

VIDEO TOASTER USER

an avid publications magazine

JUNE/JULY 1993 • \$3.95 US/ \$5.00 CAN

SPECIAL REPORT

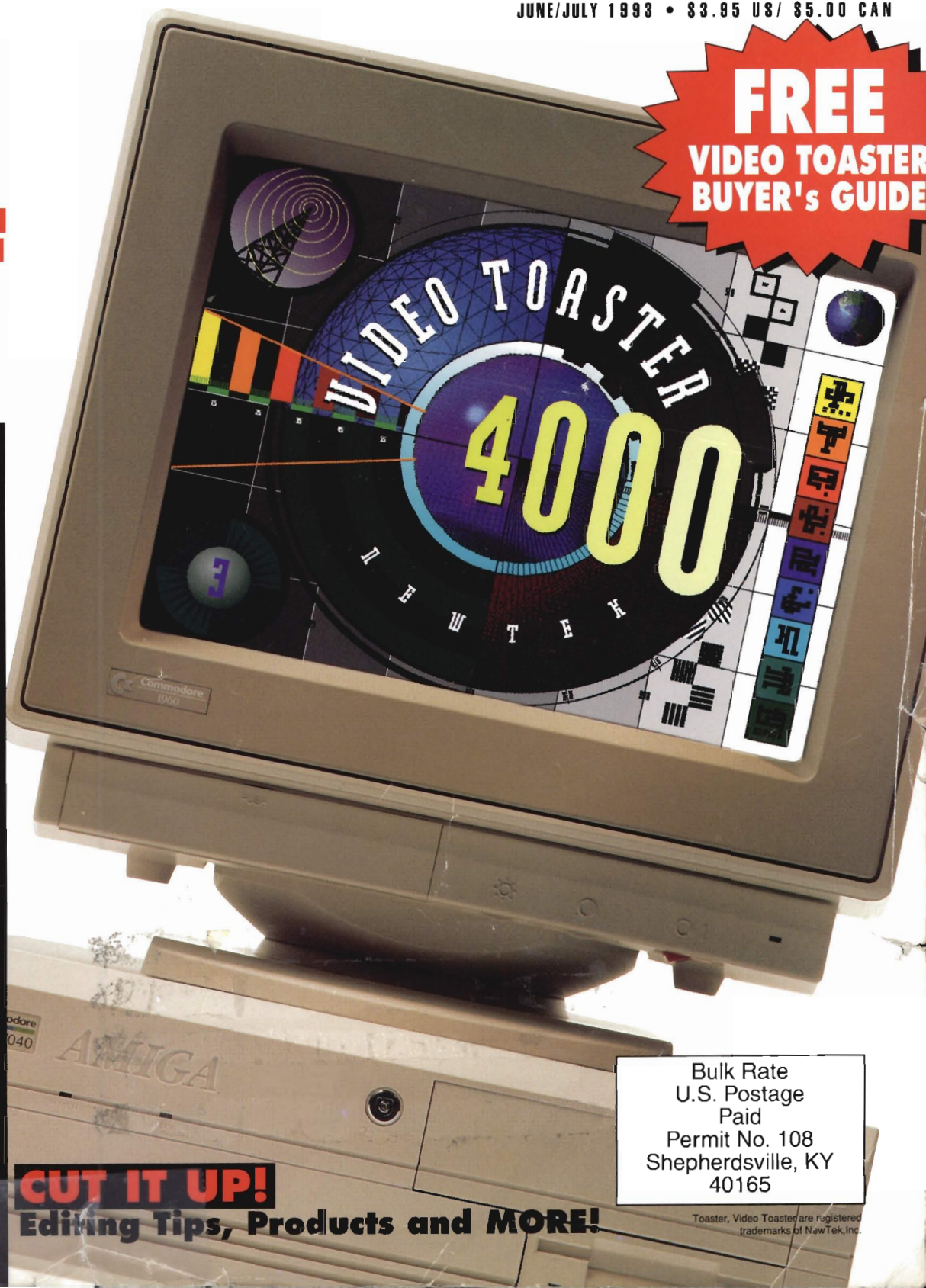
TOASTER 4000

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- NEW 4000 CG
- NAB REPORT
- NEW SOUND
ADVICE COLUMN
- HOW TO BUILD
A DESKTOP
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The Next Generation is Here

Quarterback Tools Deluxe

If the things you create with your Amiga are important to you, you need Quarterback Tools Deluxe. With Quarterback Tools Deluxe, you can quickly and easily recover your work should disaster strike.

Advanced Disk Recovery and Optimization

Quarterback Tools Deluxe includes the new Quarterback Tools 2.0, the most powerful data recovery tool available for the Amiga. Quarterback Tools can search for and repair just about any problem your disks may have. But Quarterback Tools goes beyond simple disk repair—with it you can restore files that have been accidentally deleted, find bad blocks on your disks and keep them from being used, and even salvage files from badly damaged disks. Quarterback Tools can also optimize the arrangement of files on your disks, speeding file access tremendously!

This new version of Quarterback Tools not only enhances these capabilities, but adds new features as well. It now includes a disk sector editor, for advanced users. With it you can directly modify the contents of any sector on your disks. There is also full support for new features of AmigaDOS 2.0 and 3.0, as well as extensive AREXX and macro support.

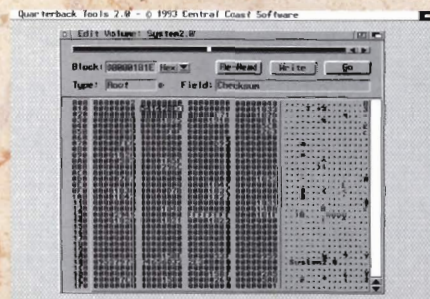
Powerful Disk and File Management

Quarterback Tools Deluxe includes much more than just a new version of Quarterback Tools. Numerous new utilities have been added to make maintaining your system even easier than ever. There's Replicator, a full-featured duplication system. Locator, to quickly locate your files. Encryptor, to secure your files from others. File Eraser and Disk Eraser, to completely eliminate all traces of your files. Keystroke Finder, to show

you how to type special characters. System Mover, to make moving fonts and system files a snap. And Brain Cloud, which can protect your disks from accidental use by others.

Tools for Everyone

Quarterback Tools Deluxe is the most advanced disk recovery and file management package available for the Amiga, and the one program no Amiga user can afford to be without!



Call us today to find out how you can get your copy of Quarterback Tools Deluxe.



Central Coast Software

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Quarterback Tools

- Scans disks for a wide range of problems and repairs them automatically.
- Finds bad blocks on a disk and hides them from AmigaDOS.
- Searches for and recovers accidentally deleted files.
- Salvages files from badly damaged disks.
- Defragments files for optimized disk performance.
- Includes an advanced disk sector editor, for direct access to data on disk.
- Full macro and AREXX support.
- Full AmigaDOS 2.0 and 3.0 compatibility, including support for both hard and soft links.

Replicator

- Quickly makes multiple copies of floppy disks.
- Creates disk images and saves as AmigaDOS files.

Locator

- Searches disks for files that partially or fully match specified names.
- Displays location of files, information about files, and file contents.

Encryptor

- Encrypts and decrypts files to prevent unauthorized access.
- File decryption is password protected.

File Eraser

- Completely erases and deletes files to make their contents unrecoverable.
- Uses standard or US Government erasure methods.

Disk Eraser

- Completely erases all traces of just deleted files, or of *all* files on a disk.
- Uses standard or US Government erasure methods.

Keystroke Finder

- Displays keystrokes necessary to generate any character.

System Mover

- Quickly and easily moves fonts, printer drivers, and system files between disks.
- Displays version information for printer drivers and system files.

Brain Cloud

- Makes a floppy disk unaccessible to AmigaDOS.
- Not even the Amiga's "Format" command will work on a disk with a "Brain Cloud"!

General

- Workbench 2.0 style "3-D" user interface.
- Requires Kickstart 1.2 or later (Kickstart 2.0 or later recommended).
- Suggested retail price: \$125.00.

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SO WE'VE GOT 'EM ALL IN A ROW.



Talk to anyone who knows. They'll tell you Alpha Video is one of the magical spots on this planet where all the proverbial ducks are in a proverbial row. Are we bragging? No. Just reporting the facts. So, "Big Deal," you say. "What Does this Mean to Me?"

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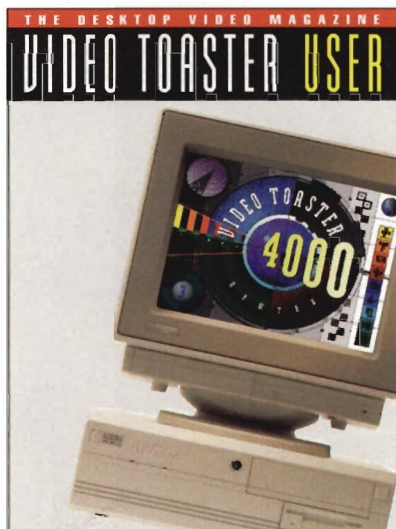
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VIDEO TOASTER USER

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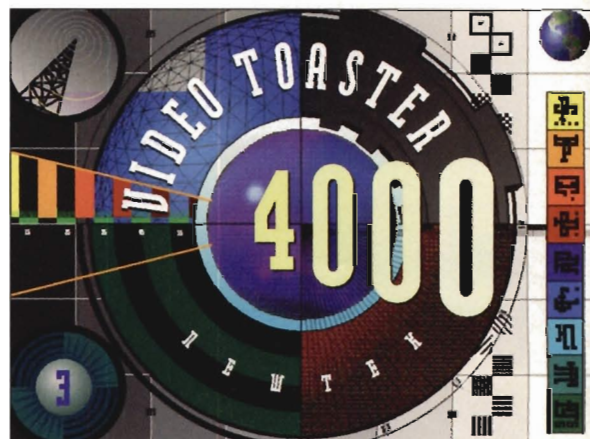


Cover photograph by:
Curtis Fukuda

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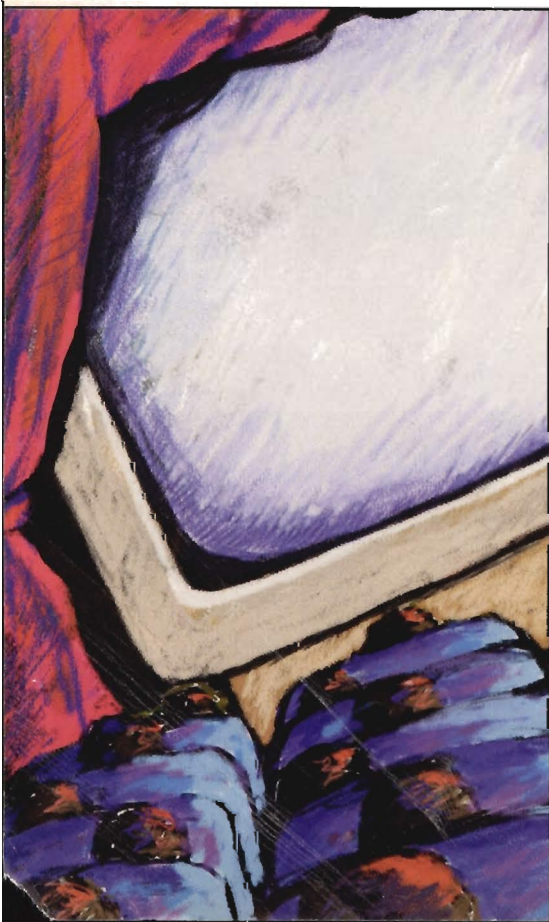
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SUBSCRIBER UPDATE

This year's National Association of Broadcasters (NAB) Show in Las Vegas was one of the best video trade shows I've ever attended. NewTek had a big, brand-new booth where they showed the new Toaster 4000. The Video Toaster User Pavilion made its NAB debut to big crowds and I got the chance to meet and talk to a very significant number of Video Toaster User subscribers. I am very appreciative of the many congratulations and other kind words I heard, as well as the numerous suggestions (and even the criticisms).

The last 12 months have been a year of tremendous growth and change and the pace just keeps on accelerating. In the upcoming year, we will launch a number of new programs that will provide even more Video Toaster information to a larger number of Toaster enthusiasts. This summer, for instance, we will be sponsoring Lee Stranahan on a nationwide Video Toaster 4000 training tour. We are actively planning the publication of several Video Toaster books. And, we are deep into the planning stages of the first ever national Video Toaster conference and exhibition.

All of these activities, as well as the continued growth of the magazine, require an ever growing number of people to keep things on track. When we took over Bread Box just over a year ago, we had only four full-time employees (including myself) to keep the ball rolling. That number has already tripled and the work just seems to keep expanding.

With that in mind, this seems like the appropriate time and place to welcome the newest member of the Video Toaster User team, Mr. Phil Kurz. Until recently, Phil was the editor of *AV Video* magazine, one of the most respected professional video publications in the world. Phil is a top-notch journalist who brings a tremendous amount of experience, intelligence and wisdom to his new position as editor of Video Toaster User. In this post, he will be responsible for all strategic and tactical editorial decisions. We are all pleased and honored to have an individual of Phil's caliber as a member of our organization. I don't think it will take long to see his positive impact in the contents of Video Toaster User. Please feel free to send your editorial suggestions and comments to Phil at: Avid Publications, 21611 Stevens Creek Blvd., Cupertino, CA 95014.

Jim Plant
Publisher

P.S. Congratulations to Bob Gilbert and his staff at RGB Computer & Video. RGB has experienced tremendous growth since its birth five years ago. Now investment bankers and Wall Street are recognizing RGB's accomplishments by taking the company public. Congratulations and keep up the good work!

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BACK ISSUES

Back issues are available for \$5 each. Supplies may be limited.

LETTERS TO THE EDITOR

Suggestions and comments should be sent by written correspondence to: AVID, Letters to the Editor. Be sure to include your name, address and telephone number.

QUESTIONS AND TIPS

Direct your Toaster-specific questions to John Gross. Direct your general video questions to Rick Lehtinen.

NEW PRODUCTS & UPDATES

(PRESS RELEASES)

Specific product information or press releases should be sent to the Managing Editor by mail or FAX 408-725-8035.

WRITING FOR VTU

If you are interested in writing an article for Video Toaster User, send a written request for our writer's guidelines (include your telephone number and subjects that you are prepared to write about) and include a self-addressed stamped envelope. Direct your inquiries to Writer's Guidelines.

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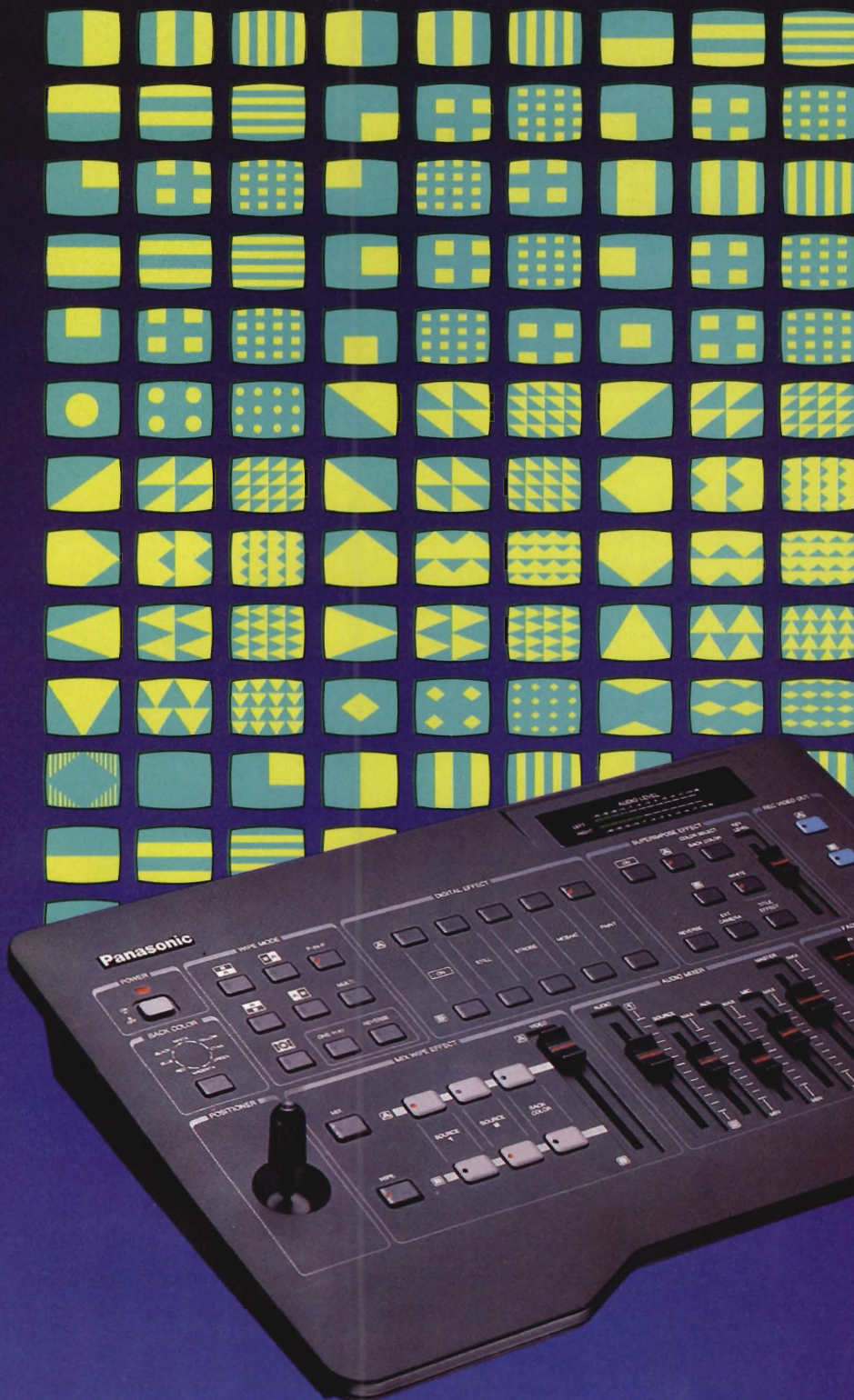
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TOASTER TALK

AThe 1993 National Association of Broadcasters (NAB) Show held recently in Las Vegas was a stellar event for Video Toaster enthusiasts (see our report on page 50). NewTek showed their significantly-improved Video Toaster 4000, and dozens of third-party Toaster product developers exhibited in the Video Toaster User Pavilion or elsewhere on the NAB Show floor. Combined with the rest of the video gadgets, NAB was about as close to heaven as a Toaster enthusiast might expect to achieve on this planet.

Personally, one of the most significant events actually occurred the day before the show started, at NewTek's pre-NAB news conference held at Caesar's Palace, attended by almost 1000 Toaster dealers, end users and members of the press. At this press conference, amid the flash and glitter of the introduction of the Video Toaster 4000 and the announcement of a Commodore-NewTek joint marketing arrangement, I experienced what I call a "light-bulb moment."

A "light-bulb moment," as you know, is what happens when some external or internal stimulus triggers a thought—a previously confusing mental puzzle suddenly has a crystal-clear solution! That's exactly what happened when I heard the NewTek brain trust, Tim Jenison and Paul Montgomery, mention the phrase "personal video production" (a phrase they had heard used by an investment banker to describe the Video Toaster market).

Ironically, the mental confusion that was suddenly cleared by hearing "personal video production" had been caused by my growing concern with the misapplication of another one of my favorite terms "desktop video." You can imagine my concern over the possible misuse of "desktop video" considering that Video Toaster User is "The Desktop Video Magazine."

Here's the problem that I sense is beginning to develop: As a wider and more varied group of companies begin developing and introducing products under the desktop video umbrella, the Video Toaster's unique, low-cost, broadcast-quality message is in danger of being diluted or misinterpreted. You might think that I fear this because I have a magazine whose success is directly related to the success of the Toaster, and that is partially true. A more overriding reason, however, is the potentially damaging impact that this confusion could have on

the video revolution.

It all comes down to my own interpretation of what desktop video actually means. Based on the type of equipment being categorized as desktop video products, it appears that desktop video means any video production activity that occurs using equipment that, in principle at least, fits on a desktop. Under this admittedly loose definition, anything from an under-\$500 video digitizer that is used to create QuickTime movies to a \$40,000 digital video workstation could be classified in the desktop video category. This definition is a problem as far as I'm concerned, because it fails to take into consideration three very important factors: function, price and quality. When products of such diverse function and cost are lumped into the same category, the name used to describe the category is in danger of becoming generic and un-descriptive. The term "multimedia" has a similar problem.

Function, quality and price are the very backbone of the video revolution. Function, because the product must be designed to output a NTSC video signal to be compatible with the predominant video delivery infrastructure in this country. Quality, because viewers have certain expectations of production quality based on years of watching television. Price, because nothing else matters if you can't afford it. A \$40,000 digital video workstation may meet the first two criteria, but at that price, I'll never own one of them. And neither will my next door neighbor or the kid down the street. So, if that's desktop video, then I guess I have a problem with desktop video.

All the troubling confusion and philosophical concerns I had with the term "desktop video" vanished when I heard Montgomery and Jenison talk about personal video production. The light bulb went off over my head and everything became crystal clear. So clear, in fact, that I called back to the office and made sure that words "The Desktop Video Magazine" were changed to "The Personal Video Production Magazine" on the front cover.

Personal video production more accurately describes the heart and soul of the video revolution. Here's my definition of personal video production: creating broadcast-quality videos with a video workstation (including cameras, VTRs, audio, everything!) for under \$10,000. Do you think I've lost my mind? Before you answer, just wait until you see what the Video Toaster 4000 can do.

By Jim Plant

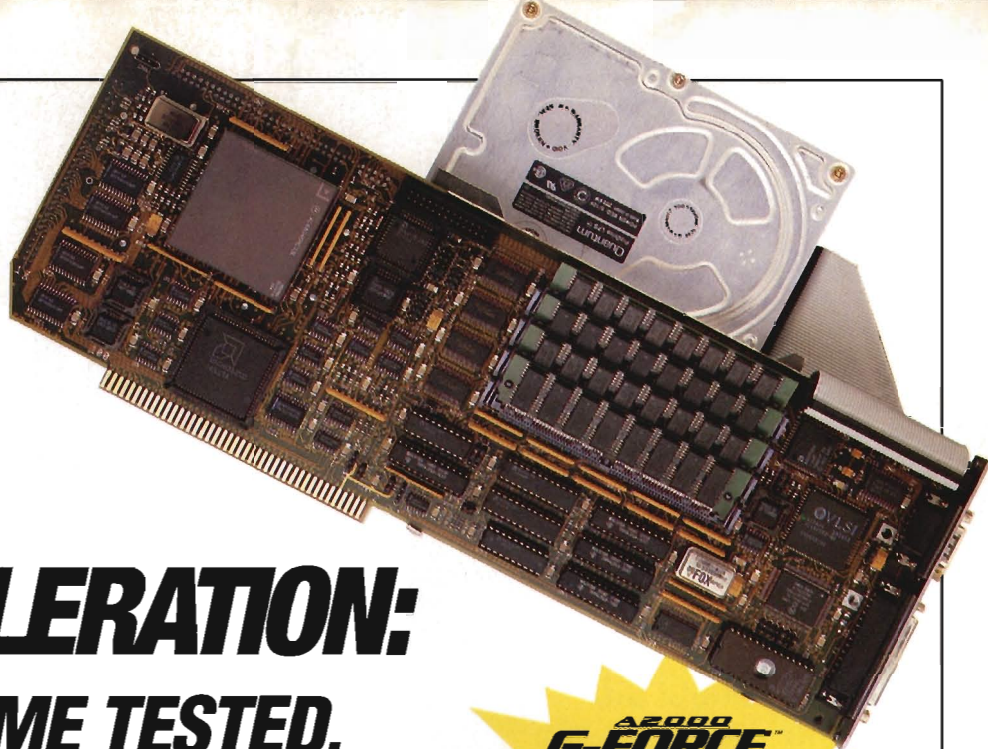


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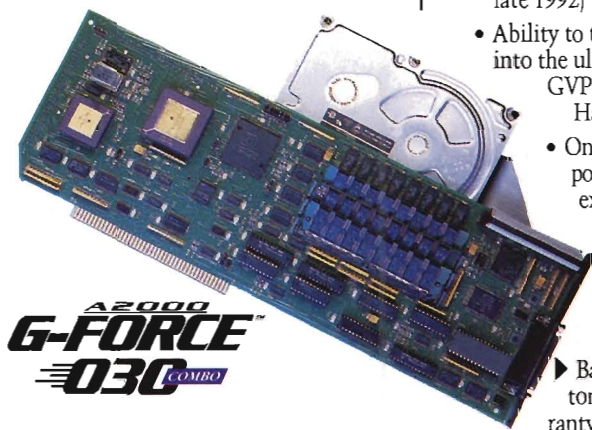
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NEW PRODUCTS

Affordable, Accurate Time Code

Do you want SMPTE time code for your Toaster, but don't want to spend thousands of dollars? SunRize Industries has announced the arrival of *SMPTE Output*—standalone software that stripes LTC time code onto audio- and videotape. With a list price of \$249, *SMPTE Output* generates and sends the SMPTE time code out of the Amiga's audio jack, letting your Amiga be the sync master.

For us Toaster people, the news gets better. When used with the Toaster, *SMPTE Output* links to the video sync pulse of each video frame. It is both NTSC and PAL compatible and has the following features: 24, 25, 29.97, and 30 frames per second real time code generation; drop-frame and non-drop frame time code; multiple reset points; and fast-forward, rewind, play, and pause buttons.

Also new from SunRize are the *Video Toaster Handlers*—replacement Studio 16 software drivers that allow you to play one or two audio tracks while simultaneously performing a Toaster effect. Although

are available for the AD1012 and AD516 (sold separately) with a list price of \$249.

SunRize Industries
2959 S. Winchester Blvd., Ste. 204
Campbell, CA 95008
(408) 374-4962
FAX (408) 374-4963

Stylin' European Designs



Lots of trendsetting designs make their way across the Atlantic Ocean every year: In fashion, there's Yves St. Laurent and Giorgio Armani; in cars, there's BMW, Ferrari and Mercedes; and for Amiga and Toaster-related products there's Paragon.

Spectronics International U.S.A., a Champaign, IL-based representative for several European hard- and software manufacturers, announces the release of *Paragon Font Packs* for the ToasterCG and Amiga, and *Cyclemuscles*, a 3D object for LightWave.

Paragon fonts are available in six different packs, each pack containing from five to 24 different fonts. Packs range in price from \$139.99 for a five-font disk to \$284.50 for a 24-font disk. Some fonts available in Font Pack 1 (Premium Edition): Caravelle, Baltimore, Darcey, Petaja and Sarone (all in regular and bold); Font Pack 2: Cahir, Eureka, Fractal, Mallow and Vidal; and Font Pack 5: Alistair, Lavinne, Malcolm, Providence and Sempach.

Cyclemuscles, a two-image (walking and running) caricature of bodybuilders, is due for

LightWave 3D release this month. Cyclemuscles is currently available for Imagine and has a list price of \$99.

Spectronics International U.S.A., Inc.
34 E. Main St., #3
Champaign, IL 61820
(217) 352-0061
(217) 352-0063

Flying 3D Logos

You have the perfect idea for an effect in your video: a flying 3D logo! "Great!," you say. "But how do I create it?"

No worries, mate. With the latest Rave Video release, *LightWave 3D Flying Logos*, learning the necessary skills is easy. The final video of an eight-video instructional set, *LightWave 3D Flying Logos* provides step-by-step instruction on converting sim-



ple printed logos into 3D objects to create dazzling animations.

Video host and *VTU* columnist Lee Stranahan gives easy-to-understand lessons. In addition, the video shows you how to simulate high-end Paint Box moving text graphics and offers step-by-step instruction on Pixel 3D Professional.

Other tapes in the instructional series are: *LightWave 3D Essentials*, *LightWave 3D Modeler*, *LightWave 3D Surfaces*, *Video Toaster Essentials*, *ToasterCG Essentials*, *ToasterPaint Essentials* and *Professional Techniques*. Each tape is \$49.95.

Rave Video
611 N. Orchard Dr.
Burbank, CA 91506
(818) 841-8277

Speed Demons

I feel the need—the need for speed!

Asim Innovations understands animators' frustration of seeing animations played back at slow speeds and the curse of memory limitations. *AsimVTR*, a high-performance animation storage and playback system for the Amiga, fills the missing step in the creative process—viewing the final result.

AsimVTR provides a full set of commands for moving, saving, and loading frames to a hard drive. In playback mode, an on-screen VCR-like control panel is available, providing variable frame rates, pausing and single stepping.



Studio 16 multi-tasks fine with the Video Toaster, the Toaster turns off multi-tasking while performing digital video effects, causing Studio 16 audio to stop playing during the transition. Video Toaster Handlers configure your card to buffer more data in the card, allowing the Amiga to disable multi-tasking for several seconds while Studio 16 plays. While you have fewer playback tracks (only one or two), you can play audio during many of the Video Toaster effects. Handlers

IF YOU WANT **FAX** VERSATILITY...
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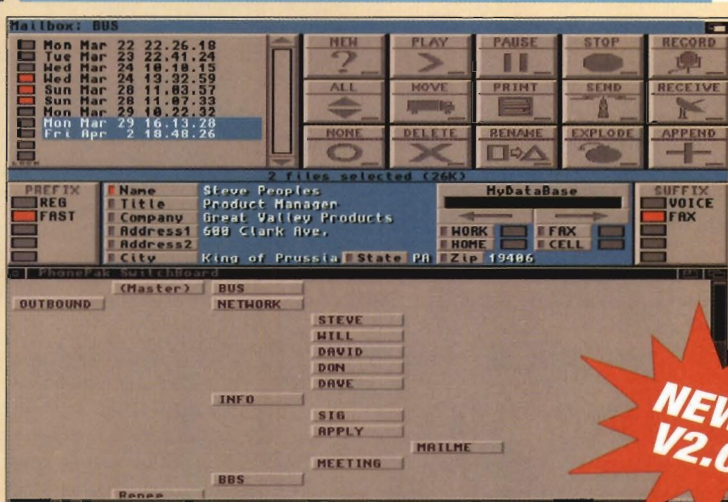


A 2000

A 3000

A 4000

YOU NEED **PHONEPAK VFX!**



**NEW!
V2.0**

Some Significant Features

	Fax Machine+ Answering Machine	PhonePak VFX 2.0
Automatic voice/fax switch	Maybe	Yes
Voice and fax messages in the same call	No	Yes
Multiple mailboxes	No	Yes
Voice message/fax privacy	No	Yes
Plain paper fax printing	No (Unless you spend a lot more)	Yes
Paperless faxing (both out and in)	No	Yes
Near-laser quality fax generation	No	Yes
Batch/broadcast faxing	No	Yes
Scheduled fax transmission	No (Unless you spend a lot more)	Yes
Call screening	Yes	Yes
Centrex/PBX call transfer	No	Yes
Auto dialer*	30 numbers	Unlimited
Message forwarding/paper alert*	No	Yes
Time and date stamp*	Yes	Yes
Remote access to voice messages*	Yes	Yes
Remote access to faxes*	No	Yes
Street price	\$499+\$99=\$598	\$299/line

*New/enhanced for 2.0

In addition to all this, PhonePak multitasks and is fully ARexx programmable, allowing you to build interactive, multi-line voice and fax information systems. Try that on a PC!

**From simple to sophisticated, PhonePak is taking care of business...
and working overtime!**



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PHONE 215-337-8770 • FAX 215-337-9922

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Jog Shuttle Wheel Console

AmiLink has released a new professional *Jog Shuttle Wheel Console*, a V-LAN hardware/software combination made by RGB Computer and Video to complete their A/B-roll system.

The Jog Shuttle Wheel has an integral part of the V-LAN interface built within, which is the transmitter

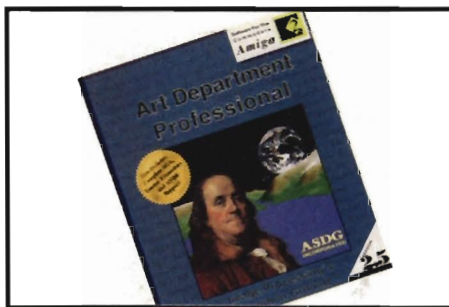
AsimVTR offers the following features for animation playback: screen resolutions up to 736x290, playback speeds from 1 to 60 frames per second, independent palettes for each frame and animation speed, and animation size limited only by your hard drive. Suggested list price: \$89 U.S., \$106.80 Canada

Asimware Innovations
101 Country Club Dr.
Hamilton, ONT
L8K 5W4 Canada
(416) 578-4916
FAX (416) 578-3966

The Three "R"s... Reading, 'Riting and Relaxing

ASDG's *ADPro Version 2.3* now reads and writes images in the Video Toaster Framestore format with full-broadcast color and fidelity.

The new release provides a loader and saver that doesn't require a Toaster, making batch processing using any of AdPro's manipulation and conversion capabilities quick and easy. So if your video network includes some non-Toaster machines, relax—frame-



stores can be manipulated by all machines.

Version 2.3's other features include: direct connection of ADPro to paint programs; undo capability; ANIM support; additional ARexx commands; more powerful FRED with over 50 prewritten ARexx programs; a new digital image compositor allowing multi-layer animations to be created easily and quickly; and a totally new utility, SENTRY, that allows you to automatically process images as they are generated.

ASDG, Inc.
925 Stewart St.
Madison, WI 53713
(608) 273-6585



or "traffic cop" of the V-LAN network. The console is a laser-optical sensor that conforms to the ballistics of any device that it's controlling. For example, if using Betacam SP, the jog shuttle wheel takes on the characteristics of the Betacam SP; if it's D-3, then it's a D-3 jog shuttle wheel; if it's S-VHS, well, you get the idea.

With the Jog Shuttle Wheel Console, the only thing external from the AmiLink system are decks and monitors. Suggested list price: \$1,995. Contact your local dealer for more information.

RGB Computer & Video
(407) 844-3348

LightWave Objects and Backgrounds

Three new products for use in LightWave have been released by Dimension Technologies.

The Cathedral: For LightWave is a highly-detailed model containing over 40,000 polygons, 150 surfaces and 50 stained-glass windows. The object includes realistic texture maps and surfaces, plus is completely finished inside and out. Included with the package are scene files that assist in anima-



tions. Animators can circle the Cathedral, open the front doors and travel right down the aisle.



Suggested retail price is \$99.95

Odds & Ends: Objects for LightWave is a package containing over 200 ready-to-use objects created exclusively for LightWave 3D. These objects are not gathered from public domain sources, but were created exclusively by Dimension Technologies. Each is fully-surfaced. Suggested retail price is \$59.95.

The Backdrop Construction Kit contains over 100 ready-to-go high-resolution backdrops and 36 24-bit brushes for making custom screens. The package is available in JPEG 24-bit, HAM and HAM-8 and is designed for CGs, broadcast, weddings, and multi-media productions. Suggested retail price is \$59.95.

Dimension Technologies
2703 Vineyard Dr.
Erie, PA 16506
(814) 838-2184

Trigger Happy

Go ahead make my day. Pull the trigger. While we have all felt this way at one time or another, especially during post-production and rush-hour traffic, *The G.P.I. Box*, new from Sweet Pea Communications, is a device designed to make your life a bit easier by assigning various GPI triggers to other editing



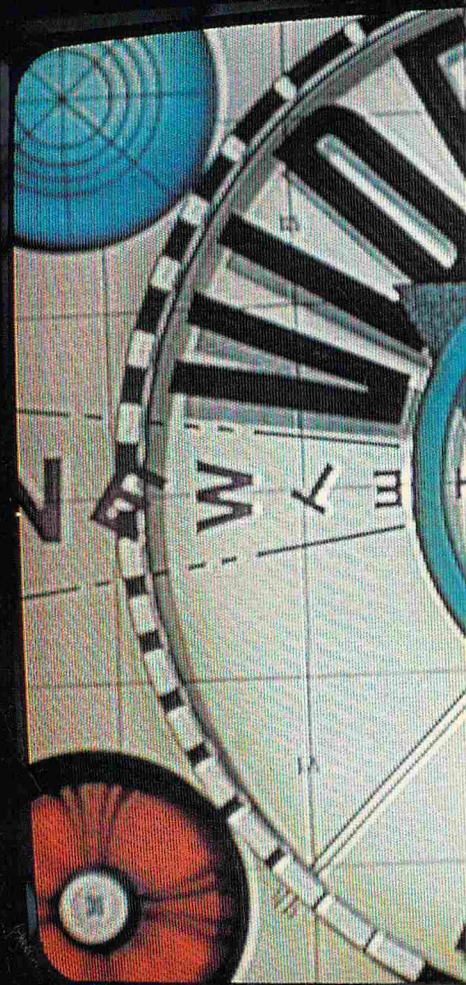
devices.

The GPI Box routes and provides switching of GPI triggers from editing controllers, such as The Editizer and AmiLink, to your video switcher and other devices. Allows multiple GPI triggers during each single edit event to be sent to single devices such as the Toaster.

Is adaptable for different hardware configurations. Call Sweet Pea Communications for more information. Suggested list price is \$89.

Sweet Pea Communications
P.O. Box 912
Topanga, CA 90290
(310) 455-3915

NewTek
introduces
the missing link
between your
Macintosh and
broadcast quality
video.

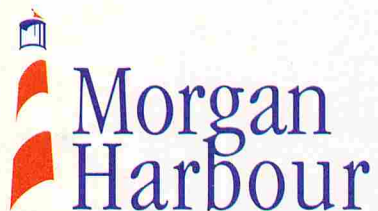


TOASTER Link

Desktop Video

ToasterLink, gateway to your imagination

When NewTek's Video Toaster burst on to the market in October 1990, it created a revolution in video. For the first time, true broadcast quality video was available at a price almost everyone could afford. Now, NewTek brings the same video magic to the Macintosh with ToasterLink. Take control of the combined power of the Macintosh and the Video Toaster and your creations will never be the same!



Print Mac graphics to network quality videotape

ToasterLink allows you to expand your graphic ideas into the dynamic realm of video, and show them off to anyone with a VCR. With the click of a button, ToasterLink exports your Macintosh designs to the Video Toaster for the broadcast quality output that video professionals around the world turn to every day.

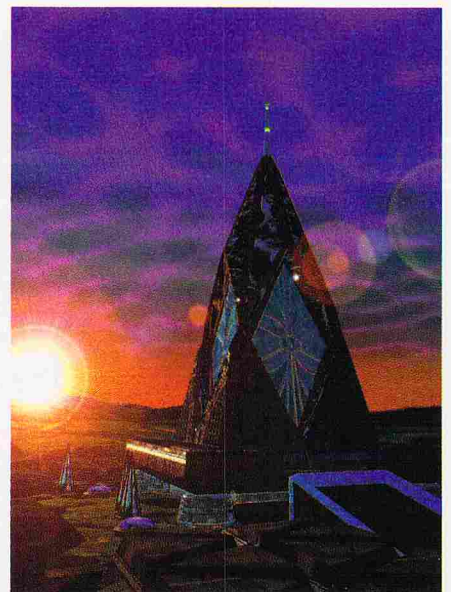


Bring broadcast quality video images to print.

Use your Toaster to capture high quality video images from a camcorder, VCR or laser disc and you'll have full color, full screen video images on your Mac, unlike anything you've seen before. Once inside the Mac, these images can be retouched, enhanced and printed using all of the powerful graphic and desktop publishing tools that make the Mac the platform of choice for serious print graphic designers.



When the Macintosh first arrived on the market, they said it was the computer for the rest of us. Now, NewTek offers video for the rest of us. ToasterLink provides the connection from the world's most powerful video tool to



the world's most powerful print graphics computer. Now, the promise of professional video on your Mac is a reality with ToasterLink.

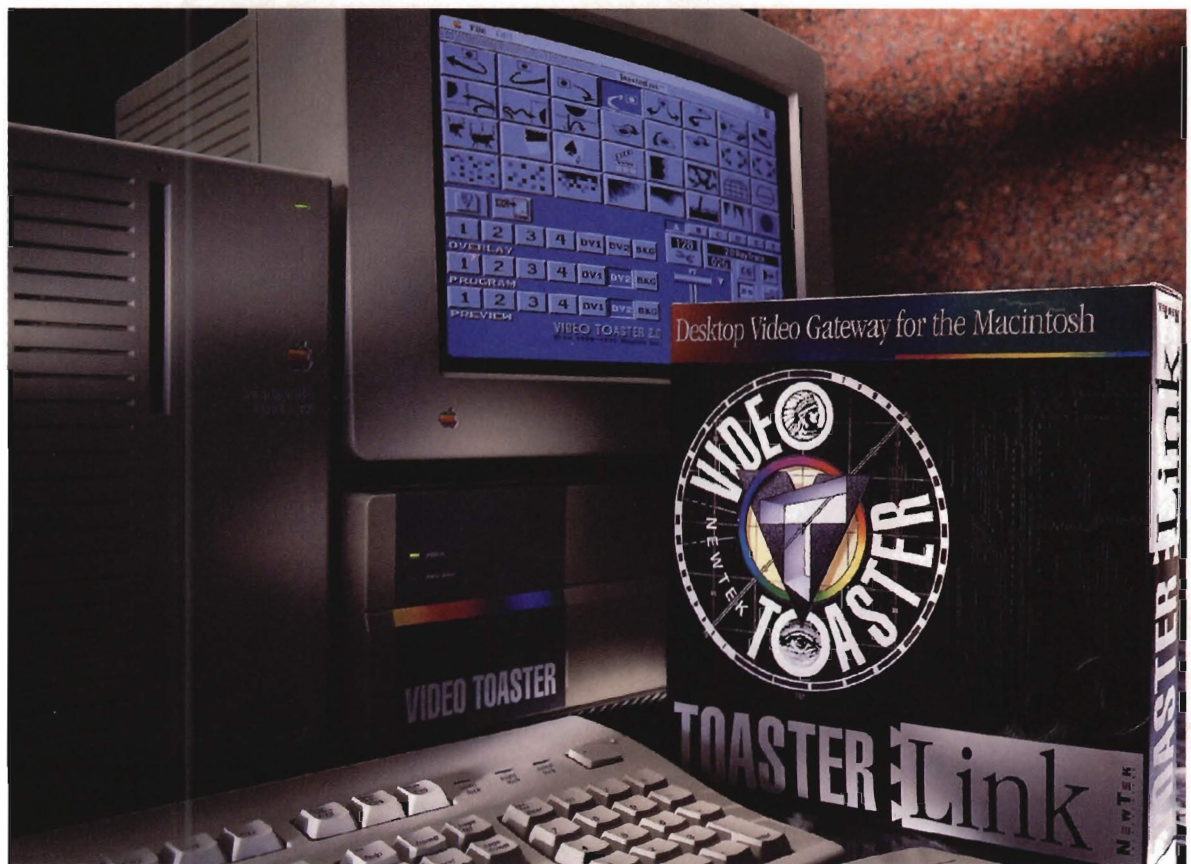
Gateway for the Macintosh

*"NewTek Video Toaster—
a DTV product that
easily outperformed
the best Mac card."
—MacUser*

*"The Toaster creates
desktop video the way
Apple Computer and
Aldus Corp. created
desktop publishing."
—Los Angeles Times*

*"...Video Toaster has been
hailed as personal com-
puting's third revolution-
ary product (the first two
being VisiCalc, the first
spreadsheet, in 1979, and
the Macintosh in 1984)."
—Discover*

*"The big news
at the moment is
NewTek's Video Toaster."
—Time Magazine*



Because professional results demand professional tools.

From motion pictures and television to business and education, industry professionals have come to rely on the Video Toaster, the world's first all-in-one broadcast-quality video production studio. The Toaster provides the 9 essential tools for making broadcast video: digital video effects, character generator, video paint system, 3D graphics and animation, dual frame buffers, luminance keyer, real-time color processing and still store/frame grabber. The Toaster has so revolutionized the video industry that it has been featured in stories in Time, USA Today, Rolling Stone, MacUser, MacWeek, hundreds of other publications and even NBC Nightly News.

Video will never be the same.

newTEK
INCORPORATED

Complete systems starting at \$4595. Outside North America call 612-881-2862. Demo also available on S-VHS, Hi8, 3/4"SP, MII, Betacam, 1", and D2 at nominal cost. Next-day delivery available. Price and specifications subject to change. Video Toaster, Lightwave 3D and ToasterPaint are trademarks of NewTek, Inc.
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PROFILES

Peralta Productions

Stacy Peralta is president and founder of Peralta Productions, a full-service production facility in Los Angeles. His work can most readily be seen weekends, on Nickelodeon's *Wild Side*. He probably best epitomizes the "video guy" Tim Jenison had in mind when the inventor and NewTek founder first thought of the Video Toaster. Peralta wasn't always a video producer, however.

In fact, Peralta started out as one of the first world-champion skateboarders. From there he went on to form Powell-Peralta, a premiere skateboard manufacturing company. To help promote the company, he brought together one of the best skateboard teams ever. Peralta decided to make a video with the most amazing skateboard footage he could get. "It was back in the early 80s, before VCRs were mass-marketed," he recalls. "I wasn't satisfied with print ads. It was difficult to really show the sport off through still images. I finally hired a crew to shoot a home-style video," he continues. "Needless to say, I didn't like how it turned out. I rented my own video gear and started shooting." Three months later, the tape was completed. The production was an absolute success. "I was caught completely by surprise," Peralta remembers. "We sold 10 times as many tapes as expected!" Peralta had started a tradition. "To be on the Powell-Peralta tapes was a great honor," explains Tony Hawk, world champion skateboarder. "They became the industry standard—the gauge by which skateboarding as a sport was judged." Peralta states, "Each year we tried to outdo the tape from the year before in both content and production values."

