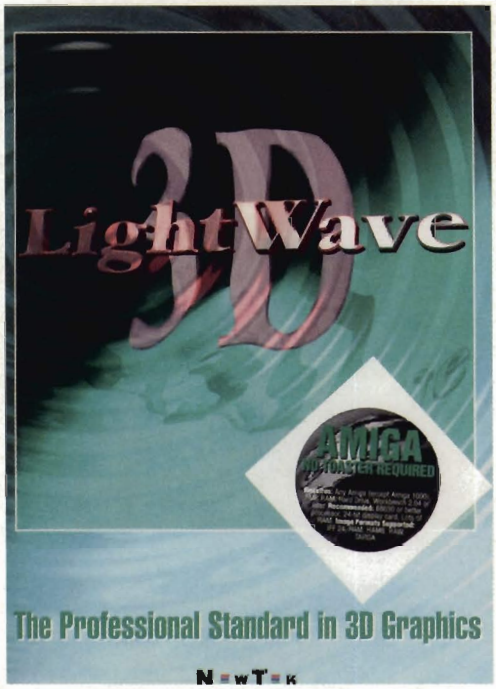
If you have always wanted to try LightWave, but weren't ready to buy a Toaster, your prayers have been answered.

If you're already a LightWave junkie, you most likely want to get the 3.5 upgrade even if it doesn't have a large number of features that you could find useful. It's like being a kid during Christmas—you want the new toys even if the old ones aren't broken. Chances are that people like you have already purchased the upgrade and are happily Metaforming (more on that later).

But if you're not a total LightWave junkie and haven't plunked down the cash, you may be wondering what's in store with 3.5. Do you really need to replace that old toy?

For those with 3.1 LightWave, 3.5 is not a *major* upgrade (it did jump from 3.2 to 3.5, so it must be at least .3 better), but it is well worth the low upgrade price.

Since most readers of *VTU* have at least seen LightWave, this review will concentrate on new features rather than reviewing the entire product.



Unwrap It!

If you purchase LightWave 3D as a standalone product (no Toaster needed), expect to find seven disks containing the LightWave software (Layout plus Modeler), sample objects, images, surfaces, scenes, Modeler macros and 30 postscript fonts (different from the fonts shipped with the Toaster).

You'll also find a manual, an addendum, Lee Stranahan's *LightWave Essentials* videotape and a parallel port dongle. The dongle has a pass through, but NewTek recommends removing it if you wish to use the port for other reasons. Alternatively, you could buy a parallel switchbox and attach the dongle and another device to the box and switch between the two.

All this goes for a manufacturer's list of $695 and will work on any Amiga (except 1000) with 8MB of RAM, a hard drive (approximately 10MB are used when installed) and Workbench 2.04 or better. NewTek also recommends using at least a 68030 accelerator, a 24-bit display card and plenty of RAM.

Current Toaster owners can upgrade to 3.5 for a suggested list price of $99. They will receive all of the above, minus the dongle, so they can install and use it with their Toaster. If you purchase LightWave this way, you can not use it without the Toaster, but do receive some added benefits.

Installation

Either way, installation is simple. Because NewTek elected to use the standard Commodore installer for this one, you can choose to install everything, just the programs or just the extra content. A drawer called Toaster will be created on your selected drive and everything will be stored there. A Toaster owner only needs to choose the drive where their Toaster software resides and it will be installed there.

A First Look

Except for the addition of a few new buttons, the interface looks similar to LightWave 3.1. Those with non-Amiga 4000 Toasters can now choose a new feature in the Options panel to use the extra colors that LightWave running on a 4000 allows.

LightWave 3.5 also introduces plug-in technology, allowing third-party support for such features as graphics card support, load and save formats (images and objects), textures and eventual post processing options.

The beginning of this is evident in 3.5 with Picasso II resolution support (800x600 and 1024x768), a few new textures from Steve Worley's *Apex Software* (Essence and Forge) and 24-bit Targa load and save support. It should be noted that higher resolution LightWave and Modeler screen support is still somewhat in the development stage so you should use those options with that in mind.

Additional graphics card drivers and load/save formats may be available by the time you read this. NewTek will also post information and software "patches" on CompuServe (AmigaVendor forum) and the Internet. Developers interested in supporting LightWave are encouraged to contact NewTek for additional information.

As time goes on, expect to see more and more plug-ins that will greatly expand LightWave's capabilities.

Forward Through the Panels

One of the first things you will notice in the Scene panel is that there are new little icons for the Scene Overview. Instead of a letter designating the item as in 3.1, a light icon signifies a light; a camera, the camera; a sphere is an object and finally a little bone signifies an object's bone.

You also have the ability to individually select whether a light, bone or the camera is visible when not selected. Plus any object can now have a redraw state of invisible (when not selected), always a bounding box, points only, every other polygon or all polygons. Individual objects can have different settings and they are all saved within the scene file.

Within the **Object Skeleton** sub panel (Objects panel) you will find the **Add Child Bone** button. This is a great time saver which automatically adds a bone that has the same rest length as and is parented to the currently selected bone. A nice added feature places the bone at the "end" of the parent bone.

The main Objects panel contains a **Particle/Line Size** pop-up menu. Objects composed of single-point polygons (particles) or two-point polygons (lines) are special objects that maintain the same size no matter how close or far from the camera they become. These objects now have the ability to be sized at three separate sizes or you can elect LightWave to compute the sizes automatically, depending upon the resolution you are rendering at. Small will render a one pixel particle while medium uses a 3x3 pixel array and large uses a 5x5 array. Likewise, lines can be sized at one, three or five pixels thick.

Mini Sliders, Textures, Lens Flares and Custom Sizes

The Object, Surfaces, Lights, Camera and Effects panels contain new "mini sliders" that allow easy selection of numeric values (Figure 1). Mini sliders always go between 0 and 100 percent, but you can input values greater or less than that by hand. Surface panel values will now accept values between -399 percent and 400 percent (Figure 2).

Both of these textures are unique in that they allow for bump mapped type surfaces, but can be applied in Color, Luminosity, Diffuse, Specular, Reflectivity or Transparency (as well as Clip maps). The Lens Flare panel now contains one of my favorite new features: **Fade With Distance**. This allows flares to ramp up or down in intensity as they are closer to or farther from the camera. Fade with Distance works by giving the flare a **Nominal Distance**. The Nominal Distance is the distance from the camera that the flare reaches its entered Intensity value.

The Camera panel contains a welcomed new feature: **Custom Size** (Figure 3). Custom Size allows output files to be anywhere in size from 16x16 pixels to 8000x8000. Be forewarned that large resolutions require large amounts of memory as LightWave now requires enough RAM to hold a single image the size of the output resolution (for future plug-in support and faster anim saving).

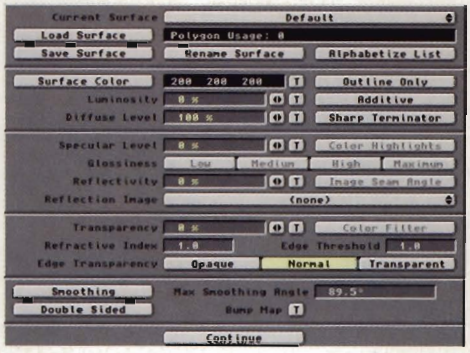


Figure 1

Figure 2

Figure 3

Figure 4

NewTek is aware that this may cause some problems and is working on a virtual memory scheme to allow the rendering of large images without the additional RAM. The patch may be available by the time this issue is in print.

Pixel Aspects and Segment Memory

LightWave now supports output file pixel aspect ratios for NTSC D1 and D2, PAL D1 and D2 and square pixels.

Instead of the **Use Fewer Segments** found in 3.1, LightWave 3.5 now allows the user to input the amount of RAM desired for the rendering of image segments. The more RAM allowed, the fewer segments will be rendered and the faster the image will finish. This is especially true in situations where Motion Blur is being used. LightWave will not allow a value greater than the amount of free RAM to be entered.

New Alpha and Fog Options

The Effects panel now contains a **Foreground Fader Alpha** button that allows foreground images with backgrounds other than black to be composited over background images using the alpha matte of the foreground image. This is a welcome addition for those users that have had difficulty compositing in LightWave. Searching a bit lower in the Effects panels reveals the new Fog options (Figure 4). You can now see a graphical representation of the fog effect and there is now a new fog choice called **Nonlinear 2**, which gives more fog near the camera. Also new is **Minimum** and **Maximum Fog Amount,** which allows you to set the amount of the fog effect to be seen at the minimum and maximum fog values. Using this option, you can have a 95 percent Maximum Fog Amount so that objects can never be completely obscured. High Minimum amounts are great for underwater effects shots.

Using a combination of these settings, it is possible to get an effect where the fog is decreased on the object the farther away from the camera it travels. These settings can be enveloped for interesting effects.

Layout Wrapup

Rounding out most of the new features takes us to the Record panel, where you can choose from different **Render Displays**. Included with this release are None (takes the place of turning off Render to DV1), Toaster (only if run from the Toaster), Picasso II, 6-bit HAM (4,096 colors) or 8-bit HAM (256 colors—only for AGA machines).

You can also choose 6- or 8-bit ANIM saves. RGB files can be saved as 24-bit IFF, Raw or Targa files or 6-bit or 8-bit HAM. Alpha images can now be saved as 8-bit or 24-bit IFFs. Expect more image formats down the road. Also remember that if you are not running LightWave from the Switcher, you cannot save or play framestores.

continued on page 94

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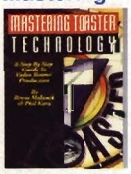

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REVIEW

Wavetools/RTX
A New Audio Solution from Digital Audio Designs

by Matt Drabick

Until recently, the only professional 16-bit audio sampling, editing, mixing and playback solution for the Amiga and Video Toaster has been the AD516 from SunRize Industries. With its time-code support, multi-track capability and a DSP chip for real-time mixing and effects, the AD516/Studio 16 combination is perfect for audio-for-video and music production. With the arrival of Wavetools and RTX from Digital Audio Designs, two professional 16-bit options are now available.

Wavetools ($450) is a half-length Zorro-II card that fits inside an Amiga 2000, 3000 or 4000. Two inputs and outputs using RCA connectors are provided for sampling and playing back two channels of stereo sound. Wavetools has a frequency response of 10Hz to 20KHz, a dynamic range of 96 dB and a signal-to-noise ratio of 85dB. The optional RTX, or Real Time eXtension module ($450), is another half-length card that connects to Wavetools using the same Zorro slot. RTX provides SMPTE time-code support plus the same AD2105 DSP used in the AD516. The DSP allows non-destructive editing and mixing plus special effects using 16-bit samples.

System requirements are a Zorro-II or III slot and a 68030/25 MHz or faster CPU, Workbench 2.0 or higher, one MB of chip RAM and at least two MB of RAM plus a large hard drive. Both IDE and SCSI hard drives with access times of 15ms or better can be used. While both types of hard drives are acceptable, up to seven SCSI drives can be connected for greater storage capacity versus two IDE drives per controller.

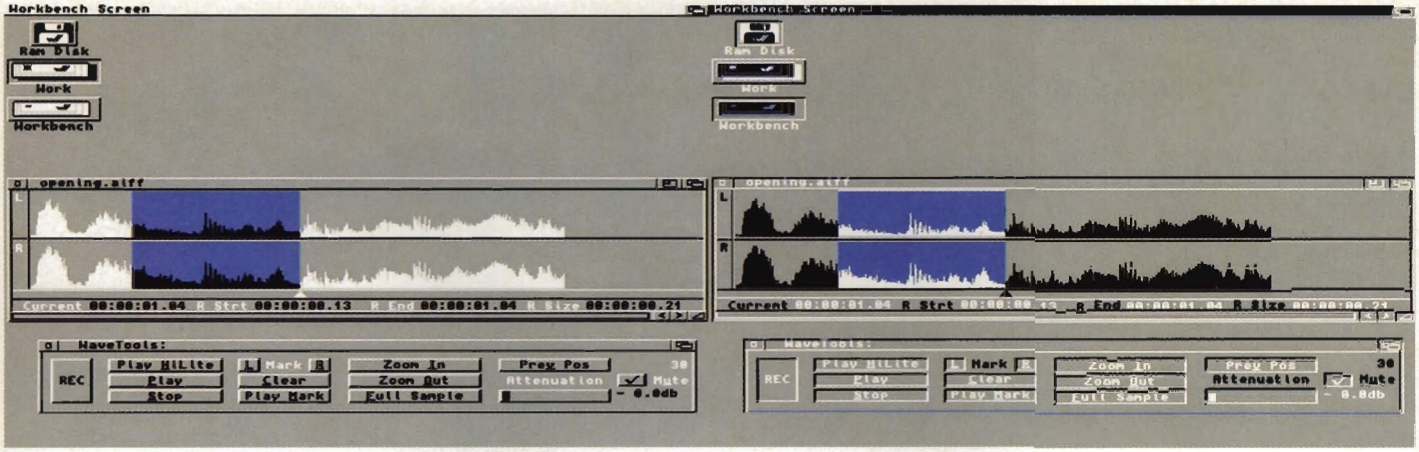
A handy mute button silences your speakers while monitoring and recording sound.

For capturing, editing, storing and playing back 16-bit stereo samples with CD-quality sound, plan on using a 200MB hard drive or larger. When using sampling rates of 44.1 or 48.0KHz, about 11MB of hard drive space is used per minute with stereo samples. As a general rule, the new, larger hard drives have faster access times and deliver better performance. Note that Wavetools can't record to RAM and that only stereo, not mono, samples are recorded.

Wavetools' capturing, editing and playback software uses draggable and resizeable windows displayed on the Workbench screen. Sampling rates range from 17.64 up to 48.00KHz (DAT) and include 32.00 and 44.1KHz (CD) rates. After the sampling rate has been selected, the total recording time and storage space available on the selected hard drive partition is indicated. By dragging a slider, the user can determine the sample size to be all or only part of the available storage space.

A pair of meters monitor the incoming audio signal, and the gain control equally adjusts the audio level for both the left and right channels. Up to 22.5dB of gain can be applied. A handy mute button silences your speakers while monitoring and recording sound.

Once the level has been set, simply click on the record button to capture a sample to the hard drive. Once saved, the stereo sample is displayed as a pair of waveforms which can be cut, copied, and pasted. Samples can also be reversed and mixed together, have their volume changed and have echo applied as destructive edits. The user can zoom in to see more detail for precise marking and editing, and then zoom back out to see the entire sample. After marking or highlighting part of a sample, that section can be selectively played repeatedly. The spectral analysis tool can evaluate the frequencies in a sample and isolate unwanted sounds.



A graphical representation of samples that have been recorded. It allows you to cut, copy, paste and/or delete all or part of a sample.

A utility is included that generates 1KHz tone for testing and calibration purposes. The WTConvert utility allows AIFF16 16-bit samples to be converted and exchanged between Wavetools and the AD516/Studio 16.

Wavetools alone provides stereo or two channel recording, mixing and playback of 16-bit sound samples well-suited for standard audio-for-video production. By adding the RTX module, multi-track recording and playback using four or eight channels of sound with real-time mixing and effects is possible using the on-board DSP chip. RTX also provides full longitudinal (LTC) and vertical-interval (VITC) support, allowing voice, music and sound effects to be accurately triggered and recorded to tape using SMPTE time-code cue lists. RTX generates and reads LTC and VITC time code at 24, 25, 29.97 (both drop and non-drop frame) and 30 frames per second while generating window dubs for off-line video editing. Note that the AD516 only supports LTC and doesn't work with VITC. VITC doesn't require using one of the VCR's audio channels, leaving both channels free for mixing and recording purposes.

RTX has a pair of composite video and a pair of Y/C video connectors for time-code input and output plus a five-pin DINconnector for MIDI time-code.

At press time, the multitrack software was still being developed for RTX and unavailable for review. According to Digital Audio Designs, by using RTX's on-board DSP chip, four or eight mono tracks of sound can be mixed together and played

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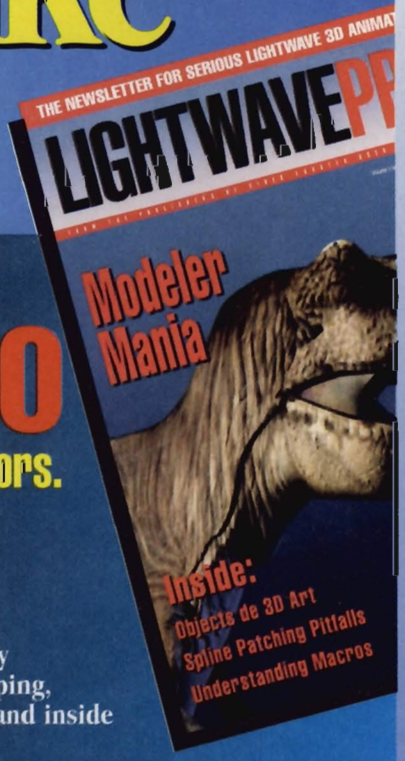

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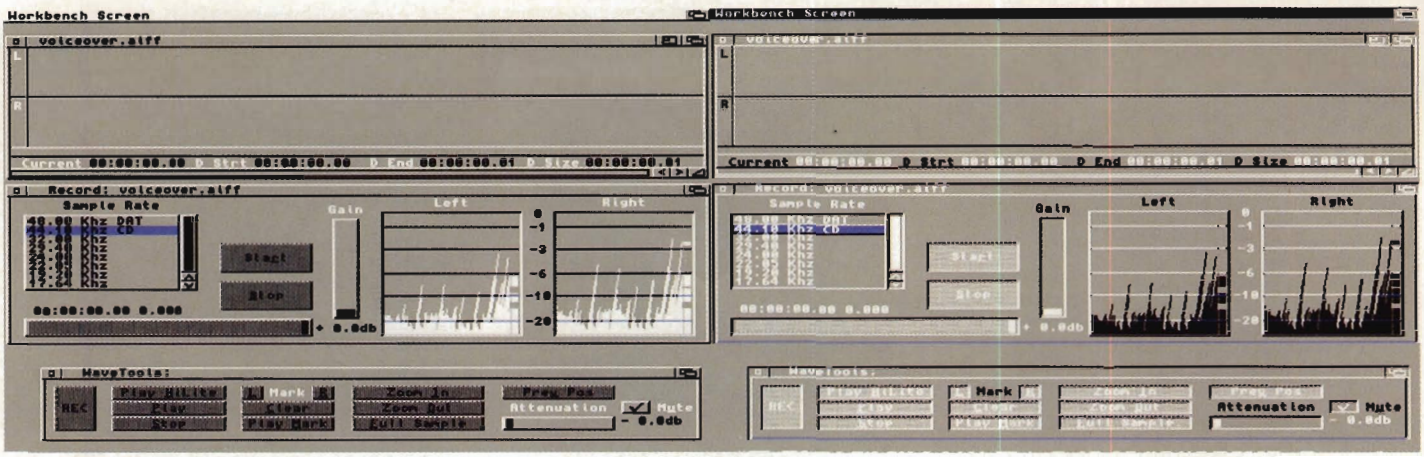

The image above shows how to adjust the gain for audio level before actually recording the audio.

back in real-time using a time-line editor. With the time-line editor, the user is able to display events over time using horizontal rows that represent audio tracks. Once finished, the multitrack software will be sent free of charge to all registered RTX owners.

Finally, because the Toaster takes over the entire system when performing transitions, RTX has a 256K static RAM buffer for allowing 1.5 seconds of two-channel sound at 44.1KHz to be played back during a Toaster transition.

For only $900, Wavetools and RTX will provide many of the same capabilities as the AD516/Studio 16 for recording, mixing and playing back eight tracks of 16-bit sound with time-code support. While the AD516/Studio 16 is a mature product with extensive third-party support, Wavetools and RTX is a worthy competitor. VTU

Matt Drabick has been in television production for 15 years and has been an independent computer graphics producer for the past six years.

Company mentioned:
Digital Audio Designs
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AG-3
3-CCD S-VHS-C Camcorder

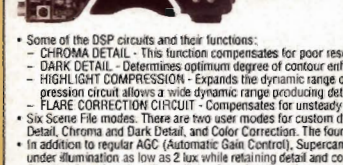
The AG-3 is an industrial 3-CCD camcorder. Don't be fooled by its size. It delivers extra precise color reproduction in addition to its excellent mobility making it ideal for almost any professional application. The AG-3 utilizes technology and engineering used in Panasonic broadcast cameras. A few examples; the capstan motor is coated with evaporated diamond-like carbon to provide the optimum smoothness/friction balance for positive traction and uniform tape tension. The AG-3 features high performance laminated amorphous pro heads which are far superior to those of conventional ferrite heads. The AG-3 uses a newly-developed 8-group/10-piece lens system that includes two double-sided aspherical lenses (4 sides). It is highly resistant to aberrations caused by flare, color fringing and other distortions that diminish contrast.

Features:
- Three 1/3" CCD image sensor system delivers over 530 lines of horizontal resolution
- New 10:1 2-speed zoom lens (see above) 6-60mm F1.6 with automatic and manual zoom. Also features 20:1 digital zoom.
- High resolution color viewfinder lets you preview and shoot scenes exactly as they are
- Built-in digital TBC (Time Base Corrector) eliminates jitter and skew and assures stable, distortion-free playback
- **Digital Mix** – for soft fade-over between memorized still and moving images
- **Digital Still** – lets you freeze a particular scene for as long as you like, without interrupting sound recording
- **Digital Gain-Up** – delivers clear, distinct images in low-light levels, even down to 1 lux!
- **Digital Strobe & Digital Wipe** – add professional effects to your shooting.

AG-455 2-Hour S-VHS Camcorder

- S-VHS system – records and plays back over 400 lines horizontal resolution
- Laminated amorphous heads assure exceptional picture quality, high resolution, superb color reproduction, and high signal-to-noise ratio
- 12:1 power zoom lens with continuously variable speed zoom
- Hi-fi stereo and linear track for recording. Also has "Audio Out" select switch for Hi-fi/Normal/Mix combinations
- High performance stereo zoom microphone features three different settings : Wide, Telephoto or automatic zoom.
- Built-in VITC (Vertical Interval Time Code) time code generator gives absolute address to each frame of video for frame accurate editing
- Audio/Video Fade-In and Fade-Out for smooth, professional scene transitions
- Automatic Iris plus manual control for fine adjustment
- Variable high-speed shutter from 1/50 to 1/8000 second.
- **Digital Mix** – for soft fade-over between memorized still and moving images
  Digital Tracer – to add an after-image effect to moving subjects
  Digital Still – lets you freeze a particular scene for as long as you like, without interrupting sound recording
  Digital Zoom – Thanks to digital processing, you can enjoy shots with ultra-high magnifications of up to 100:1
  Digital Gain-Up – delivers clear, distinct images in low-light levels, even down to 1 lux!
  Digital Strobe & Digital Wipe – add professional effects to your shooting.