In 1986, with a successful string of skate tapes behind him, Peralta was given the opportunity to be the Second-Unit Director (responsible for stunts and/or action scenes) for the movie *Police Academy IV*. "I got the job through a house painter pal. He was painting Paul Maslansky's (producer of *Police Academy*) house," Peralta says. "He and my friend were having a beer one day and my friend showed him one of my tapes. He was so impressed that he wrote skateboarding into the movie and gave me a shot at being Second-Unit Director."

This opportunity was the main reason that Stacy broke from Powell-Peralta Productions to form Peralta Productions. This started a run of second-unit direction positions that included *Gleaning the Cube* with Christian Slater and the skateboard movie *Thrashin'*. Most recently, Peralta worked on Steven Spielberg's *Hook* as a member of the Action Scene Choreographer team.



Walton Media Productions

Diana Brown runs Marietta, GA-based Walton Media Productions (WMP). She allows (requires, actually) her video producers to manage WMP as if it were their own company. Founded in 1981, WPM initially experimented in animation and editing, eventually moving to and mastering full-blown video productions. All the while, Brown relies on her producers' information, conclusions and even guesses. Why? Because WMP is the self-supporting video production class of Walton High School.

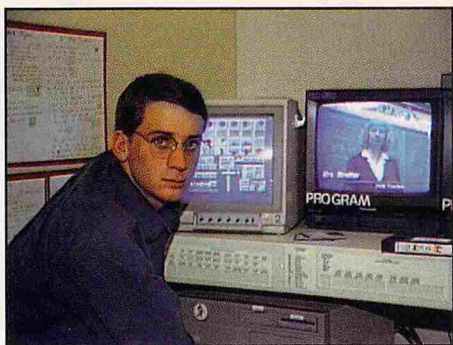
"What's truly unique about this course is that the students make all the major decisions," Brown notes.

In 1989, Stacy got the nod from MTV to develop and direct the popular series *SK8 TV*. The following year, he contributed several film shorts to the Fox series *Sunday Comics*. It was shortly after this that Stacy first heard of the Video Toaster.

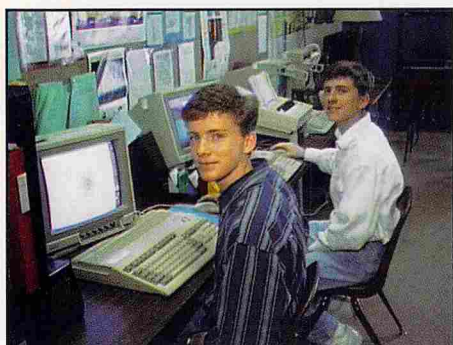
"Chris Mullington, a filmmaker from Ottawa, Canada, and my friend and former skateboard team member Tony Hawk are the ones really responsible for getting me turned on to the Toaster," Peralta says. "I waited to see how they liked it before I seriously looked at getting one, though," he admits.

"When I was ready to take the Toaster plunge, Steve Crouch of Hoffman Video helped me get set up. I found that it fit nicely into my existing studio," he comments. In addition to his Video Toaster system, Peralta's studio holds one Hi-8, two 3/4" SP, and





"Funds are raised through the advance sales of two productions: The Walton Video Yearbook and the Walton Band and Orchestra Video," she explains. "Students decide how much money should be spent, and on what. We first saw the Video Toaster during the 1991 Atlanta NAB show," Brown recalls. "The students were very excited. They voted to get a Toaster right away." During the 1992-93 school year, the stu-



dents purchased a number of products to help beef up their edit suite, including an AmiLink edit controller and Toaster System 2.0. In all, WMP's production suite consists of the AmiLink and Toaster, three AG-1960 S-VHS decks, three DPS Personal TBC IIs and six Panasonic AG-450 cameras (students can check out the cameras overnight). "We attended Lee Stranahan's December workshop in Atlanta," Brown says. "The students decided to purchase his *Toaster Essentials* tape series soon after."

Rebecca Bruck, WMP staff member, used the Toaster to complete a special production about the school system's special education department. Piloted last school year, the new program introduces "partner teaching." "We chose a format of candid shots of the teachers mixed with interviews of those involved in the program," she recalls. "We wanted a professional look, which is why we chose the Toaster. It's easy to use and gives us a great deal of options for creativity, while maintaining the professional quality we wanted."

When asked what she thought of the Toaster, Brooke Smith, also with WMP, replies, "At first I was overwhelmed, but after some practice I discovered just how uncomplicated it is. I decided to use the Toaster to spice up the half-time show segment of WMP's Band and Orchestra Video. After a couple of run-throughs, I was able to edit on-the-fly straight to my master. The Video Toaster really helped me make the segment more interesting, and it was quite simple to use. The audience was very impressed and gave it rave reviews!"

Other video projects completed by WMP include *Reflections*, a docudrama portraying what can happen when teenage drinking is mixed with driving, and *Terminator 3: School Day*, a spoof of the movie *Terminator II*. The students were elated with *T3: School Day* was chosen to air on MTV's *Like We Care* last year. Walton Media Productions' mission reads: "The key concept of this course is to put students in a position to help themselves, as well as other students." In three short years of video production, WMP has turned that pledge into reality.

Diane Brown
Walton Media Productions - Walton High School
Marietta, GA
(404) 509-6125



three Beta SP decks; a matte camera; a 15-hour sound effects library and sampling keyboard; 16mm, Super-8 and Hi-8 cameras, and the Sundance Video Toaster editing system. Before I was limited as to the graphics I could add to my productions," he remarks. "Now, I literally deliver the finished product out my front door!"

As VTU columnist James Hebert describes some of Peralta's innovative work with the luminance keyer in this issue's *Slices* column, "He employs it (the luminance keyer) for fast on-and-off transitions of graphic overlays that support the content of the visual and spoken material at the moment. While the on-screen performer discusses a police raid, a keyed graphic of a police car shoots onto the screen (to the sound of sirens), then zips off (to the sound of screeching tires)," Hebert writes. "The effect is straight out of MTV and it knocks your socks off."

Peralta is busy at work with several different projects, including another season's worth of *Wild Side* episodes for Nickelodeon. "I am not a high-tech computer guy. I'm usually intimidated by technology," he says. "But I find the Toaster so easy to use. I'm able to deliver broadcast commercials and television shows at a low cost. And it's fun. What more could I ask for?"

Stacy Peralta
Peralta Productions
Los Angeles, CA
(213) 664-2486

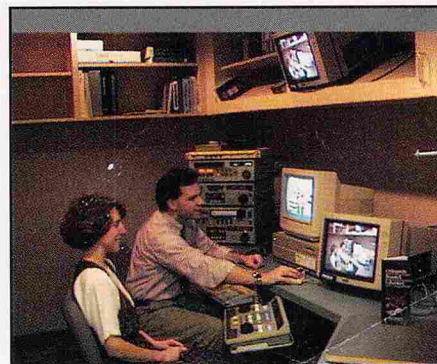
Good Samaritan Medical Center

Dr. Scott Banks is the Technical Director of the Good Samaritan Medical Center's Orthopedic Research Laboratory in West Palm Beach, FL. There they study the long-term effects of orthopedic implants. Research is broken down into three areas: function analysis, joint motion analysis and analysis of the retrieved implants. Much of the focus of this ongoing research is to help find ways to improve upon current knee joint replacement designs. "One would think prosthetic knee design is mature," Dr. Banks explains. "In fact, our fundamental understanding of knee performance is far from complete."

Joint motion analysis is accomplished through fluoroscopy. "We use a fluoroscope (a video camera sensitive to x-rays) to accurately determine the motions of knee joint replacements," he says. The camera feeds a high-resolution monitor, where Banks quantifies subtle differences in the knee's movement. "Using the Toaster to framegrab selected x-ray images, we take them through an intense image-processing procedure to determine the implant's exact boundaries to facilitate measurement," he explains.

"We find the Toaster to be an excellent 'bridge' in our research," he says. "Further, using video in a presentation environment enhances the communication of highly technical information to non-technical people like coaches, physical therapists and surgeons," Banks concludes.

Dr. Scott Banks, Ann Banks
Good Samaritan Medical Center--
Orthopedic Research Laboratory
West Palm Beach, FL
(407) 650-6159



Amazing Animations. Amazingly Easy.



Everyone knows the power of 3D graphics, and the power of LightWave 3D.

There's one problem.

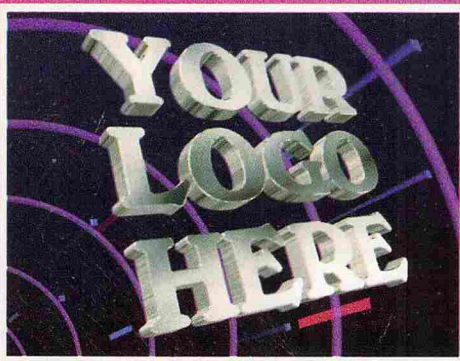
All those great looking graphics take work. A lot of work. And even hard work is no guarantee you'll have great results.

Maybe there's a better way.

Wouldn't it be cool if you could create incredible looking flying logos with a couple of clicks of the mouse? Wouldn't it be cool if you could make network quality animations, simply...even automatically?

It would be cool, wouldn't it?

Get ready. WaveMaker is coming.



Something very cool is coming this summer...

For information contact

Axiom Software

**541 West 98th Street, #322
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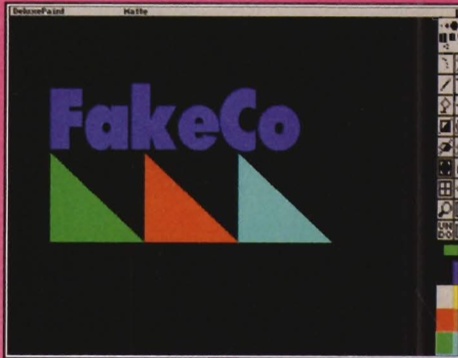
Fax : (612) 888-0537

WaveMaker



Pixel 3D Professional makes 3D modeling simple!

Pixel 3D Professional is considered essential by LightWave 3D users everywhere. That's because it lets you create useful 3D objects, including text and logos. Here how it works...



Step One : You start with a graphic that you've grabbed with the Toaster, imported with a scanner, or drawn in a paint program. You can even type directly into Pixel 3D Professional to create 3D text automatically.



Step Two : Load the graphic into Pixel 3D and it's automatically converted into a 3D object! Then use PixPro's Smoothing functions to create objects that look great, even up close.



Step Three : If you like, edit the object further within PixPro. Then add depth to the object, using PixPro's Extrude function. PixPro includes options to extrude different colors to different depths.



Step Four : Then use PixPro's powerful Bevel feature, which even has a user adjustable router bit. Then save the object in any of PixPro's 15 different formats, including LightWave 3D and AutoCad DXF.



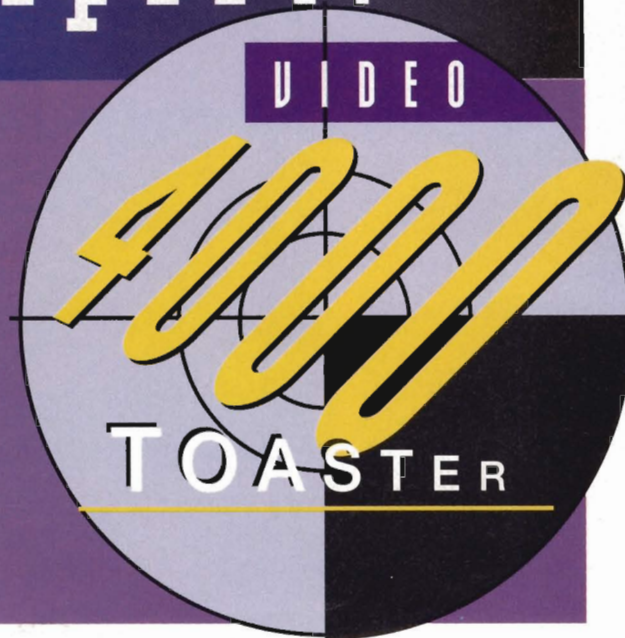
Available from your dealer or contact
Axiom Software
 541 West 98th Street, #322
 Bloomington, MN 55420
 Telephone : (612) 888-0352
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All product names are trademarks of their respective companies.

THAT'S IT! Set up the scene in LightWave and render away! Pixel 3D Professional is the easiest way to create logos, 3D text and other objects that you need for day-to-day graphics work. You can also convert objects from one 3D format to another, reduce points and polygons, edit point data and much more. All these features have made Pixel 3D the essential tool. Just ask any PixPro user - it pays for itself on the first job.

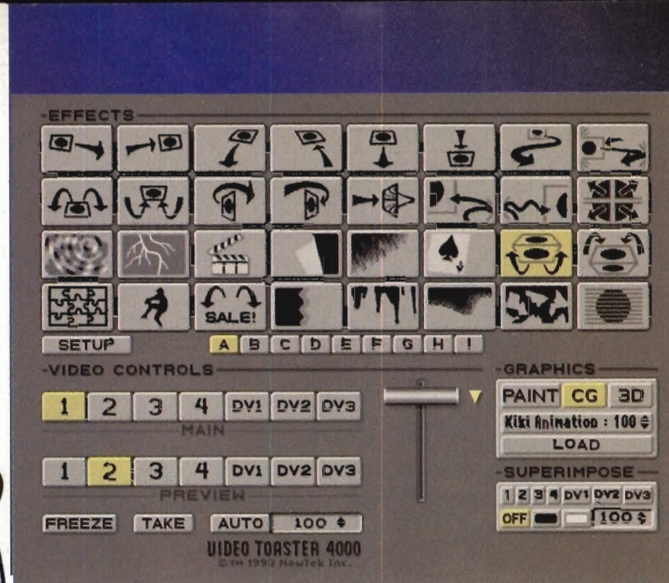
Special Report:



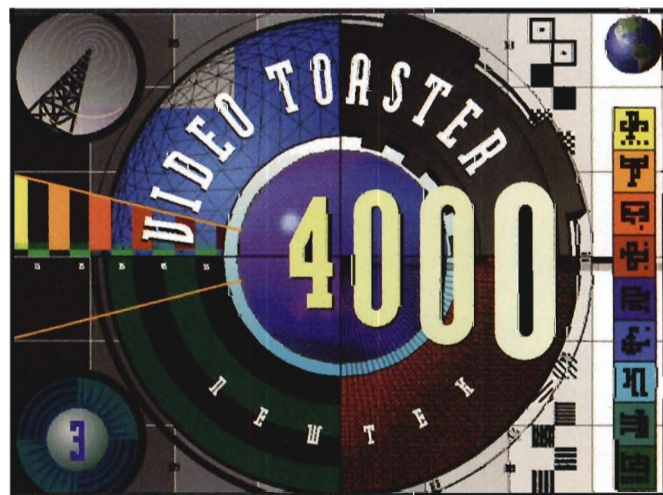
Having recently passed the one-year anniversary of the release of System 2.0, Toaster owners and followers have been anxiously watching for signs of NewTek's next major Toaster upgrade. Unlike pre-2.0, when new effects and features could be seen at various video industry exhibitions, NewTek has been unusually silent about the next generation Toaster System. At the 1993 National Association of Broadcasters (NAB) show in Las Vegas, however, NewTek broke their silence with a vengeance.

A few weeks before NAB, we were invited out to Topeka to get a sneak preview of the new Toaster system. We were surprised to learn that NewTek was not only planning to announce new software at NAB, but new Toaster hardware as well!

Taking full advantage of the enhanced graphic capability of Commodore's new Amiga 4000, the



new hardware/software combo—called Video Toaster 4000—brings unprecedented videographic power to the video revolution. *Unprecedented* really is an accurate description of the changes in this next generation of the Video Toaster. NewTek has once again fundamentally altered the landscape of video production, breaking the price/performance barrier by delivering even more production capability at an even lower price. We can hear the competition screaming now. In this report we'll describe some of coolest new features—but most of this stuff has to be seen to be believed. You can bet we'll be covering Video Toaster 4000 in upcoming issues of Video Toaster User.



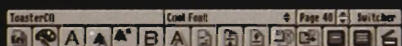
Switcher

The Video Toaster's completely revamped Switcher adds a host of mind-boggling new features. By tapping into the new graphic modes of the Amiga 4000 and combining them with warps, full-color, smooth animation, drop shadows and transparencies, NewTek has managed to do nothing less than create an entirely new category of visual effects. These new mind-blowing effects are truly in the "must-be-seen-to-be-believed" department (the KikiFX will never be the same!) NewTek has gone even further by adding audio to some effects. When you click on the "breaking glass" effect you can hear it as well as see it.

The new Switcher interface has been given a completely new visual look to augment its greater powers. The buttons have a rounder, more professional appearance and color has been added for enhanced visual feedback. This new, sexier interface design is found throughout the new Toaster and echoes the sleeker, less

boxy look of the Amiga 4000 itself. The arrangement of some of the Switcher's controls have also been changed to achieve greater ease of use. Notice how the overlay buss, which is used for keying, has been moved into a more logical position. Also, many buttons that use to be pictographic images now use words instead. Tell a first-time Toaster user to go into ToasterPaint and rather than trying to translate icons, they simply click on the button labeled "Paint."

NewTek has also added a number of Switcher features that will warm the hearts of all Toaster users. For instance, the duration of many effects such as wipes and dissolves can now be user-modified beyond the previous "Slow," "Medium," and "Fast" settings. Also, Toaster 4000 now sports Grass Valley Group emulation protocol. These new additions and the impressive new effects should further cement the Toaster's position as the leader in the video production industry.



POSTSCRIPT

The new ToasterCG has been completely rewritten from the ground up, adding almost every feature users asked for, and many they never even dreamed of. The CG interface is now mouse driven, but has kept many of the elements that made the original CG so easy to learn. Text can be moved anywhere on-screen with the mouse, including directly on top of other text or graphic elements. You can also load ToasterPaint graphics directly from ToasterCG, as well as brushes and other graphic elements from both ToasterPaint and LightWave. Additionally, ToasterCG now allows the creation of graphic separators of any size. You can assign these separators any shadow or outline options, as well as easily modifying color and transparency settings. This gives you a truly amazing amount of power and flexibility in setting up back-

ToasterCG

grounds for your text.

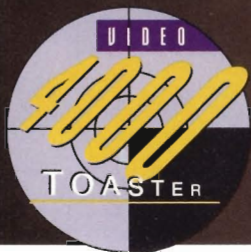
Did we mention text? The big news here is outline fonts. The new Toaster 4000 CG allows the use of Compugraphic and Postscript Type 1 and Type 3 fonts. These can be resized up to 400 lines in height! The new Toaster CG also uses the kerning pair information from each font, so it automatically spaces your letters properly. You say you don't own any Postscript fonts? Maybe we forgot to mention that NewTek is including over 250 Postscript fonts with the new Toaster 4000!

Toaster 4000's new CG now allows you to easily adjust color, shadow type, outline style and font selec-

tion on a line-by-line, word-by-word, or even character-by-character basis. And it's as simple as highlighting the item(s) you want to affect with the mouse and making the changes.



CONTINUED...



L i g h t W a v e

Millions of TV viewers have already seen a hint of many of the new features in LightWave 3D and LightWave Modeler as they made a dramatic entrance into the Hollywood 3D-animation and special-effects community. *Unsolved Mysteries*, *Babylon Five* and the *American Music Awards* are just a few of the productions that have recently made extensive use of LightWave, and a number of other high-profile LightWave projects will be seen later this year.

The influence of Hollywood's regular use has made LightWave even more valuable to us regular folks. The newest LightWave version is even easier to use, produces amazingly realistic images and is substantially faster. And that's even more exciting when you realize that you can now render and display your LightWave animations directly from the Toaster 4000 system. That's right—no single frame controller or frame-accurate VTR required!

The Toaster 4000 allows you to load and play your animations directly from the Toaster Switcher. Full-screen LightWave animations can be played back at a very smooth 30 frames per second. And with real-time playback in 256,000 simultaneous colors, your clients (and competitors) will be convinced your working in full 24-bit color. Partial screen animations can easily be keyed over live video using alpha channel shadows. The real-time playback makes very efficient use of your available RAM, giving you about six full seconds of animation with only 16 MB of RAM.

Even if you are lucky enough to own or have access to frame-accurate decks, the real-time playback feature comes in real handy for client previews. But be careful; the output looks so good you may want to use LightWave's new "Time Code

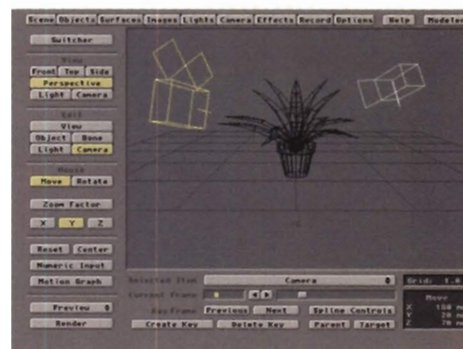
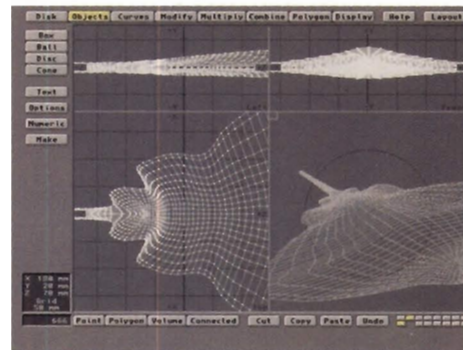
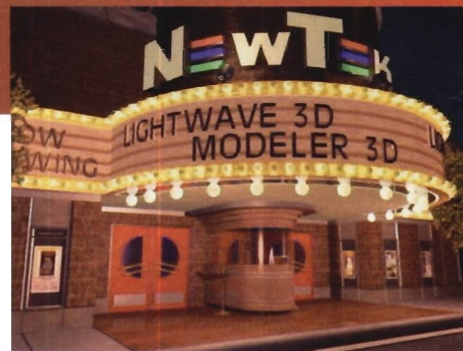
Window" option before giving a preview tape to your client.

For the little guy who doesn't own a lot of expensive video gear, this real-time, high-quality playback capability opens up a wonderful new world of possibilities. From animated wedding bells to flying corporate logos, even the most basic video setup becomes a 3D graphics powerhouse when combined with the Toaster 4000.

Raw speed is one of the big benefits to this new version of LightWave. The program has been optimized for the Motorola 68040 processor in the original Amiga 4000, providing roughly double the previous rendering performance. Some modes, like Shadow Mapping for instance, can realize speed increases by a factor of 10 or 20 times! And not only is rendering much faster, but you also get noticeably-improved image quality. One reason for this is new anti-aliasing routines that automatically locate and smooth out jagged edges.

LightWave's Modeler has also been treated to a very thorough overhaul. Anyone who's ever had to design a 3D logo will appreciate the new Postscript font support, as well as features like automatic beveling. There are a number of high-end features that help make object creation easier. Modeler now supports extensive Boolean operations as well as curve control.

There are literally hundreds of new features in LightWave and Modeler and we'll cover them all in future issues of VTU.



VTU

BONES!

In our previous report on the new LightWave in the February/March 1993 issue, John Gross gave a thorough rundown on just about all the new features. Unfortunately, he didn't have the chance to describe them in any great depth. Of course, this publication will update you on all the goodies in the coming months, but right now, let's talk about one of the most exciting new features for animators, called "skeletal deformation" (SD).

SD is most useful for character animation, because it lets you add an internal structure to an object at any point during or after its creation. It's an incredibly powerful feature that's very easy to use. After loading an object, you click on an "Object Skeleton" button on the Object requester, then add as many "bones" (rod-like structures consisting of two four-sided pyramids connected base-to-base) as you like. Then you go into the Layout editor, rotate, move, and size them to a "default" setting, then press *r* to indicate that this is the Rest position. The

larger the bones, the greater the sphere of influence they exert. Once you've done this with two or more bones, any that you move "stretch" the object like rubber—assuming it contains enough polygons where it needs to bend—while the others act as anchors.

To really do it right, you need lots of triangular polygons. The accompanying illustration shows a 5,000-polygon flattened sphere (a lens) with 10 bones. The bones were originally positioned around the lens' circumference, then manipulated to create the "doughboy" shape. Of course, you can't see the bones, because they don't render. But if you could, you might be a bit surprised at their positions. They're not positioned as a skeleton, because being parallel with the lens' diameter, they wouldn't exert sufficient influence on the thicker parts. They're actually perpendicular to the lens' diameter, positioned at clock positions 12, 1, 2, 3, 5, 6, 7, 9, 10 and 11. They were pulled closer or farther from the lens' center to create the shape. This, in effect, gives the animator "pegs" through the character's extremities, which can be pushed and pulled to create animation.

SD can do much more, of course. It's the kind of tool that really makes you put your thinking cap on to see how you can exploit it—its potential is pretty high. At the nominal cost of extra memory, due to object complexity, which also increases rendering time, animators can now create fluid and expressive character animation with tremendous ease. 3D morphing was never this much fun!

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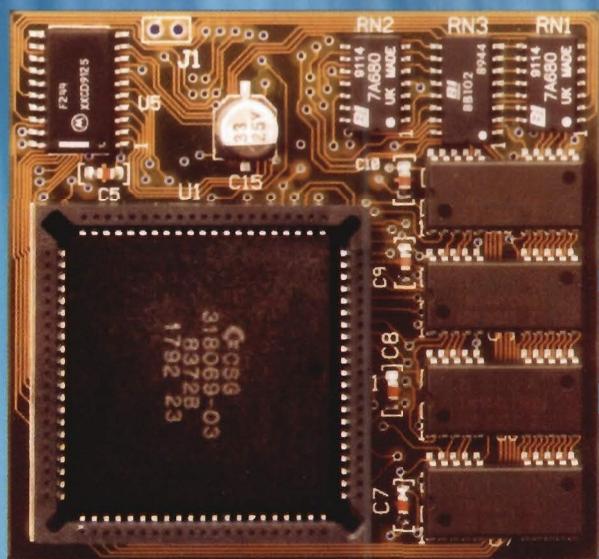
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Q&A DEAR JOHN

By John Gross

I recently received a letter from a reader who suggested methods for creating semi-transparent title box graphics, which I discussed in an earlier column. The letter reads:

Dear John,

In the February/March 1993 issue of *Video Toaster User*, you answered a question asking how to simulate semi-transparent title bars over live video with the Toaster. You suggested two solutions:

- Capture all of the live video frames and use them as a background image sequence in LightWave with a semi-transparent box over it (effective, but wasteful of time and disk space).
- Create the box with a black background in ToasterPaint and import the image into ToasterCG as the background of a framestore page. Add text over the box, render the CG page, key out the black from the Switcher and smooth-fade the entire key out so it appears semi-transparent (easier, but not exactly the desired effect).

I have two additional ways of creating this effect from which your readers may benefit.

First, if you can afford a one-generation loss, record a keyed, semi-transparent box over the source in one pass. Then, add a "key page" CG screen over that source in a second pass. However, that method is better suited for Betacam or digital formats. For VHS and S-VHS, I would recommend another method.

Through experimentation with the luminance keyer, I have discovered a quirk in the keyer's processing of solid colors created in ToasterPaint. This quirk can be used to create the desired effect of semi-transparent title bars. Here is a step-by-step example:

1. Grab a freeze frame of the video that needs a semi-transparent title bar over it. The image's quality does not matter because it is only going to be used for positioning the bar. Save the frame, naming it Original.
2. Enter ToasterPaint and load Original. Draw your title box in the desired position over the image using the colors wanted for the title bar. You can use Darken and Lighten modes on the box's edges to make it seem three-dimensional. Make sure the transparency controls are set to 0 so the Original image does not show through the box at all. Return to the Switcher leaving the created image in ToasterPaint's memory.
3. Enter ToasterCG and create a new framestore type page (press F1, then F4). Type your text. Select the

framestore as the background color (Alt-F3, F2, Return). Position the text and render the page (F9) until it is centered properly on the box. (Note: Use two-monitor mode by pressing Alt-Help after rendering the image to place your text properly.) Once the text is placed properly, press Esc to exit to the Switcher and save the rendered frame as Titlebox (use four-field save).

4. Enter ToasterPaint again and paint black (0, 0, 0) over everything except the box. Use the default light green (0, 255, 48) to paint over the box (I have found this color to work best, but feel free to experiment). Return to the Switcher, leaving this image in ToasterPaint's memory.

5. Enter ToasterCG again and return to the framestore page you created in step #3. Change the text color to all white by pressing F3 and setting all of the text, outline and shadow, color values to 255. Be sure not to change the position of the text. Re-render the CG page to the program monitor (F9, F10) and then press Esc to exit to the Switcher.

6. Load the frame Titlebox. Select the Art Card effect (bank F, effect 46) and set the key type to white. Put the live video into Program (F1-F4), DV1 into Preview (5), and DV2 into Overlay (y). Position the T-bar so that the luminance key control panel's value is between 95 and 125. Use the up or down arrows to control the amount of transparency. I think that 110, 116 and 120 look best. This effect can not be faded in and out, but can be turned off by pressing o and on by pressing 5, then y.

This may sound rather complicated at first, but it is actually pretty simple.

Dave Hanson
Dallas, TX

Q: In your discussion of the new LightWave version, you brought up a new feature in which you used an example of a underwater sea monster sticking its head out of a surface of water. I am not sure I understood your example. Is this new feature, what would be called "sticky surfaces," in other 3D programs? By sticky surface, I am referring to the ability of projecting a surface on a flat multi-faceted plane. Then you can, for example, roll up the plane starting from one end and working your way down (as with a scroll or carpet). However, the mapped image does not warp, but rather rolls around with the original facet it was first positioned on. Is this possible with the feature you described? Is this feature

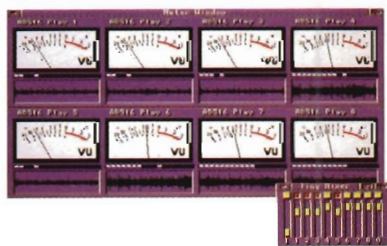


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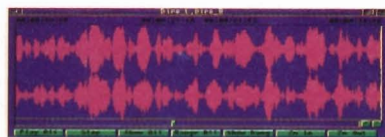
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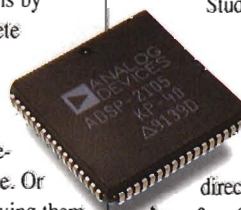


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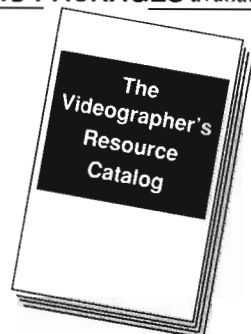
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Dear John Continued From Page 24

in the new LightWave? Can it be done with LightWave 2.0 (other than naming each face a different surface, calculating the brush position and size over the entire plane and then manually entering the same information for each face? I'm not so sure that would work. Wouldn't each polygon or triangle have to have its own axis?)?

Glen Miller
Denton, TX

A: The new feature you are referring to is called "front projection mapping." This is not the same as sticky surfaces in other 3D programs. Front projection mapping lets you project an image onto a surface in the same manner that it would be projected onto the background (head on). It doesn't make any difference which way the surface is rotated, the image is always projected straight on and is perfectly aligned with the same picture used as a background. What this allows is seamless blending of the surface and the background.

In the case of the sea monster sticking its head up through water, a front projection map of a lake was projected onto a flat horizontal plane and the background. When the sea monster was positioned halfway through the plane, it appeared as if it was coming up through the lake—the same image was below and behind it. With the sea monster positioned completely below the plane, you would have no way of telling that there was even a surface there. Even if the plane were to move during the animation, you would not be able to see it, as it would always blend into the background (assuming, of course, that you are using the same image as the background).

The problem of trying to wrap an image onto a bent surface is a sticky one (sorry). If you planar-map an image onto a surface with a slight bend on one end, you would see that the image just projects "through" the bend instead of following it. Similarly, how would you go about trying to wrap an image of bark onto a twisted tree branch?

The solution has been in LightWave from the start, and is called morphing. When you morph an object, the original source object's image map goes along for the ride. Imagine trying to wrap an image of rocks onto a U-shaped object to form a rocky trench. If you used a planar image map, which axis would you wrap it on? Any axis you choose is going to "push" the image through either the sides or bottom of the trench. Likewise a cylindrical or spherical image map would cause the image to be warped when seen on some part of the trench.

Taking the trench as an example, it's easy to see how this morphing trick works. Simply, you start with a large flat plane. Since it will eventually be bent, you need to make it out of many small polygons (use triangles if it is going to be really bent and pulled out of shape). Save the object out as a flat horizontal plane. Next, modify it into the shape you want. Use any of Modeler's tools to get the trench looking exactly as you want it and save it out as a differently named object. Make sure not to remove, triple or subdivide any polygons as the same number of points are needed in order to morph correctly (this is why you should triple the polygons first).

Once you have your two objects saved, they can be loaded into Layout. Here's where the trick comes in: All you need to do is load your image and project it

onto the flat object. In the case of the trench example, you would use a planar image map on the Y axis. Next set up a morph in which the flat object is 100% morphed into your curved object. Because the image is actually mapped onto a flat plane, it bends and curves right along with the object. There is no need to set up a morph envelope unless you wish to animate the morph.

This trick works great for many types of animations. For instance, let's say you need to animate a striped inchworm. If you start off with a straight tube with an image map of stripes along it, you can easily bend and twist it in a morph, but the stripes will always look correct.

One final note: When first creating your morph target object, do not cut or copy the original object and paste it into another layer in Modeler to modify. As soon as you cut/paste an object, Modeler creates a new reordered point list for the object, with the result that the source object's points have no idea where they are supposed to go when they are morphed. Trying to morph these two objects results in a weird, inside-out looking object. Always create your original or source object, save it, and then modify it in the same layer and save it out using a different name as your target object.

Q: I use my Amiga/Toaster set up for other business-related needs such as word processing, spreadsheets and DTP work. Sometimes I have problems with my screen flickering in some of my programs. I use a NEC 3D multisync monitor which has never given me problems until I got my Toaster. Do you have any ideas what may be happening?

Barry Peterson
Garden Grove, VT

A: Chances are your screen is flickering only after you have run the Toaster and only on non-interlaced screens (i.e., 320x200 or 640x200 screens). When the Toaster runs, it automatically interlaces the Amiga's screen output. This is necessary for video work but can cause flickering problems on non-interlaced screens. There is a little CLI program that is included with your Video Toaster called Laceset. If you open a shell window and type this command, your interlacing problem disappears. I recommend running the program in your Startup-Sequence or User-Startup file so it always runs when you first start your computer. This way you won't have to worry about typing it in every time you wish to work on a low-resolution screen.

A little while ago, I received a product from James Doyle at Apples Animation in Escondido, CA. The product is a LightWave heirarchical object called Mannequin Man. It is a model of an artist's mannequin and comes with walking and running motion scenes, and two surfaces—wooden and chrome. And even though it is not extremely detailed, it is modeled and scaled correctly—and at \$29.95, it is worth the price. If you need a humanoid figure but don't want to pay too much for what you are getting, you should check out Mannequin Man.

John Gross is a Video Toaster graphic artist and trainer currently living in Los Angeles and working on the upcoming Steven Spielberg television production, *SeaQuest*. You can send your Toaster-related questions to him in care of this magazine, or at 8615 Chalmers Dr., Los Angeles, CA 90035. Contact him online on CompuServe at 71740,2357 and on America Online as Bubastis.

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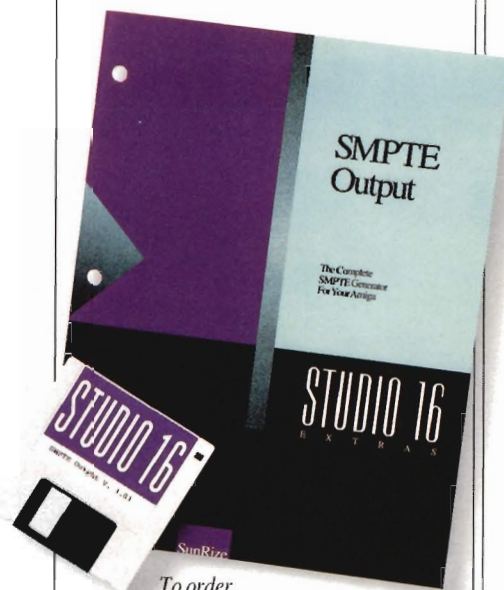
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S L I C E S

T

he Video Toaster's luminance keyer serves a variety of useful purposes in video production. Its operation may seem tricky and inconsistent to you at first, but you'll find that with a little understanding and practice, your mind will begin to get creative ideas. I'll give you some examples later.

First, let's understand what keying is all about. Then we'll discuss the forms of keying that the Toaster employs. You may have heard or read about several types of keying, among them *chroma keying*, *linear keying* and *luminance keying*. All of these processes refer to a simple procedure: taking a video image, cutting out some portion of it and filling the hole with a second image. The second image is not squeezed to fit the hole. Rather, whatever portion of it happens to line up with the hole shows through the first image. The different keying names refer to the method used for cutting the hole.

Luminance keying uses brightness as its basis for clipping the video. All portions of the video signal that lie beyond a predetermined level of brightness are removed to form the hole. Luminance keying on black cuts out all portions of the image that are below the cutoff level, while luminance keying on white removes all portions of the image above the cutoff level. Traditionally, this cutoff level is called the *clip level*.

Chrominance keying, or chroma keying, uses color information to cut out the hole. This is a combination of color and brightness information that specifies an exact value—since “all shades of blue” is too broad a specification (and would probably include too many items in the scene). Most chroma keying is performed using blue or green as the key color, since these colors are least present in human skin tone and therefore less likely to cause technical problems. Chroma keying has been used in films like Academy Award-winner *Death Becomes Her* and Chevy Chase's *Memoirs of an Invisible Man*.

Both of these keying methods have rather strict lighting requirements for the video image that is being processed. Lighting across the scene needs to be flat and even, without visible hotspots, streaks or shadows. Otherwise, the subtle change in brightness is picked up by the Switcher's keyer hardware and becomes a not-so-subtle hole or blemish in the wrong portion of the video image. (Further, chroma keying on blue is subject to unwanted tearing in the edge of

the key due to portions of the talent falling into shadow or reflecting the blue background during production. If you use a chroma keyer in tandem with the Toaster, and you experience this, use yellow or light-orange gels on a couple of backlights to neutralize the blue shadows and provide better separation between the performer and the background.)

Linear keying is a different beast altogether. Linear keying uses an *alpha channel* to process the video image. An alpha channel is simply a video image without the color. The image contains only a range of 256 grays, from black to white. Each shade of gray is assigned a certain amount of transparency based on its brightness. The resulting set of transparency levels is applied to any video image, providing different amounts of transparency to different elements in the picture. Linear keyers also allow text to be keyed over a background with antialiasing.

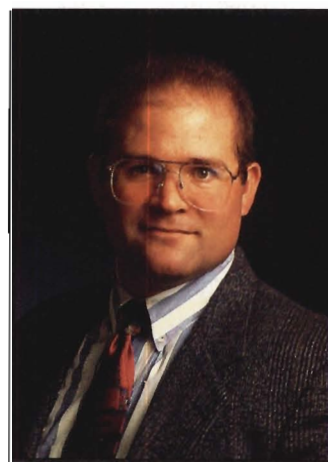
Pictured are some examples of ToasterCG transparency keying. Figure 1 shows the 24-bit graphic to be keyed. Figure 2 shows the 8-bit gray-scale alpha channel for this graphic. You actually never see this screen, but ToasterCG uses it to create transparency. Where the 50% medium gray appears, you see an equal blend of one-half graphic and one-half video. Where white appears, you see all graphic and no video. Figure 3 depicts the graphic keyed over video.

One note about the above images: Within ToasterCG you have the ability to control the transparency of every element independently. Had there been three graphic boxes rather than one, each could have been assigned a different level of transparency.

You've seen the display of a linear keyer *a lot* if you watch sports on television. The major cable houses and networks all use linear keying for their graphics on-screen. If you also happen to catch newscasts or music videos much, you've also seen a linear key of the program or station's ID (like the NBC peacock) placed in the lower corner of the screen. Any time the element has transparent portions, you're looking at a linear keyer in action.

The Video Toaster employs two forms of keying for video overlays: luminance keying (controlled at the Switcher) and linear keying (as generated by ToasterCG). The Switcher has a “smart” keyer that automatically uses its best level of keying depending on the video signal you use. Keying live video over another source provides you with a cleaner, sharper key than keying a digital still image over another source. You'll notice a lesser delay shift in the keyhole

By James Hebert



All About Keying, Part 1

outline to the right of the hole.

ToasterCG employs linear keying on all Key Pages, which explains why they look so clean when generated directly from ToasterCG or the Switcher. The linear key process is providing antialiasing information between the edges of the characters and the video image behind them. These same graphics, when displayed using the luminance keyer, have sharper edges

Radio and T.V. personality Alex Bennett uses his AmiLink to take a vision and make it reality.



With AmiLink the possibilities are endless.

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Two-time Grammy nominee and MTV award-winner Paul Goldberg says:

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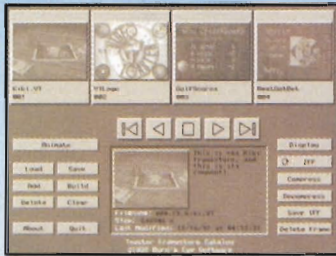
Paul Goldberg, Hollywood New York LTD.

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Video Toaster User Magazine

ToasterVisionTM

A New Way To Look At The Video Toaster



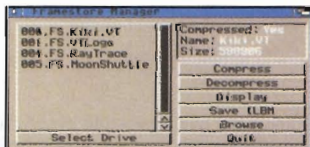
Framestore Catalog -

Catalog and display your framestores as miniature B&W pictures. View full screen, save as 16 or 256 color grey-scale IFF images, compress, decompress, load directly into a frame buffer just by

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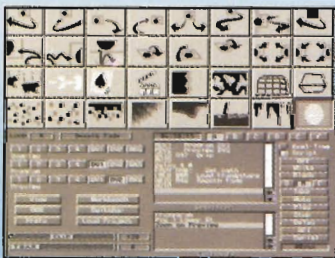
Includes Over 30 New Toaster Wipes!



Framestore Manager -

Compress, decompress, view and delete framestores. Framestores can be compressed with no

quality loss, by as much as 80%, either manually or transparently from within the Switcher. Compressed frames are loaded faster.



ToastMaster 2 -

The best-selling Toaster sequencer has been upgraded and included in this package at no extra charge. ToastMaster 2 now displays actual crouton imagery and allows script and real-time control of the Toaster - complete, accurately timed scripts that can load and save framestores, CG pages, books, projects, and effects. DOS and ARexx scripts can be executed directly - you can even control serial devices (VCRs, laserdisc players, etc) from within scripts or in real-time. Scripts can be played back immediately, called from other applications, or triggered by GPI. Other features include the ability to alter the speed of effects, increase the number of available background colors from 8 to

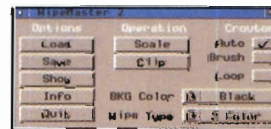
more than 4000, control the genlock, and much, much more.

Toaster Project Manager -

Create new project files, rearrange croutons, add and delete effects, alter, replace or extract crouton imagery and change effect speeds.

Customize Toaster project files with a point-and-click interface. You can modify existing project files or create new ones to suit your needs. Easily copy, swap, add, delete or rearrange croutons.

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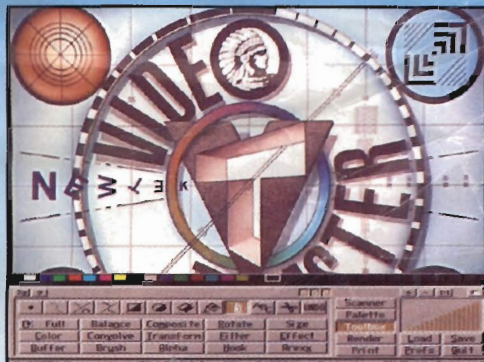
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Framestore Operators for GVP's ImageFX™ Software

Supports
DIRECT painting
on the Toaster's
Framebuffer!



ToasterFX for your Video Toaster!

The ToasterFX framestore loader, saver, preview and render modules, and GVP's ImageFX software are a complete paint and image processing package for NewTek's Video Toaster, allowing direct painting on the Toaster framebuffer screen!

Replacing ToasterPaint, GVP's ImageFX offers complete 24 bit painting tools with an 8 bit alpha channel, airbrush tools, color balancing, composition controls, special effects filters (oil paint, ripple, disperse, distort...), morphing and more.



ToasterFX completely integrates the operation of ImageFX with the Video Toaster, allowing direct access from the Toaster's switcher screen.



ToasterFX's **FX Croutons** bring image processing power directly to the Switcher screen! **User configurable** special effects like emboss, antique, blur, sharpen, oil paint, flip, disperse and more are available as standard Toaster Effects

to be performed directly on a framebuffer image.

The ToasterFX LOAD module allows DIRECT loading of framestore files into ImageFX as 24 bit images. View the ENTIRE image on screen while painting, or choose any zoom level for detail work.

The ToasterFX SAVE module saves any image loaded or created in ImageFX directly to NewTek's framestore format.

Convert Video Toaster framestores directly to and from Amiga IFF24, JPEG, Targa, TIFF, GIF, Alias formats and more.

Paint DIRECTLY on the Video Toaster's framebuffer with the ToasterFX PREVIEW module.

The RENDER module can directly display to the Video Toaster's framebuffers without leaving the ImageFX interface. (choose between DV1 or DV2).

ToasterFX also includes stand-alone utilities for:

- Converting Framestores to IFF24 images
- Converting IFF24 images to Framestores
- Displaying any Amiga screen directly to a Toaster framebuffer.



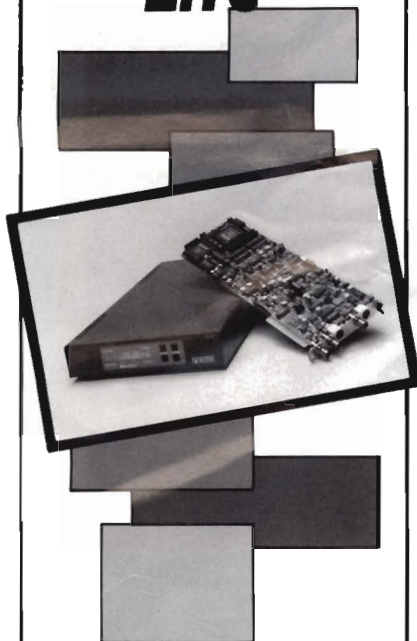
Not just for painting, ToasterFX with ImageFX is also a powerful image processing and special effects generator for Toaster framestores.

ToasterFX requires GVP's ImageFX for painting and image processing functions. Painting and image processing can be accomplished on any Amiga computer. NewTek's Video Toaster is required only for direct displaying of framestores to the Toaster's framebuffers.

**ToasterFX is available at your Video Toaster and Amiga dealer or directly from:
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Slices Continued From Page 28

because this form of keying cannot blend between the character in the foreground and the video in the background. The slight raggedness you see on some diagonal graphics is the stairstepped pattern of the pixels on the graphic element's edge.

ToasterCG 4000 goes even further with linear keying possibilities. Now you can assign variable transparency levels to your text—the face color, the outline and the drop shadow as well. The same goes for graphic separator boxes and loaded brushes. In short, everything on-screen can be made transparent—from fully invisible to nearly solid. A lot of the work you might have created in ToasterPaint and displayed via the luminance keyer can now be transferred to ToasterCG. Where before you created a graphic on a black or white background (the brightness level that would be cut out) in ToasterPaint, now you can take those brushes into ToasterCG and key them linearly with much cleaner results.

However, there is an area where the luminance keyer excels, and that is in using special-effects transitions to fly keyed graphics on- and offscreen. If you've been following *Slices* for the last three issues, you'll remember that the framebuffer, in tandem with the luminance keyer, allow you to fly keyed graphics on and off screen in a variety of clever ways. Using the Toaster's digital effects, you can fly them in from the distance, slide them in from the side or angle them off into the corner. In fact, sliding graphics on and off can be more effective than flying them.

Let me suggest some creative uses for this type of effect. My fellow *VTU* columnist John Gross once created a demonstration tape that required short captions or titles keyed over a series of images. The graphic element he created for each title was a beveled box that looked like green marble, located in the lower one-third of the screen. Rather than extending the box off the screen to both sides, it extended offscreen on the right side only. John used digital transitions to slide the video in from the right so that, in combination with the key effect, it appeared that the marble bar slid in from the right. Then he used an effect to slide the bar straight down off the screen. Depending on the design of the element, different transitions work better than others.

Had this been a solid image with no luminance keying, the entire screen would have been replaced by the incoming source from the right. Then it would

have slid down to reveal the previous source behind itself. With the keyer removing the black background, it appeared that *only* the marble bar slid on and off. Using a series of marble bar graphics, and sliding them on and off in different directions, John created a very high-end look.

"Toaster Guy" Lee Stranahan, in his training tour, showed a similar effect using a framegrab of the top portion of a cash register. In his demonstration, he used a digital transition that slid the entire incoming

video source *upward*. The result was that one of the cash register keys that displayed the \$ symbol slid up into position as if a key had been pressed on the register.

Stacy Peralta, a Video Toaster user who produces work for major cable TV channels, uses the luminance keyer in an innovative manner. He employs it for fast on- and off transitions of graphic overlays that support the content of the visual and spoken material at the moment. While the on-screen performer discusses a police raid, a keyed graphic of a police car shoots onto the screen (to the sound of sirens), then zips off (to the sound of screeching tires). Stacy even adds sound effects to normal video transitions so that the entire production is a riot of sound and imagery. The effect is straight out of MTV and it knocks your socks off. I was riveted to his demo. Rather than attempt to make "professional" video that quietly supports the content of the program, he makes use of all the tools at his disposal so they become a

part of the total package. It's more demanding on the viewer and a lot more exciting to watch. Couch potatoes would have to switch channels.

Take the time to run through the Toaster manual's instructions on the luminance keyer and try out the effect. To get the cleanest key, use pages created from ToasterCG or graphics like Figure 1 above. You might also wish to go back a few issues and get an idea how the keyer works to fly graphics on- and offscreen from previous *Slices*. Next issue, we'll put together a graphics sequence similar to the ones discussed above and run it through the luma keyer.

VTU

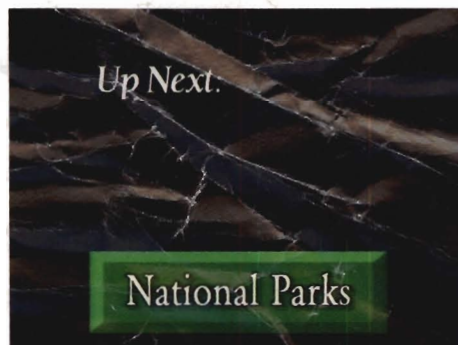


Figure 1

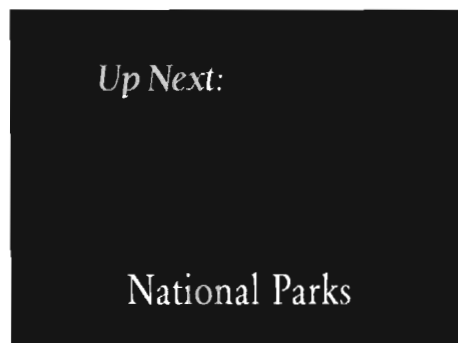


Figure 2

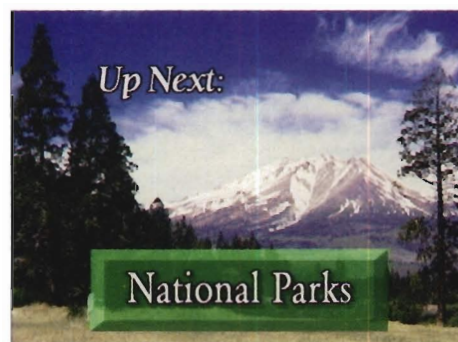


Figure 3

ARE YOU READY ?

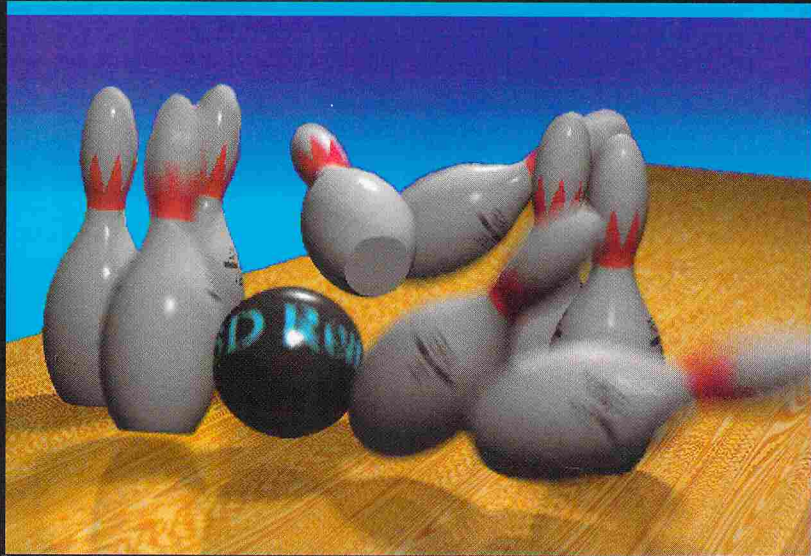
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- Watch snowflakes get blown around by simulated wind.
- Build a robot arm, pull on one finger and see how the whole arm will straighten.
- Create an animation of a pot of water gradually coming to a boil on a stove. Watch the bubbles develop at the bottom, grow as they rise to the top and disappear into the air. Watch as more and more bubbles form until the water appears to be truly boiling.
- See when a glass is dropped how it can automatically detect the floor and explode into pieces.



3D Desktop Animation Has Changed Forever

Real 3D V2 also features a productive and innovative interface, an extensive collection of modelling tools, and a comprehensive collection of rendering features:

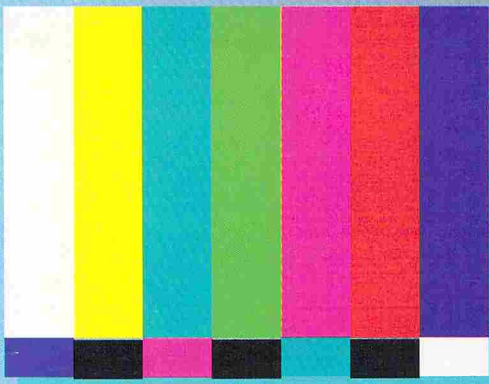
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Dr. VIDEO

W

elcome back to Dr. Video's Q and A session. Each month the doctor answers general questions on all topics related to video production. Whether it's lighting, equipment, electronics or what-have-you, Dr. Video's

mission is to find solutions to any problems confounding you or mysteries befuddling you. Don't worry if your question seems too simple or too advanced—Dr. Video takes on all comers.

Q:

Someone told me that I could make movies with my Toaster by sending the output to a film recorder. How does that work? R.R., Eugene, OR.

Rx:

You heard right. The Toaster's framebuffers can be configured to produce images of many sizes, although they are usually operated in a mode that most closely approximates an NTSC video image.

In case of a film output, the images are not displayed directly. Rather, users record them as data files. These are transferred to a film recorder, which exposes photographic film one frame at a time. Film recorders are expensive devices and sometimes quite touchy. It is usually best to use a service bureau for this transfer.

Q:

Why don't tapes recorded in Great Britain play on my American VCR?

Rx:

You have discovered that TV is not the same the world over. Large portions of Europe and Asia do not use the NTSC television standard found in the U.S., Canada and Japan. Rather, they use a slightly different system called PAL. Based on a 50Hz cycle rather than NTSC's 60Hz, PAL video provides greater vertical resolution but is more difficult to edit.

There are two ways to convert between PAL and NTSC. The easiest is to obtain a multi-standard VCR. The second is to use a standards converter. This device takes images of one standard, digitizes them, and then interpolates the data into a signal that can be used by the other standard.

Standards converters are expensive, and the best are priced as high as a new house. Unless you're in the conversion business, use a service bureau.

Q:

What do the initials BNC, as in BNC video connector, stand for?

Rx:

Nobody knows, but everyone has an opinion. I once asked readers of another magazine for their versions, and one sent me copies of published technical papers showing that it is a miniaturized (or baby) version of the type N connector used in microwave work (hence Baby N Connector). Since there is also a TNC (Tiny N Connector), I thought it made sense. Even though the reader's credentials were impressive, and his documentation pre-dated anyone else's, the moment I published his answer, I received a flood of mail saying he didn't know what he was talking about.

Most folks seem to have been told that it is a bayonet connector, designed for naval use (Bayonet Naval Connector). Another old friend, a former instructor with the BBC, told me in a fatherly way that it stands for Bayonet, Non-Continuous (referring to the impedance of the cable). He cautioned me to protect my reputation and keep quiet about any of the other theories—"...bad form, you know."

As to why these connectors are so popular in professional video, it is probably due to how they plug in with a positive click action, and the bayonet lock mount which prevents accidental disconnection. Unfortunately, the prosumer industry has adopted the RCA (or tulip) connector. As a result, a lot of equipment does not interconnect without adapters. RCA connectors have the advantage of low cost, easy installation and lower space requirements. They do not lock into place, so one complaint is that they sometimes fall out of the sockets on desktop video systems.

There is, however an interesting compromise connector. It is a threaded RCA connector. It is quick to install, and when it is on, it stays there.

Q:

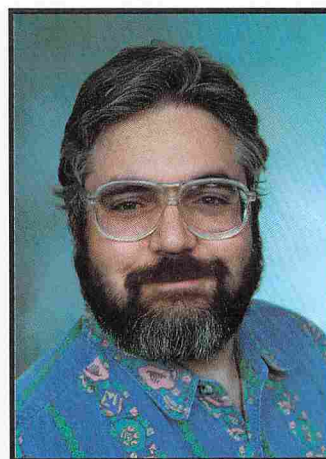
Is there any way to send video down a telephone line?

Rx:

Yes and no. A few years ago, accomplishing this required special equipment, specially-conditioned telephone lines and stiff fees. The service was not available in all areas, and there were at least a few engineers who were concerned about signal quality.

Regional Bell operating companies that engage in video carriage generally do an excellent job, often

by Rick Lehtinen



installing fiber optic links if they think the traffic will bear it. The charges may still be high, and the service may not be available everywhere.

Broadcasters would be delighted to find a high-quality, low-cost way to use the public telephone network to get video signals from place to place. It would save money and free them from the hassle of setting up microwave links. Recently, ISDN and other digital telephone services promise to bring this dream closer to reality—except for one thing. Today's video compression technologies can't yet process a full-quality broadcast signal, such as that produced by the Video Toaster, to the point that it can be easily transmitted intact over a standard phone line. Even a basic-rate ISDN line can handle little more than a small-screen, jerky-motion videoconference-grade signal.

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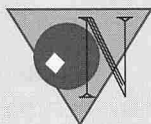
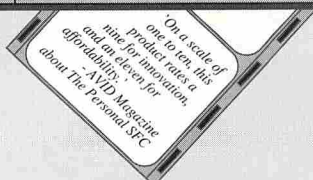
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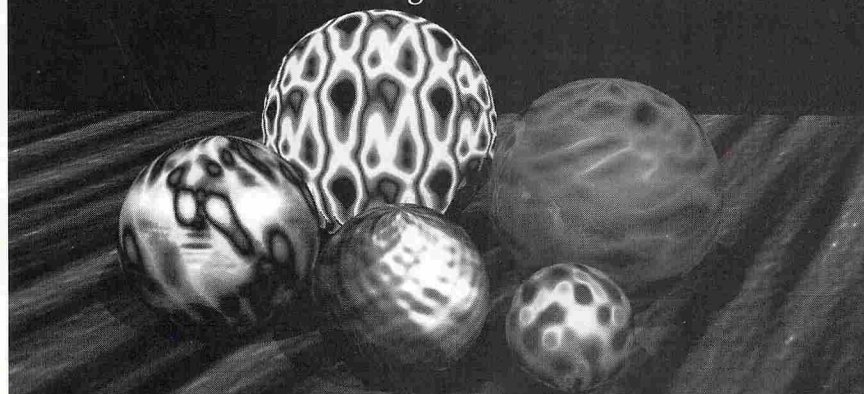


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Dr. Video Continued From Page 34

Help is on the way. High-quality low-bandwidth compression systems are under development. One of them has the optimistic goal of transmitting full-quality audio and video over standard telephone lines, or even with cellular telephones. The manufacturer is keeping a low profile for now, but the Doctor has been following its progress for a few years, and early demonstrations have been impressive.

Q: What can I use my Video Toaster for besides making videos and doing animations?

Rx: Interesting you should ask that. The Toaster has a strong advantage in the desktop video world because of its fundamental design—electronically the signal path is very similar to that found in a single-bank switcher such as the venerable Grass Valley 100 and 110. This makes it eminently suitable for live-style switching, as opposed to a number of DTV appliances that are centered on editing video clips.

Noteworthy potential applications include:

- Switching video for live events such as concerts, conferences and seminars, and even discotheques. The Toaster lets you transition between cameras that feed the stage monitors, videowalls or large screen video projectors. It can also transition to previously-stored stills and graphics to illustrate the speakers points or highlight the performers.
- Switching video used at an event venue, such as the Jumbotron screens used in many sports arenas. One early Toaster success story involved Joel Tessler using the Toaster to prepare award-winning graphics for the Jumbotron during NFL Miami Dolphins games at Joe Robbie Stadium.
- Switching the video used in videoconferencing events. The primary or initiating facility can produce a powerful show using the Toaster live. This is then transmitted over the network to the receiving sites.

Q: Why do some audio connections have two wires and others have three?

Rx: If you have ever thought video was confusing, then audio is simply weird. There is often a schism between audio and video staff at major events. But instead of picking on the audio weenies, let's get to your question.

Most two-wire audio systems are "unbalanced" systems. The audio signal travels down one wire and returns, or grounds, on the other. If you recall a previous discussion on the perils of equipment grounding, you understand that such unbalanced systems have the potential to pick up noise from the surrounding environment.

The three-wire systems are of two types. So-called stereo signals consist of two signal wires and a common ground. These are susceptible to all the problems of any other unbalanced signal.

There is another type of three-wire signal used exclusively in professional audio applications. The balanced audio signal has the signals traveling and returning on two isolated wires. The ground is a third wire. This way, the signals are more impervious to noise. Balanced audio connections of this type use special three-pronged audio wires called XLR connectors.

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F/X SPECIAL F/X SECRETS

In the April/May issue, I described how to create special effects with an image splitter. This time, you'll learn about tornados, volcanos, clouds and how to rock large objects like cars, airplanes, boats and entire rooms.

Tornados

I had a lot of fun with tornados while working for Disney. I was asked to create a tornado effect for the Imagination Pavilion at Epcot Center. Disney wanted the drawings and plans within two weeks and the entire effect finished in two months. One week later, I had the effect built and ready to be shown.

We use a combination of fog machines to create a giant mechanical tornado, the center of which is a funnel made with several layers of various-sized opera cloth. Heavy fog is pumped through the center of the funnel. As the tornado turns and spins, the heavy fog seeps through the cloth, effectively masking it, and then turns it to a solid fog. It was exactly like a miniature tornado. The effect is backlit, giving even more realism. The tornado can be made in any size from two feet to the 60-foot-high size I used at Epcot's Imagination Pavilion.

If you want to build one, follow Figure 1. Make a funnel out of wire, then wrap it with cheese cloth (instead of opera cloth). Start with two layers and add more as needed. Paint the cloth shades of black, gray and white in a spiral pattern around the funnel giving it a cloud-like appearance. Insert a shaft, such as a dowel, thru the middle of the funnel (see Figure 1). Mount this shaft on some sort of a bearing and let it extend about two feet above the tornado. The rod is used to turn and move the tornado from side to side. In Figure 1, I use water-fog machines to create the fog effect. You can use dry ice and warm water, which gives you almost the same effect. To do this, put some warm water in a two-gallon bucket. The bucket should have a cover, with three holes punched in it. Over this hole, place a length of plastic hose (the type that is used on clothes dryers as a vent) a bit longer than the tornado's height. When you put the dry ice into the water, break it up into small pieces about two inches across. Drop them into the water through the top of the hose. Position the hose at the top of the tornado and let the fog fall into the funnel. Start spinning the funnel. With a few adjustments and some backlighting, you should get an impressive effect. And just imagine what you can do by adding Toaster effects to it.

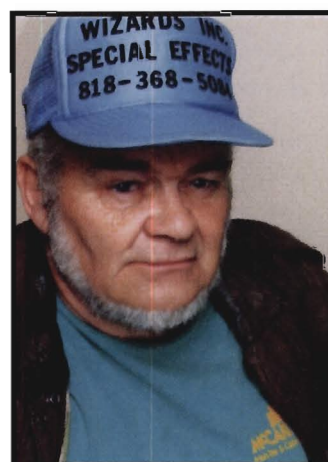
Volcanos

As special effects and magic design consultant for Disney's Epcot Center, I was also asked to create a volcano. Not just any ordinary volcano, but one that would run continuously—erupting with hot, flowing, smoking lava carrying rocks and burning debris with it.

The effect had to be so realistic that the heat from the flowing hot lava could be felt as well as seen. In addition, Disney wanted audiences to experience a volcano's actual smell. Finally, the volcanic eruption and lava explosion had to take place on cue.

This was quite a challenge. It took almost a month to build the set, using a combination of liquid nitrogen, steam, mechanical pumps, plastics, ultraviolet (UV) lights, and a hair gel that was an inert material, but when specially treated would maintain the viscosity of lava. To this we added various UV dyes. This concoction was illuminated by UV lights from beneath a clear plastic lava trough. The UV lights emphasized the lava's pigmentation and gave the appearance of a red-hot

by Robert E. Mc Carthy



Dorothy? No, it's McCarthy at Disney's Epcot Center.

glow. We then released steam and strategically spaced injections of liquid nitrogen from both sides of the set to create a flow of fast-sparking smoke. Scent cannons were added, and hot air blowers provided the sensation of heat when the audience passed by. Pumps were

then cued to shoot up a liquid impregnated with UV dyes from the mouth of the volcano. This liquid glowed red hot on anything it landed on or touched. The volcano we built for Epcot was 60 feet high. See Figure 2 to see how you can build one to any size to meet your needs. The drawings are not to any particular scale. So if you need a volcano for your living room, bedroom, den or a standard special effect, have fun building it.

Spinning Or Tilting Room

Many years ago on *The Ernie Kovacs Show*, we built a tilting room. The skit involved Kovacs sitting at a

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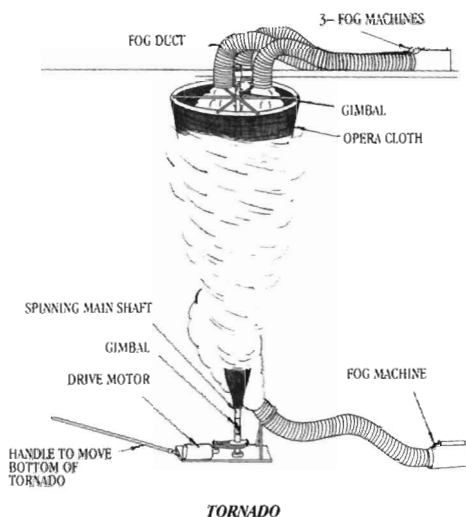


Figure 1

long table either at the center or at one end depending on the effect he wanted.

The camera was mounted on the platform and thus maintained a constant, steady view of Kovacs, regardless of how the platform itself moved. Since the visual relationship remained constant, the camera didn't "see" the tilt. If, for instance, Kovacs poured from a bottle, the liquid would seemingly defy gravity and miss the cup and flow either horizontally, downhill or uphill for no apparent reason, responding to the degree of the platform tilt. We got all sorts of effects like this by varying the tilt to different angles.

Though I had nothing to do with Fred Astaire's famous "dancing on the ceiling" number, I have built similar spinning and tilting rooms that enabled a person to walk and dance on all four surfaces of the room. The same technique was employed in the video *Dancing on a Ceiling*. The spinning room can be built to any size, limited only by your budget.

I once built a spinning room with two gigantic circles made of 4-by-12-inch planks. One circle was positioned in the front section and one in the back section of the room, both of them on the outside of the set. Essentially it was a square inside two circles. These were on gigantic rollers with guides that enabled the room to be pulled around by three men.

Rocking Cars, Airplanes, Boats, And Rooms

The expensive way to rock large objects is to use hydraulics, air rams and large, heavy-steel frames. Fortunately, you can economize and just use truck-tire inner tubes.

Fill the inner tubes with a small amount of air (approximately 30 pounds of pressure per square inch). Stacked two high, lace them together with rope and stabilize them in the center with a post. Build a platform on top of these inner tubes and place the object that is to be moved on it. In each of the four corners, mount 4-by-4-inch boards that extend out approximately six feet. By manipulating these you can create an up-and-down movement. Mount two more 4-by-4s at the nose of the platform for a side-to-side movement (see Figure 3). Proper balance of the object being rocked is achieved by centering its weight on the platform and securing it to the platform.

Obviously it's much cheaper to do the effect this

way, as all it requires is a bit of human labor. On the TV show *Supercarrier*, we mounted the body of a jet aircraft on a mechanism like this and it worked perfectly.

Jackie Gleason, The Bicycle and The Brick Wall

One of the most famous skits on the *Jackie Gleason Show* was Jackie crashing a bicycle through a two-foot-thick brick wall. Of course, the wall wasn't really made

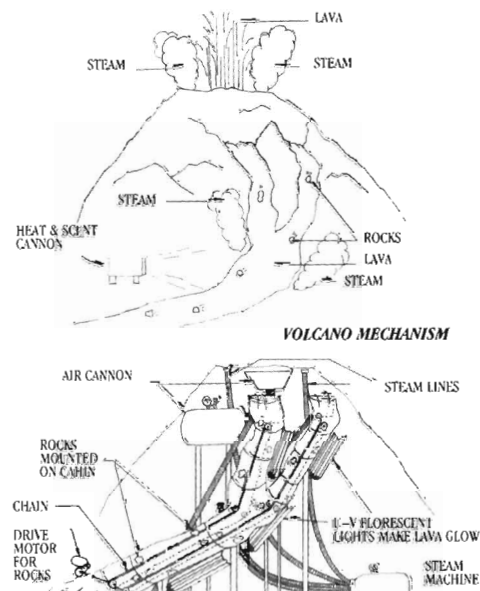


Figure 2

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of brick—only Styrofoam that looked like bricks.

It was actually Gleason's idea to use a brick wall. We built one two-feet thick by 10-feet wide by 10-feet high and encased it in a portable crate so it could be moved without falling apart. We removed the front, back, and sides of the crate after spotting it on its marks prior to the skit. All Jackie had to do was build up speed and power through it.

In the first rehearsal, Jackie rode on stage on a two-wheel bicycle and tried to ram through it. But he only made it halfway and got stuck. As a result, he requested a ramp be built that I thought, at the time, was too high. I was afraid he would gain too much speed and lose control. However, he insisted the ramp be four-feet high and graded down to zero over 16 feet. I also thought this was a little too steep. After all, Gleason wasn't accustomed to riding a bike and, to make matters worse, he didn't want to rehearse. He said, "Let's just do it live on the show." Gleason didn't like to rehearse; he always said, "Go for it."

Well, he came flying down that ramp and when he hit the bottom, he was out of control. The bike hit the wall, the front wheel pitched to the left and bent his wrist beneath the handlebar, and the impact cracked his wrist. He went through the wall all right, but he got hurt in the process. I still believe that had he practiced, the accident would never have happened. Let this be a lesson: Rehearse your special effects before going live.

Clouds

There are many ways to make clouds. The easiest way is to project a slide or movie of clouds onto a screen, usually from the rear. To get a more realistic

and startling effect, shoot liquid nitrogen across a blue painted floor with the camera upside down. You have to increase the camera's frame rate to slow the cloud motion.

Gleason's Floating Cloud

The floating cloud effect was first performed on the Gleason show. I discovered it by accident while

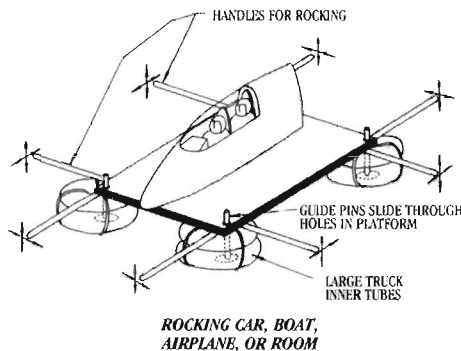


Figure 3

experimenting with a foam machine in the parking lot behind the Miami Beach Auditorium. The stunt that I was working on called for a room to be entirely filled with soapsuds. This effect presented peculiar problems such as filling a room onstage with soapsuds (on cue) and removing the suds quickly so as not to interfere with the next scene. Remember, this was a live show.

Basically, the gag called for Jackie to install a washer and dryer in his basement. While testing the machine, he unknowingly knocks a full box of detergent into the washer. After starting it, he leaves the basement, closing the door behind him. On returning and opening the door, a wall of soap cascades out and buries him.

When I began experimenting, I tried a new type of foam machine because I was worried about removing the suds quickly after the shot. While there was no difficulty in creating a giant mound of suds 10 or 12 feet in height and circumference, I had no idea whatsoever how to get rid of it. While puzzling over the problem, I happened to lean against a fan I had just built and was going to test for another bit. By pure accident, I turned it on in the direction of the foam mound that was about 20 feet across and 15 feet high. The resulting gust caused an updraft that lifted the foam into the air in one solid piece. Surprisingly, it just hung there floating around the parking lot for about 45 minutes. It was like *Fantasia*.

It was the most unbelievable effect of a close-up floating cloud that I had ever seen. Accidents, as well as necessity, can be the mother of invention. Until next month, enjoy.

VTU

If you have any questions about the effects in any of my columns, or need information on my books or tapes, just give me a call: (818) 368-5084 or drop me a line at: Wizards Inc., 17939 Chatsworth St., Suite #256, Granada Hills, CA 91344 or Fax (818) 360-1462

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SOUND REASONING

T

he fact that you are reading this magazine says a lot: You're interested in video production—plus you want very sophisticated video switching, special effects, and animation at very low cost, via the Video Toaster. In other words, you care about your images.

But what about sound? Do you put the same effort into getting maximum sound performance out of your system that you put into the visuals?

With this issue, *Video Toaster User* inaugurates a new column—Sound Reasoning—whose purpose is to goad, cajole, nag and guilt-trip Toaster users into putting the same care into their audio tracks that they apply to the picture.

Let's face it: Audio tends to be the most neglected aspect of low-budget video production. When resources and personnel are stretched thin, and when fantastically fun, creative, high-tech image-processing tools are available to play with, it's easy for audio to get ignored in the shuffle.

There are exceptions, of course: producers who take painstaking care mixing and equalizing their audio tracks, paying attention to such nuances as background ambience continuity, voice intelligibility, noise and hum reduction, sound effects and synchronized music. But too many low-budget producers ignore such audio details—just attend any video festival, or watch a public access cable-TV channel, and listen for a while.

In future issues, I'll cover the audio-for-video scene with a specific focus on low-budget Video Toaster production and practical tips and techniques for getting top-quality sound on a modest budget. Fortunately, the equipment you need for good audio costs a lot less than for video. With a few basic accessories—a good microphone, headphones and a mixing console—you're well on your way. Audio processing both inside and outside your computer can enhance your video soundtracks, and this column will keep an eye on the latest hardware and software.

For the rest of this premiere edition, however, the angle will be decidedly low-tech—audio editing techniques. If you're already involved in video editing, you won't need any extra equipment or hookups to follow this basic advice on when and where to edit audio. Whatever editing equipment you're using (hopefully frame-accurate, or within a couple of frames' toler-

ance), this guide should help you produce slicker, more polished-sounding work.

Editing Audio

As with video, the main goal in audio editing is to hide the seams—to make the edits as unnoticeable as possible. Experimental video artists often take exception with this philosophy (wanting to bring attention to each edit point), but for the vast majority of commercial and non-commercial projects, the goal is to get listeners to think about the contents—the message—of the production, and not the production methods.

So how do you hide the audio seams?

For spoken words—voices—there are number of techniques. First, pay careful attention to where sentences begin and end. The safest, most unnoticeable edits are between complete sentences: Let one sentence end completely, then edit to the next, leaving a brief, natural-sounding pause between them. Maintaining consistent background ambience during this brief pause is crucial to keeping the edit sounding smooth.

A beginning editor's first instinct is to put the edit point right smack in the middle of the pause between the two sentences. If the pause is to be one second long, for example, the tendency is to include a half-second of silence (ambience) following the end of the first, and a half-second preceding the beginning of the second sentence. This is the easiest and safest method, since you have some elbow room around the edit points to compensate for mistakes or tape slip-page, but it is not the best.

More experienced editors know that the best place to make the cut is immediately preceding the start of the second sentence. Here's the reason: Inevitably, there will be some unintended audio artifact resulting from the edit—either a click, a change in background ambience level, or a change in the texture of the background ambience. It will probably be subtle, but it's there. In the middle of one second of silence, the listener has nothing else to attend to, so such subtle details become more noticeable.

If this edit artifact occurs just prior to someone speaking, however, the listener will become distracted by what the person is saying, and not notice the click or level-change as much. It is the audio equivalent of the "cut on action" picture editing rule—edits become less noticeable if they occur just as exciting (relatively) things are happening.

What if you need to edit between words, instead of using whole sentences? The same principle applies,

By Cliff Roth



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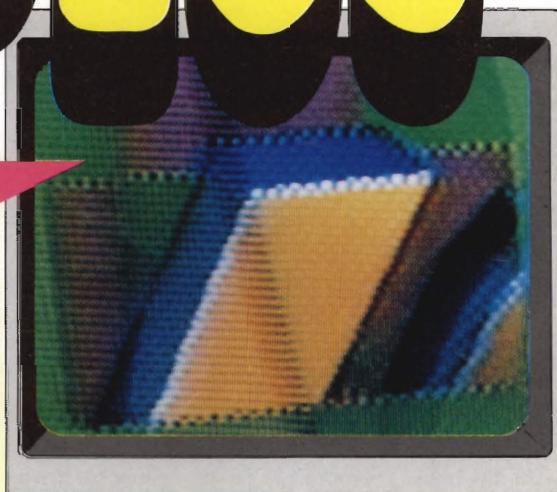
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Sound Reasoning Continued From Page 42

but on a finer scale—try to move the edits as close to the beginning of the new word as possible, without clipping off the very beginning, and maintaining a very short pause after the end of the previous word to keep pacing consistent with the way that person speaks.

Editing in mid-sentence is tricky business, however, due to intonation. When people speak, intonation clearly indicates which words are at the beginning of a sentence, and especially which words are at the end. The pitch of the voice tends to go down at the end of a sentence—unless it's a question, in which case it goes up.

I once made a short video that was shown in some major festivals and on network TV in which I edited a speech by Ronald and Nancy Reagan. Originally, their speech had a "Just Say No" anti-drug theme, but as a spoof, I rearranged things so their message became "Just Say Yes." To pull it off believably required that I listen very carefully to the way sentence fragments could be put together. One cardinal rule is to always start a sentence with a real beginning (using an opening phrase from the original speech), and always end with an actual conclusion from the speech. In the middle, I might put three or four fragments from other sentences.

When editing speech, pay particular attention to the speaker's breathing. Listening with headphones helps increase audibility. Everyone breathes while they speak, and microphones pick up this noise. Normally it's not noticed much (as when listening to interviews) because it sounds natural. But if you cut a breath in half at the edit point, you'll bring it to the foreground and make it quite noticeable. Either include the entire breath, or leave it entirely out. Don't cut every breath out, however, or you'll make the speaker sound unnatural. Few people can say three or four sentences in a row without taking a breath.

Editing Music

Music editing has its own dynamic. The need to edit music comes up often when producing industrial videos and low-budget drama, where, for example, you may need music for a scene that lasts 30 seconds but have selected a piece of music lasting three minutes.

The sloppy, lazy approach is to simply fade the music out at the end of 30 seconds. It works, but it sounds like you faded it out, and the incomplete feeling this evokes (lack of closure) becomes especially noticeable with familiar works of music.

A tighter-sounding and more professional approach is to edit the work down to the required time. It's the same principle I described above for editing spoken sentences—you want the piece to start at the beginning, and finish at the end. Don't fade down—cut out the middle.

It sounds easy, but in practice it requires finer precision than editing speech. If your video editing system isn't capable of accuracy within a frame or two, forget it—attempts to edit music will be completely frustrating. This may sound really low-tech, but your best bet may be to transfer the music to an audiotape (ideally open-reel running at the fastest speed, but in a pinch, cassettes will do), edit the music on the audiotape using an old-fashioned razor blade and splicing block, and then transfer the edited version back to videotape. Or, if your Amiga computer is equipped with an audio input board and digital audio editing software (I'll be writing about this more in a future column), do the editing on your computer, and then transfer back to tape.

The key to making smooth-sounding music edits is

to always edit on the beat. You must pay careful attention to where the edit occurs, and to maintaining the timing of the music.

As with speech, the cleanest-sounding edits are made just prior to the point where something occurs—in this case, the beat of the music. Rock and disco music is the easiest to work with for beginners, because the beat is prominent. Most popular music has a time signature of four beats per measure, meaning that if you count out loud, "one, two, three, four, one, two, three, four, one..." in sync with the loudest drum beats (usually the kick drum), you'll find that most changes (new verse, new chorus, new instruments, change in tempo, etc.) occur on the beginning of a new measure (on the "one" beat of the count). The following discussion assumes you're editing with four-beat music.

Musical edits sound most natural and unnoticeable if you edit just before the "one" beat. This applies both to finding the cut-out point at the end of the opening section you want to use (following the "four" beat), and finding the cut-in point at the beginning of the next section you want (prior to the "one").

It is extremely important to maintain the same amount of time between the "four" beat before the edit and the "one" beat after the edit. This maintains the timing of the music. A timing mistake is readily noticeable to a listener—it hangs like a big sign that reads "edit." If you cut out immediately after the "four" beat of the beginning section, you'll ruin this timing. Let the music play all the way to the very end of the measure, and cut at the point immediately before the "one" beat of the next measure.

(Imagine counting half beats: "One and two and three and four and one and two..." If you cut after the fourth beat, without getting close to the beginning of the next measure, your edited music will sound like: "One and two and three and four one and two and three and..." You need the "and" between "four" and "one" to maintain the timing.)

Professional Principles

The rules I've presented may sound basic, but follow them diligently and you'll be nine-tenths of the way to professional sound editing. I used to teach classes in audio editing, and these simple rules constituted the lion's share of the curriculum. Most of the class time was devoted to listening and editing. To become a good audio editor doesn't require the fanciest equipment, but it does require patience and an ear that's willing to listen.

Speaking of a willingness to listen, I'm eager to hear from *Video Toaster User* readers, with comments, complaints, and questions about low-budget audio for video. Write me and let me know what you think, what you'd like to see covered in future columns, what's your biggest source of frustration, and so on. Selected questions may be answered in a future column.

Keep listening!

VTU

Cliff Roth is a freelance writer, independent film/video producer and desktop video consultant. His recently published book, The Low Budget Video Bible, is available from Publishers Distribution Service (PDS) at (800) 345-0096. VHS copies of Roth's video, The Reagans Speak Out On Drugs, are available for \$22.90 from Box 668, Peck Slip Station, New York, NY 10272. Send questions and comments to the same address.

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TAMING THE WAVE

Welcome back to the ol' LightWave tricks and tips trading post! I'll be your guide for this journey through the exciting land of 3D animation and we've got lots of material this month.

First let's get the contest results out of the way. What contest? Well, a few issues back I proposed a little challenge. I asked all you LightWave addicts to create a convincing waterfall animation. When I first suggested this, the intention was simply to give you a project to toil away on that might teach you parts of LightWave you weren't terribly familiar with. As we all know, nature is one of the most complicated things to try to reproduce with computer animation. As I discussed the challenge with other Toaster-related product vendors, the concept expanded. These companies were volunteering prizes!

The tally of goodies finally settled at one each of the following items to the winner:

- Taming The Wave: Exploring LightWave 3D donated by Mach Universe/Gun For Hire
- Undescribed "Cool Stuff" donated by NewTek, Inc.
- Broadcast Fonts 3D Professional Pack donated by Unili Graphics
- ProFills Volumes 1 & 2 donated by JEK Graphics
- MotionMan donated by Anti Gravity Workshop
- VideoGraphix Today (formerly Toast & Coffee) one-year subscription donated by VideoGraphix

So, the next question is: Who won? I'm pleased to award all of these fine products to (Ta-dah!) Tim Hoffman of Freestyle Graphics & Video in Getzville, NY. An image from his winning entry is shown in Figure 1.

Some description of Tim's animation is in order because the still just doesn't do it justice. He managed to create the most realistic falling water I've ever seen come out of LightWave, including the sparkle of sunlight on the irregular water surface. I'll let Tim explain his technique:

"The first step was to make a row of disks in Modeler, connecting them together with the Skin function. Then I stretched each section of the cylinder to simulate gravity's effect on the water. I then created a basic scribbly pattern in DPaint, processed in

ToasterPaint with some transparency and rub-thru methods, and reflection mapped it in planar mode on the Y Axis to the *inside* (flipped polygons) of the cylinder. The Surfaces panel was put to the test with almost every button doing something, but the real trick was getting what I felt to be the most realistic effect—the shimmer of sunlight on the water. This was created with a Fractal Bump texture on the Y Axis. The end result is pretty convincing," he says.

Indeed it is, Tim. While I dare say the surrounding environment could use a bit of work, the point was to Tame The Waterfall and you have certainly done that!

I also want to thank all of you who put in the time and effort to enter my impromptu contest. All of the entries had unique twists and there was definitely promise in each of them. Keep up the great work!

Now, let's move on to reveal various little tricks I've discovered recently that you may find useful.

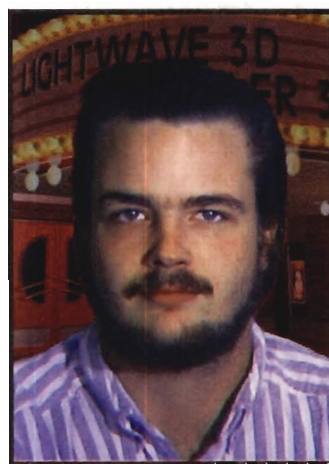
Writing On Bumpy Surfaces

A recent project required a screen containing text that appeared to be written with lipstick. This isn't complicated in itself, but how do you give it a convincing look? For the background, I used a large polygon to fill the entire camera view, and diffusion mapped it using the "CoarseVinyl" brush texture from *ProFills Volume 1* with World Coordinates turned on. Using diffusion mapping instead of bump mapping reduces rendering time quite a bit. Using world coordinates makes the lettering problem simple, as I'll explain in a moment. To finish my background, I specified a soft-pink surface color to make it a bit more feminine-looking.

The lipstick writing was the next problem. I really wasn't looking forward to building a "Lipstick" font, so I went browsing through my collection of 3D fonts. One of Unili's *Broadcast Fonts* is a typestyle called "Tear Sheet" that fit the bill nicely. It even had rough beginning and ending strokes on the letters. I loaded the letters I needed into Modeler and built my text, then clipped out the extruded parts, leaving only the faces.

The next step was to place the text slightly in front of the backdrop to make it appear to be *on* the surface. Time to define my text surface. After choosing a suitable shade of red for the lipstick, I was left with nice red text on my mildly-bumpy soft pink backdrop. The only remaining problem was that the letters didn't seem to be written on the surface. Here's how I solved it:

By David Hopkins



PROFESSIONAL TOASTER FONTS

"Quite simply, these are the highest-quality, third-party, single-color fonts yet available for the Toaster."

— Brent Malnack,
AV Video

DECORATIVE 1 Sizes: 24,36,54,72,80 **\$89.95**

Misty
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

Castle
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

HEAVYFACE
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

Western
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

Bristle
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

FOREIGN 1 Sizes: 24,32,36,48,54 **\$89.95**

Albanian, French, German, Hawaiian, Italian, Portuguese, Spanish & Swedish

FOREIGN NEWS
ABCDEFGHIJKLMNOPQRSTUVWXYZAAAAAA
EEEEIIIIINNOOOOUUUUYBCE0123456789...:!"'""[]@#%&*()-/+<>=

FOREIGN NEWS
ABCDEFGHIJKLMNOPQRSTUVWXYZAAAAAA
EEEEIIIIINNOOOOUUUUYBCE0123456789...:!"'""[]@#%&*()-/+<>=

FOREIGN 2 Sizes: 24,32,36,48,54 **\$129.95**

Vietnamese

VIET THIN
AAAAEEEOOOIUU YAAAEEEOOOIUU YAAAEEEOOOIUU Y
AAAAEEEOOOIUU YAAAEEEOOOIUU YDAAEEOU
ABCDEFGHIJKLMNPOQRSTUVWXYZ
aaaaeeoouuu yaaaeeoouuu yaaaeeoouuu yaaaeeoouuu y
aaaaeeoouuu ydaaeouu abcdefghijklmnopqrstuvwxyz
0123456789!#\$%&*()-/+<=?@/

VIET NEWS
AAAAEEEOOOIUU YAAAEEEOOOIUU YAAAEEEOOOIUU Y
AAAAEEEOOOIUU YAAAEEEOOOIUU YDAAEEOU
ABCDEFGHIJKLMNPOQRSTUVWXYZ
aaaaeeoouuu yaaaeeoouuu yaaaeeoouuu yaaaeeoouuu y
aaaaeeoouuu ydaaeouu abcdefghijklmnopqrstuvwxyz
0123456789!#\$%&*()-/+<=?@/

FOREIGN 3 Sizes: 24,36,54,72,80 **\$89.95**

Albanian, French, German, Hawaiian, Italian, Portuguese, Spanish & Swedish

FOREIGN HEAVYFACE
ABCDEFGHIJKLMNOPQRSTUVWXYZAAAAAA
EEEEIIIIINNOOOOUUUUYBCE0123456789...:!"'""[]@#%&*()-/+<>=

Foreign Bristle
ABCDEFGHIJKLMNOPQRSTUVWXYZAAAAAA
EEEEIIIIINNOOOOUUUUYBCE0123456789...:!"'""[]@#%&*()-/+<>=

DECORATIVE 2 Sizes: 24,36,54,72,80 **\$89.95**

BOLECH
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

Elegant
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

CREEPY
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

FUTURE
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

SERIF 1 Sizes: 14,18,24,36,54 **\$89.95**

BENJI
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

BENJI BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

QUADRA
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

QUADRA BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

ITALIAN
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

ITALIAN BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

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SERIF 2 Sizes: 24,36,54,72,80 **\$89.95**

SUPER BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

AMERICA
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

AMERICA BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

BOOK
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

BOOK BOLD
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 0123456789
...:!"'""[]@#%&*()-/+<>=

Professional ToasterFonts™ were created specifically for use with the Video Toaster.®

Our fonts are developed by the author of many of NewTek's existing fonts.