AG-DP800 SUPERCAM
S-VHS FIT 3-CCD Digital Signal Processing Camcorder



- Three high-density 380,000 pixel CCDs with half-pitch pixel offset to achieve over 700 lines of horizontal resolution, a S/N ratio exceeding 60dB and remarkable sensitivity of f8 at 2000 lux result in simply extraordinary image quality. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Uses advanced digital signal processing circuitry which provides four valuable benefits.
  1) Consistently reliable up-to-spec performance.
  2) Fine adjustment of a wide range of parameters.
  3) Memory storage and instant recall of specific settings.
  4) More flexible and higher quality image processing, as well as easier maintenance.
- Some of the DSP circuits and their functions:
  - CHROMA DETAIL - This function compensates for poor resolution in the high chroma areas of the picture.
  - DARK DETAIL - Determines optimum degree of contour enhancement in dark areas to deliver crisp, natural-looking images
  - HIGHLIGHT COMPRESSION - Expands the dynamic range of the highlighted areas and prevents halation. The highlight compression circuit allows a wide dynamic range producing detailed images even against bright backlight or daylight.
  - FLARE CORRECTION CIRCUIT - Compensates for unsteady black caused by light or by a subject's movements.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments from 1/4 sec. to 1/100 sec.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Internal) time code
- 26-pin connector for direct signal output from camera section for easy backups using 2nd VCR.
- 2 hi-fi stereo audio channels with a dynamic range of 80 dB, and 2 linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable and levels of all 4 channels are controllable. Uses XLR connectors to further ensure high-quality sound.
- Phantom power can be supplied to optional microphone. Power can be switched off to prevent battery drain when not in use.

JVC GY-X2
3-CCD S-VHS CAMCORDER

- Three 1/2" CCD image sensor delivers 650 lines of horizontal resolution
- New micro-lens technology provides exceptional sensitivity of F7.0 at 2000 lux and new LOLUX mode lets you shoot with almost no light! Now you can shoot superb footage with excellent color balanced at a mere 3 lux illumination
- Variable Scan View allows flicker-free shooting of a computer monitor.
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel.
- Genlock input allow synchronization with other cameras.
- Dual output system allows camera output to be connected directly to an external recorder

Canon L2

INTRODUCING THE NEW CANON L2 HI-8 CAMCORDER WITH VL MOUNT FOR INTERCHANGEABLE LENSES, RC TIME CODE AND DIGITAL EFFECT FOR UNLIMITED CREATIVE FREEDOM.

- 1/2" CCD with 410,000 pixels delivers over 450 lines of horizontal resolution
- VL Mount System allows use of a full range of interchangeable lenses from extravide angle to super telephoto plus, optional EOS-VL adapter allows mounting of over 65 Canon EOS 35mm Autofocus lenses.
- Records RC Time Code while shooting and can also "stripe" RC Time Code to tapes already recorded on other equipment. With RC Time Code the L2 can be connected 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.
- Includes wide range 15:1 zoom lens with special coating to cut flare and ghosts while providing high contrast and natural tonal gradation. The lens also has an 8-blade iris for precision exposure control.
- 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 which lets you select the stereo angle and recording sensitivity.
- High speed Piezo autofocus allows focusing through glass or water. Also provides focus lock and manual focusing.
- Provides two different grips with independent start/stop and zoom controls. Built-in sports finder lets you view the viewfinder from arm's length away.
- Built-in character generator lets you superimpose two lines of up to 16 characters on your recordings. There is also a choice of three date and time displays.
- Variable high-speed shutter from 1/100 to 1/10,000 of a sec.
- Includes a wireless controller which to make it a highly sophisticated edit deck. Includes a full-function shuttle dial allowing easy selection of a range of forward and reverse playback speeds for swift, precise scene location.
- Automatic exposure plus manual control lets you lock the aperture at any setting from fully stopped down to fully open.
- The L2 has a variety of special effects. Add an extra dimension to your video productions with digital image manipulation and striking scene transitions;

  Close-up – instantly doubles the magnification of the lens, giving you a 30:1 zoom
  Slow shutter – four slow shutter speeds allow recording in light levels as low as 0.5 lux or adds artistic after-images to selected scenes.
  Overlap – (dissolve)
  Wipe – this effect slides the picture off the screen while simultaneously replacing it with a new scene.
  Freeze – freezes the picture while sound recording continues uninterrupted.
  Art Freeze – records your scenes as colorful paint-like images.
  Strobe and Art playback modes – six-speed strobe playback can be combined with three levels of solarization effects.

SONY

EVW-300 3-CCD Hi-8 CAMCORDER

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

TOSHIBA

TSC-200 3-CCD Hi-8 CAMCORDER

- 3 ½" CCD chips mounted with spatial offset technology deliver resolution of 700 horizontal lines
- Low noise design provides extreme sensitivity of f8.0 at 2000 lux. Min. illumination 7.5 lux with excellent color reproduction
- New LNA (low noise amplifier) delivers a S/N (signal-to-noise) ratio of 62dB - the highest achieved for this type of camera.
- 26-pin connector outputs Y/C or component video signal allowing hook up to a portable S-VHS, MII or Betacam recorder and simultaneously record with Hi-8.
- Quick-start 1.5" viewfinder needs no warm up time so you never miss a shot. Zebra pattern in the viewfinder alerts operator to excessive video levels.
- Genlock capability allows synchronization with other cameras. Also 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.
- Very low power consumption. Draws only 16 watts per hour allowing 100 minutes of recording time with 1 NP-1B battery.
- Body made of magnesium alloy previously found only on broadcast cameras. Still only 13 lbs. in standard configuration.

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- 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.

JVC
BR-S500U S-VHS Player
BR-S800U S-VHS 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, while maintaining the ease of use that JVC editing systems are famous for. There is also powerful picture-improvement technology to assure outstanding S-VHS picture quality. Best of all the VCRs feature an open architecture for easy system upgradeability. They have two plug-in extension slots that allow (with optional interface card) them to be configured into professional edit suites computer-based environments or into older JVC editing systems.

EXCLUSIVE JVC CONTROL BUS

Newly developed to provide a smooth upgrade path for video editing professionals at all levels, JVC's proprietary Control Bus is used to interface both units with the RM-G800U Editing Controller for more comprehensive editing capabilities.

OPEN ARCHITECTURE

There are two plug-in extension slots on the rear panels of both the BR-S800U and BR-S500U that accept a variety of optional JVC 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 system is far superior to conventional control track counters that lose reference when the tape is removed from the machine. CTL Time Code can be added to the tape during the recording process or onto an existing recorded tape using the "post stripe" function. For professional VITC and LTC time code operation there is the optional SA-R50U VITC/LTC Time Code Reader/Generator card.

SUPERB VIDEO PERFORMANCE

Incorporates latest picture improvement technologies for razor sharp images, with over 400 lines of horizontal resolution. Digital Y/C separation, along with a 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 32 times normal tape speed in either forward or reverse. This outstanding search capability is possible thanks to the incorporation of a heavy-duty direct-drive mechanism similar to that used in JVC's popular broadcast-standard 22 Series editing recorders.

FOUR-TRACK AUDIO

Each features two Hi-Fi stereo channels with a wide frequency response and a dynamic range of over 80 dB. In addition to the two Hi-Fi tracks, they each have 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, or for more sophisticated editing. There are two audio level meters, switchable between the Hi-Fi and linear channels. Separate input and output (output only on BR-S500U) terminals are also provided for all 4 channels. On the BR-S800U there are four level controls permitting separate adjustment of each channel. Also the channel-2 audio meter doubles as a tracking meter during playback.

RM-G800U EDIT CONTROLLER

- Economical editing alternative for professional editors who require a controller that provides a comprehensive set of basic professional editing functions. Featuring JVC's exclusive Control Bus, the RM-G800U is the most powerful editing controller in its class.
- 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 integrate them into advanced high-level edit suites without compromising their cost-effectiveness. You can 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 titlable control panel.

- Built-in digital Dropout Compensator (DDC) performs dropout compensation for the luminance signal on an all-digital basis. With chroma dropout compensation also being performed you get a stable, high-quality picture.
- An SC leak canceller detects and removes very low-level chroma signals on leaked carriers with out 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. An automatic equalizer is provided to prevent deterioration of the luminance signal frequency response when using ever-played tapes.
- A Capstan Bump Function operates during preroll. This function assures precise synchronization of the player and recorder during editing. Selectable via the On-Screen Menu, 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. Simply set the video input switch to "BLACK" and start recording.
- 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. Two microphone connectors and a stereo headphone jack with level control are provided. 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, and even functions normally requiring DNP switch resetting can be switched directly via the menu display. Over 70 items are selectable via the menu including frame servo, TBC mode, Dolby NR, Hi-Fi recording, audio limiter, and pre-roll 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.

SONY
PROFESSIONAL S-VHS SYSTEM

SVP-9000 Player

SVP-9600 Player/Recorder

The SVP-9000 S-VHS and SVO-9600 are designed as multi-purpose machines with the use of various optical interface boards. By selecting one or more of a particular board, they become dedicated machines for satellite recording, office viewing, video library, sports analysis and editing. At the same time, they adhere to Sonys professional VTR concept of reliable mechanism, rigid construction and easy operation, ensuring reliable and reliable operation in the industrial and professional environment.

They both feature:

- Using the S-VHS format, they deliver superb picture playback and recording. With newly developed Digital Y/C separator maintained picture quality even in composite.
- Newly developed video cross talk canceller eliminates color blur providing more accurate color and sharper images.
- Four channel audio system – Two Hi-fi with a dynamic range of 90dB and two linear channels with Dolby NR.
- Two direct-drive reel motors provide rapid response and smooth operations. Mode transitions such as STOP to REC, FAST FWD to PLAY, STOP to REWIND are instantaneous.
- Picture search from -10 to +10 times normal speed.
- SYNC IN for synchronizing with other video sources
- Automatic repeat and automatic rewind can be accomplished with programmed operation.
- There is a TIMER switch for either REC or PLAY (SVP-9000 PLAY only) when selected automatically executes the selected mode when the power is turned on. This is very useful for unattended operation such as satellite recording.
- Auto head cleaner – each time a cassette is loaded or ejected, a cleaning roller automatically passes over the video/FM audio heads removing tape residue and providing preventive care of the tape heads.
- The SVO-9600 features sensor recording. When video signals are input, it automatically starts recording.
- 19" EIA rack mountable plus adjustable front controls.

Panasonic
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.
- Built-in digital filter which helps the AG-1970 achieve even more accurate Y/C separation. Also a noise filter is included in the circuitry.
- 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 Slow-Motion Editing System

These state-of-the-art machines provide the quality required for professional video production and even broadcast systems. They offer features such as Digital 3-D Time Base Correctors, Digital Slow Motion, and Digital Noise Reduction. They also have built-in Time Code Generator/Readers, and component video output for connection to MII and Betacam machines.

- They provide clear, noise-free, high quality slow playback. Playback speed, including Digital Still is selectable in 10 steps (-¼, -½, -¾, -⅞, -1⅛, +⅛, +½, +¾, +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 & luminance blurring.
  - Switching Noise Mask Circuit: Effectively eliminates noise caused by head switching during slow motion playback.
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded color signal frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- They have 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, plus the reliability needed. The dual-loading system achieves high-speed response while protecting tapes and heads from damage. The tape transport mechanism uses five direct drive motors, including two reel drive motors. Automatic head cleaning is also provided.
- 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 quality 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. All models have built-in SMPTE time code readers and generators (AU- W35H) and they each feature color framing — so 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. Because the signals never mix during recording, the quality remains exceptionally high, even during repeated editing and dubbing.
- Each is equipped with a digital 3-dimensional type TBC boasting a correction range of one full field (262.5 H lines). The memory continuously retains an entire video field of information in memory, and is used for 3-D processing, providing excellent dropout compensation and horizontal and vertical jitter.
- All models have 4 high-quality audio channels — 2 Hi-Fi channels, with dynamic range of 85 dB & 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-W32H 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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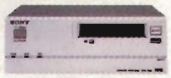
SONY VISCA

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.