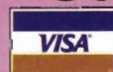
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In the text surface I placed the same diffusion map as that used for the backdrop itself. After tweaking the Specularity and Glossiness settings to give it more of a shine, the lipstick text looked as though it had actually been *written* on the bumpy surface. The key to this quick and dirty method is that the diffusion maps were identical, *and* they were both set to World Coordinates, meaning the bumps would line up. In your own work, try using bump mapping instead of diffusion mapping. Simply use the same bump map image and it'll work just fine. See how many different ways you can use this effect.

Quick 3D Text Construction

We've all had to do it: building text out of 3D characters contained in individual object files. It's a tedious job at best, but there is a fairly quick way to do it. Try this on your own machine to get the full idea. We'll build the word "Toaster" using LightWave's Common font.

Go into Modeler and use New to clear memory if necessary. Make sure that you are in layer 1, then click Load from the Disk menu. Locate your Common font drawer and load an uppercase T. Press 2 on your keyboard to move to layer 2. Load the lowercase o. Press 3 on your keyboard. Load the lowercase a. Press 4 and load the s object. Press 5 and load the t. Press 6 and load the e. Finally, press 7 and load the r. You now have each letter present in a different layer.

Press the 2 key to bring layer 2 to the front. Press Alt-1 to place layer 1 in the background. You should see both the T and the o on top of each other, the T in black and the o in white. Press the a key to fill the views. Place your pointer in the upper left view

(labeled BACK), then press the right arrow key a few times to scroll slightly to the right. Select Move from the Modify menu and move the o to the right of the T, making sure that you only move the letter on the X axis. The coordinate window in the lower left corner of the screen should not show any numbers for Z, and



Figure 1: Tim Hoffman's contest-winning waterfall.

the Y value should remain at 0. This assures that the baselines of the letters stay lined up.

Once you have the o positioned correctly, press 3 to make layer 3 the foreground, and place layers 1 and 2 in the background by pressing Alt-1 and then Shift-Alt-2. If you need to, scroll the view over more using the right arrow key and then use Move to position the letter a. Then bring layer 4 to the front and set layers 1, 2, and 3 to the background. Move the s into position. Repeat this with each layer until you have the letters positioned the way you

want. When finished, hold down the Shift key and activate all of the layers by clicking on each button in the top row of layer buttons at the top right of the screen. This will put all of the layers in foreground. Press a on your keyboard to fit the entire word in your views. If you are happy with the letter spacing and are finished building text, just save the object as usual.

If you need to add more letters, click on Cut and then Paste. The entire word is now sitting in layer 1, ready to be saved. Modeler always pastes to the lowest selected foreground layer number, so the remaining seven layers are empty now. Go to layer 2 and load the next letter, layer 3 and the next, and so on. You'll find that using this technique becomes second nature very quickly and saves lots of time.

Oh, Those Miserable Tiny Hard Drives

I discovered this little trick while working on a project that incorporates 12 live-action video clips in an animation. If you've ever tried to grab a long sequence of video frames, you know that they eat up a pretty sizable amount of hard drive space. If LightWave could deal with JPEG images, life would be a lot easier—but it doesn't. What's the next best solution? Make sure all your grabs are saved and/or converted to IFF24 and get as many as you feel you safely can with your available hard drive space. Next, import the images into Art Department Pro, ImageFX or a comparable program and scale them down.

I've found that almost any video image can survive compression from 752x480 down to 640x400, and many can go much smaller than that without a

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real noticeable loss of quality. You'll gain advantages not only in the amount of hard disk space freed up, but also in the increased number of images you can have in memory. Make sure to test a couple of frames before you do any sort of batch processing, though, because you can't enlarge an image without losing quality very quickly. By that I mean that image-mapped objects in your scene should not be so close to the "camera" that the rendered image on the object's surface is larger (in pixels) than its actual size.

Those Darned Directory Defaults

When you click on LightWave's Load Object, the resulting file requester displays the Objects drawer in your Toaster directory. How would you like to be able to set the the program's default objects directory to some other part of your hard disk? You can change that and a number of other default directories and settings by editing the LW-Config file located in the 3D drawer. It's just an ASCII text file with explanations included, so you can easily alter it using your favorite word processor or with Ed, the AmigaDOS text editor. Make sure that when you re-save it you specify ASCII or text format rather than the word processor's formatted file type. You can even tell LightWave to stop telling you that certain options will greatly increase rendering time just by setting the Expert Mode!

An Illuminating Subject

Did you know that real-world light is rarely "true white"? More typically it's yellowish, pinkish or bluish. You can improve a scene's appearance by setting lights to a very pale cream color. I usually

set my main light's color to about 255 red, 230 green and 220 blue. Also, try experimenting with ambient light. Some people claim that they almost always turn Ambient Intensity all the way off and then use lots of local lights to get exactly the look they want. It may sound strange, but it provides a very different look!

This should provide you with more than enough ideas to keep you busy until the next issue. If you have any interesting tidbits of information, products you want to hear more about, or just want to say hello and show me what you're doing with the information I pass along each issue, please write! Hope to hear from you soon! Contact me at:



Mach Universe
3019 Pico Blvd.
Santa Monica, CA 90405
Attn: David Hopkins

Contact Information:

Art Department Professional
ASDG
925 Stewart Street
Madison, WI 53713
(608) 273-6585

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Unili Graphics
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Pittsburg, CA 94565
(510) 439-1580

ImageFX
GVP, Inc.
600 Clark Ave.
King of Prussia, PA 19406
(215) 337-8770

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AMI-BACK TOOLS

The most powerful set of disk utilities available to keep your disk drives performing flawlessly. Time is money, and Ami-Back Tools will save you time by keeping your drives in top operating condition—and by fixing the problems that occur when disaster strikes. Whether optimizing disks or recovering lost files, Ami-Back Tools makes the job a snap.

TAPEWORM-FS

new!

The latest product from Moonlighter—TapeWorm-FS is a filesystem for tape drives. It lets any SCSI tape drive act like an AmigaDOS volume: You can get directories, add and copy files, etc. A TapeWorm-FS volume is ideal for storing large animation sequences and framestores.

SCSI tape and DAT drives are also available. Call for information.

Moonlighter Software Development, Inc. 3208-C E. Colonial Drive, Ste 204, Orlando, FL 32803 Ph: 407-384-9484 Fax: 407-384-9391

NAB REPORT

The National Association
of Broadcasters (NAB)

Show, held in Las Vegas, NV, April 19-

22, presented a unique opportunity to

get a glimpse of the future and see

today's latest product releases. A

record-breaking four-day attendance

of over 60,000 people walked through

the main floor, the multimedia room,

the NewTek booth and the Video

Toaster User Pavilion.



On Sunday, April 18, before the show officially opened, NewTek announced the new Toaster 4000 at a gala event in Caesar's Palace. Nearly 1,000 Toaster enthusiasts, dealers, and press packed into a ballroom to see the future of personal video production.

NewTek leaders Tim Jenison and Paul Montgomery were on hand, as was Commodore President James Dionne. Dionne's presence was especially well received, and put to rest any persistent rumors about NewTek and Commodore being at odds. Dionne even joked at one point that he sees his job as supplying parts for the Video Toaster! Commodore and NewTek are also working on some joint marketing ideas.

NewTek also debuted a preliminary version of their upcoming Toaster 4000 promo-

tional tape, tentatively titled *Beyond Revolution*. The video features narrator Ken Nordine (who also did the voice-over on the original *Revolution*), as well as guest appearances by Penn & Teller's Penn Jillette, and *Star Trek: The Next Generation*'s Wil Wheaton.

Wil actually has another major NewTek connection—he's an employee! Wil attended NewTek's Christmas party last year, and one thing led to another. Wil has been beta testing the Toaster 4000, and worked at NewTek's NAB booth. In fact, at this writing, Wil is actually packing up and moving to Topeka—the ultimate loyalty test.

NewTek demonstrated the Toaster 4000 at its brand new, completely redesigned booth. Kiki Stockhammer, NewTek's Mistress of Ceremonies, outdid herself with a presentation even more involved and technical than it's been in the past. Other NewTek personnel were on hand as characters like Dr. Tech Support and The King, showing footage from a (currently) fictitious "Elvis Channel."

The Video Toaster User Pavilion

There was also a tremendous amount of excitement in the Video Toaster User Pavilion. There was a large demo area in the center of the pavilion, where VTU columnist Lee Stranahan demonstrated the Toaster 4000 in a makeshift personal video production studio. Dozens of Toaster-related developers had booth displays, and showed the strength and variety of third-party support for the Toaster.

The Toaster sequencer market has heated up. Byrd's Eye Software's well-received ToasterVision now has competition from two new products. The Deli, from Personal Video Wizards, is aimed at corporate presenters and photographers who use a large number of frames in presentations. Byrd's Eye, meanwhile, has a new product called ToasterFX, which allows integration of GVP's powerful Image FX program into a Toaster environment. ToasterFX lets the user load and save frames, and provides direct output of ImageFX graphics to the Toaster's buffer. ASDG also showed a completely rewritten version of TRexx Professional, with features such as effects creation and sequencing.

Toaster audio was represented, too. Blue Ribbon Soundworks demonstrated their complete line of powerful audio products, including the One-Stop Music Shop—a powerful music synthesizer on a card—and their Bars&Pipes Sequencer.

Toaster training was available from a number of sources. Alpha Video, one of the top Toaster dealers in the country, offered on-site training, as well as training videotapes by Marty Haroldson and LightWave tapes by VTU columnist and expert 3D animator John Gross. Desktop Images (formerly Rave Video) displayed their complete collection of Toaster training tapes featuring Lee Stranahan, and announced their plans to ship Toaster 4000 videotapes approximately at the same release time as NewTek's Toaster 4000. Both Desktop Image's and Alpha's tapes effectively show how professional Toaster-



produced video can be.

LightWave users also got a chance to see Euclid's Object Grabber. This \$6,000 box is a complete solution for those needing accurate objects without the labor-intensive modeling work. While the technology may be complicated, the operation is pretty straightforward—put your object in the box, press a few buttons on the software and away you go.

Axiom Software announced its Pixel 3D Professional is headed for another big upgrade with support for the Amiga 4000, as well as the ability to load Postscript fonts or EPS images. The latter features will prove very handy, as many logos already exist in EPS format. Axiom also showed Anim Workshop, and dropped hints about a new product called WaveMaker (which should be available sometime this summer). WaveMaker promises to make the process of creating complex flying logos as easy as pressing a few buttons.

In another Pavilion booth, Unili Graphics showed their fine collection of 3D fonts and Wave Writer software, which makes 3D text animation with the Toaster a bit easier. Realistic textures are important, of course, and Texture City showed their CD ROM collection. Texture City's images look great, and one nice feature about their collection is the images come in a number of different formats—which is handy if you use a Macintosh or PC for graphics. The folks from Y/C Plus demonstrated to visitors the improvement in image quality when their S-Video output board is used.

And More!

There was also action outside the VTU Pavilion. Digital Processing Systems (DPS), makers of the under-\$1,000 Personal Time Base Corrector that fits inside the Toaster, released the Personal TBC IV. DPS' TBC IV has new features—like high bandwidth, a super black generator and a "film mode"—and costs under \$1,000.

But that wasn't the only DPS product to make Toaster owners drool. The new Personal Animation Controller is an animation hard disk recorder that allows animation playback straight from the hard disk at 60 fields per second, and the quality is *impressive*.

Innovation Technology's new release, called Montage, was also making waves. Montage is a unique 24-bit graphics and titling program that works with the Toaster.

Until Next Time

With record-breaking crowds, a Toaster 4000, new product releases and more, the 1993 NAB show was a must see. If you didn't attend this year, start making plans now to attend the 1994 show. From serious Toaster users to video hobbyists, there's something for everyone.

VTU

VideoToaster 4000 Toaster

CG

By James Hebert

Editor's Note: This preview of the new ToasterCG program was written before the software was finalized. Some features described here may change slightly in appearance and/or operation in the final version.



ToasterCG for the Video Toaster 4000 is not the same character generator you know from previous releases of the Video Toaster. The limitations of rigidly-fixed line placement, no mixing of text size and color, no support for graphics such as brushes—they're all gone. New features have been added with greater friendliness and wider flexibility. The new ToasterCG is a potent and worthy tool for character generation.

Background

Despite its impressive display qualities, the original ToasterCG (1.0) was like a raging bull locked in a pen. The program was powerful and awesome—the broadcast-worthiness of its 35-nanosecond-resolution character generation was undeniable—yet it remained bound by certain interface restrictions that restrained user creativity. It was something that users tended to feel strongly about, whether they loved or hated it.

Video Toaster 2.0 gave ToasterCG the ability to render its text over an image loaded into ToasterPaint. This "shared image buffer" could contain either Framestores or RGB images, and the two-monitor display mode option allowed users to overlay the CG interface on top of the rendered image. Thus it's much easier to line up text over a graphic background. This addition increased ToasterCG's

ease-of-use tenfold.

With ToasterCG 4000, however, NewTek programmer Steve Hartford let the bull out of the pen.

The All-New ToasterCG

ToasterCG has been rewritten from the ground up to incorporate NewTek's new ideas and new approach to the Toaster. Like the Video Toaster 4000 itself, it may appear to be "just an upgrade" to the experienced user, but under the hood this is a new product. You'll soon see why.

Rather than dwell on comparisons between "old ToasterCG" and "new ToasterCG," let me instead review the new version on its own merits, citing its features as they relate to day-to-day character generation. Users who are familiar with the older ToasterCG will see the differences as they are discussed.

(Ok, if you're in a real hurry to get to the new features, here's a quick list: a point-and-click mouse-driven interface; resizable outline font support; load and place 24-bit brushes; unlimited text placement; mix and match text colors and sizes within a line; definable text/outline/shadow transparency [alpha channel]; a single palette for *all* color selection; and multiple font directories.)

Controls

"User friendly" is a phrase that many software developers like to apply to their products. "User-hostile" is the phrase that software purchasers coined in response to the release of some such products. ToasterCG lands feet-first in the genuine user-friendly category. Old hands will take to it immediately, and newcomers will pick it up in minutes.

ToasterCG groups its controls on a menu at the top of the screen. The menu contains a prompt bar, a font selector pop-up, a page selector, a Switcher button, and 15 buttons that give instant access to most character-generation functions. You can use the mouse to

reposition the entire menu bar vertically on the screen—so you can work anywhere on the page without hindrance or hide the menu altogether.

The 10 keyboard function keys select the 10 most-used CG operations—those pertaining to shadows, outlines, justification and rendering. Other functions, such as loading additional fonts, selecting page types and palette colors, or adding and removing fonts, are delegated to mouse-activated buttons. The Shift and Alt keys, which once selected alternate functions, are no longer used. Since more functions are available on-screen, and fewer require sidetrips into sub-menus, you'll find yourself editing text attributes quickly and easily.

A Quick Overview

The process of creating graphics within ToasterCG can be compressed to a few basic steps:

- Select the page type.
- Enter and position text.
- Add and position graphics.
- Render the image.
- Save the file for later use.

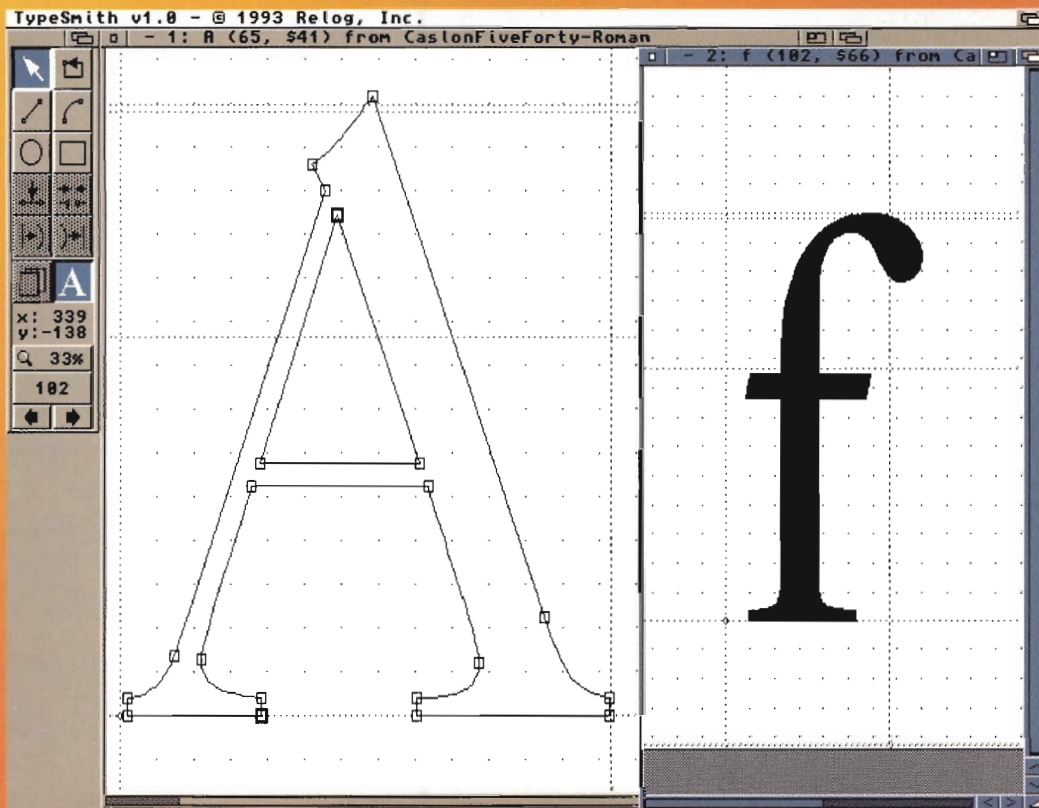
What once required a rocket scientist has been made simple.

Selecting Page Types

Before you begin entering text, you need to choose a page type. ToasterCG wants to know, "How should I display this page?". The type of page you choose provides this information.

There are four ways to display text pages: as a vertical scroll (like the credits at the end of a production), as a crawl (news and updates sliding across the bottom of the screen), as a key (a reporter's name and station ID flashed on the bottom of the screen) or as a solid image (a scorecard or player stats shown during a sporting event). By selecting a page type, you tell ToasterCG how to render and display this page

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Font Formats

- Open and save PostScript Type 1, Compugraphic Intellifont and Soft-Logik format fonts. Export PostScript Type 3 fonts, and Professional Page files. Convert between formats.
- Import IFF DR2D structured drawings and paste into a character. Export characters as IFF DR2D to copy characters to a drawing or publishing program.
- Import kerning pairs from an AFM file into a font.
- Import IFF ILBM pictures, subscribe to HotLinked pictures or import an Amiga bitmap font as a template (requires AmigaDOS 2.0+).

Drawing Features

- Powerful Line, Curve, Box and Ellipse tools.
- All characters are fully editable as paths, including the ability to add, delete, and join points.
- Convert lines to curves, and curves to lines.
- Edit the coordinates of any point.

Character Path Manipulation

- Snap points and paths to the definable grid.
- Skew, rotate, scale and flip character paths.
- Cut, copy and paste character paths.
- Clockwise / Counterclockwise information.
- Change the direction of a path at any time.

Font Definitions

- Set Intellifont options for Compugraphic fonts.
- Define proportional and monospaced fonts.
- Create composite characters.
- Set character widths numerically or visually.
- Kern any character pair.

ARexx

- 70 commands! (Requires ARexx.)
- Use ARexx to perform repetitive operations.
- Create your own ARexx scripts.

Interface

- AmigaDOS 2 & 3 style interface.
- All preferences can be set and saved internally.
- Choose English or French requesters and menus.
- Workbench 3 compatible. Amiga AGA compatible.
- Open multiple character windows for the same font.
- Undo and Redo.
- Coordinate display.
- Print character previews to Preferences printers.
- Show character fills.
- Optional guides and snap-to-grid.

when you need it for a production. Once this is done, you can begin editing text.

If you change your mind about a page type, ToasterCG attempts to maintain the integrity of the items on-screen if you should select a different one. Therefore, if you create a Key page, then later decide that it should have been a Framestore page, you can simply change it—without clearing the page. ToasterCG keeps the text and formatting as close to the original as possible. Of course, if you change from a 10-page long Scroll page to a Framestore page, you can count on losing something.

As a side note, there are 100 pages online in ToasterCG whenever it is active. This is known as a *book*, which is the file where page data is stored. More on this later.

Text Manipulation

ToasterCG supports regular ToasterFonts, Color

same goes for brushes. And if you're wondering how brushes fit into this equation, read on.

Add and Position Graphics

ToasterCG accepts 24-bit IFF brushes and images, as well as Framestores. Brushes can be a few pixels in size all the way up to the full dimensions of the screen.

The Load Brush button accesses a standard file requester for loading brushes, just like loading fonts. Each loaded brush's name is displayed in the font selector—the pop-up menu at the top of the screen that contains a list of the available fonts and brushes for the current book.

To place a loaded brush, first select it from the pop-up font selector. Move the mouse anywhere on-screen and click once. A square bounding box, outlining the shape of the brush, appears. Now you can drag it into position. While it is still selected, enter the palette menu and assign it transparency values. A graphic element

option instantly drops all text to the bottom third of the screen.

Render the Image

Like its predecessors, ToasterCG 4000 allows you to render the current line or the entire page to the preview buffer for Key and Framestore pages. The Take button switches the preview to the program output.

For Scroll and Crawl pages, the Take button sends the page directly to program. The same display options for Scroll and Crawl pages apply here: five scroll speeds, four crawl speeds, and click the right mouse button to interrupt the running display.

File Storage

You have two options for saving ToasterCG work (depending on the intended use for these pages). You can save individual rendered pages as distinct image files called buffer pages for fast recall, or you can save the page data (instructs the Toaster how to render and display the page) as part of a 100-page book.

To save the entire book of page data, you exit ToasterCG, go to Toaster

Setup and save a project file. The book data is saved within the project file, and can be loaded separately from the project at any time thereafter. While the pages are slower to generate, this method makes for more efficient use of disk storage.

To save a specific page as a buffer page (faster, but uses more disk space), while on that screen select the Buffer Page button. ToasterCG renders the



The new Toaster CG menu controls land feet-first in the genuine user-friendly category—good for experienced and novice users alike.

ToasterFonts and PostScript fonts. The two types of ToasterFonts are standard bitmapped fonts, meaning they are color images of fonts, in fixed sizes. The

such as a brush can have shadow and outline characteristics, which can have any degree of transparency as well. Further, using the palette color button for Text Face, you can alter the transparency of the brush itself!

Toaster CG for Video

number next to the font name (e.g. Gaelic.50) indicates its height. These fonts are available only in the sizes listed and they cannot be resized.

PostScript fonts are another story. These fonts consist of mathematical formulas describing each character's outline. Describing letters in a formula ensures that the text looks perfect reproduced at any size. With PostScript-font support in ToasterCG and in LightWave Modeler, the Video Toaster's graphics capabilities grow from unlimited to—well, you get the picture. After selecting a font, click the mouse anywhere on-screen and begin typing. The screen location where you clicked becomes the insert point for text. There are no line-size or line-location limitations.

ToasterCG treats text and graphics in the same way that a paint program treats brushes or LightWave treats objects—each is a distinct, discrete element. In other words, at any time you can select a letter, a word, a phrase or the entire page with just the mouse, and then change any attribute setting. Hold the Shift key and you can multi-select individual letters in a word (adjacent or not), every third word in a phrase, or a few words and a graphic element.

Fonts have three attributes: face color, outline color and shadow color. Each of these attributes has another option—variable transparency. This is a fourth channel, or alpha channel. The Palette menu lets you edit color and transparency (controlled by a slider). From a single palette menu, you can alter any of these settings. (When editing Framestore Pages, the Palette menu also contains background controls: solid color, two-color ramp or ToasterPaint image.)

Positioning text is simple. Highlight the text you wish to move by dragging across it or double-clicking it, then drag it to its new location. The

Toaster 4000 represents

a giant leap forward in

character generation.

A built-in graphic element, the graphic separator, has been renamed the "graphic box" because you can resize it to any dimension—tall, wide, you name it. Like text, it accepts transparency, shadow, and outline settings. As a test, I created a graphic box, set its transparency level to about 75 (on a scale of 0 to 255) and its shadow and outline to 100. Rendered over a Framestore-page background, it looked just like a glass box with a see-through shadow—pretty darn good for just a few clicks of the mouse.

Once loaded, a brush is part of the ToasterCG book. This means that you can use it repeatedly on a given page, or on any number of pages within the book, without consuming any additional memory. This also means that the brush must remain available—just like ToasterFonts—when you reload this book in the future. I recommend creating a directory just for ToasterCG brushes so you'll always have the elements you need on hand. Since Toaster fonts are stored in the ToasterFonts directory, I named my brush directory ToasterBrushes. You might do the same, or perhaps use the Images directory that ToasterPaint and LightWave 3D share. (In case you do misplace a brush or font file, upon loading the book, ToasterCG asks if you wish to replace the missing element. If you respond affirmatively, you will be presented with a file requester for locating the missing item.)

One final note on positioning text. Since the "lower third" is a common graphic element in character generation used to flash on-screen personalities' names, this handy feature has been built into ToasterCG 4000. ToasterCG's "lower one-third"

page and saves it to disk. Then go to Toaster Setup to save the book as well. After all, the book contains the information telling the Toaster that certain pages have been buffered and can be loaded instantly, rather than rendered prior to display.

As a general rule, when in doubt, go to Toaster Setup and save the project. If you've ever spent a great deal of time working on a job, you'll sleep better having done this.

No Memory Conflicts

As a writer, I was concerned that my fingers' "function key memory" would interfere with my ability to learn the new ToasterCG. After all, it's difficult to give up something that familiar. Surprisingly, I've suffered none of the "keyboard withdrawal" I expected. With the vast majority of controls always visible on-screen, my attention rarely leaves the screen or the task at hand. I find myself thinking more creatively about how I want to the final image to look, rather than pausing to wonder which key I need to press next.

ToasterCG for Video Toaster 4000 represents a giant leap forward in character generation. A faster, more responsive interface makes it much easier to understand and use. Genuinely more powerful features such as paint-like handling of graphic brushes, sizable fonts and mouse-driven controls prove ToasterCG to be a capable tool for all levels of videography. Toaster owners who have day-to-day needs for character generation should upgrade to Video Toaster 4000 without hesitation.

VTU



¿Pan tostado *a la española*?

Many of you have tasted the Video Toaster, *English style*. Now, we at Centennial have added a Latin flavor to the Toaster by incorporating a Spanish manual, International fonts, and a Spanish keyboard. (Our Spanish Toaster can also type in Portuguese.)

When **Newtek** tasted our Spanish Toast, they liked it so much that they granted us official jurisdiction to sell our modified recipe.

Centennial Video Systems is proud to announce that we have been named the Authorized Distributor for

the Video Toaster for all of Latin America, including Puerto Rico and all of the Caribbean. We are also authorized to sell our Spanish Toaster Workstation to Spanish and Portuguese speaking users in the United States.

Based on this appointment, Centennial is in the process of naming Authorized Dealers in the Latin American market. If you are an established dealer in this area and are interested in distributing the most revolutionary product anyone has ever tasted, call us today!



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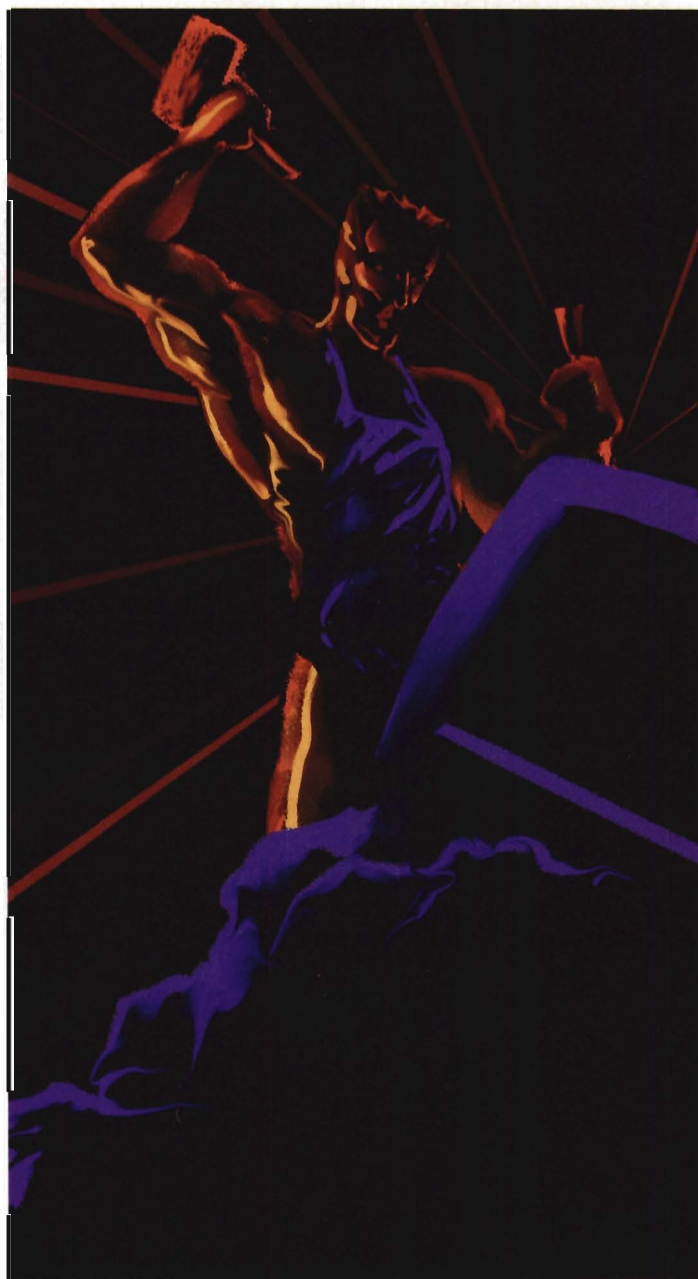
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How to Build a Desktop Video System

by Dan Nessel
and
Ted Barszewski



Desktop Video (DTV) is hot! Everyday it seems another new product is released that further blurs the boundary between network TV and DTV productions. With technology racing and the DTV market constantly expanding, when and how do you build a desktop video system that best suits your needs and budget? If you're ready to start personal video production, follow along as we examine strategies to make your DTV buying decisions better and easier.

Evaluate Your Needs

Before you look at or buy any equipment, evaluate your needs. It's normal to start looking at equipment and be overcome by a case of the "wants" for cool-looking high-tech goodies, and forget about the basic

"must-haves." But instead, sit down and list what you need your DTV system to do.

What is the focus of your business (or hobby)—3D animations, industrial tapes, promotional tapes, wedding videos, music videos or legal videos (to name just a few)? Do you need broadcast, industrial, or consumer-quality output? While most videographers like to dabble in a few different areas, finding your focus helps prioritize the equipment you need. Equipment like single-frame controllers and gigabyte hard drives are important if you are doing 3D animations, but not for wedding videos. A wedding videographer might want a single frame controller, but if it is not needed to produce wedding videos, it should not be purchased.

Now that you have an equipment shopping list, you might find yourself in the unfortunate but common position of needing more than you can afford. There are two options: expand your budget or shorten your list of needed equipment. The first option often creates a Catch-22 situation. To expand your budget, you must

purchase equipment to make money, and therefore expand your budget. The second choice is often your only real option. It may be difficult, but we'll help you decide what is necessary for your DTV system.

Make Video Decisions

You have a DTV focus and know what you need from your system; now there are two important video questions to ask. What format to use and what type of video camera to buy?

In the format field you have choices such as VHS, 8mm, S-VHS, Hi-8mm, 3/4 inch, Beta-SP up to the digital D-3. To pick a format, look at your prospective clients. If you are making commercials for broadcast TV, you may need a Betacam format or better. If your clients are consumers and businesses, S-VHS and Hi-8mm (400 lines of resolution) are acceptable standards. As a rule, master tapes are not recorded in VHS or 8mm because the resolution is too low and the generation loss too great. With the price of S-VHS decks dropping, S-VHS provides a great format for

The Toaster System Integrator.

T-Rexx Professional is a highly integrated ARExx script generation environment with powerful tools specifically designed for the NewTek Video Toaster. T-Rexx can also automate the functions of 11 other important products, and, because it is completely user configurable, you can add support for the products of your choice.

Benefits

1. Create sophisticated scripts without any knowledge of ARExx. You simply point and click. T-Rexx even displays your scripts in plain English!

2. All T-Rexx tools are connected together creating a fully integrated system. You need learn only one user interface to master every aspect of T-Rexx Professional.

3. You can quickly and easily manage large quantities of Toaster Framestore images. Convert Framestores to and from RGB (in full color and fidelity) without requiring a Toaster.

4. You can create your own ActionFX and OrganicFX to produce custom results for your demanding clients. Using T-Rexx's special effects processing, dozens of new FX can be created from a single source.

5. You can create and modify Toaster projects creating exactly the configuration which best meets your needs.

6. Develop scripts in a fraction of the time it used to take using T-Rexx's unique Real Time Mode. You can test your scripts as you write them, alerting you to any mistakes instantly.

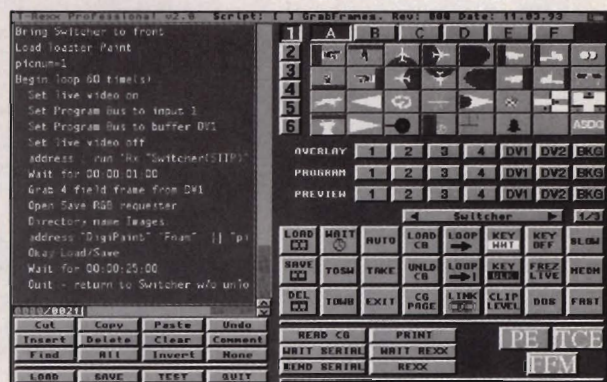
7. Using one consistent, easy-to-learn user interface, you can control any program that is ARExx compatible or any device that can

accept commands via a serial or parallel port. *Your entire studio, not just your Toaster, can be controlled by T-Rexx giving you more time for producing results instead of hunting for solutions.*

Includes support for the following products: AmiLink, Art Department Professional, BCD-2000A, DQ-Taco, MediaPhile, MorphPlus, PC-VCR, Personal SFC II, Personal TBC III, Pixel 3D, SunRize Studio 16 and VISCA.

8. T-Rexx allows you to create interactive or automated multimedia presentations by linking the Video Toaster to other hardware and software products. T-Rexx's ability to be synchronized to events from the GPI, serial port, parallel port, keyboard, ARExx or timer means you've got the widest array of options available for your creative use. T-Rexx can even automate the recording of your finished presentation (including audio) onto video tape or single frame recorders.

9. T-Rexx provides powerful batch processing tools which save you time and disk space. Process images as they're produced automatically, without having to store intermediate results.



10. Your script is shown in plain English on T-Rexx Professional's main screen.



11. Framestores can be converted to/from RGB, previewed and organized using FramestoreFM.

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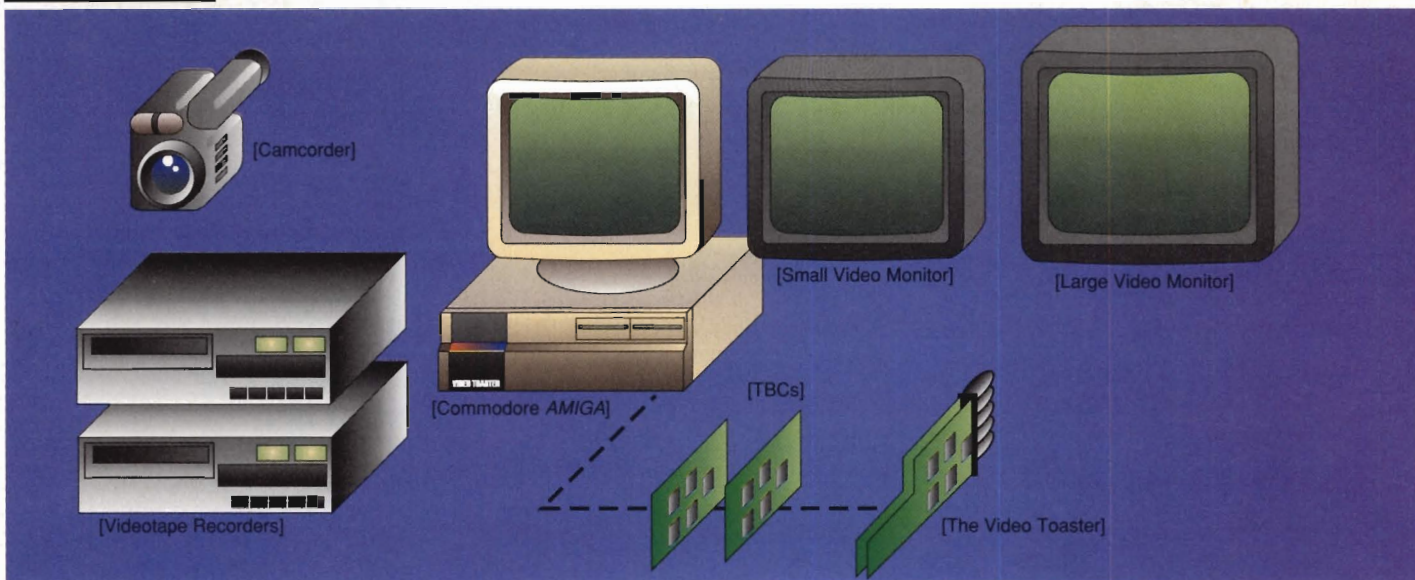
T-Rexx helps you get the most of your system investment because an integrated system is greater than the sum of its parts. **T-Rexx Professional is the Toaster System Integrator!**

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your basic DTV system. Top-of-the-line D-3 looks better than S-VHS, but if your projects will be acceptable on S-VHS, save yourself tens of thousands of dollars and stick with S-VHS.

Next you must decide what type of camera to buy. Again, clients' quality demands dictate your choice. A major factor in a camera's picture quality is the number of chips it has. Cameras range from one chip (consumer) to three chips (professional), with more accurate color detail being the main benefit of the extra chips. On the other hand, three-chip cameras require considerably more light than do one-chip cameras. So, if you are taping in low light or places where you can't control the light, you might be better off with a one- or two-chip camera. If you can control lighting and need broadcast-quality images, you may need to buy a three-chip camera. Sony has introduced their CCD-VX3 three-chip Hi-8 camcorder that provides broadcast quality for around \$3,500 (see Frank Kelly's review, "Sony's CCD-VX3," in the April/May 1993 issue of *Video Toaster User*).

The Basic \$10,000 System

Let's say you have a \$10,000 budget. You thoroughly understand what equipment you need and have chosen a video format. Now it's time to buy equipment. While you should build a system that best meets your individual needs, we'll list the components of a good basic system for under \$10,000. From this skeleton system, modify your purchase choices to best fit your specific needs.

Computer Equipment

Let's start at the heart—NewTek's Video Toaster. You get a four-input switcher, a character generator, 24-bit paint program, 3D animation software and a host of other goodies, all on one board. The Video Toaster is the most powerful and least-debated component of a desktop video system, and can be purchased for around \$2,000 [*Editor's Note: This article was written before the authors received information regarding Toaster 4000. The 4000 may be priced differently than the 2000*]. Of course, to use the Toaster, you need an Amiga computer. An Amiga 2000 equipped with a 25-megahertz 68030 accelerator, five megabytes of RAM, and a 100-megabyte hard drive, plus 1084S monitor is a good starting point and

is available for under \$1,600 at mail-order prices. However, if you're just starting out, it may be advantageous to go to a good retailer and pay a little more for the extra support.

To edit videos with the Toaster, you need a TBC for each channel. We use the Kitchen Sync from Digital Creations. It provides a dual TBC on a board that fits right in your Amiga, and at a list price of \$1,295, it is cost-effective. Other single-channel TBCs are available in both internal and standalone configurations from about \$1,000 and up.

To make your hardware purr, you need powerful software. Programs such as Deluxe Paint IV (Electronic Arts) and ASDG's Art Department

To maximize Toaster performance, you should have three monitors. The 1084S (from your computer equipment purchases) can be your control monitor (for manipulating the Toaster). You also need monitors for the Toaster's two outputs—Program and Preview. Your Preview monitor can be an small, inexpensive monitor—even black-and-white—you need not spend more than \$300, and can often get away with far less. If you plan to upgrade the Toaster's output to S-Video by adding Y/C Plus (Smith Audio Visual), your program monitor should have S-Video inputs and display at least 400 lines of resolution. Look to spend about \$500 for a basic high-resolution monitor, which can double as a monitor for your S-

Video decks. Otherwise, you can cut a couple hundred dollars off the price by getting a standard composite color monitor. [*Editor's Note:*

For more low-cost monitor solutions, see "Money-Stretching Toaster Monitor Configuration" by Chris Hanson in the *Toaster Bites* section in this issue.]

In this skeleton DTV system you will only be able to afford a one-chip camera. While there are many choices here, the Sony 101 is a good Hi-8 choice. It's a versatile machine at a reasonable price (\$1,300 street), and provides image stabilization without detail loss, 400 lines of resolution and a compact size.

There you have a basic system for about \$10,000. Of course, you will need to add or subtract to this system as necessary. For example, if you only do 3D animations, instead of a TBC or camera, you need a frame-accurate VCR, a faster computer and more storage. Now the question becomes: How do you find the equipment that is just right for you?

Research the Equipment

It is impossible for us to say precisely which equipment will work best for you. The information we could give may be dated by the time this article is published and would also contain our personal bias. What we will do is provide you with some strategies so you can make informed buying decisions.

The most important weapon in your quest to build your dream DTV system is information. The more you know about each product, the better your chances of finding a product that fits your needs.

Here's the good news—you're holding the first resource for information in your hands! Magazines

"...how do you build a DTV system?"

Professional should be on your must-have list. We use Toaster Toolkit from the Byte Factory to create custom Toaster effects, automate sequences, edit projects and more. However, you should also check out the competition, namely TRexx Professional from ASDG and ToasterVision from Byrd's Eye Software. Finally, Rend24, available as shareware, is a great little utility for batch-converting Toaster images into animations you can play back on your Amiga. Set aside \$500 to \$1,000 for the necessary software.

Video Equipment

In addition to a camcorder, you need at least one VCR for editing (the camcorder functions as the player and the VCR is the recorder). We've had good experiences with the Panasonic AG-1960 S-VHS VCR. It has just been replaced by the AG-1970 [*Editor's Note: See "Emerging Video Technologies" by Tony Gomez in this issue for a review*]. So if you can still find AG-1960s, you should be able to get a good price—under \$1,000 each.

When editing video, for best results use an edit controller, which controls your VCRs more precisely than you can manually. Edit controller sophistication ranges from cuts-only to A/B-roll with time code. The most basic cuts-only system can be purchased for around \$600, but prices rise quickly from there.

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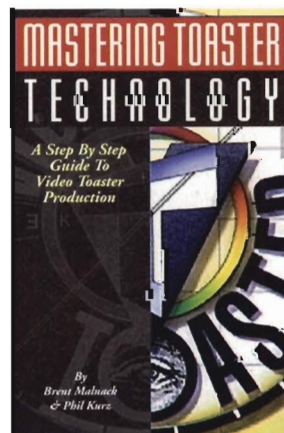
Logo Loader

And Logo Loader, a Toaster
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Colorfonts. Use Logo
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logos that can be typed
directly into Toaster CG.



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Finally, there's a step-by-step guide
to using the NewTek[™] VideoToaster[™]:
Mastering Toaster[™] Technology.

Written by Video Toaster[™] authority
Brent Malnack and AV Video editor Phil
Kurz, Mastering Toaster[™] Technology
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- File translation tips
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- How much to charge for your
services
- And much, much more

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product manager and AV VideoToaster[™]
Production columnist uses daily to
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such as VTU provide information on a wide range of DTV equipment. Some contain reader service cards for requesting free information about products mentioned in the magazine. Take advantage of this service and keep files of the information you receive. Subscribing to magazines that cover desktop video equipment is one of your first steps in building your system.

Bulletin Board Systems (BBSs) are a great source of information. These electronic systems, accessed by modem, provide a forum for users to discuss their trials and tribulations with various DTV equipment. While BBS information on equipment is not always thorough and objective (or even correct!), it is frank and brutally honest. The past few years have seen quick growth in the number of video-oriented BBSs. One such board is the Broadcast BBS, ([414] 789-8771) in Florida, which deals almost exclusively with desktop video. You can also find desktop video information on pay services such as Genie, CompuServe, Portal and BIX.

Finally, attend computer/video shows in your area. You can see products in action, ask questions and collect brochures and literature. One warning: Computer/video shows almost always cause a case of the wants for some non-linear super video vaporware editing machine. Remember, you must find equipment that makes you more productive at a price that you can afford. Closely examine the price vs. performance ratio of each product.