- Uses Hi-8 format which delivers over 400 lines of horizontal resolution in record and playback modes.
- Records Sony RC Time Code to any 8mm or Hi-8 tape plus it can dub RC Time Code to any existing tape.
- 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. This allows for even faster and more convenient search of scenes.
- 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.
- You can write or search for index markers, a feature found on most Sony 8mm camcorders and VCRs
- The Vdeck can read and write data code, allowing date and time information to be stored on the tape as data. Moreover it's the first video product that lets you search for a specific date and time on your tape.
- Includes RM-S1000 wireless remote commander designed for stand-alone presentation use, putting the control in your hands. Use cue and review modes to rapidly scan the contents of 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. The editing list of the programmed time code data can be stored in the data area of the original source tape. The data can also be recalled, added, inserted or deleted 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 (Pulse Code Modulation) digital sound track. To verify the edit, 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.
- A built-in 8mm time code generator and reader. When using a tape without time code, you can stripe time code by simply pressing the Time Code Write button. (Post striping of 8mm time code will not affect any of the video and audio signals) Also reads RC (Re-writable Consumer) time code.

SUPERIOR PICTURE QUALITY

- The player portion of the EVO-9720 employs a digital noise reducer for luminance and chrominance signals, providing superior picture quality. Noise reduction levels are selectable from an on-screen display 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.
- The EVP-9720 incorporates both PCM stereo and AFM stereo recording for superb sound quality. PCM audio can be inserted or re-recorded for audio only edits in the Audio Insert mode.

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. There is also 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.

SONY

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.
- Records in Hi-8 format which delivers over 400 lines horizontal resolution, high S/N ratio and superior picture quality.
- There is separate DNR circuitry for both the Y (luminance) and C (chrominance) signals providing playback of superior images. There are three noise reduction levels for CNR and four levels for YNR. These levels are selectable according to picture quality.
- To ensure efficient operation, a variety of VCR modes can be easily customized within the PRESET MENU. The menu is superimposed on a video monitor screen allowing easy VCR mode setting. Fourteen menus are incorporated in the PRESET MENU offering options for digital CNR/YNR levels, time code display position, still timer, RS-232 baud rate, etc.
- 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, AT&T Topaz, BYTE-by-BYTE Sculpt 4-D, WaveFront Video Composer, and Personal Visualizer.
- 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.
- 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
- Additional audio, such as music or commentary, can be dubbed to existing video by simply pressing the AUDIO DUBBING button. Additional 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. The EVBK-65 encodes 15.734KHz analog RGB signals to Y/C signals. This board also has sub-carrier lock capability.
- 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-9800A

Hi-8 Player/Recorder/ Edit Feeder

The EVO-9800A is a versatile and innovative Hi8 VCR for professional video production. Features include, Digital Chrominance Noise Reducer, AFM and PCM audio system, 8mm time code, RS-422 (9-pin) interface, XLR connectors and external sync input.

- The EVO-9800A incorporates a built-in Digital Chrominance Noise Reducer (Digital CNR) to provide higher quality pictures. When the CNR mode is set to ON, chrominance signal-to-noise ratio is improved. At the same time, the field store used in the noise reducing process removes jitter to give clear, stable pictures.
- The EVO-9800A provides two channels of high quality PCM digital audio and a single channel of AFM recording systems. The dynamic range for PCM is 80dB. The EVO-9800A also provides balanced audio inputs and outputs via XLR connectors to provide correct interfacing with professional audio equipment.
- Jog/Shuttle for picture search - The SHUTTLE mode provides high speed picture search of -17 to 19 times normal speed. Frame accurate picture search is available in the JOG mode to locate editing points. This greatly simplifies editing operations.
- Equipped with a built-in 8mm time code generator to record an absolute address on the video tape and to perform time code based editing. The 8mm time code is recorded between the video and the PCM audio tracks to identify each frame. The time code data is converted and transmitted via 9-pin (RS-422 serial) interface.
- If the tape was recorded with no time code, you can subsequently insert 8mm time code on the tape. Alternatively, existing time code can be overwritten with new time code. There is no need to lose a generation to record 8mm time code.
- Equipped with RS-422 (9-pin) serial interface. This allows it to be configured into editing systems with the same protocol. All editing functions are be controlled via this interface. Time code also is transmitted through the 9-pin interface.
- Dial Menu Operation employed for maximum ease of operation allowing an operator to use the search dial to easily set various VTR operational modes; time code preset, time code superimposition, self-diagnostics display, digital hour meter information, etc.
- The EVO-9800A is 3-unit high and can be installed into a 19-inch rack by using the optional RMM-980 Rack Mount Kit.
- The angle of the EVO-9800A control panel is adjustable to angles of a 30°, 60° and 90° angle for ease of operation.

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, enabling direct transmission of separate luminance and chrominance signals to another EVO-9850 or to Sony's U-matic editing recorders.
- 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 provides for synchronization with other video equipment and easy configuration into A/B roll systems.
- 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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HGX-PLUS Expitaxial VHS (Box)

HGXT-60 Plus ..... 2.69 HGXT-120 Plus 2.99

8Q Broadcast Quality Expitaxial VHS (Box)

T-30 8Q ..... 4.39 T-60 8Q 4.99
T-120 8Q 5.89

8Q Certified Professional S-VHS (In Box)

ST-31 8Q ..... 6.09 ST-62 8Q 6.69
ST-126 8Q ..... 7.39 ST-182 8Q 13.59

SONY

Hi-8 Professional Metal Video Cassettes

P6-30 HMPX ..... 5.79 P6-30 HMEX 7.99
P6-60 HMPX ..... 8.19 P6-60 HMEX 11.49
P6-120HMPX ..... 11.09 P6-120HMEX 15.49

PR Series Professional Grade VHS

T-30PR ..... 2.39 T-60PR ..... 2.59 T-120PR 2.79

PM Series Premier Grade Professional VHS

T-30PM ..... 3.49 T-60PM ..... 3.99 T-120PM 4.79

BA Series Premier Hi-Grade Broadcast VHS (In Box)

T-30BA ..... 3.59 T-60BA ..... 4.09 T-120BA 4.89

MQ Master Quality S-VHS (In Box)

MQST-60 ..... 7.99 MQST-120 ..... 8.39

BRS 3/4" U-matic Broadcast Standard (In Box)

KCS-10 BRS (mini) ..... 8.29 KCS-20 BRS (mini) 8.99
KCA-10 BRS ..... 8.19 KCA-20 BRS 8.69
KCA-30 BRS ..... 9.69 KCA-60 BRS 13.49

XBR 3/4" U-matic Broadcast Master (In Box)

KCS-10 XBR (mini) ..... 8.79 KCS-20 XBR (mini) 10.19
KCA-10 XBR ..... 9.29 KCA-20 XBR 10.69
KCA-30 XBR ..... 11.99 KCA-60 XBR 15.69

KSP 31/4" U-matic SP Broadcast (In Box)

KSP-S10 (mini) ..... 9.59 KSP-S20 (mini) 11.09
KSP-10 ..... 10.09 KSP-20 ..... 11.59
KSP-30 ..... 12.99 KSP-60 ..... 16.99

BCT Metal Betacam SP Broadcast Master (Box)

BCT-5M (small) ..... 16.39 BCT-10M (small) 17.39
BCT-20M (small) ..... 21.29 BCT-30M (small) 23.29
BCT-60ML ..... 33.19 BCT-90ML 51.99

AZDEN

PRO SERIES VHF WIRELESS MICS

The **AZDEN PRO SERIES** brings you high performance VHF wireless at a price you can afford. Built around a two-channel design they allow selection of a frequency for the cleanest signal - delivering clean, reliable RF performance for up to 250 feet. The Pro Series includes handheld and lavalier mic systems as well as the WMS-PRO which includes a lavalier and handheld mic.

They All Feature:

- All have two switchable frequencies - 169.445 and 170.245 MHz and a range of 250 ft.
- High performance VHF transmitters and receivers incorporating SMD (small mounted device) technology
- Compact receivers which connect to the camera's external mic jack and attach to the camera with supplied shoe mount or velcro
- LED indicators for battery condition, transmit and receive operation

COMPLETE SYSTEMS

WMS-PRO

- Professional VHF wireless system with 250 ft. range
- Two switchable frequencies (169.445 and 170.245 MHz)
- Includes handheld and lavalier mic for extra flexibility
- Compact transmitter attaches to belt or fits in a pocket
- Includes earphone monitor and leatherette carrying pouch
- Battery-powered receiver comes with belt-clip, velcro and shoe mount for added versatility **149.95**

WLX-PRO

- Sensitive lavalier mic with attached tie clip
- Lightweight belt-pack transmitter with two frequencies
- Includes wind screen, earphone monitor, shoe mount and velcro **139.95**

WHX-PRO

- Handheld microphone with built-in transmitter
- No wires, no beltpack, no tangle-hassle free
- Operates on one AA battery for up to 8 hours
- Has a combination on/off-mute switch for quiet switching
- Includes shoe mount, velcro, earphone monitor **179.95**

ECZ-990 SHOTGUN

- Short electret condenser supercardioid shotgun with two positions, wide and narrow **69.95**

PRO SERIES COMPONENTS

WL/T-PRO

- Lavalier mic with belt-pack transmitter
- Same as WLX-PRO except without receiver
- Now owners of the WHX-PRO can combine the WL/T-PRO and have a complete system of one handheld and one lavalier mic with receiver **99.95**

WM/T-PRO

Now owners of the WMS-PRO can get a completely wirefree VHF handheld microphone with transmitter built in.

- Combine it with the receiver from the WMS-PRO or WLX-PRO and you now have the ultimate quality microphone for interviews or pass around
- 3-position switch for on, off and "standby" for quiet switching
- Choose from either of the 2 switchable frequencies for the cleanest sound **119.95**

WR2-PRO

- Unique new receiver which allows you to use any two Pro Series mics simultaneously.
- Each transmitter can be from 10 to more than 250 ft. from the receiver.
- Size of a cigarette pack the WR2-PRO mounts on a camera with supplied shoe mount or velcro
- Operates on a 9 volt battery and with optional adapters on 12 volt DC or 120 volt AC **179.95**

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**

NEW! 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**

SHURE

FP32A PORTABLE STEREO MIXER

This small and rugged portable mixer is well equipped to handle the demands of EFP, ENG, live music recording or any other situation that requires a low noise high performance mixer.

- High quality-low noise electronics, perfect for digital recording and transmission
- Three balanced inputs, two balanced outputs plus tape out and monitor
- Supports all types of condenser mics with internal phantom supply
- Inputs can be switched between mic and line level
- Each channel has own pan pot
- Each channel has illuminated meter and peak indicator
- Two units can be cascaded to provide six input channels
- Internal 1KHz oscillator for record and send level calibration
- Internal (2x9V alkaline batteries) or external power
- Switchable low cut filters

$1379.95

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.

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**

FOSTEX

RD-8 Multi-Track Recorder

This new digital multitrack recorder is designed specifically for the audio professional. With its built-in SMPTE / EBU reader/generator, the RD-8 can stripe, read and jam sync time code - even convert to MIDI time code. In a sync environment the RD-8 can be either Master or Slave. In a MIDI environment it will integrate seamlessly into the most complex project studio, allowing you complete transport control from within your MMC (MIDI Machine Control) compatible sequencer.