Contact Dealers/Manufacturers

After compiling information on various products, you will undoubtedly have questions. Prepare specific questions on each product, call the manufacturer and

ask away. Remember, you are evaluating the product on two levels: Do I really need the equipment, and does it do what I want it to do? Find out if the product carries a guarantee and if you can see it in action at a store near you.

It is also a good idea to ask if there is a user of the product that you can call. This may sound like a waste of time—of course they will refer you to a satisfied user. Well, that is what we used to think. We once

"...evaluate your needs."

bought a edit controller that did not meet our standards. We returned it along with a long list of problems. A few weeks ago, a person called us to ask about this edit controller. He said our company was named as a satisfied user in the manufacturer's catalog. We told him our problems with the product and he decided not to purchase it. The moral of the story: Call users of the product; it can't hurt and might help.

Catch-22 Revisited

Once you have researched the equipment, seen it in action and had your questions answered, it is time to make your purchases. But suppose you are still in the Catch-22 predicament; you need more than your budget allows.

To downsize down your equipment-needed list, you may have to make a short-term and long-term list. Try to evaluate which equipment you must have to

function at this moment (short-term) and what equipment you will need further on down the road (long-term). If you start by just purchasing the short-term equipment you may be able to generate enough business (cash flow) to eventually buy your long-term equipment. For example, let's say you are going to do weddings and industrial videos. You have the money to buy a one-chip camera but have evaluated that a three-chip camera is necessary for industrial videos.

You could start with a one-chip camera, do weddings and try to make enough money to buy a three-chip camera and produce industrial videos. It may even be possible to work out a deal with your retailer that lets you trade in your one-chip camera toward the purchase of a three-chip when you have the money.

Taking the DTV Plunge

Building a DTV system in a time when new equipment seems to reach the market on a daily basis can be a frightening experience. The thought of your equipment becoming outdated within a year can be very disconcerting. But by carefully evaluating your needs and the equipment on the market, and making informed buying decisions, you can build a DTV system that will satisfy you today and allow you to grow with the industry into tomorrow.

Ted Barszewski and Dan Nessel are partners of Post Video Effect (PVE), a New York City-based desktop video production company.

VTU

Companies Mentioned:

Sony of America

Sony Drive
Park Ridge, NJ 07656
(201) 930-6432

NewTek (Video Toaster)

215 SE 8th St.
Topeka, KS 66603
(800) 765-3406

Digital Creations (Kitchen Sync)

160 Blue Ravine Road
Folsom, CA 95630
(916) 344-4825

Electronic Arts (Deluxe Paint IV)

1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171

ASDG (ADPro and TRexx Pro)

925 Stewart Street
Madison, WI 53713
(608) 273-6585

Byte Factory (Toaster Toolkit)

PO Box 891771
Oklahoma City, OK 73189-1771
(405) 631-BYTE

Byrd's Eye Software (ToasterVision)

9001 Northgate Blvd. #135
Austin, TX 78758
(512) 835-4811

Smith Audio Visual (Y/C Plus)

1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481

Panasonic (AG-1960)

Two Panasonic Way
Secaucus, NJ 07094
1-800-528-8601

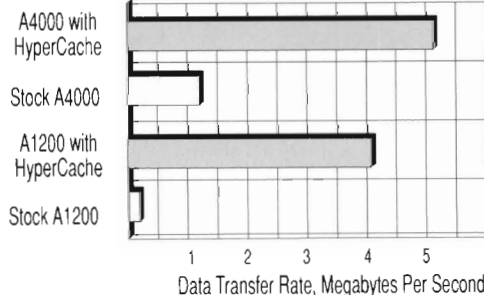


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From Home Video To Home Box Office

By George Avgerakis

Part II Post- Production

Editor's Note: This is the second of an ongoing series of articles about video production.

In our previous episode (*From Home Videos to Home Box Office*, Video Toaster User, October/November 1992), we left the prospective young video professional on the cliff-hanging verge of starting post-production. Getting there, we ventured into new client territory, skirted the perils of poor preparation, smashed the glass of conventional wedding production under the foot of aggressive creativity and dangled a participle or two off the precipice of cinematic grammar.

Now it's time to go where the real action is—the edit room. What you do in this dark berth of photonic discharge literally makes or breaks whatever video project you touch. Great editing can make a criminally negligent production look like Orson Welles returned from the dead to direct it. On the other hand, companies have gone under for failing to log an offline edit properly.

Defining Terms

Like many professionals, video editors use a special language—in this case, with two sub-dialects. One relates to technology, with terms such as “SMPTE Code” and “Edit List,” and the other relates to artistry, using terms like “Dissolve” and “Cutaway”. Both categories refer back to editing’s film-based origins.

For film editors, the technology is rather simple, allowing the editor to concentrate on the primary task of storytelling. In film editing, you physically take sections of film and hang them on little pins in a felt-lined trough called a “bin.” Each filmstrip is identified with a piece of tape bearing hand-written notes.

The first creative step of an edit is to select the best takes of a film and “bin” the cuts in some logical order of presentation. Then the film editor simply tapes each piece together and runs them through a desktop projector. What could be easier? You want to trim a scene by 10 frames? Peel off the tape, cut out 10 frames, tape it back together and watch the result.

Video editing is more difficult than film editing. Videotape is an opaque, magnetic medium. You can’t look at the tape and see pictures. You can’t write scene information on the tape and you wouldn’t want to cut it with scissors. Tape editing requires the editor to do a lot of mathematical and statistical work that is not related to the artistic aspect of storytelling. This work is what I refer to when I write about the technical side of video editing.

The Technical Side

Video editing, like film editing, begins with selecting takes for possible use in the final production, but instead of binning you create a “paper log.” The final log, called an edit decision list (EDL), is a frame-by-frame guide to the finished video. Each selected take is identified by reel number and footage code. If you are working with a sophisticated editing system, your time code is in SMPTE (Society of Motion Picture and Television Engineers) numbers that represent hours, minutes, seconds and frames (example of the highest SMPTE number: 23:59:59:29). Or if you use Sony Hi-8 equipment, you may be able to use their proprietary time code, called RC. Most other home-video systems do not allow you to use time code because they do not have a place to record the code (such as a sepa-

From Home Video To Home Box Office

rate audio track or as a part of the video signal), or they lack the circuitry to write or read the code.

If your system has two audio tracks, you may be able to add SMPTE capability by using a SMPTE code generator to record the code on one of the tracks. You will also need a SMPTE code reader to translate the recorded time code into numbers. Equipped with a generator/reader

combination (some units come with both in one box), you can precisely identify any frame in your video.

Without a frame-accurate time code system, you must identify each scene by some imprecise method based on your VCR's footage counter, which is only an approximate measure of the position of your tape from some zero start point.

Both logging methods are facilitated by adding *remarks* to your list of *best scenes*. Use a sheet of lined notebook paper, and across the top, list the following columns: Reel Number, In-Point (in SMPTE or footage reference) and Remarks. For example, an obligatory wedding scene might get logged like this:

Reel	In-Point	Remarks
7	2:10	Bride putting on veil, mother looks on.
7	2:15	Church exterior. Maybe use for a super title: "Our Wedding."
7	5:22	Organist, playing wedding march; good audio source.

Notice that SMPTE code logging need not identify the actual frame number of the scene. You won't need that kind of precision to find the scene later.

After you have looked at all your footage and listed the best shots, you can put the VCR aside and start planning the look of your video. Here is where artistry first comes into play. You look at the shot list and in your mind try to compose a finished production. The next step is to create the EDL (list of edit instructions to be followed by the on-line editor).

The film editor would, at this point, look at the list of best shots and perhaps glance back to the first frames of the shots hanging in his bin. You don't have a bin, so you'll have to look at the shots in your memory. This is why the "Remarks" column is important.

Lacking good memory, you might want to consider employing an inexpensive still frame recorder to grab the first shot of each scene. You could use an inexpensive black-and-white video printer (can print directly from an input NTSC video signal) such as the Mitsubishi 50V to create a storyboard of still images. Or, you could use the Video Toaster. You could grab a frame, and using ASDG's Art Director Pro or similar software, create reduced-size icons representing each scene. You could use ToasterCG to type remarks over each frame.

Using still frames on paper or in the Amiga gets you pretty close to the initial aspects of non-linear editing like that offered by the high-end Avid and Montage editing systems that let you manipulate video scenes by using icons of the first frame. Using

ToasterPaint's cut and paste functions, you can imitate non-linear techniques by moving each of your scene icons around until they represent the final-edit order.

Lacking a computer, list your edits on paper instead. This is called "paper editing," and its main advantage is the low cost in time and equipment. Simply list each scene on a separate sheet of paper, in final-edit order.

You can show this paper edit, (whether a shot list on paper or a list of pictures on a computer screen) to your client for preliminary approval. Most clients are not sophisticated enough to understand what the notes and pictures mean, but your imaginative explanations can help. It never hurts to keep your client "in the loop." Often you can keep from straying too far from clients' expectations by talking them through the paper edit. It would certainly be more costly to change creative direction after the next step, which requires using editing equipment.

The Next Step: Off-Line or On-Line Editing?

Once you've finished the paper edit you are faced with a critical decision: On-line or off-line editing?

You can proceed to a finished edit, complete with special effects and music (the on-line edit), or you can make a low-cost, cuts-only version of the edit (off-line edit) that can be shown to the client as a preliminary version. Your budget is the main criterion for making this decision.

What does it cost you to make an on-line edit? If you own an editing system, complete with TBCs, edit controller, Video Toaster, etc., it costs a lot less than if paying an edit facility hourly fees. The term on-line refers to the use of computers that control the three or more video decks used for editing. Off-line refers to two-machine, cuts-only editing that can be done with a simple controller or no controller.

Most people do not own on-line editing equipment, although the costs of becoming so equipped is spiralling rapidly downward from the days when you needed at least \$80,000 (my estimate for Nabisco's in-house 3/4" three-machine system in 1982) to buy a most minimal on-line setup. Let's assume you have at least two VCRs (or a VCR and a camcorder) and some method of copying specific scenes from one machine to another—that is, you can do an off-line edit.

Your off-line edit may be acceptable as a final product, if you have sufficiently prepared the client to understand that the production won't be too fancy. Certainly wedding-type videos are often nothing more than off-line edits, sometimes enhanced with graphics, music and a fade or two.

"Now it's time to go where the real action is—the edit room. What you do in this dark berth of photonic discharge literally makes or breaks whatever video project you touch."

Proper Preparation Prevents...

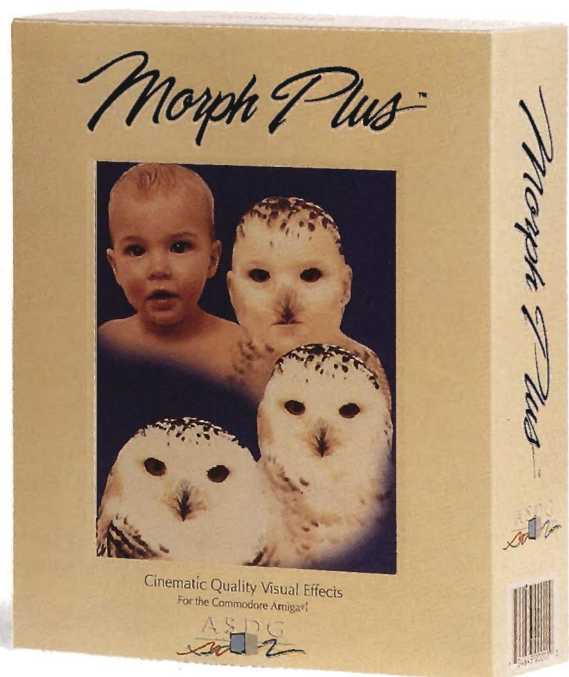
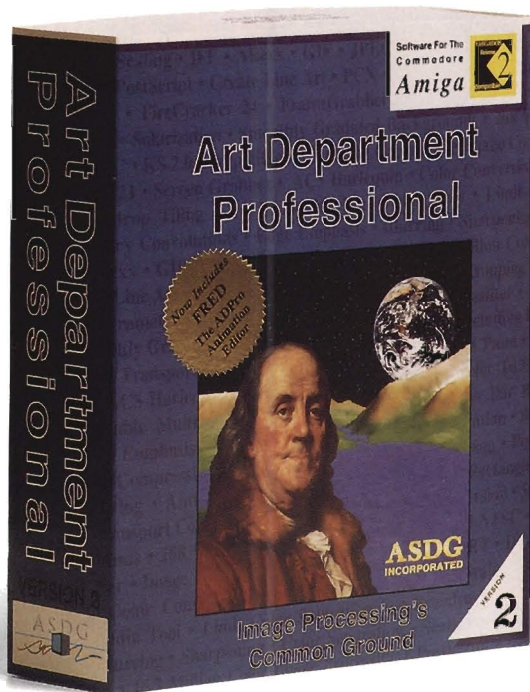
Remember the "6-PS Formula" in *From Home Videos to Home Box Office*, VTU, October/November 1992? (In case you missed it, that's "Proper Planning Prevents Piss-Poor Performance.") In on-line editing, proper preparation can prevent bankruptcy! On-line editing room rates can run from \$150 per hour on the low side to over \$650 per hour in some New York shops equipped with digital effects, character generators and rostrum cameras (camera for shooting titles). It's tough to think creatively when you're paying by the hour—keep your creativity in the off-line editing and paper editing stages. Off-line editing is where you must decide the best shot to use (and then write it down by description and SMPTE code, so you can find it quickly). Here is where you decide where a superimposed title is to go and how the name of the interviewed person is spelled (write that down too, just as it is to appear in the frame, so your editor can look at it and type it into the character generator quickly). And here is where you decide how each scene is going to transition to the next; whether to use a cut, dissolve, wipe or digital effect and how long to make the effect's duration. All of these decisions should be as firmly fixed as you can get them before you walk into an on-line edit.

You can derive the paper edit from your list of selected shots, or from an off-line edit. You will be amazed how much money you can save with a good off-line edit list. The average 10-minute production can easily have 60 to 100 edits. A good on-line editor can perform about 12 edits per hour. Let's say your editor is doing 10 per hour and has 100 edits to make. Plan the edit session for around 10 hours. At

Today, as tools like the Video Toaster enter the market, the difference between off-line and on-line begins to blur. Previously you needed three VTRs to make a dissolve (one to play the scene from which we dissolve, one to play the scene we dissolve to and one to record the dissolve) and a computer to control all the machines. With a Toaster, you can freeze the last frame of Scene A, dissolve it in the Toaster to the VTR playing Scene B and presto! You look like you're on-line.

But let's assume you want to go farther. You've graduated from the wedding video to an industrial project in which the client expects dissolves, superimposed titles, a digital effect and multi-track audio. Now you must go on-line and, assuming you don't own on-line equipment, you'll be renting an editing bay and facing an unpredictable cost: How many hours are required to convert your offline edit to an on-line product?

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If you're thinking about getting an Amiga® special effects or image processing product, here are some facts to consider:

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- American Software And Hardware Distributors and MicroPace Distributors (the two largest Amiga® software distributors in North America) cite ADPro and MorphPlus as the best selling products of their kind.
- ADPro placed third among ALL Amiga® software products on the MicroPace 1992 Top 50 Sellers List.
- The Post Group, one of the largest post production houses in the world, has used ADPro and MorphPlus in the production of special effects for the prime time TV



show Quantum Leap and for major motion pictures.

- Mark Swain, an AmigaWorld reviewer (and animator for Foundation Imaging, the creators of the special effects for Babylon 5), said, "MorphPlus produces the most realistic shape shifting special effects I have ever seen on a desktop."
- David Duberman, Executive Editor of Video Toaster User, said in a comparative review of Amiga®

morphing products, "MorphPlus is the Rolls Royce of Amiga® morphing software... it will pay for itself with one job."

Consider the facts.
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\$250 per hour, that's a \$2,500 edit bill.

Now let's assume you have a sloppy paper edit. You tell the editor where to begin the scene and when he puts the scene on the monitor, it isn't quite right. You search a bit to find the right point. Then you do a preview edit or two until you refine the edit point. Then you decide to dissolve from the last scene into the

present one, so the editor has to re-mount the last scene (assuming the two scenes aren't on the same tape), enter the dissolve start point, enter the dissolve duration and then preview the transition for you once or twice. At this rate, do you think you'll get 10 edits per hour? Try five or six. At five per hour, your edit session costs \$5,000. And you've already quoted a fixed price to your client?

Start properly by making a paper edit that looks like a final on-line EDL. When an on-line editor works, he uses a computer screen to keep track of all the edits and then prints an EDL. You'll save time, money and look more professional if your off-line EDL looks like the editor's screen. Assuming you are using SMPTE code numbers, your EDL should resemble the example in the box below.

In the sample EDL, we have a heading line that notes several categories of information. The first is, "Edit #" and is numbered consecutively in a vertical column. If you insert edits into your edit list later, you may have to renumber the list or use letters for insert-edits (1, 1A, 2, 2A, etc.).

Next is the "Type" of edit required. You may choose V (video only); A (audio only); A/V, (both audio and video, simultaneously); or Split. Split means you are going to delay either the audio or the video. Specify the amount of time that the delay will be. The next columns refer to two videotape play (source) decks—A and B—and a recorder (R).

you must devise another method for identifying scenes. Keep in mind that the footage counter on your VCR is not "locked" to any specific point on the tape. If you use footage counters, start from the head of the tape and never change the number while that tape is in the machine. Then, when you go to edit, you will have to use the same machine to obtain numbers which are even close to those in your list.

The "Remarks" are vitally important. Here is where you tell your editor what you want done and how you want the edit to look. Scene descriptions are optional, but you'll find them handy when, halfway into your edit, you forget what you expected to see at "Reel 9: 08:22:06."

In the sample EDL, there are three edits. Note that some information has been left out, particularly the "Record Out" times. You can labor with calculating the ins and outs, but the on-line computer can figure these very quickly. You may not need the Record numbers at



The author taking time out from his editing tasks to mug for the camera.

Most on-line editors don't need this. Under remarks, there is a notation for a 30-frame fade-in and a reminder of the scene's content. By subtracting the in-point from the out-point, you can calculate the edit duration and fill in the R-Out, but why? In the next edit, the EDL says the edit should begin at the last

"Often you can keep from straying too far from clients' expectations by talking them through the paper edit."

all if your edit is simple. Most good on-line editors can calculate all the record VTR times by Play Machine references. For instance, you should be able to tell on-line editors something like, "The record out time is the A-Duration minus the Delay-Audio Split duration," and

edit's out point. That's simpler.

Edit #2 is trickier. Whenever you order a dissolve or a special-effect transition from one VTR to another, a separate edit is usually made, beginning at the start of the transition. Edit #2 begins with the last frame of VTR-A from Edit #1. The remarks call for a 30-frame dissolve to VTR-B. The VTR-A's Out isn't needed because it's obviously 30 frames after the In. During this edit, we want to superimpose a title over the picture. The title's In-point is noted as a VTR-B reference point and the Out-point indicates a five-second title duration. We could also just indicate the In point, a five-second duration, and let the editor calculate the Out point. In reality, the on-line editor would be entering these numbers differently than we are writing them, but we avoid the time-consuming mathematics by referencing the Play VTR. This is most handy for off-line editing where a computer is not available.

Edit #3 introduces the concept of the split edit. Here we are indicating that Edit #3 begins as a video-only edit for three seconds and 12 frames, and then becomes an audio/video edit. This is called a Audio-Follow-Video Split Edit or Audio-Delayed Split Edit. You might use it where a person is speaking on camera. Before the person is finished speaking, you cut to a scene illustrating what he is speaking about. Then, after he stops speaking, you pick up the audio from the scene you have cut to. Use your imagination and think of interesting variations. For example, the opposite of Audio-Delay Split is Video-Delay Split.

Edit decision list (EDL)

Edit #	Type	Reel	A-VTR IN	A-VTR OUT	Reel	B-VTR IN	B-VTR OUT	R-VTR IN
1.	A/V	7	02:10:15	02:15:10	N/A	N/A	N/A	00:01:00:00

Remarks: Fade-In A: 30f. Aud: 1. Bride putting on veil, mother looks on.

2.	A/V	7	02:15:10	-	3	07:01:10	07:21:13	Last Out
----	-----	---	----------	---	---	----------	----------	----------

Remarks: 30 f. dissolve to B: super title: "Our Wedding" at B: 07:04:00 to 09:00 church exterior.

3.	Split	7	05:22:00	05:45:00	-	N/A	N/A	Last Out: 3:12
----	-------	---	----------	----------	---	-----	-----	----------------

Remarks: delay audio 3:12, organist, playing.

The "In" number is the point on the source tape where the edit begins and the "Out" point designates the end of the edit. All edit points are in time code numbers and to save space, we usually do not show the "hour" amount, but just the minutes, seconds and frames. If your equipment doesn't support time code,

they should know what you mean.

Edit #1 in the sample EDL tells the on-line editor to begin with reel 7 using both audio and video sources. The B-VTR is parked, so "N/A" (Not Applicable) is entered under the In and Out points. The Record-In time is given only as a start reference.

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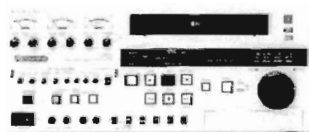


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JVC TM200SU 20" Monitor \$349
JVC KM2000 (SEG With Chroma Key) \$1,990
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Crosspoint Latch 6119 (U) \$1,390
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Fortel Y688 TBC (U) \$1,790
Future Video EC1000 Pro \$329
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A split edit must denote what is delayed and by how much. In this case, the EDL tells the editor to use the audio from Edit #2 to underlie the video of Edit #3. This is done by noting the Record In time at "minus 3:12" of Edit #2's Record Out time. Obviously, it saves time to over-record Edit #2 to capture the audio at the tail of the edit, than to

ask for a two-machine edit in Edit #3 (or worse yet, to insert an extra edit between 2 and 3 to pick up an audio-only cut). In complicated edits, there are lots of ways to specify the same information and lots of ways to achieve the same end result. How many ways can you specify the above three events? Which way saves the most time (and money) in on-line editing?

This is a small sample of what you, as a producer or off-line editor, must deal with when moving up from home video to professional work. It takes time and real concentration to understand and master. Remember, all these numbers have very little to do with the artistry of editing. They are merely the technical aspects of getting the job done economically. To write books, you need to learn to use a pencil or a typewriter. To edit tape, you need to learn to crunch numbers and write an EDL. The rewards? By learning to write a good EDL, you can save thousands of dollars in on-line edit

time—profits that go right into your pocket. Isn't that a powerful incentive?

You can use existing EDL software to practice making EDLs. Edit Lister (\$99) is an economical IBM- or MAC-based program that lets you write lists on a standard PC. You can also use the EDL portion of any large edit control program to practice. For instance, using just the keyboard entry routines, you can use AmiLink to practice writing EDLs. Radio Shack also sells a handy calculator (EC-4075 Programmer's Hex and Time Calculator) that adds and subtracts time code (alas, not with frames), which can help you with the math. Keep in mind that 01:00:00:00 - 00:01:01:01 does *not* equal 00:98:98:99. (It equals 00:58:58:29.)

How can do you know if you are writing good EDLs? Visit an on-line facility and time a typical edit session. Count the average edits per hour for a given editor and edit complexity. Working with your own EDL and the same editor, are you getting better than average edits per hour? If so, your EDL is saving you time and money. Soon, you should be able to estimate

"In on-line editing, proper preparation can prevent bankruptcy!"

your on-line edit sessions to within plus or minus 10%. This leads to better client estimates. It also leads on-line houses to respect you highly, because very few producers ever come close to estimating their on-line edit times. Sloppy producers represent the profit margin of most on-line houses. Great producers can offer competitive "fixed-price" estimates without losing money. Welcome to real professionalism.

The Artistic Side - Start Making Sense

Editing can be considered the grammar of motion pictures. Unlike English grammar, however, which is based on immutable rules and conventions, video grammar is very flexible. Video is a new art form and editors are free to establish their own rules for every project. So long as the rules remain consistent within the respective production, the grammar will likely make sense and viewers will appreciate the effort.

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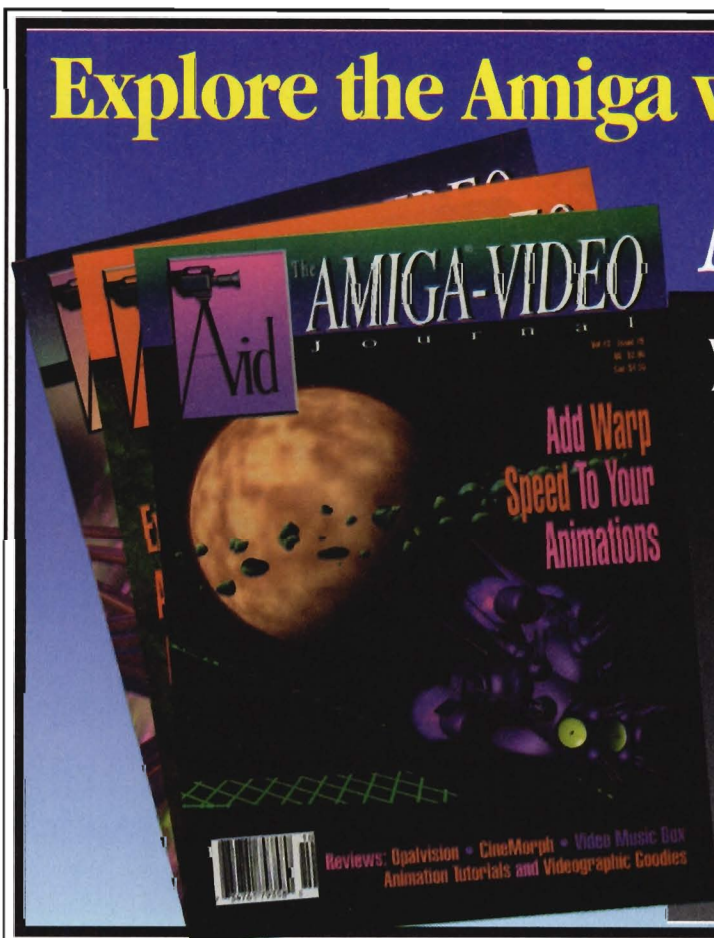
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Reviews: Opalvision • CineMorph • Video Music Box
Animation Tutorials and Videographic Goodies

As a young art form, video must borrow from other art forms—most often music, drama and graphic art—to survive. Unlike older art forms, where the rules were determined long ago and rarely change, motion pictures allow for a wide latitude of practitioners. Often this latitude proves too wide and practitioners of questionable merit persist for a time to be acknowledged as "artists." It is not, in my opinion, a compliment to be called a "video artiste." You no doubt have your own ideas about what is good video and bad. Consider the bad examples. Aren't most of them distinguished by a careless attitude to editing? Too many special effects, perhaps? Not enough storytelling? Too slow or too fast editing? Lack of content?

Artistic quality in video is certainly subjective; however, you know what you don't like, and my guess is that at the top of the list is "editing that doesn't make sense." Making sense means choosing an editorial grammar and sticking to it throughout the production. If your first Toaster Page Turn effect means a change of place from one scene to the next, you will (subconsciously or otherwise) confuse your audience if subsequent Page Turn effects do not feature a similar transition. The inconsistent use of effects can lead, in the worst case, to audience disorientation.

The most common mistake made by novice video editors, especially those with a wide assortment of special effects in their hands, is to overuse the effects. Let's step back to the simple days of cuts-only editing and examine the basics of video grammar.

Back to Basics

Assume we are asked to cut a montage of traffic scenes from a dozen cities around the world. We are given several reels of video which has been carefully logged and noted. We are given a bouncy music track (a four-piece jazz group) for the soundtrack. How will we choose our grammar and how will we stick to it?

I like to start with the most dominant aspect of the anticipated video. Do I want the trucks to dominate

Most professional and semi-professional audio decks allow playback at different speeds.

So, after listening to the music track *several times*, we understand, for example, that there is an opening theme stated by the saxophone, then a bass solo which introduces another theme, then a piano solo that joins the sax and bass themes and then a finishing segment in which the drums dominate. How can we apply the song's grammar to the grammar of the video?

Look at the video. Is there anything similar between the video and the music? If not, think about choosing a different music track. But let's assume the choice was correct, and after some reflection, you

understand that all of the video content drops into two types: Gasoline-powered traffic and beast-of-burden traffic. Does the grammar begin to suggest itself? Could the saxophone represent the gasoline traffic and the bass the animal? Could the drum sequence represent the advent of progress where both forms intermingle and conflict? If so, you have discovered a powerful grammatical relationship between the elements of your edit. If not so, keep looking and thinking.

each clip? Are we to hear the horns, in different tonalities, from city to city? Or should we hear the music track? You decide. But decide carefully, because it takes a lot of time and effort to change your mind halfway through (and it is very bad form to change your grammar halfway through). Let's take the easy way for this article, we'll choose the music track as the basis of the grammar. Now, listen to the music.

Here's a neat trick that makes any kind of music easier to understand (may the maestros forgive me): Play the music fast-forward. You'll hear all the passages, phrases and sections neatly reduced in time, thus they're more easily comprehended. The structures of large symphonies may remain puzzling even at fast-forward, but most two-to-four minute melodies yield their structure fairly quickly at twice normal speed.

Life Makes Sense

Here's a simple experiment to prove that everything in the universe is connected to everything else (Hey, if you want to avoid metaphysics, forget video and become an accountant!) and that any random collection of pictures and sounds yields a wonderful grammar

"...everything in the universe is connected to everything else..."

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(often several wonderful grammars): Turn on your television to any channel (news works great for this) but turn off the sound. Now turn on the stereo and play any piece of music. Notice how much of the music edits perfectly to the picture? After a while, you will swear there is a very humorous editor working behind the scenes. Consider this the next

time you can't find a grammatical theme for an edit.

Once a grammatical theme has presented itself,

the next step is to break down the entire piece, in your mind, to its basic elements. Our hypothetical traffic video has four parts. What will separate them? We might decide on a Toaster digital effect. If so, be consistent and make it the same effect for each of the three transitions. We'll call these transitions chapters, borrowing a term from English grammar.

Subordinate to the chapters are the various forms of traffic—such as trucks, cars, ox wagons, bikes, etc. Each grouping of traffic types (assuming we'll be grouping the types together) could be thought of as paragraphs. What will separate the paragraphs? Ideally, the transitions should be subordinate in strength to the digital effect. Perhaps a wipe or a simple dissolve will do.

Finally, we get to sentences and the individual words within each sentence. At the simplest level, we have the cut. Since we can't get much simpler than a

cut, this will always have to do for the most basic transition in the edit. But wait, there's more!

Rhythm is as important in editing as it is in music or poetry. Imagine four quick cuts, then a longer cut about twice the length and then four more quick cuts. What will you expect next? If you say another long cut, you understand editing rhythm. Try to follow what I call the Rule of Threes. If we repeat the above four-cut pattern three times, audience expectation of a fourth repetition will be very high. Three establishes a pattern. Patterns can be used (or abused) creatively. But don't separate the repetitions by more than 30 minutes or so.

Now apply rhythm to the hypothetical traffic piece. Keep in mind that the music is only tangentially related to the cut rhythm. You can follow the music rhythm or establish your own. For instance, you can cut on the drum beat, or you can cut *against* the drum beat (on the upbeats, for instance). Every edit decision has at least two possibilities; the expected and the unexpected. Try to be a bad boy (or girl) in the edit room and don't always do what Mama expects. Heck, I've tried to karate-chop a tomato lots of times.

Meeting Your Obligations

Rhythm offers another range of special effects—a secret range not found on any Toaster crouton. Rhythm establishes patterns of expectations. Robert Gessner, in his great text on scriptwriting, *The Moving Image*, called such expectations "obligations." The act of satisfying an expectation, says Gessner, is the "obligatory scene." Max Schreck getting fried by Catwoman in *Batman Returns*, Danny Glover showing Kevin Kline the *Grand Canyon*, Spike Lee throwing the garbage can through the pizza shop window in *Do the Right Thing*, Dirty Harry concluding there was one last bullet in his gun at the end of *Dirty Harry*—are all obligatory scenes. As an audience, we are carefully led toward such scenes by our own expectations and the skills of the filmmakers. You, as an ace editor, should consider setting up and meeting such obligations yourself.

Consider the patterns of audience expectations as you plan your edit. The humble wedding video? How about the song, *Here Comes the Bride*. You could cut between four scenes on each note of the music. "Here" could show the bridal veil. "Comes" could show a woman's cascading hair from the back. "The" could show a necklace being carried upward to be clasped. As for "Bride," what about bearded Uncle Fred wearing the veil and a wig and clowning for the camera? Of course you could show the bride. That's the expectation. But by violating the obligation with an absurd conclusion, we achieve humor. So don't think wedding videos have to be boring. High art can be a part of everything we do. This is the difference between "artist" and "artiste," and there is nothing wrong with making art and getting paid well for it.

VTU

George Avgerakis began as a freelance film editor for Public Television in 1976 and originated the Nabisco Corporate Television Center. Since 1982 he has been serving corporate and broadcast clients as Creative Director of Avekta Productions in New York City (where he still finds time to edit most of the productions).



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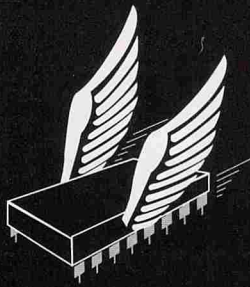
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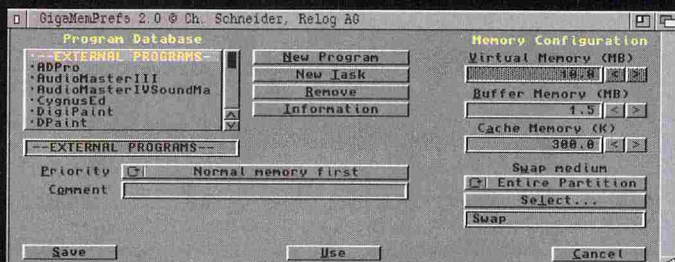
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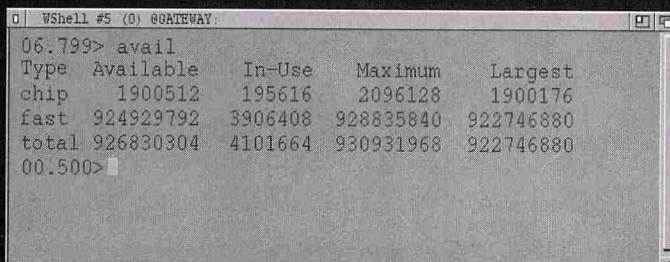
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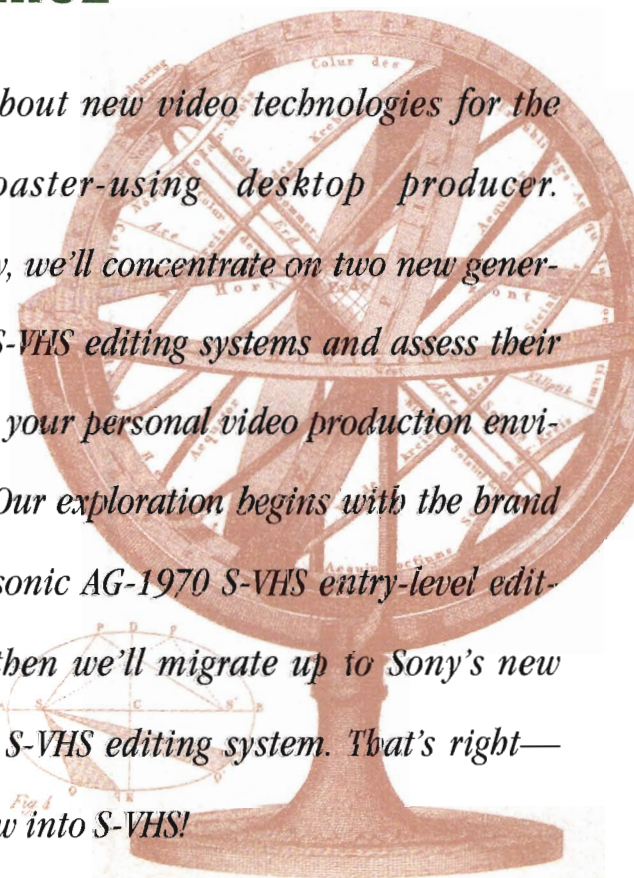
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Emerging V • i • d • e • o Technologies

For The Video Toaster Producer

By Tony Gomez



Let's talk about new video technologies for the Video Toaster-using desktop producer. Specifically, we'll concentrate on two new generations of S-VHS editing systems and assess their impact on your personal video production environment. Our exploration begins with the brand new Panasonic AG-1970 S-VHS entry-level editing VCR, then we'll migrate up to Sony's new industrial S-VHS editing system. That's right—Sony is now into S-VHS!

AG-1960 Standard Upgraded To AG-1970

The defacto standard for entry-level S-VHS editing VCR systems for the desktop video producer is the venerable Panasonic AG-1960. Since its introduction four years ago, it has been the machine of choice for budget-minded videographers. It's packed with useful editing features, and its proprietary control protocol is reasonably accurate. Now Panasonic has upgraded the venerable AG-1960 to the new, improved AG-1970. Also new is the AG-A96 multi-event edit controller for controlling two AG-1960s, which replaces the older AG-A95. (The AG-A95 controller doesn't work with the AG-1970.)

New Features

The AG-1970 has retained most of the endearing features of the workhorse original AG-1960, including a robust jog/shuttle wheel and its renowned editing accuracy. Gone are the Color Level and Interval Recorder controls, but those were seldom-used "bells and whistles." Newly added are an amorphous video head design, a two-line digital time base corrector (TBC), digital Y/C decoder, search with sound, hi-fi/normal audio mix, front panel selection of audio output, dual S-Video inputs and audio outputs and automatic head cleaning. All of these new features come at a slight price increase—about \$250 higher

Emerging V • i • d • e • o Technologies For The VideoToaster Producer

than the AG-1960. Let's take a closer look at each feature and amplify on its significance.

Video

Amorphous video head technology has been available to video professionals for about three years. It permits video image playback with about a two-decibel improvement in the video signal-to-noise ratio over the AG-1960. This will make your edited videos look crisper and more lifelike.

The AG-1970's built-in two-line digital TBC also helps improve image playback quality. Much has been written about the need for time base correction of video playback images during the editing process. The AG-1970 fills this need to some extent with its internal TBC that is manually selectable from the front panel. The two-line TBC can correct only relatively small time base errors. Unfortunately, this low level of correction, while acceptable for simple VCR-to-VCR editing systems, is not adequate for the Video Toaster. You still must incorporate a TBC with "infinite window" (freeze frame) to process the AG-1970's video output before connecting to the Video Toaster. Having an additional TBC is actually a more flexible arrangement, as it permits synchronizing additional video sources such as extra VCRs or cameras for the Toaster's other video inputs.

The latest improvement in S-Video technology is the ability to digitally filter out the luminance/chrominance (Y/C) signals during signal processing. This digital method produces better resolution and reduced "color-under" artifacts than the older analog filtering. The latter color-under (so named because the chrominance's frequency which is "under" the luminance channel) problems are unfortunate by-products of the way S-Video technology works.

Audio

Most professional video editing systems let the editor hear the linear audio channels during jog/shuttle search mode. This is called search with sound. However, the AG-1960 mutes the linear audio channel signal during these search modes, which can make searching for specific audio events difficult. (Modification kits for the AG-1960 are available to disable the mute feature.) The AG-1970 solves this problem by allowing the operator to hear the audio during jog/shuttle search mode.

The ability to select audio output from the front panel will placate the many AG-1960 users who have grown weary of selecting either the hi-fi or linear channel audio output via the cumbersome infrared

controller. Now you can use either method. Thank you, Panasonic, for this much-needed feature!

Availability of oft-used connections from the front panel, as well as additional audio outputs, are also important convenience features. The AG-1970 provides S-Video input connectors on both the front and rear panels. Also, an additional pair of audio output channels is available from the rear panel.

The final new feature is automatic head cleaning, which kicks in each time a tape is inserted into the VCR.

Compatibility With Existing Editing Controllers

Although the AG-1970's five-pin remote control connector is identical to that of the earlier AG-1960, the control signals are slightly different, so it is not quite compatible with stand-alone edit controllers designed to work with the AG-1960. This includes Future Video's Series 1000, 2000, and 3000 edit controllers as well as AmiLink CI. Both Future Video and

when used with Future Video controllers is that it's possible to mix and match formats for source and record VCRs. In other words, you can have your choice of a Sony control-L type VCR or camcorder for the playback or record VCR, as well as Panasonic's AG-1970. This choice gives the videographer the most flexible acquisition and editing system: shooting with your choice of Hi-8 or S-VHS camcorders, and editing to your choice of Hi-8 or S-VHS VCRs.

AG-1970: The Bottom Line

The AG-1970 takes up where the AG-1960 left off. It is the latest "most desirable" entry-level editing VCR for desktop video applications. Most of the AG-1960's flaws have been corrected in the AG-1970. The internal two-line TBC goes a long way toward improving picture quality during conventional machine-to-machine editing. (However, an external TBC will still be required for use with the Video Toaster.) List price for the AG-1970 is \$1,650 (street price should be sev-



Sony's S-VHS edit system: SVP-9000 player (left); RM 440 edit controller (center); SVQ-9600 recorder (far right).

"It is the latest, most desirable entry-level editing VCR for desktop video applications."

eral hundred dollars less), and \$470 for the AG-

A96 edit controller. Expect the availability of the AG-1970 to be tight, but hopefully not as tight as the AG-1960 was when the desktop video revolution took off.

Sony's New Industrial S-VHS System

After holding out for several years, Sony has at last released a fully-functional industrial S-VHS video editing system. In Sony's own words, "S-VHS is no longer a four-letter word!" The system consists of a playback VCR, record VCR and a series of modular cards designed for each player and recorder that you can buy individually according to your needs! The whole system can be tied together with a venerable edit controller to perform accurate SMPTE time-code-based edits. We'll go into the details of each, and see what it

Selectra, makers of AmiLink's Amiga interface hardware, have updated their firmware (chip-based software inside the unit) to be fully compatible with the AG-1970. The AG-1970 is also compatible with Amiga software-based edit controllers AmiLink CI and Video Toaster version editing systems.

Another Amiga software-based edit controller that uses the Future Video edit controller series is CyberCall's CyberEdit. A nice feature about CyberEdit

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For The VideoToaster Producer

takes to build a powerful editing system and ultimately connect it to your Video Toaster.

At the heart of Sony's new S-VHS editing system are the SVP-9000 player and the companion SVO-9600 editing recorder. Physically, they resemble Sony's professional Hi-8 9000 series VCRs, with their distinctive cream-colored metal chassis and blue-and-red buttons. They're also about the same size. The front-loading units sport a host of features that separate them from prosumer and light-industrial VCRs. Both the playback and record decks have analog meters for both video sources and four channels of audio. The player lets you choose hi-fi stereo playback or linear stereo playback, or *both* simultaneously. The latter capability has been sadly lacking in prosumer and entry-level industrial VCRs. Similarly, while editing with the record deck, you can choose which audio channels are to be active: either the hi-fi stereo, linear stereo, or both simultaneously and independently. Technically, it is possible to build an edited master video tape that has both hi-fi stereo audio and linear

stereo audio for narration, music, etc.

Both decks can optionally be configured for SMPTE-based editing. This is accomplished by installing two boards: a RS-422A serial interface board and SMPTE time code "piggyback" daughter-board into each VCR. The serial interface card is designated SVBK-140 and the SMPTE card is SVBK-160.

One of the SVBK-140's most useful features is "Character Output," which permits the user to see the SMPTE time code as a "window burn" (overlaid on the video) from either the source or the record VCR. This allows the added benefit of making SMPTE window dubs of source material for the selection of scenes at your convenience using simple playback VCRs. In other words, since the time code is superimposed over the video, you can see exactly where any scene is on the tape.

If you want to use the Video Toaster with these VCRs and don't already have a TBC, then another card is recommended. This optional card is called the SVBK-150 Digital Noise Reduction board. It provides simple time-base correction (good enough for the Video Toaster, but not as good as a TBC), digital chroma and luminance noise reduction, digital luminance enhancement and color dropout interpolation. The results of all these enhancements is outstanding recorded picture quality and a video signal that is stable enough to play back into the Video Toaster directly. As with other digitally-enhanced professional VCRs, the SVBK-150's various features are activated

through a menu-based setup procedure from the front panel of each VCR. One SVBK-150 card is required for each VCR.

Editing with the Sony SVP-9000 and SVO-9600 decks is accomplished by connecting the serial interface board's 9-pin serial connector to your editing controller of choice. Sony offers its own RM-450, a respectable edit controller that's been around for several years, but which nevertheless has practical editing features. Various combinations of edits available from the RM-450 are: Assemble, Video Insert, Audio Ch1 Insert, Audio Ch2 Insert and combinations of Video and Audio Insert. The RM-450 has jog/shuttle wheels for each playback and record VCR to quickly find source and record In and Out locations. The unit allows frame-by-frame access or rapid-shuttle move-

**"In a word, the
performance is excellent."**

ment. It also permits easy entry of edit In and Out times for each VCR. The Trim function lets you vary existing in and out points by one frame at a time, for fine-tuning your edit. Preview lets you see the entered edit; Perform commits to the edit. The RM-450 is a "cuts only" one-shot editing controller, and as such, no edit decision list or EDL is maintained. Note that

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when using SMPTE-based editing, linear audio channel 2 is reserved for the longitudinal SMPTE time code, which is read internally by each VCR.

To connect the system to the Video Toaster so that automatic GPI triggering is possible requires that the RM-450 edit controller's Cue Out connector be connected to a special GPI trigger cable designed for mouse port #2 on your Amiga/Toaster workstation. Instructions for building this cable are given in the Toaster's user manual. The menu setup for the GPI trigger is "GPI+" on the Toaster's Preferences screen. You can fine-tune the trigger point by following a procedure outlined in the Sony RM-450 edit controller manual.

Hidden Features

With the SMPTE option, some helpful hidden features become available. For example, suppose you had shot some Hi-8 material, but wanted to edit it on the Sony S-VHS system. The simplest thing to do here is to make a Y/C dub of your Hi-8 original onto the

SVO-9600 recorder, copying the original audio to the S-VHS hi-fi channels in the process. As you do this, the recorder will automatically lay down SMPTE time code on Channel 2 linear audio. Then it's easy to make a SMPTE window dub of your new S-VHS "sub-master" and make notes for editing purposes.

Another surprising feature is the system's *potential* ability to "post-stripe" SMPTE time code on your original S-VHS master tapes. This prevents one generational loss just to gain the benefit of SMPTE time code editing accuracy. I stress the word "potential" because it's required that the audio on your original S-VHS tape be located on the hi-fi track. Basically the process involves performing a Ch2 linear audio insert of SMPTE time code on your original videotape. This requires the use of a stable SMPTE time code source from the playback side. I discovered that the TC Out jack on the player's serial output interface rear panel could provide such a source. The playback tape, of course, must have such a SMPTE time code already present. Making up this special time code tape is easily done by feeding any external video into the recorder and forcing it into a manual record mode, with the Ch2 SMPTE switch activated.

SVBK-160 SMPTE time code boards, and the RM-450 edit controller with nine-pin serial cables. Street price for the complete system is approximately \$8,500. This is less than competing professional S-VHS editing systems (two decks and an external edit controller) from Panasonic and JVC.

Of course, if you don't have a need for absolute frame accuracy in editing, or if you won't be needing an absolute reference for locating original video scenes, then the SMPTE option isn't mandatory. In that case, you can also release one linear audio channel for additional sound editing possibilities. While this price may seem somewhat steep, keep in mind that it's a complete SMPTE-based cuts-only editing system for rugged industrial applications. The total price is not significantly higher than the price of a single professional S-VHS editing VCR with SMPTE.

"...S-VHS is no longer a four-letter word"

Sony's S-VHS System—The Bottom Line

The components of the complete Sony S-VHS editing system are: SVP-9000 player, SVO-9600 edit recorder, two SVBK-150 digital noise reduction cards, two SVBK-140 serial RS-422A interface cards, two

Performance and Do-It-Yourself Assembly

In a word, the performance is *excellent*. The digital noise reduction module really helped produce a higher-quality edit master. The image retained nearly all of its original crispness, resolution and color fidelity. Chrominance noise, normal-

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ly the bane of S-Video technology, was significantly reduced. This is important because you have to go one more generation for the duplication copy, and any flaws in the edit master just get exaggerated more in the copy. The SMPTE option made edits repeatable and accurate. Having the SMPTE window burn is a real asset to editing with the creation of editing logs based on an absolute time reference. The system can also be used in conventional control-track editing mode, in which case its accuracy was within a few frames.

There are a couple of minor negative aspects to the system, however. Since the Sony S-VHS system is sold as separate components rather than integrated units, it's possible to get the SVP-9000 player and SVO-9600 recorder without any of the modular cards pre-installed. The subsequent installation process can be quite tedious, and it's even possible to install the time code card backwards. This won't hurt anything, but may have you puzzled why the SMPTE time code doesn't read correctly. The caveat here is if you are not experienced with card installation, have your dealer do it and save you lots of tedious work. The other slight criticism is the Sony S-VHS system only operates in SP or standard speed mode (like all other professional S-VHS systems) to maintain the highest quality. So if you've got some EP (extended play 6-hr mode) recorded video, it can't be used directly by the system without being first dubbed to a second generation SP "sub-master."

Closing Comments

These two new S-VHS editing systems offer advantages to the desktop video producer that were previously either unavailable or too costly. From first impressions, the AG-1970 has inherited its parent's title as a primary workhorse for prosumer-level videographers. And the new Sony equipment is a real boon for those working in industrial video. Better yet, either works quite nicely with your Video Toaster.

Manufacturer Information

Panasonic AG-1970 S-VHS editing VCR/AG-A96 Edit Controller
Panasonic Broadcast and Television Systems
(800) 524-0864

CyberEdit Editing Software for the Amiga (\$395)
CYBERCALL, Inc. (CyberEdit)
20 Cleveland Ave.
Highland Park, NJ 08904
(908) 249-9883

FutureVideo Products, Inc. (Edit controllers for Panasonic/Sony prosumer systems)
28 Argonaut Suite 140
Aliso Viejo, CA, 92656
(800) 346-5254

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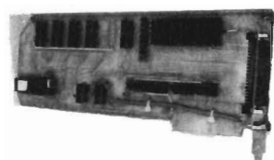
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Don't Re-Do...DejaVue™

Don't you wish you could set up a Video Toaster effect exactly as you had earlier?

DejaVue is an effects memory subsystem that eases the operation of the NewTek Video Toaster for both stand alone and large system applications. With **DejaVue**, Toaster users can "snapshot" the Toaster panel settings, storing the values into memory registers. Later, when the exact same effect is needed again, a register recall restores the same effect to the Video Toaster.

A separate control panel gives the on-air operator simplified, yet powerful, control over Video Toaster actions. For those using the Video Toaster as a workstation ahead of a high-end video switcher, the **DejaVue** remote panel provides the control essence required in busy control rooms. For production use, the **DejaVue** allows many effects to be pre-programmed, ready for rapid recall during a fast-paced production. Complex effects, such as a sized and positioned image in a partial wipe, can be performed easily and repeatedly.

While the mouse- and keyboard-driven control is effective for setting up Toaster effects, it can also be tedious and error prone to recreate an effect exactly as it was previously used. The **DejaVue** remedies this problem, giving the Toaster User the additional luxury of trying many different effects quickly.

The **DejaVue** control panel plugs into the Commodore Amiga's second game port, with a passthrough connector for other GPI devices. The software portion of **DejaVue** installs easily, creating its own necessary directory and data structures.

PreVue Technologies

(Formerly Cardinal Video Products)

P.O. Box 2617
Grass Valley, CA 95945

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916-272-1528 fax

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AG-1270

VHS Video Cassette Recorder

- Super 4 Head system - field still, noiseless and jitter free double speed playback and frame advance
- Quasi-S-VHS playback - permits playback of S-VHS tapes at standard VHS resolution
- Auto Repeat - video end or tape end, Auto segment repeat
- Quick Play - less than 2 seconds from stop to play
- 181-channel cable compatible tuner, 1-month 4-event timer with calendar
- Automatic head cleaner, Digital auto tracking, Auto digital picture (adjusts resolution vs. tape noise)

AG-1740

Hi-Fi VHS Video Cassette Recorder

- Has all the features of AG-1270 (see above) Plus - Super Hi-Fi stereo sound system with a dynamic range of more than 90dB.

AG-5700

S-VHS Hi-Fi RS-232 Controllable VCR

- Record and playback in the S-VHS format, delivering 400 lines of horizontal resolution and faithful image reproduction.
- Amorphous video heads which are clearly superior to that of conventional ferrite heads. They are better because their magnetizing strength is much greater, yielding a higher S/N ratio.
- Hi-Fi stereo sound system with high speed limiter circuit linear band pass filter, and a structure that dampers vibration all combining to deliver impeccable sound quality. Features a frequency response of 20 Hz to 20KHz and a dynamic range of 90dB. Also has a linear audio track that allows audio dubbing or narration.
- Separate Hi-Fi (Ch. 1/Ch. 2) audio recording level controls with display. There is also a headphone output with volume control.
- Built-in RS-232 provides machine control of playback, recording and editing functions from a computer. You can use the power of your computer (with optional software) to assemble hundreds of scenes, create edit decision lists, do complex editing jobs.
- Auto Repeat function continuously replays a tape which can be cued for tape's end or when recorded material ends. Allows the AG-5700 to be used in showrooms, lobbies, or any in-store video display.
- For unattended recording there is a Sensor Recording function. When a video signal is detected the power is automatically switched on and the AG-5700 begins recording.
- If you need to do a presentation with video the AG-5700 is ready to go. It weighs less than 13 lbs., is extremely compact and has a built-in carrying handle.
- User friendly design features record, play, and stop switches that are well illuminated during operation.

WJ-AVE5/WJ-MX12

Digital A/V Mixers

To help clear up the confusion about the WJ-AVE5 and WJ-MX12, here is the definitive comparison chart* to help you make your choice.

Identical Features:

- **Built-in Digital Frame Synchronizer** - The built-in digital frame synchronizer of the WJ-AVE5 and WJ-MX12 allows effective video mixing of any two NTSC format video sources, such as VCRs, video cameras and TV tuners - with no need for time base correction. This includes mixing of composite and S-video signals.
- **Audio Mixing** - They both have a built-in audio mixer for four (4) inputs: Source 1 (L/R), Source 2 (L/R), Auxiliary (L/R), and Microphone. The easy-to-read audio level meter ensures easy monitoring.
- **Superimpose Function** - For superimposition effects you can select any of three video inputs - Source 1, Source 2, External Camera. Special effects such as shadowing and edging can be applied to the superimposed titles, and eight (8) title colors are simply selectable - white, yellow, cyan, green, magenta, red, blue, black. In addition, title colors and background pictures can be reversed.

Side by side comparison of similar features:

	WJ-AVE5	WJ-MX12
Frame synchronizer	A & B Bus	A Bus Only
Freeze Frame (Still)	Yes	Yes
Strobe Effect (Intervals)	0.2-1 Sec.	0.2-2 Sec.
Paint	4 Levels	6 Levels
Mosaic	4 Levels	8 Levels
Negative/Positive	Yes	Yes
Programmable Effects	Yes	Yes
Resolution (S-video)	370 Lines	500 Lines
S/N Ratio (S-video)	46 dB	55dB
Memory Type	Field	Frame
Color Corrector	Yes	Yes
Wipe Patterns	98	17
Picture in Picture	Yes	Yes
Auto Take	Yes	Yes
Auto Fade	Yes	Yes
Master Fade	Video, Audio	Titles Only
Pre-set Fade & Wipe Speeds	Yes	10
Y/C Separation	Low-Pass Filter	Comb Filter
Wipe Edge	Sharp	Sharp/Soft
Headphone Jack	Yes	Yes
External Sync Connectors	Yes	Yes
Operational Design	Consumer	Pro
Warranty (Parts)	1 Year	1 Year
Warranty (Labor)	90 Days	1 Year
LIST PRICE	\$2,000	\$3,000
B&H PRICE	CALL	CALL

Panasonic

Broadcast & Television Systems

NEW! AG-1970

S-VHS Hi-Fi Editing VCR

- Playback and record in S-VHS, which delivers 400 lines of horizontal resolution and exceptionally detailed images.
- Uses Amorphous video heads which are clearly superior to that of conventional ferrite heads because the magnetizing strength of the amorphous head is much greater. The Amorphous video heads 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-into the circuitry is a digital filter which helps the AG-1970 achieve even more accurate Y/C separation. Also a noise filter is included in the circuitry.
- Features Hi-Fi stereo sound with a frequency response from 20Hz to 20,000 Hz and a 90 dB dynamic range. Besides hearing CD quality audio the AG-1970 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).
- Unlike the AG-1960 the AG-1970 outputs the audio track during search operations for cueing 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.

WJ-MX50

Digital A/V Mixer



- Four input switcher and any two sources can be routed to the program busses
- Two-channel digital frame synchronization permits special effects in each of the A/B busses.
- Combination of 7 basic patterns and other effects creates 287 wipe patterns.
- Digital effects including strobe, still, mosaic, negative/positive, paint, monochrome, strobe, trail, and AV synchro
- Joystick positioner allows moving video location
- "Scene Grabber" makes it possible to move a pattern, upholding the initially trimmed-in picture integrity.
- External edit control input for RS-232 or RS-422 serial controls. Also has GPI input.
- Non Additive Mix (NAM): selects between A and B sources, passing only the signal with the highest luminance value
- Fade-in and fade-out video, audio, titles individually or synchronously faded.
- Down stream keyer with selectable sources from character generator or external camera
- Incorporates 8 separate memories that enable virtually instant recall of frequently used effects
- Audio mixing capability of 5 sources with 5 audio level adjustments.

7000 SERIES EDIT SYSTEM

AN S-VHS EDITING SYSTEM TRULY DESIGNED TO MEET THE NEEDS OF PROFESSIONALS

AG-7650
S-VHS SOURCE PLAYER

AG-A770
MULTI-EVENT EDIT CONTROLLER

AG-7750
S-VHS EDITING VCR

The Panasonic AG-7650 S-VHS source player and AG-7750 Editing VCR share many professional features to deliver outstanding S-VHS picture quality, editing accuracy, versatility and reliability.

AG-7650 & 7750 Features:

- Built-in Digital TBC/DNR (Time Base Corrector/Digital Noise Reduction) eliminates even small amounts of jitter, skew and color blurring. The precise time base correction is invaluable for A/B roll editing and helps maintain high picture quality through multiple tape generations.
- They have laminated amorphous video heads which have higher magnetic coercivity than conventional ferrite heads. This provides for superior color reproduction and minimizes frictional noise that causes color logging.
- A "logical" comb filter with advanced 3-line delay system enables a huge improvement in crosstalk cancellation during playback and recording.
- High-precision aluminum die-cast chassis, and extra large impedance roller is used to assure exceptionally stable transport with very low jitter.
- Advanced Al capacitor servo control featuring a capstan spindle three times larger than conventional. This provides for high speed search at 32x normal speed.
- Both have RS-422A 9-pin serial interface - the standard control protocol for professional broadcast components. This allows compatibility between other serial control systems. They also have 34-pin parallel connectors to maintain compatibility with older Panasonic components.
- Equipped with two Hi-Fi stereo audio channels plus two linear audio channels with Dolby NR.
- Both use 3-pin XLR audio jacks for increased reliability. The AG-7750 features a 3-position input level selector to assure high-quality sound during recording.
- Professional 7-pin dub input and outputs keep the quality of your video during editing and through multiple generations.
- Optional AG-F700 SMPTE time code reader/generator card lets you perform LTC/VITC (Longitudinal/Vertical Interval) recording and playback for highest precision editing.

AG-A770 Features:

- Advanced design for easy control and smooth editing results, separate jog/shuttle dials and easy to read adjustable display.
- Multi-event editing - stores up to 128 single-cut events in memory for automatic editing.
- Built-in RS-422A 9-pin serial interface board lets it control almost any professional edit system.
- Split audio editing capability. Lets you enter audio and video edit points separately.
- Built-in GPI trigger allows centralized control of total-system operation.

AG-W1 Universal VCR

To break down the final barriers preventing worldwide communication through video, Panasonic presents the AG-W1 Universal VCR, which can record and play back video tapes in any TV broadcasting system - NTSC, PAL, or SECAM - without costly system conversion.

Features:

- Full 7 system digital standards conversion
- Videotapes recorded in any TV broadcasting system in the world can be played back on any video monitor
- Operates virtually anywhere in the world on a 110-127/220-240 volt AC, 50-60 Hz power source
- Recording is possible in any TV broadcasting system in the world
- Development of a dedicated field memory chip and control LSI has enabled compact, lightweight, and inexpensive conversion circuitry
- Recording and playback in VHS Hi-Fi mode
- The AG-W1 is VHS, but its S-VHS Quasi Playback function also lets you play back S-VHS tapes in both NTSC and PAL systems
- Laminated Amorphous Heads minimizes frictional noise that causes color logging and flicker and delivers high picture quality during both recording and playback

PT-30L

100" Diagonal LCD Color Video Projector

- Huge 100" diagonal projection size gives you all the excitement of a large picture without installation.
- Superb picture quality with three 3" Twin TFT (Thin Film Transistor) Active Matrix LCD panels. Each panel contains 80,505 pixels for a total of 246,515 for achieving ultra-fine detail and high contrast of 100:1. Even with 100" screen you get vivid colors, exceptional brightness, and sharp clear images.
- Choose from projection sizes ranging from 20" (at 6 feet) to 100" (at 16.1 feet). For extra flexibility there is a built-in zoom lens that lets you quickly reduce projection size by up to half without moving the projector.
- Combining the beams from the three LCD panels internally the PT-30L achieves "convergence-free" projection.
- Compact, lightweight (30 lbs.) and portable (built-in handle) the PT-30L is the ideal projector for educational and business applications. Also, its compact size and projection size adjustment contribute to its easy setup.
- Features S-video and two composite (BNC) inputs plus fine adjustment control of Picture, Bright, Color, Tint, and Sharpness.
- To avoid video "noise" there is a Blue Screen function switch to produce a blue display when there is no input of video signal.
- For rear projection applications there is a Reverse button which provides a mirror image projection so that the picture looks correctly oriented when viewed on a rear projection screen.
- Attached adjuster lets you change angle of the PT-30L so that it is level or tilted as desired.

\$2199

EP-60

COLOR VIDEO PRINTER

The AG-EP60 provides outstanding color quality using 256 gradations each of yellow, magenta and cyan to print nearly 16,780,000 different color tones. Advanced circuitry optimizes picture sharpness. And proprietary Adaptive Contrast Technology enables outstanding accuracy in reproducing skin tones. Make on the spot high quality color prints from your TV, VCR, computer or camcorder.

Features:

- **Multipicture Print** - This function gives you prints divided into 4, 9, 16 or 25 squares - with the capability of reproducing a different image in each square.
- **Strobe Print** - This function prints consecutive images to capture movement in sequence dividing the print into 4, 9, 16, or 25 squares.
- **Dual Print** - The Dual Print function gives you one normal size print plus a 1/9th normal size print of a different image in the bottom right hand corner.
- **Card-sized (Split) Print** - This Split Print function divides the print down the center to two duplicate card-sized prints. This can also be used to crop landscape format shots into the portrait format.
- **Zoom Print** - With this convenient function you can enlarge any part of an image four times and print the enlarged detail.
- **Parallel Control Port** - The 14-pin parallel connector maintains compatibility with many existing 14-pin parallel controllers. This makes it easy to integrate the AG-EP60 into wired control type systems.
- **Superimpose** - Using the AG-EP60 with the optional VW-C05 Character Generator lets you add titles to your prints.
- **Versatile System Connectivity** - The multiple connection facilities of the AG-EP60 include composite BNC, analog RGB and S-Video inputs for crystal-clear image reproduction from a variety of sources.
- **Automatic paper feed**
- **Wireless Remote Control** - With the wireless remote control you can control all basic operations - including print mode selection - without touching the AG-EP60.
- **Picture adjustment controls** for sharpness, brightness, tint and color.
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VIDEO MONITORS

BT-S901Y

9" Color Video Monitor

- S-video input and outputs
- External sync input and output for synchronization with other professional components
- Automatic termination
- Pulse cross circuit - allows horizontal and vertical intervals to be displayed at center of the screen so you can examine data in blanking area and sync/burst timing
- Blue Only mode - provides monochrome display making it easy to evaluate "noise" precisely. Also chroma/phase adjustments can be performed easily.
- Underscan - shrinks the scanned area of the picture tube approximately 5% enabling entire active picture area to be displayed.
- Built-in comb filter minimizes loss of color resolution
- Rack-mountable in standard EIA 19" rack
- Built-in speaker, Headphone jack

BT-S1370Y

13" Color Video Monitor

- Housed in a durable metal hybrid cabinet, the BT-S1370Y is loaded with features such as S-Video compatibility, 40" 77 system playback and full front panel control layout.
- S-video input and output connectors. Combined with advanced video circuitry, provides a remarkably sharp picture with horizontal resolution of more than 420 lines.
- The BT-S1370Y detects the color system of the input signal and auto matically selects PAL, SECAM, NTSC or NTSC 4.43. A manual selector is also provided.
- Blue Only Mode - Provides a mono chrome display making it easy to evaluate "noise" precisely. Also chroma/phase adjustments can be easily performed.
- Built-in Comb filter minimizes loss of color resolution and luminance detail.
- Two sets of audio/video inputs and outputs (line A and B) in the rear
- Line A also has S-Video input. Line B also has 8-pin VCR input.
- Built-in speaker, Headphone jack with volume control.
- Rack-mountable with optional BA-131 rackmount.

BT-S1360

13" Diagonal Color Monitor

- S-Video input and advanced video circuit technology provides a remarkably sharp picture with over 420 lines of horizontal resolution.
- Two sets of video/audio inputs and outputs
- External sync inputs and outputs provide for synchronization with other equipment with the same sync signal.
- Blue Only mode plus Chroma selection provide a monochrome image for fine adjustment of contrast, brightness, chrominance and hue.
- Underscan - shrinks the scanned area of the picture tube to approximately 5% enabling the entire active picture area to be displayed. Lets you detect intruding cameras and mikes.
- Pulse Cross - allows horizontal and vertical intervals to be displayed at the center of the screen so you can examine data in the blanking area and also for sync/burst timing.
- Switchable color temperatures of 6500°K (broadcast standard) or 9300°K (for pleasing picture).
- Built-in speaker and headphone jack.
- Rack-mountable with optional BA-131 brackets.

BT-H1350Y

13" High Grade Color Video Monitor

The BT-H1350Y is a high resolution monitor featuring compatibility with all four major color TV broadcast systems. Its advanced dot in-line CRT with SMPTE C Phosphor delivers 750 lines of horizontal resolution and excellent color fidelity. For demanding professional applications the BT-H1350Y is the right choice.

- Features:
- S-Video and component compatibility Y/R - Y/B-Y component video inputs for direct connection to Panasonic full and Betacam component VCRs.
- Detects the color system of the input signal and automatically selects PAL, SECAM, NTSC or NTSC 4.43. A manual selector is also provided.
- Advanced video circuit technology delivers a superb picture with horizontal resolution of 750 lines.
- Use of SMPTE C Phosphor and a 0.31mm fine pitch shadow mask in the CRT combine to provide the high resolution and accurate color rendition required for many professional monitoring applications like measurement and presentation.
- Has new Automatic White Balance Circuitry that stabilizes the white balance providing outstanding picture performance - automatically.
- Blue Only mode and Chroma selection switch. They provide monochrome images for fine adjustment of contrast, brightness, chrominance, hue and clear visibility of tape droops.
- Underscan - shrinks the scanned area of the picture tube approximately 5% enabling the entire active picture area to be displayed. Lets you detect intruding cameras and mikes booms.
- Pulse Cross - allows horizontal and vertical intervals to be displayed at the center of the screen so you can examine data in the blanking area and sync/burst timing.
- External Sync - external sync inputs and outputs provide for synchronization with other equipment fed with the same sync signal.
- Temp Selection - Switchable color temperatures of 6500°K (broadcast standard) or 9300°K (for pleasing picture).
- Two sets of audio/video input and outputs (Line A and B). Line A also has S-Video input, and Line B has 8-pin VCR input. Line A also has analog RS2 or Y/R - Y/B-Y component inputs.
- Built-in speaker and headphone jack Rack-mountable with optional BA-131 brackets.

Panasonic

Broadcast & Television Systems

NEW! AG-455

2-Hour S-VHS Camcorder

- S-VHS system - records and plays back over 400 lines horizontal resolution
- Laminated amorphous video heads assures exceptional picture quality, high resolution, superb color reproduction, and high S/N 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 VTC (Vertical Interval Time Code) time code generator gives absolute address to each frame of video for frame accurate editing (with specific edit systems)
- Digital Effects:
- 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.
- 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.

WV-F250B

3-CCD Color Video Camera

The WV-F250B provides the flexibility needed for truly professional performance. Its high density 1/2" CCDs deliver outstanding horizontal resolution of 750 lines. It has a high S/N ratio of 60dB and consistently outputs high image quality with low smear. Has component output plus Y/C output for compatibility with VHS, S-VHS, Hi-Fi, Betacam and virtually any type of VCR - for truly outstanding professional performance in ENG/EFP, studio and dockable (camcorder) type applications. The WV-F250B combines advanced technology with ergonomic design and operating convenience to fulfill the demands of the ever expanding professional video world.

Features:

- 3 FIT (Frame Interlaced Transfer) CCD chips with 380,000 pixels each deliver 750 lines of horizontal resolution.
- High signal-to-noise ratio of 60dB enable consistent recording with low vertical smear level and outstanding sharpness of details.
- Advanced electronic shutter with variable speeds from 1/60 - 1/2000 of a second.
- Rugged aluminum die-cast body is resistant to shock and vibrations, makes it ideal for outdoors, including ENG/EFP.
- High resolution 1.5" viewfinder with character display and zebra level plus a host of other information.
- Built-in SMPTE color bar generator for accurate colors of your monitor. Date and time are also recorded on the color bars.
- Docks to S-VHS, Hi-Fi, and Betacam, can also be connected to VHS, Beta and 34" models.

DS-2550A S-VHS Dockable Package:

- WV-F250B 3-CCD color camera
- WV-F250 1.5" viewfinder
- Fajon 12:1 servo zoom lens
- WV-MC35 condenser mic
- WV-CC7 system case
- AG-7450A S-VHS Hi-Fi VCR
- WV-SKT70H Docking kit
- WV-GT70 in pod adapter

WV-F700

3-CCD Digital Processing Camera

Digitized Image Processing Circuits For Professional Video Productions

- 2/3" high sensitivity 390,000 pixel CCDs with on-chip optics delivers an outstanding 750 lines of horizontal resolution.
- Achieves a sensitivity of 19.0 at 2,000 lux to expand the available illuminance level at 0dB. Minimum object illumination has also been upgraded to 7 lux at f1.8 with +24dB gain (4 lux at f1.4).
- A high S/N ratio of 62 dB gives new meaning to picture quality.
- Return deflection at sampling, which causes more is reduced by Panasonic's high performance optical Low Pass Filter (LPPF). Most effective when aiming at fine patterns and stripes.
- Chroma Detail is included in the digitized image signal processing circuit to compensate for poor resolution in high chroma areas of the picture. Available only in a digital processing system. Chroma Detail provides a wide dynamic range image with clear color reproduction in the chroma area.
- Dark Detail Circuit: reproduces dark areas of the picture in detail without changing the brightness of the other areas. Additionally, it compensates contours with very fine edges. Even strands of hair can be reproduced to look natural.
- The WV-F700 features detail enhancement through 5 stages of switching: Two levels of band switching (High and Low) and two levels of detail switching within each of the bands. And for further flexibility, the detail enhancement circuit can be turned off when shooting close-ups, special graphics or scenes in low light.
- A total of 4 Scene File Modes are available and simple to operate: Scene File One is the standard Mode which sets the WV-F700 to adjust to studio lighting. Scene File Two is the Illuminance Mode, which provides for different shades of black to be reproduced clearly in dark locations without requiring lighting alterations. Scene File Three is the Fluorescent Mode because under fluorescent lighting conditions certain color hues tend to be reproduced slightly in the blue spectrum. When switching on Scene File Three, these hues are adjusted while using the white balance to provide natural tones. Scene File Four is the User Mode for flexible data setting. Twenty different digital adjustments can be set including gamma, knee-point, chroma detail, detail, matrix and shading.
- There are three highly reliable, specially designed camera heads for direct docking: WV-F700 MH for Hi-Fi, WV-F700 SH for S-VHS, WV-F700 BH for Betacam portable VCRs.
- A switchable Y/R-Y/B or Y/C system is installed to the output circuit allowing direct docking to acquisition systems which use 1.2" Hi-Fi, S-VHS, or Betacam portable VCRs without the need for adapters.



AG-195

2-Hour VHS Camcorder

Features:

- 8:1 2-speed power zoom lens
- Automatic iris and white balance plus manual override
- High speed shutter from 1/100-1/8000 second
- Digital Effects:
- 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 one lux.
- Digital Strobe & Digital Wipe - add professional effects to your shooting.

AG-460

2-CCD S-VHS Camcorder



Features:

- Two 360,000-pixel CCD image sensors
- 470 lines horizontal resolution and superb color reproduction
- Laminated amorphous video heads
- Hi-Fi audio with stereo zoom microphone
- Two-speed 10x power zoom lens
- Piezo auto focus (TTL) with 3-step focus zone
- Sensitivity switch (0 db, +18 db AGC) helps overcome lighting deficiencies
- Advanced auto-tracing white balance with manual override
- Black & white Audio/Video Fade-In & Fade-Out
- Automatic iris with manual override
- Variable high-speed electronic shutter
- Audio level control with LCD level meter
- Audio/Video insert editing and dubbing capabilities
- Audio out select switch (Hi-Fi/Normal/Mix)
- Versatile editing facilities: S-Video Out terminal/Adaptor terminal/Synchro Edit/5-pin Edit terminal/Edit switch/Character generator direct connection capability
- Includes Panasonic metal system case

VIDEO MONITORS

CT-1331Y (13")

- Line A, B, S-video, Y/R inputs
- High contrast picture tube even in excessive sunlight
- High resolution of 420 lines plus comb filter for exceptional purity and clarity
- Automatic termination eliminates loss of signal caused by improper termination
- Built-in front panel speaker

NEW! CT-1383Y (13")

- 90 deflection picture tube
- Line A or B, S-Video inputs
- 420 line horizontal resolution
- Headphone jack & external speaker jack
- Available with TV tuner-Model CT-1383 YTR

CT-2083Y(20")

- 450-line horizontal resolution
- Line A or B, S-video input and output terminals
- Audio/Video monitor out terminal
- On screen display for adjustment of sharpness, brightness, picture color tint
- Available with TV tuner-Model CT-2083 YV

MONITOR/VCR COMBO

AG-505

Portable 5" Color LCD Monitor/VCR

- 5" TFT (Thin Film Transistor) LCD screen
- Record/Playback capability using full-size VHS tape
- 3-way power supply, including: battery pack, AC and car battery (using optional car cord)
- 4 audio heads, 4 video heads and flying erase head
- Hi-Fi audio record/playback capability (playback requires optional stereo speakers)
- Built-in speaker (monaural) and stereo headphone jack
- Fold-down monitor design for ultracompact portability - weighs only 3 pounds.

NEW! AG-513A (13")

- Internal timer playback, with auto-repeat
- On-screen display programming
- Autoplay with auto repeat
- Speedcheck effects playback - fast search, double-speed still and variable slow playback
- Wireless remote control
- BNC video input and output, earphone jack



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SONY VHS & S-VHS

SVO-1410 VHS

Features:

- HQ circuitry for high quality picture
- Dual azimuth 4 head design
- SPL/PEP modes for both recording and playback
- Noiseless clear still
- Auto repeat, Index search
- Key inhibit switch, Anti-theft hook
- Control-S (input only)

SVO-160 VHS

Has most features of the SVO-1410 Plus—

- High speed rewind of a T-120 tape in less than 2-1/2 minutes.
- Hi-fi stereo recording system for a wide dynamic range of 90dB and a frequency response from 20 Hz to 20,000 Hz
- Front panel audio and video inputs
- Mic mixing — lets you mix a narration over the soundtrack during playback or recording. The audio level of the mic can be adjusted from the volume control.
- Accepts three different control signals, control 'S' and 'P' for multiple VCR operation. Up to 50 VCR's can be controlled simultaneously. Also control 'L' communications protocol will interface with almost any control track edit controller.

NEW! PROFESSIONAL SONY S-VHS SYSTEM

SVP-9000 S-VHS Hi-Fi Player and SVO-9600 S-VHS Hi-Fi Player/Recorder

Introducing from Sony the new SVP-9000 S-VHS player and SVO-9600 recorder. They 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 Sony's 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 V/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 channels with a dynamic range of 90dB & two linear channels with Dolby Noise Reduction.
- 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 virtually instantaneous.
- Search dial allows picture search from -10 to +10 times normal speed.
- Automatic repeat an automatic rewind can be accomplished with programmed operation.
- Soft pause for gentle tape 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 function 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.
- For secure connections, they employ a locking connector for S-Video input and output terminals.
- Both feature SYNC IN for synchronizing with other video sources.
- The SVO-9600 features sensor recording. When video signals are input to the SVP-9600, it automatically starts recording.
- Both are 19" EIA rack mountable plus both have adjustable front controls.

Optional Interfaces:

- **SVBK-100** 33-pin interface board allows remote control of basic VTR functions.
- **SVBK-120** RS-232 interface board allows for machine control from a computer.
- **SVBK-140** RS-422 interface board allows either machine to be configured into any professional system.
- **SVBK-150** Digital Noise Reducer board reduces jitter, noise and V/C delay and provides clear, crisp still frames.
- **SVBK-160** SMPTE Color interface board (can only be used with SVBK-140 board).

CALL FOR PRICES

SONY BUSINESS AND PROFESSIONAL GROUP

EVW-300

3-CCD Hi-8 PROFESSIONAL CAMCORDER



Sony's video Hi-8 camcorders have been well acclaimed for their ability to capture high quality images in field applications. Their compactness, lightweight, high mobility and long recording time are definite advantages of shooting in the video Hi-8 format. Now Sony introduces the latest addition to its Hi-8 camcorder series the EVW-300. The EVW-300 is a complete one piece camcorder which includes a variety of innovative and advanced operational features. So, whether your shoots require basic recording capabilities or premier performance, the EVW-300 offers a wide range of features and remarkable recording quality to best suit your needs.

Features:

- Equipped with three high density 1/2" IT Hyper HAD image sensors. Combining this advanced CCD technology with advanced optical technology an excellent sensitivity of F8.0 at 2,000 lux, high S/N of 60 dB, and over 700 lines of horizontal resolution is achieved.
- Provides high quality PCM digital stereo and single channel AFM Hi-Fi recording. Has XLR balanced audio connectors with LINE/MIC switching.
- 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) — with conventional professional video cameras white balance has to be adjusted before shooting every time the light source is changed. With ATW, white balance is automatically corrected by control of the microprocessor in real time when ATW is turned on so 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 Function.
- AGC (Automatic Gain Control) — in addition to manual Gain up the EVW-300 has AGC which 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.
- In addition to the automatic adjustments the EVW-300 features auto white balance, auto black balance and black set-up level. With this and three-position color temp conversion filters you can shoot in almost any lighting conditions.
- 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-18 battery) ergonomic design provides well balanced and extremely comfortable operation.

EVO-9700

DESK-TOP EDITING MACHINE



Editing recorded video segments together into a well-produced professional program has long been considered a creative option only for those with large budgets and extensive technical expertise. Now Sony breaks with this misconception by introducing a revolutionary editing machine, the EVO-9700. This innovative machine is designed to be simple to use. And it is packed with sophisticated capabilities to bring the creativity of the professional editing suite right to your office desk. The EVO-9700 is comprised of both a video Hi8 player and a recorder housed together in a one-piece compact body. Its desk-top design and ergonomic configuration offer advantage in space and operation.

Although very easy to operate, a range of versatile editing features such as video/PCM audio insertion, program edit, preview, review, slow motion/freeze edit, and title recording capabilities are integrated into the EVO-9700.

Features:

- Compact dual deck design — total weight 26 lbs.
- Built-in 8mm Time Code Reader/Generator for absolute frame accuracy
- Two PCM + monaural AFM audio tracks
- Does all edit modes — Assemble, Video Insert, and Audio Dub all automatically.
- Up to 99 scenes can be stored in memory including 25 pages of title information
- Preview/Review Function — confirm the appearance of a program before and after an edit. You can monitor the results of a simulated or actual edit
- Built-in Digital Chrominance Noise Reducer — improves chrominance S/N ratio for superior dubbing quality
- Tape Jitter/Skew Corrector — field memory used in the noise reducing process also at same time eliminates jitter to give clear, stable pictures (Using EVO-9700 with Video Toaster requires no TBC.)
- Slow Motion/Freeze Edit — noiseless 1/5 times normal speed slow motion pictures and a clear freeze frame can be played back during editing
- JOG/SHUTTLE Dial — frame accurate picture search from -17 to +19 times normal speed
- One monitor editing capability — press the P in P button and pictures from both the player & recorder can be viewed simultaneously on a single monitor — no need to use two monitors
- Separate PCM and AFM audio level volume controls
- S-Video in/out connectors
- Supplied Title Keyboard — titles, captions and any other info can be created and recorded onto moving pictures, freeze picture or background color (7 different colors, four character sizes are available)
- Includes RM-E9700 Edit Controller — Quick Edit, Program Edit, Video & Audio insert are controlled from the supplied RM-E9700 controller.

COLOR PRODUCTION MONITORS

PVM-8041Q

- AC and DC operation (with NP-1A or 1B batteries)
- Underscan, Pulse Cross, Blue only mode
- Comb filter for improved luminance/chrominance separation
- Analog RGB inputs plus component input
- NTSC/PAL/SECAM/NTSC 4.43 multi system playback
- External sync input also sync on green
- S-video input minimizes cross color/dot interference
- Built-in speaker for sound monitoring
- High durability and rack mountable
- Features built-in carrying handle
- Optional VF-505 ENG kit contains a monitor hood and cord reel for operational convenience in the field

PVM-1341 (13")

Similar to PVM-1340 with beam current feedback circuit, color temperature selection, blue only mode, comb filter, dark tint CRT. Same audio/video inputs PLUS

Additional Features:

- Underscan — Shrinks the scanned area of the picture tube approximately 5% enabling you to review the entire image area
- H/V delay or 'pulse cross' displays horizontal and vertical blanking interval information, sync timing and skew error
- Choice of internal or external sync via front panel switch
- Accepts digital RGB with D-sub 9-pin input

PVM-1344 Q (13")

Has all the features of the PVM-1341 PLUS

Additional Features:

- Super Fine Pitch delivers over 600 lines horizontal resolution via video inputs, better than 900 x 200 pixels via RGB inputs.
- SMPTE Type C color phosphors permitting the most critical evaluation of any color subject.
- Accepts PAL, SECAM, NTSC and HITS 4.43 video signals — automatically senses and adjusts for each color system.

PVM-1944 Q (19")

Same monitor as PVM-1344 Q but with 19" diagonal screen, plus has auto/manual degaussing to correct color impurities caused by magnetism in the picture tube.

COLOR PRESENTATION MONITORS

PVM-1340 (13")

- Dynamic Picture circuitry adjusts gain to achieve better contrast in bright highlights and dark shadows.
- Auto white balance uses beam feedback circuit to maintain stable and accurate white balance.
- Line A or B, VTR (8-pin) analog RGB and Y/C (S-Video) inputs.
- Better than 450 lines horizontal resolution
- Switchable color temperature — 6500° K for broadcast standard, 3000° K for the most pleasing picture
- Blue only mode switch for ultra-precise color and hue adjustment
- Built-in speaker for audio monitoring (4 audio inputs)
- Standard EIA 19" rack mount capability.

PVM-1380 (13")

- Line A and B inputs with BNC connectors
- Built-in speaker for audio monitoring
- Sub-panel controls for hue, color brightness & picture
- Sleek cosmetic design suitable for point-of-purchase displays, boardroom, etc.

PVM-1390 (13")

- Fine pitch picture tube for superlative resolution
- Line A or B (VTR or S-video) inputs
- Digital RGB input with D-sub 25-pin connector
- High resolution 450 lines horizontal resolution, 640 x 200 pixels via RGB input
- Comb filter extracts maximum picture detail, eliminates color spill
- Sleek white cabinet with angled screen for desktop monitoring
- Built-in speaker for audio monitoring

CUBIC COLOR PRESENTATION MONITORS

PVM-2030/2530

- 'Cubic Style' 20 or 25"
- High resolution 560 TV lines, 640 x 200 pixels (RGB)
- Beam current feedback circuit for stable color balance
- Line A or B input, VTR (8-pin) Y/C and Analog/Digital RGB inputs
- Last memory function makes the monitors retain the same control settings used before power was turned off
- Manual degaussing to assure accurate reproduction of color
- Through the optional 2-way speakers (APM-X5A) dynamic sound can be obtained.

PVM-3230 (32") CUBIC

- Even higher horizontal resolution of over 850 lines
- 640 x 200 pixels RGB
- Includes sophisticated programmable wireless remote control
- Internal or external sync input/output
- Switchable notch filter to reduce dot interference

MULTISCAN MONITORS

GVM-2020 20"

- 20" fine pitch Trinitron multiscan color video computer/monitor
- Automatic locking for computer signals (15 KHz - 36 KHz)
- 560 lines resolution (side), 720 x 480 (RGB)
- Line A, B, Y/C, RGB A (Analog/Digital), RGB B (Analog)
- RGB H/V size adjustment and H shift capability.

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TOASTER PERIPHERALS

I.DEN TBCard/TR-7

- Broadcast quality infinite window time base correction and synchronization from any video source
- TBCard plugs directly into Amiga (perfect for the Toaster) or IBM-PC
- Offers full 5.5 MHz bandwidth (440 lines of resolution) to ensure highest quality professional results
- Includes TR-7 remote control unit for full Pro Amp control, field or frame freeze, timing adjustments. **679.00**

I.DEN IVT-7

DIGITAL TIME BASE CORRECTOR/ FRAME SYNCHRONIZER

- Will time base correct & transcode inputs from Hi-8, S-VHS, VHS-DUB, 3/4", 3/4" VCR-DUB and composite video
- Ideal for use as a frame synchronizer, synchronizing outside satellite, microwave & camera feeds with studio signals
- 3-5 dB chrominance & luminance noise reduction
- Full Pro AMP controls, drop out compensator
- Built-in RS-170 sync generator with genlock input and black burst output
- Y/C delay adjustments, field and frame freeze
- Wide 5.5 MHz frequency response offers 450 lines of resolution. Full 8-bit processing and a 58 dB S/N ratio. **1699.00**

The KitchenSync

Dual Channel TBC

- Two complete infinite window time base correctors on one IBM AT/Amiga compatible card
- Plugs into any IBM AT or any Amiga 2000 or 3000 PC slot
- Works with any video sources including consumer VCR's and camcorders
- 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 Pro Amp with Hue, Saturation, Contrast and Brightness adjustments
- Advanced sync output - useful with any VCR capable of taking an Advanced Sync in.
- Completely digital design - no Pot adjustments necessary. The Kitchen Sync is completely microprocessor controlled and easy to adjust. **1399.00**

FOR.A

FA-310

DIGITAL TIME BASE CORRECTOR

- S-VHS inputs and outputs with both 4-pin and 7-pin connectors (for JVC)
- Wideband CCD comb filter maintains high resolution and high quality pictures
- Selectable field or frame freeze
- Optional remote control allows setting strobe freeze and strobe duration
- Built-in Drop Out Compensator
- Automatic chroma level control restores the reduced chroma signal level at play-back to the correct level
- Exclusive noise reduction
- Recursive-filter noise reduction increases the output signal-to-noise ratio up to 9 dB without the resolution loss typically encountered with H/V dimension noise reducers. **CALL**

AMILINK

The magic of professional editing has never been so affordable. Amilink/CI combines the power of a personal computer with the features of an advanced editing suite in one user-friendly desktop system

- Features:
- Edit with your own style using a combination of the Amiga keyboard, mouse, trackball and joystick. Enjoy editing with the easy-to-use GUI (Graphical User Interface)
- Smoothly perform video and audio insert edits, and the Preview and Review feature ensures they will be recorded perfectly
- "Go To" feature lets you move quickly to any inpoint, outpoint, pre-roll point, or tape location you choose
- Time-saving "Tag" feature lets you tag inpoints, outpoints or durations for source machine, record machine or both
- Trim feature lets you edit quickly with pinpoint accuracy
- CMX last import and export capability plus MS-DOS disk format option for true off-line editing
- Trigger your effects from the Toaster using the programmable GPI
- Full control of Toaster's digital effects. Automatically preloads CG pages for automatic assembly
- Edit list management processing up to 899 events
- Amilink/CI runs on any Amiga 1000 or 2000 and is compatible with Panasonic 5-pin control (AG-1960) and Sony Control L. **CALL**

NewTek

VIDEO TOASTER SYSTEM 2.0



Production Switcher

The Video Toaster Switcher is a broadcast quality production switcher which lets you perform cuts, fades, dissolves, 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. The switcher's graphic design makes it simple to learn and use while providing access to all the Toaster's breakthrough capabilities.

Additional Features:

- 2 video outputs (Program and Preview)
- Preview output lets you compose the next camera shot or frame buffer prior to performing the transition
- Linear keyer
- External GPI trigger
- 256 level adjustable luminance key
- Automatic or manual (T-bar) control of transitions
- Soft edge wipes
- Animated wipe patterns such as page tearing, spray paint, windshield wiper, heart, clock, iris, spiral and many more
- Organic transitions such as clouds, spilling paint, pouring water, smoke, fire, shattering glass

Luminance Keyer

The Video Toaster's integrated luminance key technology gives you the ability to superimpose a weatherman over a map, 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. Toaster Luminance Key does all this and more:

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. Up to 1000 frames may be saved on each frame store device (depending on available storage space). Stored frames can be loaded and displayed in the frame buffers in as short as 1/5 of a second from RAM or 3 seconds from hard drive. These frames can also be used as inputs to the switcher for transitions and digital effects.

ChromaFX Color Processor

ChromaFX is a sophisticated real-time color processor that gives you complete control of all aspects of the brightness, contrast and color 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 such as Nuke, Chrome, Gold, Zebra, and more. ChromaFX also gives you the power to create your own custom color effects from subtle lighting changes or lints to blazing psychedelic effects that will wake up your audience.