- Full transport control is available via the unit's industry-standard RS-422 port, providing full control right from your video bay. The RD-8 records at either 44.1 or 48KHz and will perform Pull-Up and Pull-Down functions for film/video transfers. The Track Slip feature helps maintain perfect sound-to-picture sync and the 8-Channel Optical Digital Interface keeps you in the digital domain.
- All of this contributes to the superb sound quality of the RD-8. The audio itself is processed by 16-bit digital-to-analog (D/A's) converters at either 44.1 or 48KHz (user selectable) sampling rates, with 64X oversampling. Playback is accomplished with 18 bit analog-to-digital (A/D's) and 64X oversampling, thus delivering CD-quality audio.
- The S-VHS transport in the RD-8 was selected because of its proven reliability, rugged construction and superb tape handling capabilities. Eight tracks on S-VHS tape allow much wider track widths than is possible on other digital tape recording formats.
- With its LCD and 10-digit display panel, the RD-8 is remarkably easy to control. You can readily access 100 locate points, and cross-fade time is fully controllable in machine to machine editing. Table of Contents data can be recorded on tape. When the next session begins, whether on your RD-8 or another, you just load the set up information from your tape and begin working. Since the RD-8 is fully ADAT compliant, your machine can play tapes made on other compatible machines, and can be controlled by other manufacturers ADAT controllers. Your tapes will also be playable on any other ADAT deck.
- In addition to familiar transport controls, there are a number of logical, user friendly features. This unit is the only one in its class with an on-board, back-lit variable contrast LCD display. It provides all of the information you'll need to keep track of offsets, punch points, generator functions and other pertinent data. Three function keys, combined with the HOME, NEXT and UP/DOWN buttons, enable you to navigate the edit menus effortlessly. If you need to have the front panel controls at your console, or elsewhere, the optional model 8312 remote control gives you remote command of the most common functions.

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B&H PHOTO-VIDEO

I.DEN IVT-7

DIGITAL TBC/FRAME SYNCHRONIZER

- Will time base correct & transcode inputs from Hi-8, S-VHS, VHS-DUB, 3/4", 3/4" VCR-DUB and composite video
- Use as a frame synchronizer, synchronizing outside satellite, microwave and camera feeds with studio signals
- 3-5 dB chrominance and luminance noise reduction
- Full Proc amp controls, drop out compensator
- Y/C delay adjustments, field and frame freeze
- Wide 5.5 MHz frequency response offers 450 lines of resolution. Full 8-bit professing and a 58 dB S/N ratio
- Built-in RS-170 sync generator with genlock input and black burst output **1795.00**

FutureVideo

V-STATION 3300 for Toaster

- 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 neccessary 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.

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)

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 multichannel 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.

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

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 standard at no extra cost
- 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 hy 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

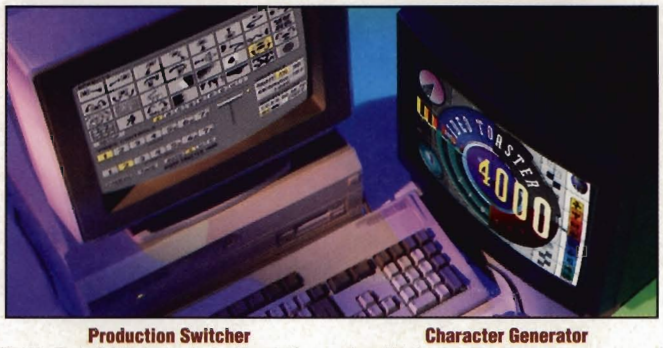
Edit Modes

- 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

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.

NEWTEK VIDEO TOASTER 4000



Production Switcher

The Video Toaster Switcher is a broadcast quality production switcher which lets you perform cuts, fades, dissolves, advanced digital effects, key and color effects between any of 7 sources including 4 video inputs, two true-color high resolution frame buffers and a background matte generator. A separate overlay channel gives you the ability to key images or live video over the switcher during transitions.

Luminance Keyer

The Video Toaster's integrated luminance key technology gives you the ability to superimpose live video or still graphics. Luminance keying also works in conjunction with many Toaster Digital Effects to make text or logos fly in over another video source. Text created in ToasterCG uses built-in automatic keying to deliver titles crisply rendered over any video source, even with transparent drop shadows.

Frame Grabber/Frame Store

The Toaster can grab and save a full frame (in 16.8 million colors) and has sophisticated motion removal algorithms to provide a rock-solid freeze frame. These frames may then be loaded into "ToasterPaint" or "LightWave 3D" for further manipulation.

ChromaFX Color Processor

ChromaFX is a sophisticated real-time color processor that gives you complete control of all aspects of your video. It can alter video with color negatives, day for night, sepia tone, monochrome, solarization, posterization, color vignettes, and other totally unique effects.

Digital Video Effects

The Toaster has the processing power to manipulate live broadcast video in real time. There are effects for weddings, birthdays, sales, music videos, public affair messages, etc. There are even sound effects.

Character Generator

ToasterCG is the only desktop video system in the world that can create YIQ-encoded, 35ns (nanoseconds) high-resolution titles. Among the many powerful tools included are:

- Giant library of more than 250 PostScript fonts
- Can size fonts from 10 lines to 400 lines tall
- 24-bit smooth color gradations
- Variable-speed crawling and scrolling of text
- Easily adjust color, shadow type, outline style and font selection on a line-by-line, word-by-word, or even character-by-character basis

ToasterPaint

Everything you ever needed to create or alter true-color images. ToasterPaint makes importing and modifying files from the CG and frame grabber easy. It also gives you the capability to merge images captured in the Toaster's high quality digital still store or retouch them.

Dual Frame Buffers/Genlock

These are 24 bit (16.8 million colors) frame buffers meets the most stringent requirements for broadcast video. Toaster effects can be done between live video and either buffer, as well as between the buffers themselves. You can also overlay graphics on incoming video or over either frame buffer.

Lightwave 3D

The Ultimate 3D Rendering and Animation System for Broadcast Graphics

LightWave 3D offers all the high-end features you need to produce true network-quality graphics. Model, render, and animate videos in full broadcast resolution and 16.8 million colors. Everything from flying logos,and the most sophisticated effects are now on your desktop.

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**

DIGITAL PROCESSING SYSTEMS

DPS 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.
- Special features include Rock Solid Freeze (both 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.
- Exclusive feature of the TBC IV is the 50-pin CVE (Component Video Exchange) port. When this port is connected to a 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.

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**

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. © 1994 B&H Photo-Video. Not responsible for typographical errors.

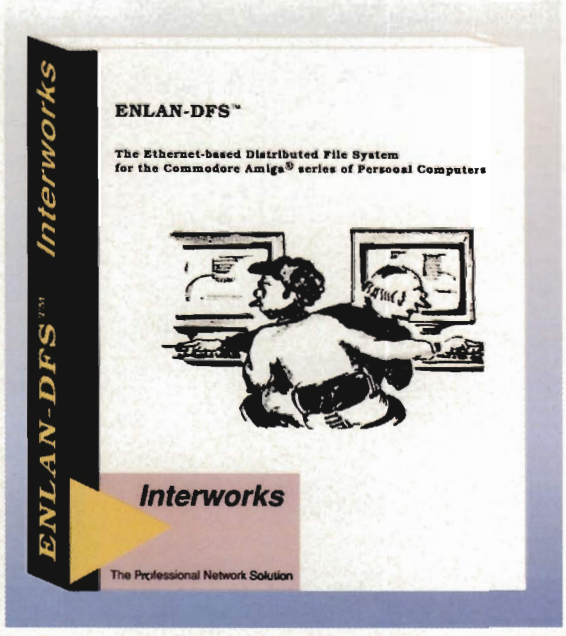
FOR INFORMATION CIRCLE 133

ENLAN-DFS

An Indispensable Networking Device

by R. Shamms Mortier

It used to be that one computer in the video workplace would suffice. It is not uncommon at this point to see a dozen or more computers all flashing away at their tasks simultaneously, especially if rendering/animation tasks are being conducted. Understandably, if the workload of time-intensive tasks among more systems is split, the end-product is achieved quicker as a result. But how can that be accomplished efficiently? Simple. Connect (network) the systems together.



Networking, especially "Local Area Networking," has existed for some time. It started with the need to crunch numbers faster, and has now grown to the point where digital video and computer graphics rendering tasks are hard-pressed to continue without it, since these tasks are commonly done by addressing more than one system at a time (known as "render farming"). Since the Amiga was built specifically for videographic applications, it's only natural that networking Amigas together is a desirable way to get the job (especially the larger jobs) done. Networking allows more efficient use of storage devices and other peripherals, since any computer linked to the network can tap into any other link's hard drive, printer, or other connected external devices. An entire office networked together represents a large savings over a collection of scattered systems.

Networked and Ready to Go

At our videographic facilities, Eyeful Tower Communications, there are four Amigas installed. An Amiga 2000 is used just to do soundtracks with built-in synthesizers and MIDI accessories. There is another A2000 outfitted with an OpalVision board and a connected slide camera. A third Amiga, a 3000 tower with 36MB of RAM, has a DCTV box and the MovieMaker non-linear editing package for editing and recording video sequences to S-VHS. The fourth Amiga, a 4000 in a tower case, sports a Toaster, an EMPLANT MAC emulator, and a Retina III card for rendering and various video tasks. All together, there are about 5GB of hard drives connected. This is a moderately sized studio and just the right size for networking. When considering the operation of a local area network, there are two aspects to plan for.

One is how the systems will be hardwired together, and the other is software. In recent years, it has been common to hook Amigas together utilizing their parallel ports. That's fine if you have two systems, but more than that requires the purchase of additional parallel port extenders or some sort of a breakout box. Parallel port networking quickly becomes cumbersome, preventing other parallel port usage (like parallel printer connections). A network through the serial ports (via modems) is also limiting. What then?

The answer is to install a separate board. It is true that this takes up a precious slot, but the trade-off in terms of freeing other ports is well worth it. There are a number of cards on the market that serve this purpose. At our facilities, we use the EB920 LAN Rover hardware from Elastic Reality. These boards have DMA circuitry, and allow data to be passed from one to the other at speeds up to 10Mbits per second. The boards are equipped to handle what is called "thin ethernet" or "cheapernet" transfers. There is a BNC connector on the end of the board, and it snaps easily into an empty slot (ZII or ZIII).

A BNC "T" cable is connected, and the boards are attached together with 50 Ohm or twisted pair cabling (available at Radio Shack), while one end of the T-bars connected to the systems at either end of the network have to be capped with 50 Ohm terminators. That's all there is to the hardware part of it.

The Best Software Around

What is the last thing you want to do as far as getting the network up and running? For me it would be sinking into software complications. After all, this is supposed to be a simple task, not a punishment. To make it easy, software that walks you through the installation process as quickly and kindly as possible is needed. This is where

ENLAN-DFS comes in. Interworks now markets the 2.0 version of this package. The first version was easy to understand, and the 2.0 version is 10 times improved. What makes it so simple? A new point-and-click graphic interface.

A standard installation script takes you through the first step, including the selection of various hardware options (the Elastic Reality boards are listed as one of the options). Next, it is important to run the ENLAN "IConfig" program. There are three main aspects to IConfig: naming the present "Node" (the name of the system you are presently using, so it is recognized by other nodes in the network), selecting which "resources" (hard drives, printers, etc.) will be exported for use by other nodes, and choosing which resources on the other nodes to import. As an example, the first system might have a hard drive while the second system might be connected to a laser printer. The first system would export the hard drive and import use of the laser, while the second system would be configured to do the opposite.