Digital Video Effects

The Toaster has the processing power to manipulate live broadcast video in real time, and perform hundreds of network-quality digital video effects as easily as clicking the mouse and sliding the T-Bar. Many Toaster Digital Effects are not possible on any other device including whips, zoom trails, and the "Transporter". Among the effects which are included with the Video Toaster are:

- Page Peel
- Tumble
- Zoom
- Cube Mapping
- Fire
- Smoke
- Four
- Sphere Mapping
- Push Off
- Fish On
- Slits
- Trajectories
- Slide
- Shatter
- Puzzle
- Analogy Trails
- Dissolve
- Mirrors
- Mosaic Tiles
- Digital Trails

Character Generator

ToasterCG is the only desktop video system in the world that can create YIQ-encoded, 35ms (nanoseconds) high-resolution titles. ToasterCG makes adding text to your presentations simple. Among the many powerful tools included are:

- Over 40 standard anti-aliased fonts
- 16 million-color lints including brass, chrome, and rainbow to create dazzling graphic displays
- 24-bit smooth color gradations
- Variable outline & shadows
- Choice of drop or cast shadows
- Variable-speed crawling and scrolling of text

ToasterPaint

Everything you need to create or alter true-color images tailor-made for your presentations is included in an uncluttered friendly interface. 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 those images with incredible realism.

Dual Frame Buffers/Genlock

These are 24 bit (16.8 million colors) frame buffers with composite output that meets the most stringent requirements for broadcast video. Because there are two frame buffers, one can be loading while the other is shown on screen for seamless live presentations. 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, scientific visualization and the most sophisticated effects seen on broadcast television are now on your desktop.

NewTek Video Toaster Board only with 2.0 software **CALL**

VIDEO TOASTER SYSTEM includes: Amiga 2000 computer with Workbench 2.0, 2-button mouse and 94 key keyboard, 7MB of RAM, 120 MB hard drive. Toaster Board and Toaster 2.0 software (all installed) **CALL**

ACCELERATED VIDEO TOASTER SYSTEM includes: Amiga 2000 computer with Workbench 2.0, 2-button mouse and 94 key keyboard, GVP 68030 40 MHz accelerator board, 9 MB (32-bit wide) RAM, 120 MB hard drive. Toaster Board and Toaster 2.0 software (all installed) **CALL**

ANIMATION DREAM PACKAGE includes: Amiga 2000 computer with Workbench 2.0, 2-button mouse and 94-key keyboard, GVP 68040 33MHz accelerator board, 13 MB (32-bit RAM), 240 MB hard drive. Toaster board and Toaster 2.0 software (all installed) **CALL**

Amiga 10845 RGB Monitor **279.95** TBC III **799.00**

We can also custom configure your Toaster System anyway you want - no installation charges.

B&H PHOTO-VIDEO

TOASTER PERIPHERALS

DIGITAL PROCESSING SYSTEMS INC.

DPS VT-2500 Personal TBC III

The VT-2500 Personal TBC III is a third generation TBC card from DPS - the market leader in broadcast quality time base correction.

Features:

- Composite and S-video inputs. Interfaces virtually any VCR, laser disc or camcorder to production switchers and computer video systems like the video Toaster.
- Special effects including Rock Solid Freeze (field and frame mode), Variable Strobe, Forced Monochrome are standard.
- Can be installed in any Amiga 2000/3000/4000 series or in any IBM PC compatible. Also includes DPS Personal Series software. Includes Amiga and Windows versions.
- The TBC III is also compatible with the RC-2000 remote control. The RC-2000 allows you to mix and match TBC II, III cards, DPS-230 rack mount TBC, and the Personal V-SCOPE.
- Backed by two year warranty. **799.00**

DPS VM-2000 Personal V-Scope

The DPS Personal V-Scope is the world's first Waveform Monitor and VectorScope for desktop video. It is designed to give your system the power, look and flexibility of broadcast quality hardware, but at a software price.

Features:

- The Personal V-Scope produces a digitally synthesized Waveform Monitor and VectorScope display which can be superimposed onto any video signal.
- A Plug-in card with control software it works in both Amiga and IBM PC compatibles.
- Any NTSC video signal can be input into the V-Scope which provides a buffered video output, a superimposed (software controlled) video output, and a full-time Waveform/Vector Video output.
- Backed by two year warranty. **749.00**

DPS RC-2000

Personal Series Remote Control

The DPS RC-2000 Personal Series Remote Control is a full featured, low cost, multi-channel remote control unit for certain DPS serially controlled products. One RC-2000 can control any combination of up to 8 Personal TBC and Micro SYNC cards as well as Personal V-Scope, DPS-230 rack mount TBC and the ES-2000 expansion system:

Features:

- Convenient, ergonomic desktop package
- Only one serial cable connection needs (the rest are daisy-chained)
- Dedicated TBC Pro AMP controls and V-Scope function keys
- Has 10 non-volatile memories for each channel and four digital rotary shaft encoders for easy adjustment of all proc amp, color balance and system timing functions.
- Backed by two year warranty. **299.00**

DPS ES-2200

Dual Personal Series Expansion System

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SHOOTING VIDEO FOR TOASTER EDITING

By Burt Wilson

If you're a video producer/director who bought a Video Toaster to set up a home desktop editing system, good thinking. Now, instead of paying studios for editing and special effects, and only taking home from \$4,000 to \$5,000 out of a \$10,000 job, you're probably taking home \$7,500 or even more!

The Toaster is a very professional piece of hardware and software. Whatever faults you may find with it when comparing it to high-priced professional equipment are likely to be extremely minimal when weighed against the ability to produce professional video at home rather than in a studio editing suite. The proof is in the results. When I look at the past year, I find that because of the Toaster, I increased my income 30% and won four Telly Awards (a national competition giving recognition to outstanding non-network and cable TV commercials) for videos I produced, directed, and edited on the Toaster.

But just as the Video Toaster has revolutionized editing and special effects (not to mention economic factors), it's essential to understand that the revolution has to extend your shooting methods for it to be complete.

I'm talking about shooting for post-production Toaster editing. There are a lot of things you can create in pre-production planning that enhance Toaster use and produce more interesting and effective videos. Let's face it, you have to learn to think differently from the git-go.

The Toaster was made to turn a low-cost, cuts-only home editing setup into a competitively viable professional hot-shot electronic shooting gallery

where the dazzle more than makes up for any technical deficiencies. Here are some tips on how to plan your next shoot with post-production issues in mind in order to take full advantage of the Toaster's revolutionary power. We'll also look at using Toaster software to enhance your final production.

A Window of Opportunity

One of the best ways to jazz up any production is to have a video window appear in the upper left or right quadrant. Another option is a head shot of a person talking in a window while a still scene appears in the rest of the screen (see Figure 1). This shifts the eye to the window and focuses attention. During this effect, the first thing to remember if you're using a cuts-only editing system is that only one of the areas can be moving—either what's in the window or what's around the window. To have both areas moving you need A/B-roll editing or must go down a generation, costing you money, quality or both.

When you want moving video in the small window, for best results plan on *cropping* the full video frame to the area of interest with a positionable Toaster effect. You must confine the subject to the physical area of whatever window space you plan to use. To set this up, connect the monitor

you're going to use on your shoot to the Toaster Program output and call up the positionable effects windows on the Switcher's D-bank and punch up #17, called Positive Wipe In. With the color bars and the Toaster logo in the Preview and Program buffers, click on the T-Bar with the left mouse button and drag out a window to the size you want. Then, release the button and move the mouse to position the window in the quadrant where you want it to appear. Experiment a little.

Next, using a washable marker, outline the box on the screen. Now when you go to shoot the scene, set up your shot so it falls completely within the confines of the box you drew on the monitor. Adjust your shot or subject accordingly—making sure you have good visual detail and that it will fit perfectly when it's time to edit.

TPaint Does Windows

To edit in the scene box, grab a freeze frame at the point in your video where you want the box to appear. Take the frame into ToasterPaint. Using the filled rectangle tool, drag out a black square the exact size of the window you drew on your monitor (assuming you're going to use black luminance keying). For this to work correctly, you must use full black, with red, green, and blue values all set to zero.

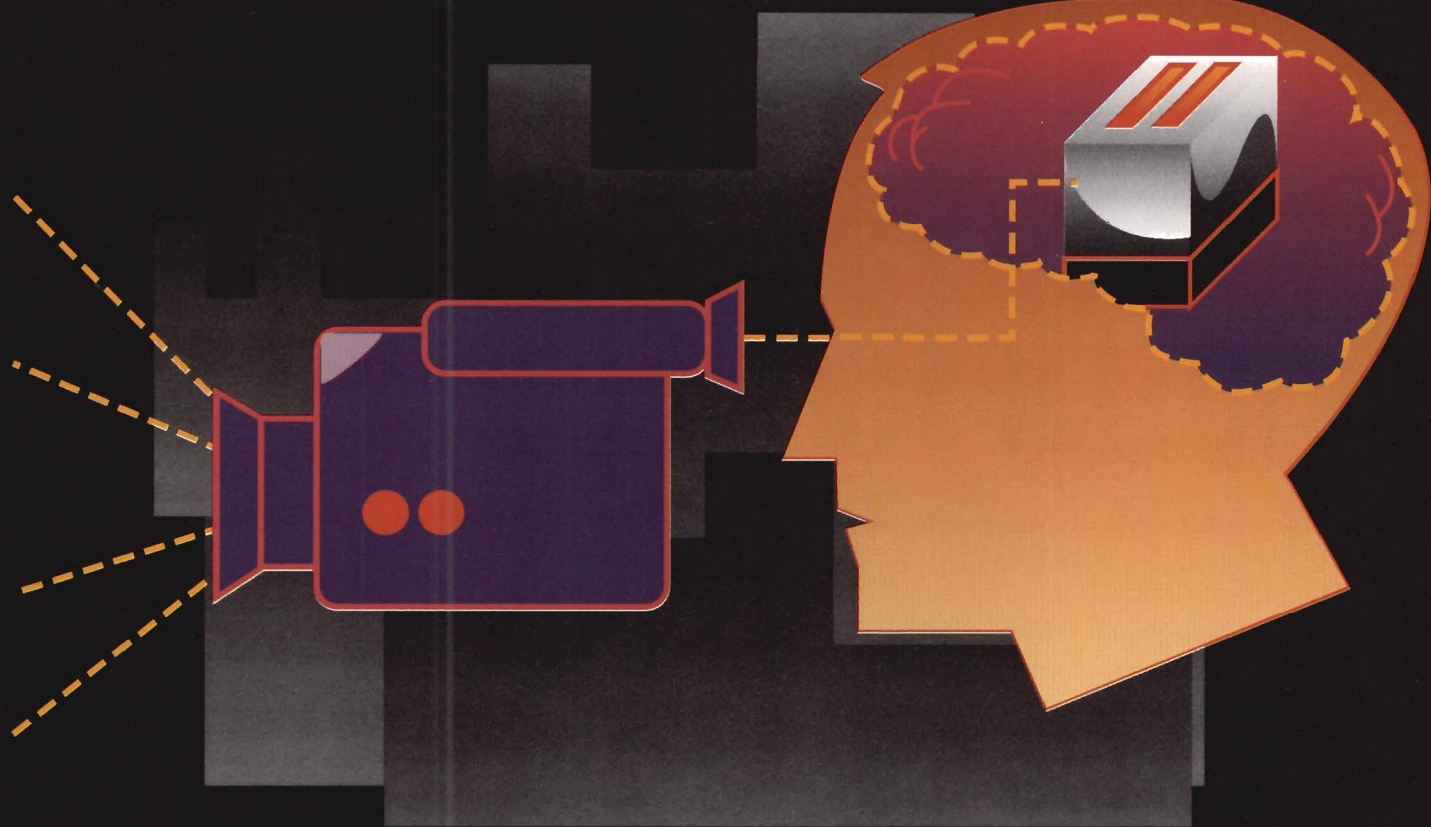


Figure 1: A window can jazz up your production.

Next, you might want to draw a colored border around your window or make an attractive window frame using the gradient fills to give it depth. For an emphatic effect, darken your freeze frame (the area outside the window) about 50%. This accentuates your window and tells the viewer that you're suspending the continuity of the video to make an important point.

To darken the external freeze-frame area, go into ToasterPaint's Transparency & Warping Control Panel (the icon with the sphere and square) and set the transparency sliders to 50%. Exit to the paint panel. Using the filled rectangle tool with the drawing color set to black, fill in the remaining area by drawing out enough rectangles to cover all areas outside the black box. Be sure to fit any rectangle you draw exactly up against the other for a smooth look. If you don't, you'll have dark lines between your panels.

There! Now, save your work as a framestore and

you're set to edit. Call up your window frame into the Preview buffer and click on the black luminance key. Run your live video (which you cropped to fit the window) in the program buffer. Experiment with the clip levels until your live video appears cleanly in the window (without showing through on your surrounding frame area). If black luminance keying causes problems, try using white.

Once that's done, set up edit points on both your source and edit decks, turn on your GPI (if you don't have a GPI Trigger, eyeball the edit) and hit the edit button. At the edit point, your freeze frame cuts in exactly at the point you froze it and your live video appears in the window.

You can also reverse this process and have a still image in the window frame while the surrounding area is live video. You can also bring the window in using the same positionable effect you used to draw the outline. Experiment. Have fun. But remember, plan to shoot it to fit beforehand!

Fake A/B-Roll Tip

Probably the most useful shooting tip I can give you—and the one you'll use most often—is to set up the ending of your video segments for fake A/B-roll editing. For this to be as clean as possible, make sure that neither your camera nor your subject is moving at the end of whatever segment you're shooting. Everything must be perfectly still!

Why? Because you're going to grab a freeze at the end and use a digital effect—most likely a fast fade—to make a seamless transition to another segment of moving video—just as if you had another source deck hooked up to your system. To avoid jitter, the freeze frame must not contain motion.

When shooting a live video segment that will be dissolved into another live video segment in the editing process, direct your cameraman to end the segment with a few seconds with no movement. Direct your talent to hold their position or facial expression motionless for a few seconds to get the absolute stillness needed for your transition.

When editing, grab a freeze at the end of the segment, put it in your program buffer and click on the fast Fade transition. Then, set your GPI trigger at the edit point where you grabbed the freeze. Next, set the edit-in point for your source deck and simply hit the edit button. You'll have a seamless dissolve from segment to segment—just like the big studios. But you have to plan for it ahead of time. If you don't, your edit will look amateurish.

Some helpful tips: Using a fast Fade instead of a slower one can cover up a multitude of errors. Also, you can get a good transition by using the Explode effect (#32) on the E-bank of the Switcher. Be careful when you're shooting outside because swaying trees and leaves will suddenly stop when you do the effect and give away the fact you're cheating.

But what the heck, as my cameraman keeps telling me, "Hey, this is video. You can do anything!"

VTU

Burt Wilson is an award-winning TV and video producer/director in the Southern California area and head of the LA Video Toaster User Group's Video SIG. He prides himself on writing this whole article without once using the word "cool." He does apologize, however, for the use of "git-go."

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COURSE DESCRIPTIONS

DAY 1 TOASTER ESSENTIALS:

Our Toaster Essentials seminar will teach you how to use your Toaster to supercharge your video productions. This is a brand-new version of the class that has wowed thousands of Toaster users. In Toaster Essentials you'll learn timesaving tips and mindblowing techniques for the Switcher, CG, ToasterPaint and ChromaFX. This course does not assume that you own a lot of expensive video gear, nor does it assume that you are a computer wizard. You'll be truly amazed at just how much can be squeezed out of a basic Toaster set-up, and how quickly you can become a Toaster expert. This class also features an extensive Q&A session with the "World's Smartest Toaster Guy."

DAY 2 LIGHTWAVE & MODELER ESSENTIALS:

Whether you are a beginner who's been intimidated by LightWave, or a user who's just having trouble getting that broadcast-look, this is the class for you. More than just fancy techniques, this class also shows you the right method for creating 3D graphics quickly and easily. You'll learn the right way to set up scenes, tricks for cutting rendering times, and insights on sometimes confusing topics like modeling, lighting, morphing and motion paths. LightWave & Modeler Essentials cuts through the noise of confusing terminology and focuses on what you need to know to effectively use 3D in real-world video-productions.

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Lee Stranahan could easily be called the "World's Smartest Toaster Guy." Shortly after purchasing one of the first Video Toasters, Lee quit his day job and, with his wife's endorsement, took on the task of learning the Toaster inside and out. Along the way he started the first Toaster User Group and, Bread Box, the first Toaster newsletter (Bread Box became Video Toaster User.) His knowledge of the Toaster became so extensive that NewTek asked him to write the tutorials for the Toaster 2.0 manual. He is the author of "101 Toaster Tricks" and the host of a very successful series of Toaster training videotapes. Lee could also be called the "Most Traveled Toaster Guy" as he has criss-crossed the country to present his Toaster workshops to over 1000 satisfied Toaster users.

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Professional Edit Suites You Can Rent By the Hour

By Stuart Sweetow

In a few years, video compression technology will let us store and edit complete broadcast-quality videos on a computer hard drives. Until that time comes, we are stuck with VCRs. If you ever tried editing videotape with consumer VCRs, you have probably experienced the frustration of scenes that don't start or stop precisely where you want them to. Or maybe you wanted a sound effect to come in at an exact point, only to find your search is hit and miss.

Consumer decks, even the high-end models, just aren't frame-accurate. When you get into serious editing, you need not only frame-accuracy, but separate audio and video insert capability and preview functions as well. Consumer decks are getting closer to having these capabilities, and consumer edit controllers can now interface with computers to automatically edit an entire video program.

Right now, for greater accuracy in editing, you can get low-end industrial editing VCRs, like the Panasonic AG-1970, or high-end Hi-8 editing VCRs, like Sony's V-Deck. With the V-Deck, you can control editing with a Sony editing controller or with an Amiga or PC computer. The V-Deck even has a built-in titler and audio mixer.

But neither the V-Deck nor the AG-1970 offers a preview function that lets you see edits before they are recorded on tape. They also lack manual audio-level control and independent editing onto two discrete audio tracks separate from the video track.

If you want these features, you have to spend at least \$8,500 on an S-VHS industrial edit system [Editor's Note: See "Emerging Video Technologies," by Tony Gomez in this issue for a look at Sony's new industrial S-VHS editing system] or more for a Hi-8 to 3/4-inch U-matic system. Need audio mixing and titling? That could add another \$1,000 to equipment costs. Want broadcast quality? Add another grand for a time base corrector (TBC).

The alternative, as many videographers have discovered, is to rent time at a professional video editing studio. It may sound expensive, but most major cities have several editing studios available to the public, and the competition keeps prices down. For example, in the San Francisco Bay Area there are several facilities where you can rent a basic VHS editing studio for less than \$10 per hour; S-VHS costs about \$15 per hour.

Video Quicklab, in Ft. Lauderdale, FL, is one of the largest self-serve editing facilities in the country. They have a total of nine edit suites and can let users take footage shot with a consumer camera and edit onto broadcast-quality 3/4-inch SP or Betacam SP. Owner Dave Bawarsky explained the benefits of renting time at a facility rather than investing in equipment yourself. "The expense of getting into gear that changes so quickly is not always economically sound for individual users," Bawarsky says. "We use the JVC BRS 822 which is a \$6,000 recorder. Unlike the Panasonic 1960, the 822 has full-insert capability, time code, a time base corrector,



frame-accurate precision and better signal processing," he explains. "We also have experienced technicians to help customers with problems."

Ed Pitt of Absolute Video in Oak Park, IL agrees. "At a self-service edit facility you can get much better equipment and don't have the worries of upgrades and maintenance," Pitt says. "People think that once they buy edit decks business will come their way. When your equipment is not in use, you're actually losing money. At a professional facility, the cost of the equipment is spread over the customer base."

What's In an Edit Suite?

Some studios offer transportable systems for editing on location, but most rent rooms by the hour. A typical suite consists of an industrial player, a recorder, an edit controller and two monitors. S-VHS systems such as the industrial Panasonic 7750 and JVC 8600 editors are common. Some facilities have the Sony EVO 9700 industrial Hi-8-to-Hi-8 edit system, while others have the classier EVO 9800 that edits to an industrial 3/4-inch U-Matic recorder.

For sound, most facilities have an audio mixers, cassette decks, CD players, amps, speakers and so on. Some even have microphones for

voice-over narration.

But the most popular new item in edit suites today is the Video Toaster. It replaces a great deal of high-priced dedicated equipment such as character generators, digital special effects, switching and paintbox.

Arranging For Use of a Facility

While some facilities may require that a technician work with you, most are set up for self-service operation. Your first hour might include some basic instruction; after that you fly solo. The equipment in basic edit suites is amazingly simple to operate!

Ask for price quotes, reservation requirements and other specifics (hours of operation, location, etc.). Make sure the facility has a Toaster and at least one TBC so you can get broadcast-quality tapes and video graphics. If a GPI (general purpose interface) trigger is available, you can use it to start the Toaster effect exactly at the edit point you want. The source VCR or the TBC should give you a rock-steady freeze frame for Toaster frame grabbing.

If you want dissolves and other effects where images from two different tapes are on-screen simultaneously, then you need to move a notch up to an A/B-roll edit facility.

A/B-Roll Editing

The Toaster can transition one section of moving (rolling) video into another, but for control over this type of editing, you need a special A/B-roll edit controller. AmiLink from RGB Computer & Video is an affordable and popular unit. There are others on the market, but they are costly—another reason to let some-

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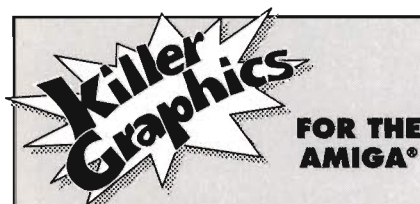
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Professional Edit Suites Continued From Page 86

one else invest in the equipment. For effects in full-motion, you need two source VCRs, two TBCs and a vectorscope to match the two sources' colors.

Time Code Editing

To help locate scenes on your tapes, industrial VCRs record time code on an unused portion of the videotape. This code notes locations on your tape by displaying hours, minutes, seconds and frames. If you're working in 8mm, you can add time code to existing footage, but with all VHS formats, adding time code requires dubbing (resulting in a generation loss).

More sophisticated edit controllers can output time code to a computer to store the edit points for later revision of your video program. Sophisticated controllers include commands for each of the separate tracks; audio channels 1 and 2 and video. You can start a scene with audio only to start, bringing in video an instant later. Effects like this add punch to your video programs and help smooth over an otherwise rough video edit.

Getting Your Money's Worth at the Studio

Edit suites rent by the hour or the day and generally cost about \$15-45 per hour. The best way to get your money's worth is to do some advance planning. Create an edit decision list (EDL) showing the starting and stopping times in minutes and seconds for each scene. With an EDL in hand, you can quickly locate the scenes from your original camcorder tapes and assemble them onto your edit master tape.

You can reduce the number of hours you rent in an edit facility by logging your footage and making decisions before coming to the facility. Video Quicklab's Bawarsky says, "You can cut down on time and money if you are prepared. Know exactly what you want to do with your tapes. If you have several two-hour tapes and don't know what is on them, you can waste a lot of time just searching through them at the edit facility," he says. Most facilities allow you to bring your own artwork, fonts etc. on floppies to their studio, but check ahead to be sure. You can create your own titles and graphics at home and quickly plug them into the facility's Toaster. Of course, the digital effects will have to be done as you edit.

You might want to add music, narration and sound effects. Find out if the facility has royalty-free music you can use, or bring your own. Sound-effects CDs are available and many can be used without paying fees. Before using any recorded material commercially, check the copyright.

Where to Find Edit Suites

Self-service edit suites are cropping up in most major cities. Start by checking the Yellow Pages under "Video Editing." One of the first to appear, nearly 10 years ago, was Half-Inch Video in San Francisco. Started in founder Mark Lamper's living room, the facility has grown into a five-suite complex in a major office building. It supports VHS, S-VHS, Hi-8, 3/4-inch industrial and A/B-roll editing. Half-Inch also has a slew of other audio and video support equipment. Fees range from \$15-39 on a self-service basis, and technicians are available to help or do the editing for you.

On the East Coast is Bawarsky's Video Quicklab in Ft. Lauderdale, FL. This eight-year-old facility boasts six edit rooms and features multimedia desktop video. IBM computers automate editing and produce graphics and animation. While Quicklab offers sophisticated computer boards such as Targa and Vista with Lumena (2D graphics) and Topas (3D graphics) software, they also have simpler programs for self-service use like PC Paint and Animator Pro. A basic VHS suite goes for \$15 per hour while a room with equipment for 3D animation is \$45.

In the Midwest, you'll find Pitt's longstanding video edit facility, Absolute Video. Located in the Chicago suburb of Oak Park, Absolute has a single edit suite and can handle S-VHS, 3/4-inch and a combination of the two formats. Pitt says that some of his clients program graphics on their home Amigas, then bring the disks to Absolute to include in their edited videos. His clientele runs the gamut from wedding videographers to TV personalities making demo tapes to entrepreneurs shooting and distributing their own tapes. Absolute's storefront location, duplication facility and toll-free phone numbers help attract video entrepreneurs.

Big cities like New York, Los Angeles and San Francisco have scores of do-it-yourself edit facilities. Most other cities have at least one facility where you can rent editing time. In the table, I've listed a few self-serve edit facilities around the country. It's great fun using top-notch equipment, and it's not that hard to learn the techniques. Better yet, you don't have to invest thousands of dollars to purchase editing gear and you end up with edited tapes boasting all the action and precision cutting you see in Hollywood—and you've done it yourself.

Stuart Sweetow, owner of Oakland, CA-based Audio Visual Consultants, has over 20 years of experience producing corporate videotapes. He is the author of Planning Video and Slide Presentations and a video instructor for the University of California Extension System.

Directory of Self-Service Edit Facilities

Half-Inch Video

185 Berry St #6502, San Francisco CA 94107,
(415) 495-3477

Video Data Services

30 Grove St, Pittsford, NY 14534,
(716) 385-4773

Video Quicklab

2121 W. Oakland Park Blvd, Ft. Lauderdale, FL 33311,
(305) 735-2300

Creel Video

1245 N. Pilgrim, Stockton, CA 95205,
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Abel Video

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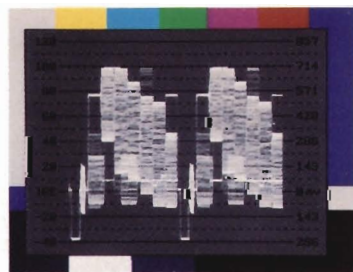


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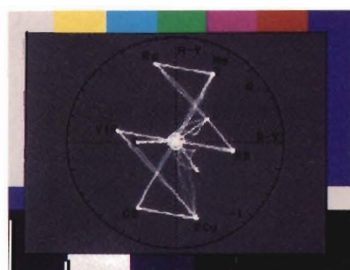
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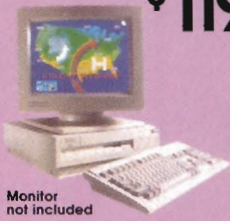
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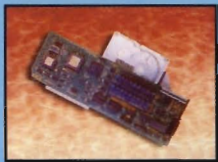
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How To Create A Company Brochure

Making the First Impression Count

By Thomas Dawson

[Editor's Note: This is the second of a series of articles for start-up videographers. Dawson's introductory article, "A Complete Business Tutorial for Freelance Videographers" was featured in Video Toaster User, April/May 1993.]

As illogical as it sounds, most people infer the quality of your videography from the quality of your company brochure. For this reason, you want the quality of your brochure to reflect the quality and attention to detail of your video work. Often, your customers' first impression comes from reading your company brochure. Use the fact of first impressions being lasting ones to your own advantage. While reading this article, please refer to the sample brochure in Figure 1.

Impressive brochures start with quality printing paper. A brochure printed on standard copier paper and folded into sections makes a poor impression. Instead, use a heavy stock paper with a designer pattern inked into it. This pattern should be coordinated with all other promotional materials used by your company. Demonstrate that quality is so important to you that it even extends to your promotional materials. I sometimes get the impression there are clients who judge how solid a company is by the thickness of the paper used for their brochure. Your brochure is a company product and all of your products need to display the same high level of professional quality.

A typical brochure is printed horizontally and folded into three sections. This provides six columns (three on the front and three on the back) in which to convince the reader to use your services. The front of the brochure is the most important column. The viewer's decision to read the brochure is based partly on how interesting the cover is. I suggest using an uncluttered approach, providing only

your company name and what is called a "tag line."

A tag line is a simple statement intended to grab the reader's interest. This can range from a statement summarizing why someone should use your services to a question where the reader has to open the brochure to learn the answer. For example, "Get the Competitive Edge" and "How can YOU pay less and get higher quality?" are sample tag lines.

A brochure, like a resume, should be clear and concise—not overly dense or complex. The material inside the brochure is intended to let the customer know what services you offer, provide information about the quality of your products and how to contact you. Optional items you can include are a list of your previous clients or a list of the television stations or cable services that have aired your work.

If you are just starting out, using only one side of the paper for the brochure works just fine. There are even paper styles available that are created with this in mind. The section that acts as the front of the brochure takes up the entire first column. What you can do and how well you can do it should take up another one-and-a-half columns. The final half-column is for the company name, address, phone number, fax number and the name of the person to contact. Don't omit the latter item—I have found that people are more willing to call if they have the name of the person they need to ask for.

A good way to present your services is to list them double-spaced with a bullet at the start of each line. A bullet is an asterisk, dot, circle, star, or other mark used to denote the start of something important. Keep the descriptions as brief as possible—don't bother to make up entire sentences for each service. Simply think of this as descriptive titling. Examples of service listings are:

- Wedding Videos
- Special Event Coverage
- Computer Animation

You want the customer to see in one quick glance the range of services you offer.

Customers look for a match with the kinds of services they might need. The less time spent reading what services you offer means more time spent thinking about how to use them. If the customer gets bogged down reading long descriptions, they are concentrating on what they're reading and not on ways to use your services. Seeing a service listed that they can use takes them to the next part of the brochure which tells how well those services are provided.

To best represent your product quality, provide specific evidence or proof of how well you do your job. Images from your videos would be very convincing proof, but in most cases are impractical when you're just getting started. The cost of producing a brochure with high-resolution color photographs is usually just too high. If you do have a suitable budget, use only your best images at the highest possible resolution. If you include LightWave 3D images, only use ones rendered at "Print" resolution. Some printers may suggest using a cheaper low-resolution "paper plate" for reproducing images on the printing press. The problem with using low-resolution imagery is it doesn't act as very good testimony to the quality of your work. In my opinion, it's better to have a text-only brochure than to include great images made to look poor by using low-quality reproduction. If the images on the brochure don't reflect the real quality of your work, then you are selling yourself short. The best alternative is to provide convincing written evidence of your prowess as a videographer. It is also a lot less expensive.

Types of written evidence that can attest to your work's quality include: client testimonials, awards and honors won for your work, advanced college degrees,

membership in relevant professional organizations and specific details about hardware output capabilities. Having a client so pleased with your work that they make a statement for your brochure is a pretty convincing proof of your quality. If you use client tes-

affiliations. The details about output quality should list the available rendering resolutions, number of color bits per pixel and the tape or video disk formats you can deliver to the customer.

The Ideal Brochure

The ideal brochure not only generates primary sales, but "second tier" referrals as well. This is where a client hands your brochure to someone else and says, "You should look into this company." For this to happen, your brochure has to look good enough for the client to want to hand it out. We want our clients to feel good about their association with us. It is also a psychological fact that everyone wants to feel justified about the decisions they make. Other business people may ask your clients who they use for their video services. What you want to do is give your clients a brochure that will make using your services look like a smart idea.

Making It

Note that I haven't discussed specific tools and techniques for creating brochures. If you have a computer, you could create the layout yourself with a desktop publishing program. But if you don't have a strong sense of design or page layout experience, the result could be disastrous. I recommend consulting with a professional designer for your first brochure's layout. If the design is successful, you can use it for subsequent brochures.

Remember, nothing lasts like a first impression. Take a little extra time to assemble your first brochure and you'll be thanking yourself for years to come.

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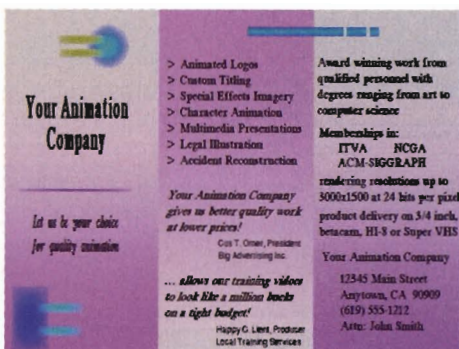


Figure 1: sample brochure

timonials, then you will need at least two from different clients. In fact, the more of these you can get the better. If you have entered a major video festival and won a trophy or award, say so in your brochure. This applies to any other honors you have received for your work's quality. If you have a college degree that might apply to being a freelance videographer, list it. Applicable degrees range from commercial art to computer science. Listing membership in professional organizations signifies that you too are a professional. Be careful to list only those professional associations related to video work and/or prestigious business

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TAO Editizer

By Frank Kelly

One of the most exciting aspects of desktop video is the explosive growth in software-based products in categories traditionally dominated by hardware—like edit controllers, for example. As more people gain access to the medium of video production through the Video Toaster, a tremendous opportunity exists for software developers who dynamically change their products to meet user needs, particularly those who use the Video Toaster System 2.0 and different VTRs as the hub of their production environment. Being such a user, I was eager to see how the \$2,495 TAO Editizer (made by Technical Aesthetics Operations, Inc), a PC-based system with Toaster support, would integrate into my existing Version 2.0 setup. My studio includes: one JVC KRM820 MII edit VTR, two JVC CR850 U-matic VTRs, one JVC BR611 S-VHS VTR, and the NewTek Video Toaster 2.0, used as my main switcher. Although I



communication between all the devices connected to it.

The optional remote shuttle unit transmits shuttle knob and transport signals via MIDI. This option satisfied my need to have my "hands on the knobs" and made adjusting to the new system very easy. The remote connects to a standard IBM MIDI interface card. An added feature for those with certain model MIDI/Sound cards is the ability to use GPI triggers to initiate playback of MIDI music files or WAV format sound files.

For those using parallel-interface decks, TAO makes the "Serializer," which allows parallel decks to respond to serial commands. The Serializer hookup was easy and the unit performed flawlessly. Seven GPI (General Purpose Interface) triggers are provided for remote pulse control of other equipment such as audio mixers, the Video Toaster and a host of other equipment.

Another option, offered by Sweet Pea Communications, is the GPI Box—a device for dynamic assignment of various GPI triggers to any

device connected without having to disconnect and reconnect the GPI cables (suggested list price of \$89). This unit can be very helpful in post-production with the Toaster when precise placement of secondary GPI triggers at points other than the original insertion point are required. With the GPI Box, I was able to insert multiple transition events (such as CG supers and fade to background) in my edit sequence without having to set up an entirely new edit sequence. Depending on which version of the Editizer you purchase, you may need to provide standard serial cables and gender changers for equipment interconnection. While time code is not necessary to operate the Editizer, it is desirable for a number of reasons, not the least of which is the system's extensive log-

ging and list management capabilities. The Editizer's built-in time code generator and readers help put these capabilities into the hands of anyone with even the most modest setups. Nonetheless, control track editing is fully-supported.



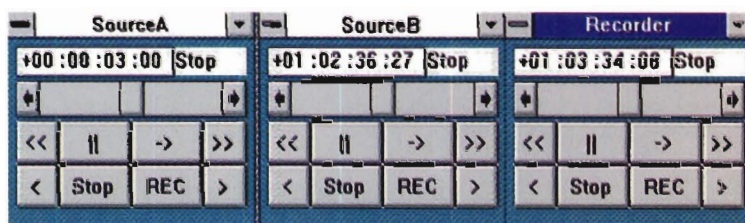
have been excited by the possibility of a software-based edit controller, I have been somewhat skeptical and reluctant to give up my "hands-on-the-knobs" approach to editing for fear that it might be a bit too complex and perhaps not as reliable.

The Hardware

Even though the Editizer has a dynamic software interface, it requires installation in an IBM or compatible 386 or better PC, and works under Microsoft Windows. Also required are four MB of memory, a VGA display, hard drive and two serial ports. The Editizer control box connects via serial cable to the VTRs, the PC and the Amiga. Connection to the Amiga isn't required unless you are interfacing directly to the Video Toaster. There are some special features available for Video Toaster 2.0 users and owners of Personal TBC and waveform/vectorscope cards, such as the ability to store and recall the Toaster's switcher transition settings, as well as multiple Personal TBC cards and remote control of the Personal Waveform/Vectorscope. The control box contains a time code generator and three time code readers, as well as other custom circuitry that allows seamless

Installation

Setting up the Editizer hardware/software on both the PC and Amiga is fast and rel-



Continued on Page 96

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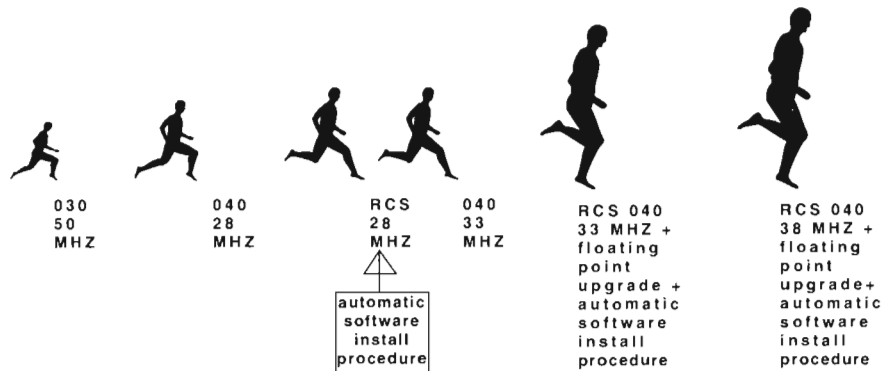
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atively painless. The Editizer's configuration screen allows you to select your VTRs from a list and configure remote control of DPS's TBC and Waveform/Vectorscope cards. There is also a special Video Toaster screen for editing transition times and default settings.

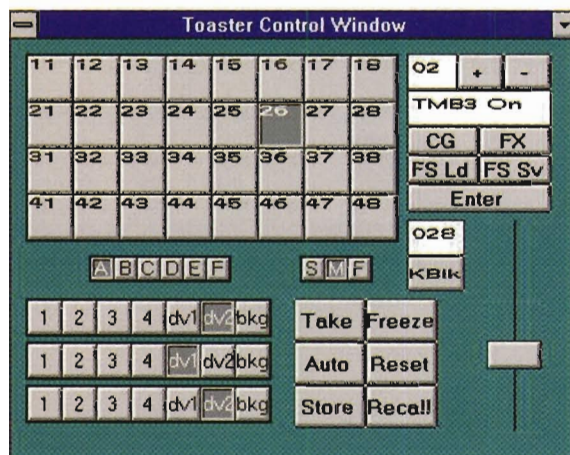
Editing with the Editizer

The Editizer is designed to allow you to simultaneously control three VTRs in what is referred to as an A/B-roll setup. This setup allows for a transition between two moving images that is recorded by the editing VTR. Editizer's edit control panel shows each VTR's status and allows the setting of each edit's In and Out points, as well as remote selection of switcher transitions, framestores, CGs and luminance keys. Anyone who has attempted to manually control three machines along with a switcher transition can empathize with just how difficult a task it can be. Machine control of shuttle, still frame, scan, and stop/play modes can be accessed from this panel as well as from the keyboard's numeric keypad, or the MIDI Shuttle/transport controller.

Editizer makes A/B-roll editing simple, accurate and repeatable. In and Out points for audio and video insertions or assemble edits can be set "on-the-fly" by tapping a key with the mouse, entered from the keyboard, or imported from an edit log or decision list. All edits for a particular project can be saved in a disk file along with the appropriate switcher transitions, GPI triggers and TBC settings. This is a real timesaver when revising an older project—and in post-produc-

tion, time is money.

Taking advantage of these powerful features requires use of time code. Creating SMPTE time code is accomplished with Editizer's built-in linear time code



generator, which is configured via software and requires a video sync signal for accuracy. Editizer can "lock" to an external reference or use its own internal signals for this purpose. Editizer also has a very helpful pop-up time calculator for converting time to minutes, seconds and frames when figuring new edits.

The Editizer manual provides a brief tutorial to help you get acquainted with the system's capabilities, as well as more detailed reference material for those who are experienced with such things as industry-standard CMX style editing (CMX is the de facto edit standard in

broadcast applications). Editizer allows its keyboard command settings to emulate a CMX edit suite together with its own keyboard settings, to take advantage of custom Editizer features. The CMX emulation lets experienced CMX users use a familiar interface, and at the same time gives novice users the opportunity to "train" on a widely-accepted industry standard.

Insert edit options are numerous, with support for standard video and audio insert modes as well as split audio and video edit events. (Split audio editing is a useful feature in documentary-style productions where audio from another sequence either leads or follows the visual cue from another scene.) All edit modes are easily configured from the edit controller screen and can be previewed, performed and reviewed. Edit Out points can be automatically tagged as edit In points for the next edit, another timesaving feature. You can also use the Go-to feature to jump directly to a time code location for review of a particular sequence.

Those using the Editizer for assemble-style editing will appreciate the "Checkerboard" function that assembles a multiple sequence of edits unattended. The "Timeline" feature displays a graphic overview of your entire program in a timed reference window. "Backtime" mode allows you to find the appropriate edit In point by using a scene's duration or Out point. This feature is especially useful when you are looking for a filler sequence that has a specific visual or audio Out cue.

Toaster Control

Editizer's Toaster control interface is very similar in appearance to the NewTek Switcher screen on the Amiga. However, instead of seeing a visual representa-

Continued on Page 98

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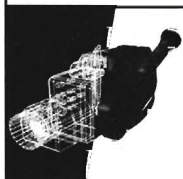
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Don't Panic! The Toast Animator is in Control

by Steve Boleyn

If you are considering the purchase of a TAO Editizer, you should also consider the TAO Toast Animator as an important factor in your purchasing decision. For an additional \$295.00, you can add a single frame controller (the TAO Toast Animator) to your system. TAO also offers support software for Autodesk 3D Studio Animator.

The main requirement for a single frame controller is the ability to record a series of frames or framestores one frame at a time by controlling a frame-accurate video VTR or disk recorder. The Toast Animator does that and just a little more.

The TAO Editizer can control most current frame-accurate video recorders. Before starting to record, you must also have time code laid down on the videotape or disc so the machines know where to record your animation. A click on the Toast Animator

icon and a small window containing familiar VCR control buttons appears. There are also a few windows that display time code numbers. These windows allow you to input start and stop points and keep track of the current time code frame being recorded.

The Toast Animator requires a 486 Microsoft Windows-based PC with four MB of RAM. The Animator communicates with LightWave 3D through the same cables and connections as the Editizer. You select the frames to be rendered or played back at the LightWave 3D Record panel. When a frame is ready, LightWave sends a signal to the Editizer. The Toast Animator then triggers the video deck to record that frame.

Animation requires that a tape be pre-blackened and prestripped with time code. To do this, I run the Editizer and open the Time Code Generator panel. A few more mouse clicks and the VTR is recording time code along with a black image on the tape. For a two-hour tape, this takes two hours.

When the tape is ready, I exit the Editizer program and enter the Animator module to cue up the VCR. To record 90 frames, I'll need at least three seconds of good clean video tape (no dropouts). I choose a starting point, specifying the time in SMPTE time code.

Now I'm ready to record my first 3D animation. I load my scene into LightWave 3D, enter the Record panel and click on the Recording button. I leave the Start Position number at zero and set the Record Command to R. I leave the First Frame Delay at zero, since the TAO Animator cues up the VCR when its Start icon is clicked.

Switching to the TAO Animator mouse, I click on the Start icon and the AG7750 cues up and waits. All that's left to do is set the Toaster. It's done. Hard drives whirl, the VCR rolls, and screens flash. I can't watch, I go for coffee. I come back. It looks good—Ack! Total panic. There are big black gaps in my logo flyby. It appears that not all the frames were recorded. I check both manuals. No help. I call for help. "Hello, TAO?" They recommend I try a different Record Delay. I thank them and set it to 21 seconds.

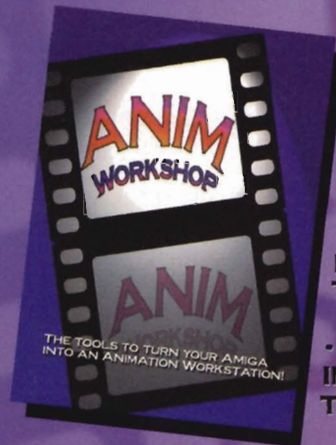
It works. I am impressed.

If you use or plan to use the Editizer, and want to do single-frame recording with Video Toaster 2.0, Toast Animator is your best bet. If TAO releases new versions as often as they have in the past, this program may soon have enough features to go head-to-head with other single frame controllers. For instance, the just-released version of Animator has been upgraded to include record speeds of 30, 15, 10, 8, 6, and 5 frames per second.

TAO appears to have positioned their system to be part of the growth path along which new video production companies often proceed.