Naming the node allows selection of one which is the local system. Naming conventions are up to you, though we use a simple numbering system at our facilities. If any changes occur down the line, it's easy to go in and modify the node list again, deleting, adding, and renaming specific units. A server is a system on the network that acts as the central provider for other nodes. On our network, all systems act as servers for the rest, though your needs might determine that only one system acts in this role.

There are also several levels of file protection possible. You can select a resource (a hard drive, for instance) to be a "read only" target, thereby making it impossible for another node to write data to it. This is useful in classroom situations or instances where devices must be protected from external writing. You can also deny entrance to a resource totally or in part, as well as configuring a specific "password" that allows entrance only by those selected individuals whom you want to have access to it.

When importing other nodes, select a wait state and the node will wait until other nodes are running in order to connect to them. This means that in a 12-node network, only five of your nodes can be up. When another is turned on, it automatically updates the entire network. If one is shut down, the network compensates instead of crashing, and a warning flag on the other nodes is presented.

EID (Export, Import, Deport) is a special optional program that allows modification of the network in real time. We keep it handy on the main WorkBench screen. "Deport" means to remove a selected resource from the network. Unless "Script Modification" is turned off when using EID, the ENLAN script will be modified, so using EID has to be done with care. There is a "NetCLI" command that allows you to actually execute commands on another remote node. For instance, another systems directory could be read in this manner, or a new directory. A separate "NetRexx" module allows execution of ARexx commands on remote nodes, opening up many possibilities. There's even a special "SendNote" function that will send a note of up to 200 characters to selected nodes (interoffice memos). A "ShowSANA" program allows you to see all of the technical specs that reference the SANA-II device (hardware).

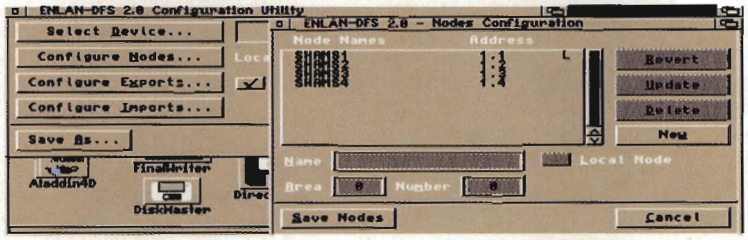


Figure 1: The IConfig program in ENLAN-DFS allows you to configure the name of your system and export and import aspects of your network.

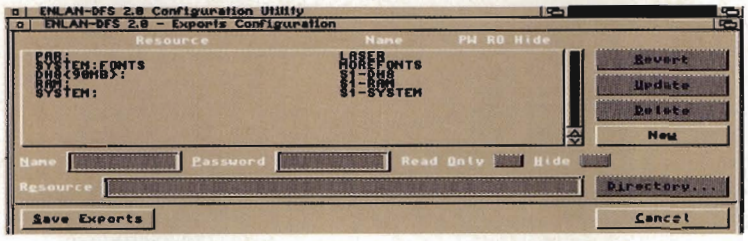


Figure 2: Exporting and importing resources is accomplished through an easy to understand and manipulate interface.

Special Niceties

One of the things we have become quite used to with ENLAN-DFS is that it networks the exporting/importing of every system's RAM drives. Therefore, saving something to RAM can be done at anytime on one node and have access to it on all the others. This saves inestimable time and aggravation. Quite often, rendering tasks are greatly enhanced through use of this system. We can render and save out a LightWave scene as an RGB file and preview it in OpalVision on another node. A large part of a hard drive on a non-LightWave node is devoted to textures, while another node contains hundreds of original 3D models. All of this data is easily accessible to LightWave, meaning that Toaster 4000 owners are not limited by the two IDE drive limit. Although the local Toaster system may not have its own SCSI drives, it can make use of storage devices on other nodes.

Conclusions

An Interworks site license is available for ENLAN-DFS that allows the connecting of up to five nodes on one network with one software package. Additional site licenses are required if a network needs to expand beyond the limit. The upper limit is over 63,000. Because it addresses all of the accepted networking standards, ENLAN-DFS also allows operation of a facility that utilizes divergent platforms, as long as they address the SANA standard. Not only would we be lost without access to our network after becoming so accustomed to it over the past year, but it is impossible to imagine any multi-site operation running at peak efficiency without similar accessibility. Certainly no multi-operational Toaster facility should go for long without serious consideration of a network, and ENLAN-DFS is our network software of choice. In addition, Interworks is busily at work developing a whole line of new products, many of them Toaster and ENLAN specific. ENLAN-DFS is to networking what the Video Toaster is to 3D and video work...indispensable.

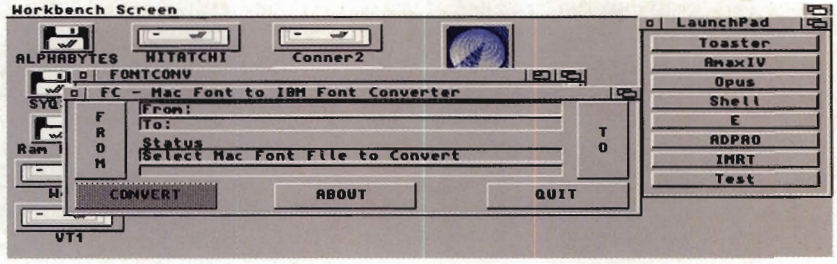
VTU

Company mentioned:
Interworks
43191 Camino Casillas
Temecula. CA 92592
(909) 699-8120
Fax (909) 699-8279
FOR INFORMATION CIRCLE 55

Using Mac Postscript Fonts with the Toaster

by Frank Kelly

With the release of the 3.0/3.1 Toaster's upgrade, one of the many enhancements to the Toaster's capabilities is direct support for the use of Postscript fonts. Known for its success in desktop publishing applications, Postscript font technology offers many advantages for use in video. For those with a current Toaster system, variable font scaling and a wide assortment of styles are the most desirable features. Both Toaster CG and Modeler can utilize Postscript Type One fonts. Those with InnoVision's Montage can also use Postscript fonts by utilizing their optional PS module. Although there are nearly 300 typefaces included in the 3.0/3.1 upgrade, there are literally thousands of font styles available. It seems that no matter how many fonts you may have, there always seems to be a need for more.



FontConv shareware program from Gary Knight.

On several occasions clients have asked me to match a font that is used in their print advertising or logo. I assumed that a 300 typeface font collection (such as the one that comes with the 3.0/3.1 upgrade) would assure a match, but this is not always the case. In order to be prepared, I embarked on a project to expand my font library. Honestly, I wasn't too surprised to find a limited selection available for the Amiga, but I was overwhelmed with the large assortment of Postscript fonts for the PC and Macintosh. The problem is converting them. It should be a relatively easy procedure since Postscript is Postscript, but it's not.

Using Postscript Fonts From Other Platforms

First, it's important to realize that there are two types of Postscript fonts, Type One and Type Three (I wonder what happened to Type Two?). Type Three Postscript fonts are not compatible with the Toaster, but some can be converted to Type One. Whether using ToasterCG or Modeler, you must have Type One fonts in native IBM format; those in Mac format must be converted to IBM format in order to be used. Postscript fonts on the IBM actually consist of at least two separate files which have different file extensions: AFM and PFB.

If you look into your Toasterfonts directory with a CLI utility, you will see these separate files displayed. The PFB file is the actual Postscript font, and the AFM file is an ASCII text file. If you have Postscript Type One fonts on an IBM-compatible PC, they can easily be transported for use on the Amiga by using transfer utilities such as CrossDos. There is a special version of that software included with AmigaDos 2.0 and greater which mounts a floppy disk as PC0: or PC1: directly onto the Workbench. Either double click on the PC0: icon or put it in the WBStartup drawer and reboot.

The next time you put a DOS format diskette in your floppy drive, the DOS files will be available from any file utility such as Directory Opus. Once the transfer is complete, it's simply a matter of moving the appropriate files into the Toasterfonts directory and using them like any of the other fonts in Toaster CG or Modeler. No further conversion is required because the native file format for PC Postscript fonts is virtually identical to those used on the Amiga.

Desktop publishing was established on the Apple Macintosh long before it was viable on either the PC or the Amiga. That is why there are far more Postscript font "collections" available for the Macintosh than on the PC, and many of them are on CD-ROM. Some of these collections are reasonably priced, such as Key Fonts Pro CD-ROM (Softkey Publishing, 303 typefaces for $29.95) and Big Fonts 2,000 CD-ROM (Tiger Direct, 2,000 typefaces for $199.90).

The Macintosh marketplace has the largest and most varied selection of Postscript fonts, with more competitors joining the field all the time. However, because the Postscript font file format is different on the Mac, converting fonts for use on the Amiga presents its own special challenges. But before they can be converted, they need to be transferred.

Moving From Mac to Amiga

The Macintosh file system uses two separate items to identify individual files. One item is the Resource Fork which contains the icon information, the other is the Data Fork which holds the binary data. Special care must be taken to assure that both file identifiers are transferred to the Amiga without being altered. Normally this is referred to as a "MacBinary" transfer.

For this tutorial, I will outline a procedure which uses either a Macintosh emulator file transfer (such as Amax or Emplant) or the Asim CDFS DiscChanger utility to access Mac CD-ROMs directly through the AmigaDos file system.

There are other methods such as Mac2Dos, serial cable, network, or modem transfers, which are well documented on BBS's such as CompuServe or Genie. The problem with some of these methods arises in the use of file compression schemes to archive the files. During the process of compressing and decompressing, the data and resource forks will usually become separated. Recombining them on the Amiga can be a tricky process and somewhat unreliable.

I will primarily concentrate on CD-ROM procedures since that is the form that most of the font collections are available in and archiving the files prior to transfer isn't an issue.

Now the Fun Begins

The most effective way to transfer from the Macintosh formatted CD-ROM is to use the ASIM CDFS DiscChanger. This utility mounts the Mac HFS CD-ROM on the Workbench and allows file access through AmigaDos. It maintains the integrity of the resource and data forks during the transfer and is completely transparent to whatever utility used to copy the files to the AmigaDos volume.

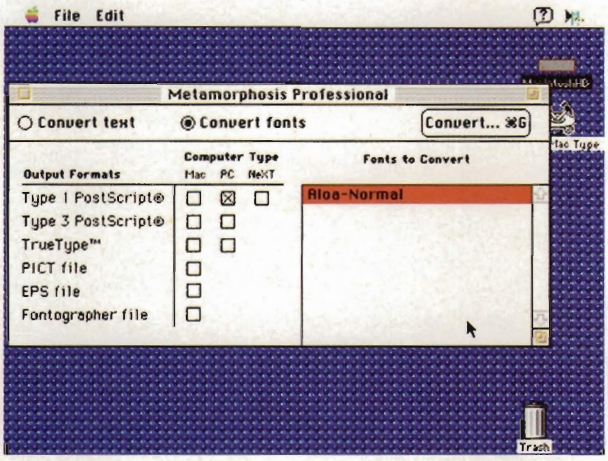
There are three files for each corresponding font that need to be copied. One is the BMP (bitmap or screenfont) which is sometimes contained within a suitcase file. Another is the AFM file, which is an ASCII text file. The font file itself should also be copied. Another method involves using a Mac emulator's file transfer utility. Both Amax and Emplant offer simple to use utilities to transfer files from Mac devices to AmigaDos partitions. The important thing to remember is to use the "MacBinary" option when transferring these files from the Mac device or partition, to the AmigaDos volume. This will maintain the integrity of the data and resource forks.

Once you have the BMP, the AFM file and the actual font file transferred, you are ready to begin the process of conversion.

There are currently two options for conversions. The first is an Amiga shareware program. Unfortunately, it offers limited success with certain types of fonts. In order to attain complete compatibility when converting Macintosh Postscript fonts, you will need to use a Macintosh program. This obviously requires a Mac or a Mac Emulator.

Converting Mac Fonts, Option One-Shareware

FontConv version 1.2 is a shareware program from Gary Knight that is available on Fred Fish disk 528. It is a small but useful utility that allows simple conversion of Postscript fonts from native Macintosh to PC/Amiga file format. It includes text files with instructions for transferring the files from the Macintosh to the Amiga. It operates using a simple requester to enter source and destination files, then pressing the convert gadget to complete the process. While it is easy to use, once you have transferred the Macintosh files to the Amiga, it isn't 100 percent effective.



Metamorphosis Pro (Macintosh)

Some of the fonts I converted using this utility would not load in either Modeler or CG. Others would only load into Modeler. None of them would work with Toaster CG or InnoVision's PS module for Montage. If you don't mind spending a great deal of time experimenting and don't have a Mac (or emulator), this option is for you.

Using Metamorphosis Pro

For those with a Macintosh or Mac emulator, the best option is Metamorphosis Pro from Altsys. Those familiar with the Fontographer on the Macintosh will recognize some similarities to the convert option from this package. While Fontographer is a full-featured font creator/editor, it is cost-effective if all you wish to do is convert fonts.

The Metamorphosis package is essentially the conversion module from Fontographer and is reasonably priced at about $130. Considering the cost of a single Adobe Font can be hundreds of dollars, it seems a small price to pay to be able to utilize your investment in fonts on multiple platforms. Among the options available with Metamorphosis Pro is the ability to convert Mac fonts to PC format. It also converts many Type Three Adobe format fonts to Type One. Conversion requires loading of the BMP (or screen font/suitcase) before selecting the appropriate conversion options. The AFM and native font file (which uses an icon that looks like a laserwriter) must reside in the same folder as the BMP file in order to successfully generate the PC font resources. Once the PC versions of the Mac files are completed, simply transfer the AFM and PFB files back to the appropriate AmigaDos directory (in this case, Toasterfonts).

During this final transfer, make certain that all transfer options such as Macbinary are turned off. I believe that Metamorphosis Pro's ability to correct paths of the font outline is responsible for its complete success in all the fonts I converted. These included some Type Three Macintosh fonts that were later converted for use in Montage, as well as Toaster CG and Modeler.

At press time, there is no better solution for acquiring such a wide variety of affordable Postscript Type One Fonts. With Amax IV's multitasking capabilities, the process of transferring files and conversion with Metamorphosis Pro is quick and painless. Those working with clients whose graphics originate on the Macintosh would undoubtedly find many uses for an Emulator such as Amax or Emplant. The availability of so many reasonably priced Macintosh Postscript Type One fonts on CD-ROM makes adding a CD-ROM drive to a Toaster system an attractive option.

There are other Amiga-specific CD-ROM titles of interest to Toaster users, including NewTek's announcement of CD-ROM-based Flyer software. My only difficulty now is having too many fonts to choose from, and that's a problem I'm only too glad to have.

VTU

EDITORIAL EVALUATION

Circle number on Reader Service Card

I found this article:

Very Useful	Useful	Not Useful
Circle 048	Circle 049	Circle 050

SOUND REASONING

continued from page 19

bly some background noise component —typically hum—that's present all the time. You may just need to fidget with some of the connectors to eliminate this problem. In the worst case, you may need to completely rewire things, relocate cables from AC power lines, or eliminate a faulty cable.

But VU meters are no replacement for the human ear. The meters won't reveal such problems as wind noise, distorted signal, sibilance (a ringing sound when people pronounce the letters "s" and "z"), popping "p's" (a similar problem when people pronounce the letter "p"), refrigerator/air conditioner background sound, weak or noisy wireless microphone reception, or a host of other potential problems. The only way you can really know what's going on with your audio signal is by listening to it.

VTU

Cliff Roth teaches video production at the Millennium Film Workshop in New York City, and is author of The Low Budget Video Bible, *available from BookMasters at (800) 247-6553. He can be reached via e-mail at CompuServe 73127,2410.*

Companies mentioned:

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EDITORIAL EVALUATION
Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
Circle 024	Circle 025	Circle 026

SLICES

continued from page 25

use an Amiga or a PC. The same Type 1 and Type 3 fonts that PC-compatible users employ for their desktop publishing needs work well in ToasterCG.

Therefore, if and when expanding your font collection, purchase PostScript fonts that have been designed for the PC (and not the Mac). More than likely, they will be shipped on PC-formatted floppy disks. If you have an Amiga 4000 with the 3.0 or 3.1 Workbench release, CrossDOS is built into the system so these disks can be read whether they are the double-density or high-density type. If you have a 2000 or 3000, you can also read them as long as (a) you have AmigaDOS 2.0 or higher, which also has CrossDOS built in, and (b) they come on double-density disks (your floppy disk drive cannot read high-density disks).

If a font refuses to load, check the following.

- If the Amiga Intellifonts won't load, you may have an older version of the Workbench. Version 2.1 or higher is needed. If you have version 2.1, you may need to reinstall the Workbench, making sure to install the entire system so that the Intellifont technology is included.
- If it is a PostScript font, it may be a victim of a bug from the software that created it. Certain releases of font-creating software on other platforms (where many PostScript fonts originate) have caused problems (case in point, Fontographer 3.5 or higher). If you encounter such a font, first contact the company where you obtained it. If they cannot solve the problem, find out what software was used to create the font, and call NewTek technical support for assistance. Also, loading and saving the font from TypeSmith (an excellent Amiga type program) will cure the problem.

VTU

James Hebert resides in Topeka, Kan., where there's not much to do except work on the Toaster and enjoy his family.

EDITORIAL EVALUATION
Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
Circle 030	Circle 031	Circle 032

TAMING THE WAVE

continued from page 27

had a minute ago, and render. The result should be a digital human being.

Of course, this is only the beginning. If you intend to map more body parts, the same steps need to be performed. Remember that parts like the upper and lower legs are each centered at the World Center when brought into LightWave, then moved once they are in there. You'll have to map with different settings on each piece. Once you have all of the pieces mapped and saved, simply load up one of the ManStrong scenes (standing, walking, or sitting) and replace each object with your newly mapped versions then save the scene. Remember that the head now contains the eyes and eyelids built-in; those objects can now be cleared.

The concept as explained here has an incredible amount of potential. If you followed the steps outlined above, you'll notice that the back of his head looks amazingly like the front of his head, and so on. This is because we have both the front polygons and back polygons mapped with the same image. If the front polygons were mapped with the face and the back polygons were mapped with a shot of the back of our actor's head, we could do a camera move completely around him.

Hopefully this technique will spark imagination and provide something to occupy spare time (you know, right around 3:12 a.m.). If you come up with any interesting results when trying this out, send them in. I'll publish pictures and name names. One thing you should take into consideration, however, is your "actor's" permission to use/publish his (or her) image. Using your own face makes this less problematic. You can send these to me care of *VTU*.

VTU

David Hopkins is Graphics Director at Gun for Hire Film and Tape—a post production house in Santa Monica, Calif. His clients include Pepsi, Nestle, EMI Records Group and Ceasars World.

EDITORIAL EVALUATION
Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
Circle 033	Circle 034	Circle 035

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Dan Bloomfield

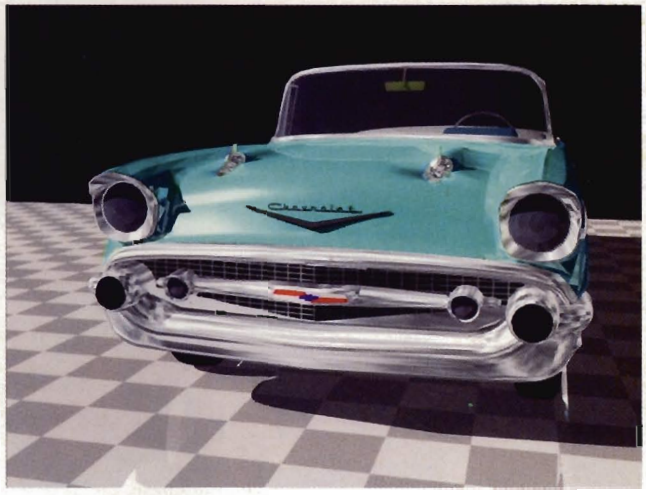
The LightWave image of *Media Man* uses a modified version of the Humanoid Object Collection's Strong Man, designed by Tim Wilson. The scene contains 84 objects, 184 surfaces, 17 images and 32 lights. Media Man took more than 20 hours to render on a 28mHz Amiga 2000 and '040, with a total of 33MB of fast RAM and 2MB of chip RAM.

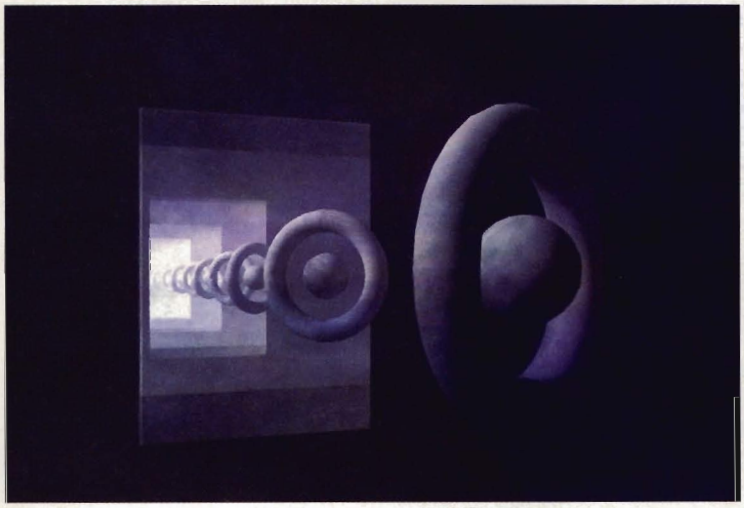
Bloomfield is a 3D animator with the McVey Creative Group, Inc., located in St. Petersburg, Fla. He can be reached at (813) 821-9444.

Robert Perich

A LightWave image of a 1957 Chevy was Perich's first attempt at surfacing a model. The car is a Viewpoint object, while the floor was modeled with the goal of accomplishing reflections. Using an Amiga 2000, the image took 14 hours to render.

A freelance animator based in Calumet City, Ill., Perich can be contacted at (708) 730-1255.





Gary Wium

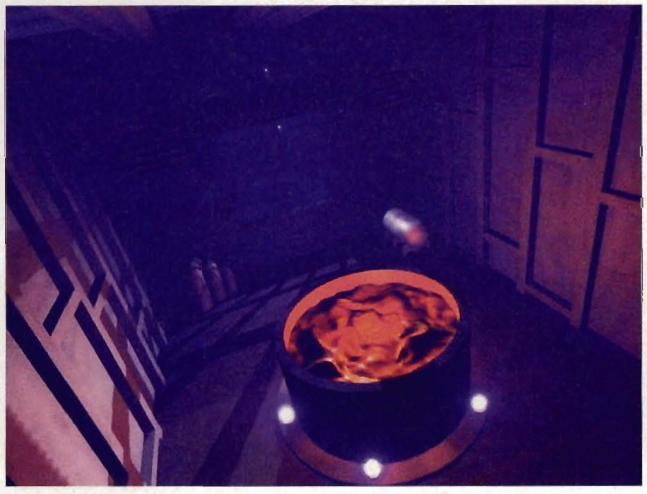
Mirror Magic was created with an Amiga 2000, an '030 and 9MB of RAM. Compositing, creating image maps and touch-ups were completed with ToasterPaint.

Wium is computer artist/camera operator with ForthPhase Productions in Cotati, Calif. He can be reached at (707) 792-2940.

Ablan Graphics & Animation

Hot Warehouse was created in LightWave by animator Daniel Ablan after he saw a similar image on a friend's SGI with ALIAS software. In addition to the Personal Animation Recorder, Ablan used an Amiga 2000, an '040 and 18MB of RAM to create Hot Warehouse.

Based in Chicago, Ill., Ablan can be reached at (312) 771-1AGA.



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LightWave 3.5

continued from page 77

Options' **Auto Key Adjust** button allows keyframes to be changed and re-created automatically when selected. This is great when you are composing still images, but takes a little getting used to in animations as any key frame can be modified and re-created without having to select **Create Key**. This option defaults to off, but can be changed in the config file.

Where's my Screamer?

LightWave 3.5 also includes an SN (ScreamerNet) panel button, but is useless unless you have the ScreamerNet rendering software.

How about Modeler?

LightWave's Layout isn't the only thing to undergo changes. Modeler has received two additional layers and new Display menu tools.

Assuming you have purchased the complete standalone version, Modeler can be run from Layout or as a separate program. If run separately, the ability to Import and Export to Layout as well as the use of background images is lost. Theoretically, rendering and modeling at the same time can be done by running both programs separately, but both tasks take a lot of CPU time and isn't recommended.

If layout is running in 8-color mode, so will Modeler when launched from Layout. If Layout is in 800x600 Picasso mode, Modeler will also be upon being launched. Currently there seems to be some display problems when using Picasso modes with Modeler. At press time, it was not known if the problems were stemming from the Picasso board or from Modeler. Eventually, these small problems should get worked out.

Display Options

Modeler has some handy new Display tools. You can choose to **Invert** the selected items with the non selected items. This is handy if, for example, you wish to select all but one or two points. You could select those points, choose Invert and they would become unselected while selecting all others.

You also have the ability to hide the selected items (point, polygon or volume) by choosing **Hide Sel**. This is better than cutting and pasting as there is no need to merge points or piece items together after bringing everything back into one layer. **Hide Uns** allows you to hide everything *but* the selected items, while **Unhide** shows everything.

When items are hidden, they are still in the same layer, but hidden items will not be affected by any operations. If everything is hidden, you will still know something is in that particular layer as there will be a tiny dot in the layer buttons indicating which layers contain items.

Any combination of hidden and visible items will be maintained as you move through the layers.

The Little Things

There are numerous "little" things in Modeler that make designing and building objects easier.

If you ever have cut and pasted an object in order to create a metamorph target, you will be happy to hear that the point order of objects is now maintained when cut and pasted. This used to confuse people as their objects morphed into perfect twisted rat's nests.

continued on page 98

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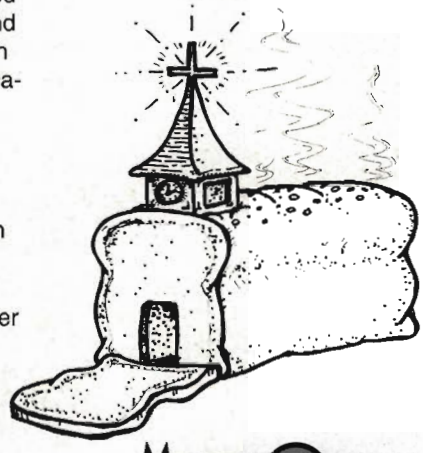

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Undo is now "smart" in that it remembers what you had selected before you performed the operation that you wish to undo.

Also, one of my personal gripes has been taken care of—selected polygons that are tripled now remain selected so you can keep modifying them. Plus, you no longer need to have polygons tripled in order to subdivide them. Subdivide will work on three or four sided polygons.

Metaform

Perhaps one of the best new features of LightWave (or at least the one that will probably be talked about the most) is **Metaform**. Metaform is a great new Subdivide option that

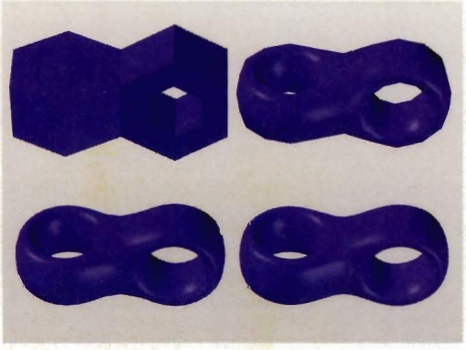

Figure 5

allows you to build very organic, smooth objects out of simple primitive ones with a few clicks of the Metaform button. Figure 5 shows the transformation of two simple, connected six-sided disks, with holes booleaned into them to make a smooth chain link.

Modeler looks at all the connected polygons and figures out the spline along which new points are created in order to smooth out an object.

This chain-link type object took about three minutes to build and would be extremely difficult or impossible to build with any other tools.

Metaform is wonderful for building freeform smooth shapes, but may not be the perfect choice if you need to design something with exact specifications. The great part about it is that you can think about basic object shapes and forms and usually get something that is just what you need.

Grumbles

The manual is an exact reprint of the 3.1 LightWave manual that shipped with the Toaster. It is rebound into a new cover, but the information is exactly the same.

I believe that those buying LightWave for the first time may experience some confusion with the manual as there is no real Table of Contents. The first page of the manual goes right into a Modeler tutorial without any explanation and the actual reference material begins later. Unfortunately, the Index contains references to the rest of the Video Toaster programs as well as Layout and Modeler. I have a feeling that many unfamiliar users are going to spend some time hunting through the manual looking for answers to many questions.

To be fair, there is a letter that comes with 3.5 which explains that the manual was taken directly from the Toaster release and there is an addendum which describes how to install 3.5 and explains most of the new features.

Also, the *LightWave Essentials* tape from the Desktop Images series is included to help users through the program. Even though it is based on 3.0 LightWave, it contains a lot of valuable information.

Is The Old Toy Worth Replacing?

For a street price of less than $99, I don't think you could go wrong upgrading to 3.5. Metaform itself is worth much more, not to mention all the other improvements.

Paying the price for the standalone version if you already own a Toaster probably isn't worth it unless you really hate to start your Toaster up just to run LightWave.

If you don't own a Toaster, I believe the standalone price is well worth it, although I'm sure there are many Amiga users who will think it is too expensive.

The tools and the output quality of LightWave match, and in many cases exceed, those of expensive high-end software on other platforms. With each version of LightWave, I see more and more power coming into the hands of users.

VTU

John Gross is a supervising animator for Amblin Imaging and the editor of the LightWavePRO newsletter. In his spare time, he is currently working on the LightWave 4.0 manual. He can be reached electronically at jgross@netcom.com.

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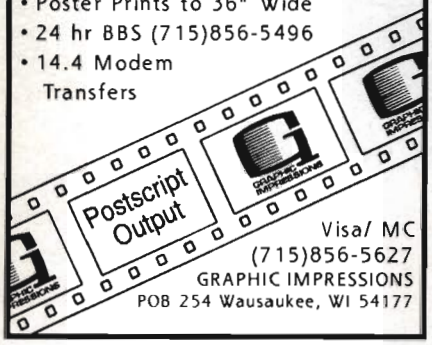

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LAST WORD

Hollywood Effects

Working with Low-Cost CGI

by Tim McHugh

Since I teach a class in visual effects at UCLA, Jim Plant asked me to guest this month with a few observations about the Toaster's inroads into traditional optical effects. At the start of this semester, my teaching partner, Glenn Campbell (no, the *other* one) and I had to face facts: the world of motion picture and television production has changed irreversibly. Digital isn't coming—it's here! Lecturing our students about optical blue screen compositing would be about as useful as a class in zeppelin repair. Our original 12-week course was condensed into six, and we spent the last half of the semester exploring the rapidly blurring boundaries of film, video and computing.

On several of these nights we brought a Toaster into class. The students were amazed to see the speed at which images could be created. We had started one of the classes by showing a demo reel of some of our work. Glenn and I both worked on the motion picture *Blade Runner* many years ago. Back then, it took three or four weeks to complete all the steps required for a single effects shot, not including the time it took to build the miniatures. One night in class, Ken Stranahan modeled, textured, lit, animated and rendered a *spinner* (that's what *Blade Runner*'s flying cars are called) in under three hours. Admittedly, it was a short shot and we did use a background scene borrowed from the original film. But three hours! And working at a speed where he would stop and explain each step to the entire class. Makes you wonder what the film could have looked like if we had Toasters back in 1981.

Placing computer-generated images in a real setting has become my occupation in the last few years. This was not intentional on my part, but inevitable. NBC's *Unsolved Mysteries* needed a few UFO's to re-create some sightings in Bentwaters, England. They couldn't afford motion-controlled models and optical compositing. This was my introduction to Toaster generated effects. For what it traditionally cost to build one model, we produced all the effects for the entire segment. Later, as visual effects supervisor for the pilot of *seaQuest DSV*, I helped set up an entire facility in six months for less than the price we were quoted to build one model of one submarine. And had we built a model and attempted to shoot it on a stage full of smoke (I think I'm still coughing up smoke from the *Blade Runner* stages over a decade ago), we would only be able to film *one* model on *one* stage at a time. For *seaQuest*, any model could appear on every work station at once. Infinite access! This is the sort of thing that makes producers and production managers weep tears of joy.

For me, the transition to CGI has been almost painless. I've been lucky enough to work with some of the best artists around which greatly eased the process. And the folks at NewTek have been open to suggested improvements in 3D Modeler and Lightwave. This has led to new features patterned after such ancient film techniques as motion control, front projection, rotoscoping and blue screen compositing. These features allow us film dinosaurs to design our effects the same way we would have in the optical days, and substitute the Toaster for the effects stage, the animation stand and the optical printer. (I have noticed that late hours, stale coffee and irrational producers seem to have remained a constant.)

Of course, not everyone is thrilled with the look of CGI effects. I do hear criticism of the two network shows that feature Toaster effects. But analyzing the comments, they are usually directed at the art direction or animation style of the effects, problems that are not unique to CGI. Yes, many modelers do find a specularity setting that they like and make it the default for an entire object—a dead giveaway for CGI. And the computer can create a perfectly flawless camera move. Which, of course, is a major downfall when you want to suggest that a real camera operator was trying to track the action in his viewfinder. But please don't blame the Toaster for this. Most new cameras come with automatic settings, but the first thing a good photographer will do is turn them off, or learn how to use them in conjunction with an established bag of tricks.

Now that I'm a convert to CGI, it doesn't mean I think every shot should be computer generated. I recently spent a night being shown several high-end (expensive) systems. The folks demonstrating were proud of the clouds, smoke and fire that had been artificially created with various mathematical formulas that would confuse Einstein. Fractal this and particle that. I guess it was exciting, but it looked computer generated. I mean, well done and certainly expensive, but not real. I couldn't help but think that nature provides great clouds and sunsets on an almost daily basis, and grabbing some real fire with a camera is an easy prospect. This real footage can be combined with enveloping lights to cast natural shadows onto your CGI elements. When Mother Nature can do a better job creating something, I'm more than happy to let her and use LightWave's compositing features. As a visual effects supervisor, the Toaster literally allows me the best of both worlds.

VTU

Tim McHugh is a 16-year veteran of motion picture and television visual effects at Universal Studios, Walt Disney Studios, DreamQuest Images, and Apogee. He formed his own CGI/visual effects company, AREA 51, in January 1994.

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