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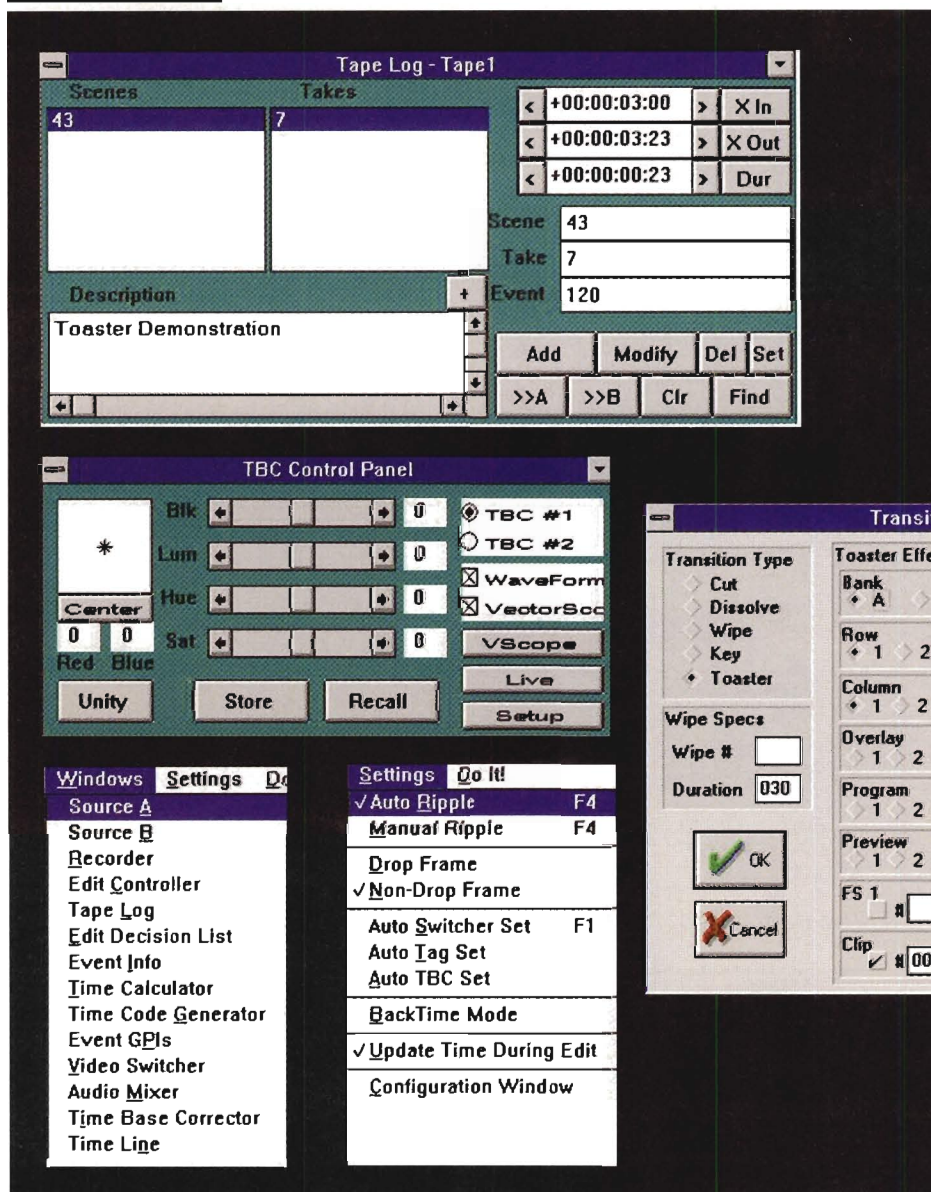
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tion of transition icons, for legal reasons Editizer uses numbered grid positions and text descriptions. This screen allows selection and execution of Switcher transitions, and CG pages, as well as manipulation of frame-stores. Luminance keys can also be preset and recalled manually. There is a special feature for storing Switcher settings which allows for later recall by manually clicking on the Recall button or automatically loading a pre-

can also set luminance-key values and other features. Editizer's Toaster control is well-implemented and easy to use.

EDLs and Tape Logging

Editizer can keep track of existing footage, called tape logging. You can enter text to describe a particular scene as well as time code information—a tremendous aid in assembling a final edit decision list. Cut, copy,

Edit decision lists (EDL) can be saved and later exported for use in any edit suite that uses the standard CMX protocol. CMX lists can also be imported and manipulated for off-line editing. Multiple log windows can be opened allowing for moving events between lists—an invaluable feature for projects where stock footage is to be reused on multiple productions. It should be noted that in the professional broadcast world, logging and EDL software usually costs a great deal more than the entire Editizer package itself. Even if you are purchasing the Editizer strictly for machine control, you will have at your disposal a comprehensive set of preparation tools that can make long-format edit projects less time-consuming and more cost-effective.

More for Your Money

The documentation also offers a brief but useful

primer on various video formats, time code, system configurations and editing techniques. Although many Editizer features are of particular interest to more experienced and sophisticated videographers, the documentation is aimed at entry-level users. This points to a very important aspect of the Editizer concept—providing an upgrade path that allows entry-level users to eventually move up to more

sophisticated capabilities. Accomplishing this task while still maintaining an easy-to-use interface seems impossible, but TAO has managed to do it.

Editizer is designed to accommodate modestly-priced prosumer VTRs as well as high-end industrial and broadcast models that cost tens of thousands of dollars. It supports Sony Control-L, VISCA and Panasonic 5-pin, as well as parallel and serial protocols. This adaptability coupled with the built-in time code generator and readers puts the Editizer practically in a class by itself. While by no means a low-cost A/B-roll edit package, comparable systems from other manufacturers are significantly more expensive (because of the added cost of expensive machine control boxes that must be purchased for each VTR).

Although this version of TAO's package requires installation inside a Windows-equipped PC, it does a good job of remotely controlling the Video Toaster while easily handling all editing tasks, from the simplest to the most complex. TAO recently announced a Macintosh version of this software with identical features that will likely satisfy the needs of those who prefer that platform. Overall, I would say the Editizer merits strong consideration for anyone

serious about video production. It rates high in cost-to-features benefits right now, and allows for future dynamic expansion of its capabilities as new products become available.

VTU

Insert vs Assemble Editing

Insert editing is the most common editing method used in professional post-production. The process involves using a master videotape, which has a control track recorded on its entire length. Video and/or audio signals are then "inserted" onto portions of the tape without disturbing the tape's existing control track. This makes for extremely stable edits. Insert editing is used when creating an edit master.

Assembly editing records video, audio, and control tracks simultaneously, destroying the exiting control track, making edit points unstable. Assemble editing is most often used for "off-line" preview tapes.

viously saved edit list. The Editizer can adjust the Toaster's default settings via a special interface called the Toaster Transition Editor. From its screen you can set transition times in frames per second instead of the Switcher's default Slow, Medium, or Fast settings. You

and paste functions with block options allow scene descriptions and time code locations to be easily moved from tape logs to decision lists. A feature called "Auto Ripple" allows your changes to a particular list to globally modify the other events if desired.

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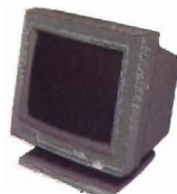
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The Sony EVO-9650

An Easy Toaster Configuration

By Bob Anderson



ightWave 3D is one of the most powerful elements of The Video Toaster. Unfortunately, it is also the most misunderstood. Some people think the program is difficult to learn—I'm here to tell you that the learning curve can be much easier, especially with help from *VTU* columnists and tutorials that can not only show you how to use the program, but also how to make money with it.

In order to output your animations to tape in full 24-bit, you'll need a frame-accurate deck (one that allows a single-frame edit) a controller and the Video Toaster. Until recently, these decks and animation controllers were a huge investment.

Many Toaster 2.0 users are making the move to Sony's low-cost EVO-9650 Hi-8 animation deck. (*Editor's note: See "Sony EVO-9650," a product review of Sony's single frame Hi-8 VTR, by Tim Doherty, in the October/November 1992 issue of Video Toaster User.*) This deck features a built-in computer interface, allowing the Video Toaster to talk to the deck without the need for a single frame recorder. Sony provides a reference manual that is a wealth of information for those interested in programming their own computer to VTR interfaces.

While all of the hexadecimal codes required to make this system fly may look like an overwhelming programming task, with a little patience, anyone can make it work. There are a few configurations that must be performed, but once these are set, forget



Table One

Menu 1: Digital CNR Level	Middle
Menu 2: Digital YNR Level	Off
Menu 3: Vertical Enhancer	Off
Menu 4: Interlaced Scanning	On
Menu 5: Time Code Display Position	N/A
Menu 6: Still Timer	N/A
Menu 7: Tension Release	Off
Menu 8: Format Recording Color	N/A
Menu 9: Edit Switch	Off
Menu 10: External Sync	Off
Menu 11: GPI Timing Setting	N/A
Menu 12: Control Protocol Setting	RS-232C
Menu 13: RS-232C Baud Rate	4800 bps
Menu 14: Hour Timer	N/A

it—they're one-time only settings. Once the system is properly set up, rendering animations to tape is a snap.

Configuring the EVO-9650

Before you can get the Toaster talking to the 9650, first you must set up a few things. The front of the deck features a flip-open control panel cover. There is a switch on the right side of the control panel labeled *Data Screen*. Set this switch to *Menu*. You should see a command screen overlaid on the deck's video out. Pressing the Menu button to the left of the switch takes you through 14 different data settings. The factory presets for all but one of these settings is correct. Menu 13 must be changed to a RS-232C Baud Rate of 4800bps (bits per second). This command sets the data transfer rate between the Toaster and the deck. Higher settings work intermittently, but can lead to Toaster crashes during the recording process. See Table One for the proper settings for each screen.

This looks like a lot of figures, but keep in mind that we only have to change one piece of data. The other important control on the deck is the Remote/Local switch located on the left side of the EVO-9650's front panel. If you want to use the deck's front panel controls, or the jog/shuttle on the deck's control unit, the switch must be in the *Local* position. When the deck is being externally controlled, say by the Toaster, for instance, the switch must be in the *Remote* position. We'll talk more about

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this later when we are ready to start laying the animation to tape.

The interface between the Toaster and the EVO-9650 is made through a null modem cable. These cables are available at any computer dealer. The Cable connects between the Amiga's Serial port, and the RS-232C port on the back of the deck.

Configuring the Amiga

As with the EVO-9650, we must set the computer's serial data baud rate to 4800bps to ensure proper communication. To set the Amiga baud rate, go to your workbench and locate an icon labeled *Prefs*. In most systems, this icon can be found in the System Drawer. Inside the Prefs drawer, you'll find several icons. Double click on the *Serial* icon. Adjust the *Baud Rate* slider at the top of the screen to *4800*. Set *Handshaking* to *XON/XOFF*, *Parity* to *NONE*, *Bits/Char* to *8* and *Stop Bits* to *1*. Hitting the Use button at the bottom of this window tells the Amiga to use this baud rate, until you change it or turn off the machine. The Save button saves this as your baud rate preference, and uses this setting until you change it. If you aren't using anything else in your serial port, it makes sense to save 4800 as the default baud rate.

Configuring LightWave

Setting up record commands for LightWave seems to be the area where most people become frustrated. The 9650 expects to see an Edit Preset string and an In-Data Preset string. If you use Toaster System 2.0, you need to enter both strings *together* into the Record Setup window. On the Toaster 4000, and Version 3.0, there are two Record Setup windows, and each of these command strings can be entered into their own window. These strings are lines of code which command the deck to preroll, go into record mode and perform the single frame edit. There are three pieces of information that the deck needs to see. The first part of the code sets the deck into insert edit mode. This string is entered as :

```
$DF$C0$32$34$30$40
```

This code must always be used to set up the 9650. Version 2.0 owners need to enter this part of the code every time you plan to render to tape. Version 3.0 saves your Record Setup commands. Once this information is loaded, it appears in the Record Command window each time you use LightWave.

The next part of the code tells the deck when (which time code) to begin laying down your animation. This code will *change* every time you use your 9650 (so it's important to understand how this code is entered). Enter this code in SMPTE time code. Let's say you want to start recording the animation at 00:01:00:00. This indicates 00 hours, 01 minutes, 00 seconds, and 00 frames (HH:MM:SS:FF). The code would be entered as:

```
$DE$98$30$30$30$31$30$30$30$30$40 Time code
H H M M S S F F Enter
```

The first two strings, separated by the \$, set up the 9650 to accept the timecode. The next eight strings each start with the number 3. The deck interprets this as: The next piece of incoming information is a number.

The first number string indicates that there is a 0 (zero) in the tens column of the hour: 00:01:00:00 (bold type is for emphasis only). The next string is the zero in the ones column of the hour: 00:01:00:00. Next is the tens column for minutes: 00:01:00:00. Next is the one that appears in the ones column for minutes: 00:01:00:00. The next four \$30 messages indicates no seconds and no frames: 00:01:00:00. The last string, \$40, is the enter command. Notice that each of the strings end with this command.

As I said before, Toaster 2.0 users need to enter these strings into the Record Command window together. The entire string would read as follows:

```
$DF$C0$32$34$30$40$DE$98$30$30$30$31$30$30$30$30$40
```

Toaster 4000/ Version 3.0 users will enter the first command string into the first window, and the second into the second window.

Each time you want to render to tape, alter the second record command to correspond with the beginning time code you wish to start recording the animation at.

The final command you must enter is the record command string. This command tells the deck to perform an insert edit at the end of the last edit point, and how many times to lay down this particular frame. Under normal circumstances, the command would be entered as follows:

Continued on Page 104

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ISO-9650 Configuration Continued From Page 102

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In this example, the recorder is told to lay down one frame at the end of the last edit point. This is how one would normally lay an animation to tape. Here is the sequence of commands that the deck would receive:

1. Lay down one frame of frame number one at the prescribed time code. 2. Rewind, set up to do an insert edit and start pre-roll. 3. Lay down one frame of frame two at the end of the last edit.

As you can see, after doing this for a while, the deck eventually records all the frames in order, thus creating a moving animation. You can also alter this record command to lay down each frame more than once. Entering this command as:

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instructs the deck to insert edit two of each frame. This doubles the length of your animation. Usually, you don't want to set this command much higher than two or three frames because the animation starts to look jerky.

Version 3.0 users must not render more than one of each frame, if the frames were rendered with field rendering, because the video fields would end up in the wrong order. Motion blur produces similarly strange results.

Before committing anything to tape, you must decide whether to render directly to tape, or render to a hard drive and then lay the animation to tape. Both of these methods have their advantages and disadvantages.

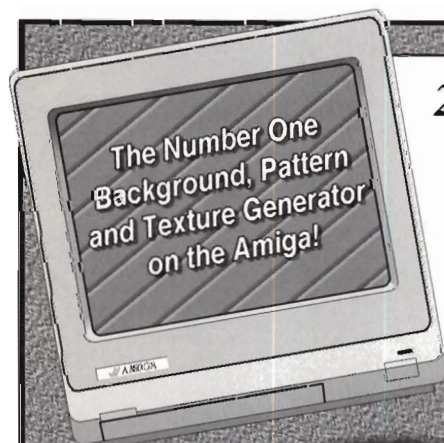
First, let's examine rendering directly to tape. The big advantage here is if you have limited hard drive space. To use this method, you don't need to save anything to your hard disk. As each frame is rendered, it is edited onto the tape. One big disadvantage is that if there is a tape drop out, you're stuck. If the frames were on the hard drive, you could re-lay to tape, and avoid the drop-out. Another minus is, for example, if you like the first 200 frames of your animation but don't like a later motion path, you don't have the option of re-rendering just the latter portion of the animation. The biggest problem is that your recorder sits on pause the entire time you are rendering. As you can imagine, the recorder can be on pause for as long as one hour per frame. This causes a lot of unnecessary head wear, and eventually leads to premature deck failure.

If you have the hard drive space, it is better to save the individual frames, and then lay them to tape. This solution leaves you with the most options. You can save framestores and then play them back using the Play Frames option in LightWave's Record menu, or save images and play them back as a foreground image sequence. The latter method also allows for the insertion of your company logo for demo reel purposes.

To use the images method, render out the individual frames with the Save RGB Images option selected in the Record Options window. Specify a name for the images in the File area on the Save RGB Images prefix requester. Once the images are rendered, each frame will be given a name, followed by a sequential three-digit number. If we named the images *Test*, the frames would be named *Test001*, *Test002*, *Test003* etc.

There is not a huge difference between saving frames or saving images, although images might be slightly cleaner. As RGB data is transcoded into the framestore format, you might notice some slight artifacting. Toaster 2.0 users may find that with most

Continued after Buyer's Guide



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images, framestores have a slightly-larger file size. You'll be able to save more frames on your hard drive if they are saved as RGB Images. Version 3.0 framestores are saved and compressed; therefore, file size is no longer a consideration.

The Recording Process

Whether you have decided to render directly to tape, or call the frames off the hard drive, the recording process is much the same.

Switch the EVO-9650's Remote/Local switch to the Remote Setting. Toaster 2.0 users will select the Record Setup button. Enter the Record Setup command strings as described earlier. When you hit the OK button on the requester, you should see a quick flash on the EXT CPU light on the 9650, just below the Remote/Local switch. This flash indicates that the recorder has received the commands. Version 3.0 users need to enter the first command string into the Record Setup 1 window, and the second string into the Record Setup 2 window. Hitting the OK button on each of these windows should cause the 9650's EXT CPU light to flash.

Both version's users will enter the record command into the Record Command window. Don't be alarmed when the 9650's CPU light doesn't flash when you OK the Record Command window; this command is issued once the image is displayed. Set the Record Delay to 20 seconds. This gives the deck enough time to set up for

Easy Steps to Toaster 3.0 Animation with the Sony EVO-9650

1. Render Frames, save to hard drive as RGB Images.
2. Load these images as a foreground image sequence.
3. Set EVO-9650 to Remote Control.
4. Enter \$DF\$C0\$32\$34\$30\$40 in Record Setup 1 window.
5. Enter \$DE\$92\$30\$30\$30\$31\$30\$30\$30\$30\$40 in Record Setup 2 window.
6. Enter \$DF\$92\$30\$30\$30\$31\$40 in Record Command window.
7. Set Frame Record Delay to 20 seconds.
8. Hit the Recording button.
9. Set first and last frames to match those of the original sequence.
10. Set camera to Medium Resolution, no anti-aliasing.
11. Render with Automatic frame advance.

the edit and preroll. The final step is to select the Recording button.

If you have decided to render directly to tape, start rendering using the Automatic Frame Advance option. As each frame finishes rendering, LightWave will issue the record command—one by one the frames will go to tape.

Those who have saved framestores need to use the Play Frames command in the Record window. Once again, as each frame is called up, LightWave sends the command to perform an edit.

Those who choose to save images can set them up to be output by entering LightWave and selecting the Images menu. Select Load Sequence. Enter the name of the images. Only enter the name (without the three-digit suffix). Next, if you are using Toaster 2.0, go to Backdrop. Version 3.0 users will select Effects. Enter the name of the image sequence under Foreground Image. The name appears as Name (sequence). Now calling up these images takes a matter of seconds, as opposed to rendering each individual frame. Render these images at Medium Resolution. Version 3.0 users don't have to use any anti-aliasing.

You may find that you can increase the image quality of your animations by outputting from the Toaster through a Y/C Plus card. This allows the use of the 9650's Y/C input. Whether you use this output device or not, you'll find that the

Sony EVO-9650 is a high-quality, low-cost solution for outputting animations to tape in full 24-bit. It features a very easy-to-use interface for the Toaster. Version 3.0 saves all of your Record Setup commands, so when it comes time to render to tape, all you have to do is enter the proper time-code starting time. From an ease-of-use and cost standpoint, the Sony EVO-9650 fills your Toaster needs quite well.

Bob Anderson is NewTek's Technical Support Manager and Topeka's resident jazz aficionado.

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Cyberspace

by Geoffrey Williams

Cyberspace is the column that provides Toaster-related solutions and system enhancements via free or low-cost software from the Public Domain. This issue we'll look at programs that help prevent or recover from accidents. All programs mentioned are available from electronic bulletin boards (BBSs, contacted via modem) and public domain disk collections, or from the author via the offer at the end of this column.

Whether due to a hardware or software problem, a power failure, or carelessness, it's easy to lose many hours of work when disaster strikes. You could get a corrupt disk, accidentally delete an important file or have a system crash.

The best way to avoid most common problems is to save your work frequently. By following this rule conscientiously, you'll only lose minutes of work rather than hours. Don't work for several hours designing a model in LightWave or painting a picture in ToasterPaint without periodically saving it. Also, always remember to save your work every time you get up from the computer. This is especially important if you have cats that like to walk across your keyboard.

Another important tip, and one that I have ignored often and regretted, is to save two versions each time you save a file. Give the second one a different name, such as "ToasterPaint.pic.bak" to show that it is a backup. If you ever accidentally save a picture over a picture of the same name, you'll still have a backup version.

Some disasters are unavoidable, especially those that happen while you are not present. If you've ever started rendering a 3D animation in LightWave and left the room, only to return to a blinking error message rather than a completed project, you know how frustrating this can be. It can cost you hours of valuable time that you may not be able to recoup if you are on a tight deadline.

LightWave is pretty good about not crashing, but it can still happen. You can also experience the dreaded power failure. Unfortunately, you can't get LightWave to automatically start re-rendering after a crash or power failure, but you can at least create a system to warn you that there has been a problem. Firsthand experience was my incentive for developing the *LightWave Warning System*, which consists of a few simple public-domain programs.

The first step is to take care of the flashing alert message. Unfortunately, there is nothing you can do if the machine simply locks up, but if an alert appears, we can tell the system to reboot using a simple system patch. *Alert Timer* from Pavel Troller lets you set the amount of time an alert should be displayed before a system reset is executed. This reboots your computer and executes the startup sequence.

The next step is to have a startup-sequence option that you use only when rendering. When your system is reset after a crash, or even if there is an unexpected power failure, your system will reboot and execute the special commands. Under Workbench 2.0, this could be as simple as dragging a script icon into the WBStartup drawer. Using a sound player such as Richard Lee Stockton's *Sound* and a simple script, you could play any digitized sound file, repeating it as many times as you want. Even if you don't have a sound file, it will play any file as a sound, making a loud static noise. The script can be as simple as "sound nameof-sample 100" to play a sound file called "nameofsample" 100 times. With the volume turned all the way up, I can hear it from the other room, so I know it's time to



go back and curse at the computer.

But what if you are not within earshot? Wouldn't it be neat to have your computer give you a telephone call to let you know there is a problem? My solution may not be elegant, but it works.

Using a modem and a dialing utility by Phil Burk called *Quick Dial*, I can dial any phone number from a special script launched in my startup sequence. Of course, the computer does not talk over the phone (I did not find a utility to do that), but if the phone rings and there's no one at the other end, you can guess that it's a call from you-know-who. This is very useful if you have

the computer down at the edit bay rendering over the weekend and you are at home. It might mess up your weekend to get the call, but better than ruining your week. If you are rendering at home and want to go out, tell the person who'll be answering the phone wherever you are that your computer might call and it's not very talkative.

One of the horrors of computing is a disk crash in which the disk becomes unreadable and all of the information on the hard drive or floppy disk is lost. LightWave frames that might have taken hours to render are gone. Or perhaps, in a moment of forgetfulness, you deleted an important file by mistake. Don't panic!

Fortunately, there are some fine programs that can usually restore that lost information. The best of the bunch is Dave Haynie's *DiskSalv*. Instead of trying to restore the floppy disk or hard drive itself, it tries to recover everything possible onto another disk. It can even keep track of loose blocks (separated pieces of a file). *DiskSalv* restores all recoverable files. You can also have it prompt you to selectively restore files. It is possible to recover an entire hard drive onto floppies, as it prompts you to insert a new disk when each one is filled.

While not quite as powerful as *DiskSalv*, Werner Guenther's *FixDisk* has a standard graphical interface and is a little easier to use. It is important to not write anything to the disk or hard drive before trying to recover a deleted file.

If a file becomes corrupted, there must be a reason. If this happens frequently, or if your system regularly hangs up part way through saving an animation from LightWave, there may be a problem with your hard drive or SCSI controller (the internal board that allows communication between the hard drive and your computer). John Yeager's *SCSI Tester* thoroughly tests your SCSI controller and hard drives. If there is a problem, it gives you a complete report.

Memory problems (bad chips) can also cause corrupted files, but they more typically cause sporadic system crashes when the computer accesses those locations in memory. To find out, use Vincenzo Gervasi's *Amnesia* memory tester. It checks each section of memory eight times, then provides a complete report. With this information, you'll know if you have a bad chip and what needs to be replaced.

There has been a lot of concern about computer viruses. I download hundreds of files and look at lots of strange disks, and I have only been infected by one computer virus in the last five years. For most people, the chances of getting infected by a computer virus are pretty slim. If it does happen though, it can cause some serious problems.

The earliest viruses only infected the bootblock—a small section of code that is executed each time you boot your system. Typically it resided on floppy disks; so if you never booted from floppies, your chances of getting it were small. Now there

are viruses that can attach themselves to parts of the operating system, hide themselves within the actual programs you use regularly, and do all sorts of other sneaky things. They have even been hidden in virus killing programs. They can crash your system regularly, change your pointer, put up strange messages, and worst of all, write over or destroy data on your hard drive.

Currently, the most popular virus killer is *Virus Checker*, created by John Veldhuis with the cooperation of Safe Hex International, a consortium of over 250 international members concerned with wiping out viruses and seeing that virus creators are prosecuted. Although it can detect and kill many more, the documentation lists 49 known viruses and their symptoms. Georg Hormann's *VirusZ*, which recognizes over 300 viruses, is also popular.

Both programs eliminate all known viruses, and are regularly updated to handle new ones. You can leave one running all of the time to constantly test your system. I only use them to check periodically, and to check disks before I distribute them. Don't be paranoid about viruses; just know that you can detect and take care of them.

Have your LightWave renderings started taking longer and longer? Should the computer be faster? In computerdom, benchmark tests are used to evaluate a particular computer's speed and compare it with the speed of base systems. If your system is not running as fast as it should be, there may be something wrong. I've heard of software problems that caused the accelerator to be turned off. Benchmark and system configuration testers can tell you how fast your computer is running and whether the installed boards, such as accelerators, are running.

LaMonte Koop's *AIBB* (Amiga Intuition Based Benchmarks) gives base comparisons between your computer and the Amiga 500, 2000, 3000 and 4000 with more than 18 tests. It can log these tests which you can use for future comparisons of your system's performance. Changes in performance can help detect a problem. It can give you detailed information about your computer, such as chip revision numbers and installed boards. It even has online help telling you what all of the tests measure. This is an outstanding piece of software, and the extensive documentation helps give you a much better understanding of what is going on in your computer.

Another similar utility is Nic Wilson's *SysInfo*. While it has fewer general speed tests, it does report more specifically on hardware and software configurations. It also does speed tests and analysis of hard drives and floppies, which can help determine if you have a hard drive problem. Even if you don't understand the information these two programs give, it can be very helpful when talking to a technician over the phone to try and figure out what your problem is.

Most of us would be happy puttering around with LightWave without having to worry about the magic inside the box. When mistakes or problems do happen, it saves a lot of time to be able to quickly fix them or detect hardware problems so that you can get back to puttering. These tools will do the job.

If you don't have the time to hunt this stuff down, I've put all the latest versions on a disk, including my script and setup for the LightWave Warning System. Send \$5 to: Geoffrey Williams, *VTU* Disk Offer, 1833 Verdugo Vista Drive, Glendale, CA 91028.

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By Chris Hanson

Money- Stretching Toaster Monitor Configuration

Contemplating a Video Toaster Workstation or a Toaster purchase for your Amiga? For best results (and minimum eyestrain) consider buying three monitors: a RGB analog (such as the Amiga 1084), and two composite monitors for Program and Preview output. But before shelling out hard-earned cash, let me show you a setup that saves some money without compromising your capabilities. Here's what you need:

- One analog RGB monitor, such as the 1084. (You needed one of these anyway, and if you already own an Amiga, you most likely have one.)
- One composite color monitor. This will be your Program monitor—don't skimp here. Pick a high-quality display.
- One monochrome composite video monitor. This one doesn't have to be big or expensive. A 10" monochrome monitor does fairly well and is quite inexpensive. This is where you can save some money—as much as several hundred dollars.

A monochrome monitor is usually impractical for the Toaster because the Toaster's only composite outputs are the Program and Preview displays, and you want them to be the best quality possible (especially

the Program output). It's a real shame that the expensive high-quality 1084 color monitor is relegated to running the colorless switcher display, isn't it?

This is where we pull the trick. The Amiga 2000 has a composite monochrome video output jack (normally not used) that displays the very same signal as the RGB Analog video port.

Using Figure 1 as a guide, hook your inexpensive monochrome monitor to this composite video jack. Looking at the Amiga from the back, it is the leftmost of three RCA jacks (the other two being the left and right audio outputs) located directly under the power supply fan. Labeling varies depending on the Amiga's age, but it usually says something descriptive like "MONO" "VID" "VIDEO" or even "MONO VIDEO." Then, hook your color composite monitor to the Toaster's Program jack.

Next, run a cable from the Toaster's Preview jack to the Composite In jack on your 1084 (or 1084S, 1084D, 2002, etc.) Like the Amiga's video out connector, the labeling and location of this jack varies greatly. If you're not sure, check the manual or ask your dealer.

Finally, run the Amiga monitor's RGB cable (has a 23-pin connector on one end and should have been included in the Amiga monitor box.) from the Amiga RGB Video port (23-pin D-type connector just under the Toaster card's connectors, see Figure 1) to the RGB In jack on the Amiga monitor.

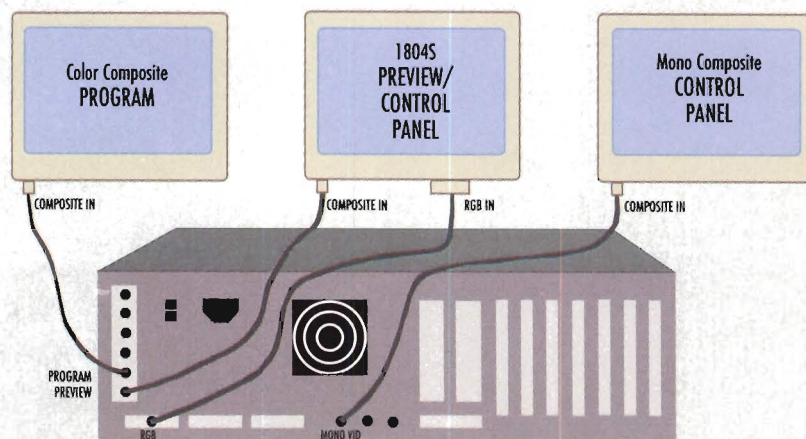
That's it.

Examine your Amiga RGB monitor carefully, and you'll eventually find a switch that changes between RGB and Composite modes. (Sometimes it has other settings that are best left unused.) When you use the Toaster's Switcher, set the monitor switch to Composite mode. This lets the high-quality Amiga monitor display your Preview. You can then use the monochrome monitor to view and operate the Switcher, since nothing on the Switcher screen has to be perfectly crisp and clean.

When you run Amiga software or ToasterPaint or the Genlock utility, leave this switch on RGB. This sets the monitor to display the programs' interfaces in high-resolution color for maximum clarity.

What could you possibly do with all that money you saved on the Preview monitor? Extra fonts or Amiga software come to mind, or perhaps a subscription to *Video Toaster User*?

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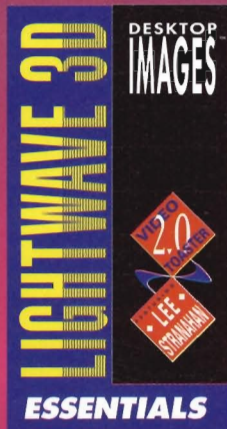
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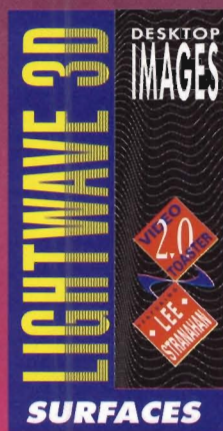
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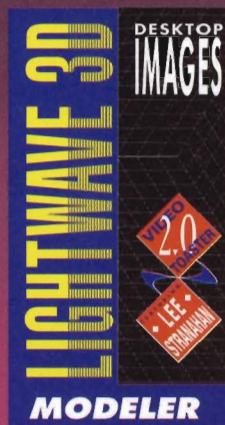
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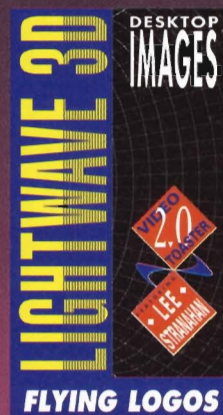
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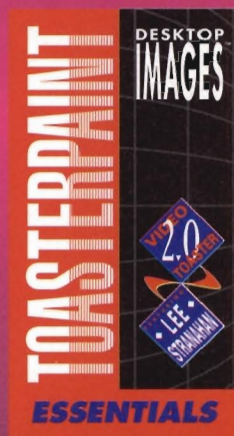
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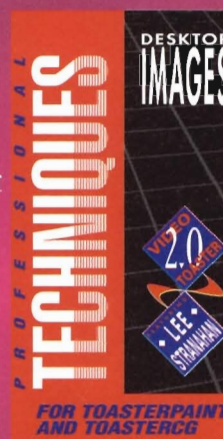
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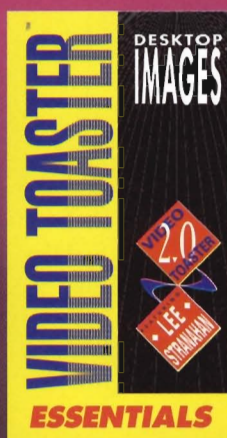
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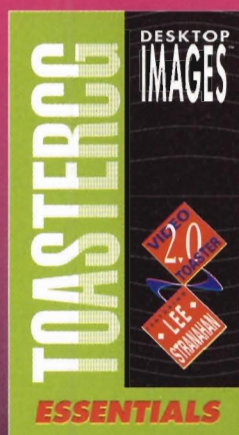
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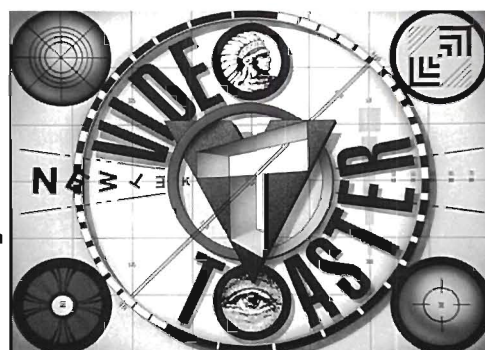
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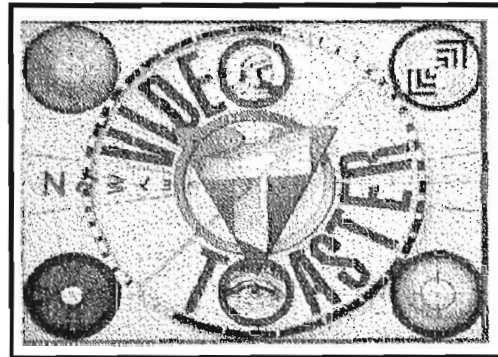
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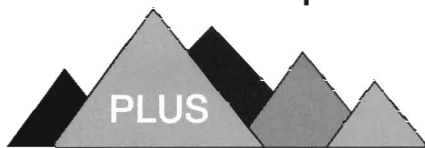
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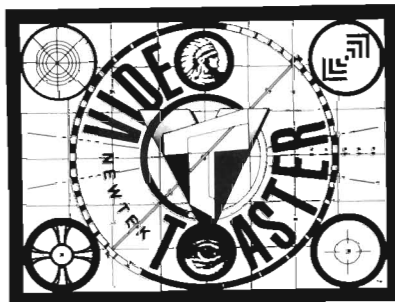


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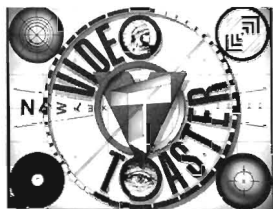
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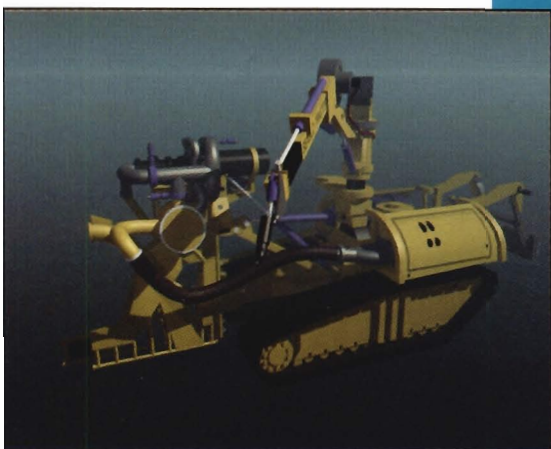
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The Citibank image is from a one-minute animation used in a Citibank corporate video. The scene contains over 12,000 polygons, and took one hour to render at High Resolution with a 68040 accelerator. Modeling took 20 hours.

The tractor is a machine used to lay cable for a communications company. The model contains 17,000 polygons and required 55 hours to build. The scene rendered in 35 minutes in High Resolution with shadows and fog enabled.



Second Sight

Sacramento, CA-based Andrew Osiow has been involved in computer graphics for over 11 years. These pictures are taken from animations in Osiow's LightWave-rendered demo tape, *Second Sight*. Contact Osiow at (916) 922-1384.

Starscene was created with LightWave 2.0—light flare, lens reflections and all. The planet object consists of two spheres, the inner mapped with a Jasper Rock image from Texture City, and the outer transparency-mapped with transparent edges to simulate an atmosphere. The star consists of three spheres: an inner solid white core; a central sphere mapped with DPaint-created rays; and an outer corona for flare. The lens reflections were created with six hexagonal, translucent polygons grouped to a central spike. As the camera moves toward the sun, this assembly rotates toward the camera for an uncannily realistic effect.

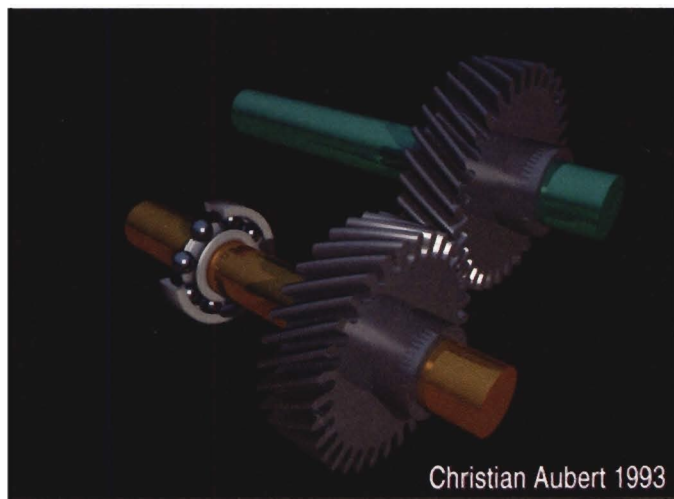
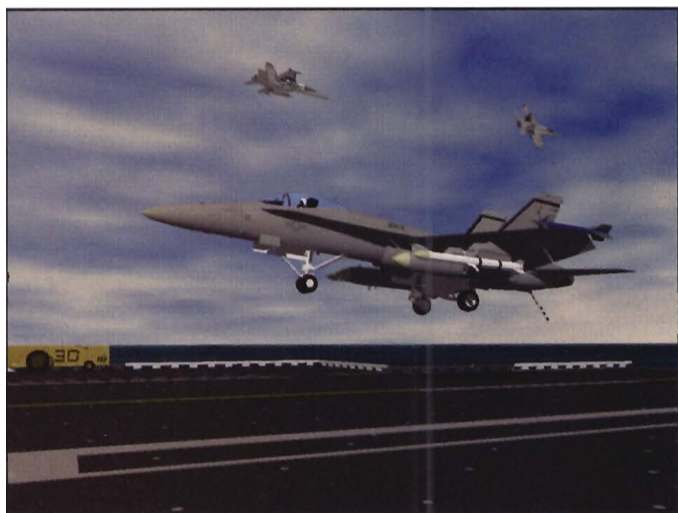
UFO was created as an experiment with lighting, and also as part of a movie proposal still under consideration. The saucer consists of over 11,000 polygons and required two weeks of part-time labor to build. To create the tiny surface lights, the saucer shell was duplicated, made luminous and transparency-mapped so that only the lights would appear.



Carrierpic

This convincing contribution by Desmond McPherson depicts an F/A-18 jet fighter about to land on an aircraft carrier. McPherson modeled the F/A-18 in two months of evening work. The model makes extensive use of image maps including a fully-detailed cockpit with pilot. The paint scheme used is that of the VFR-15 squadron The Valions. The jet is armed with AIM-9 Sidewinder and AGM-88 HARM missiles, external drop tanks, and FLIR and LIST pods used for tracking and targetting. Rendering in LightWave 2.0's High Resolution mode required three hours with a 28MHz 68030 accelerator. The F/A-18 model is now available through the ViewPoint, Inc. ([800] 748-4170) catalog of 3D models.

McPherson's next project is a scale model of an F-117 Stealth Fighter. For more information, contact him at (619) 375-3078.



Christian Aubert 1993

Gears

Quebec, Canada-based LightWave artist Christian Aubert created this image with LightWave to see how long it would take to recreate a magazine image created with another 3D program. The object contains 10,810 polygons and took one-and-a-half hours to build in LightWave Modeler. The Print Resolution image required three hours and 40 minutes to ray-trace (shadows and reflections) on a 50 Mhz 68030 system. Interestingly, although 12% of the polygons aren't flat, the object renders perfectly. Aubert is available for 3D work; contact him at (819) 758-6079.

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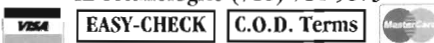
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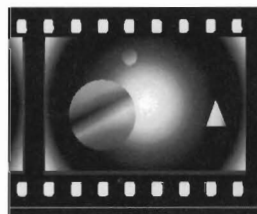
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Duncan Grenier

Video Toaster User Classified

21611 Stevens Creek Blvd.

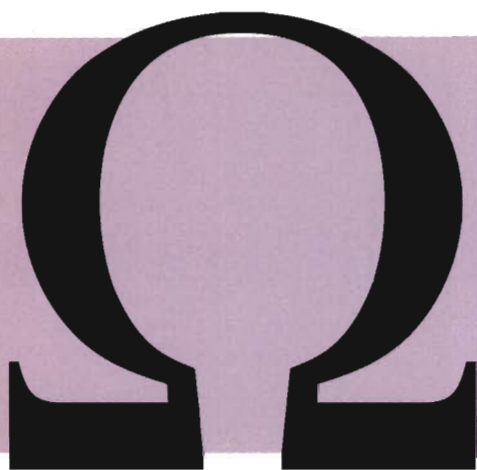
Cupertino, Ca 95014

(408)366-8220 or

800-322-2843

FAX (408) 725-8035





LAST WORD

As I travel around the country giving my training seminars, I talk to a lot of Toaster owners. I like you folks. By and large, you're my kind of people—independent, smart, and you dig cool gizmos. The average Toaster owner is part artist, part entrepreneur and part techno weenie. Like I said, my kind of person.

Unfortunately, there are some people who just don't get it. There's not a lot of them, mind you, but some of them are fairly influential in the Toaster universe. In my opinion, they have a completely misguided notion about how the world works.

You, the good and kind Toaster people that you are, need to watch out for these blights on the Toaster landscape. So before I talk about the mentality at work here, let me give you a field guide of the species to look for.

The Users Group Leech

Look for this one at your local Toaster Users group. They sneak in the back, take careful notes when other people are demonstrating, maybe show a demo reel once in awhile, but never seem to be available to give a Toaster demonstration of their own. If they do decide to bless the group with a demo, just leave early. They don't want to let you in on any "secrets," and chances are you won't learn anything new.

The Dealer Weasel

They'll charge you top dollar for your Toaster system; but when it comes to service and training, they'll still charge you top dollar. Don't look for a Users Group Leech here—this dealer would never dream of holding a users group meeting. That would mean giving away information that they could charge for.

The Toaster Expert Who Doesn't Tell You Anything

This clever creature swears up and down that they know the Toaster inside and out. You'll never find out what they know, because it's privileged information. If they do let some information escape, you can be sure they keep the best stuff for themselves.

These types are the exception, not the rule. They're few and far between, but don't let them waste your time. Avoid these people like the plague that they are. They want you to give them something, but it's like pulling teeth to get anything back.

Personally, I have no "secret" Toaster tips that I keep for myself. As a matter of principle, I share my

knowledge. This is just as true today as it was when I made my living doing graphics.

Does that mean that I give my tips and tricks away for free? Well, yeah, to some extent it does. Don't misunderstand me. I charge money for my videotapes and seminars and I get paid to write for this magazine. But if you and I have ever met, you know that I always answer questions to the best of my capability. If you see me at a trade show and ask me how I produced a particular graphic or Toaster effect, I'll tell you. No charge.

I've found that many of the folks who've asked questions and received answers often turn around and sign up for my seminars and purchase my instructional tapes. Why? I've helped them and proven my expertise.

My advice for anyone who wants to make money teaching is that you should try to be a teacher at all times—on the clock or off. Why? Because if you don't share what you know, no one will know you know it.

I've also discovered that by sharing my tips and tricks with other Toaster users, I learn more myself. Many times I have shown someone a new trick and it sparks something in their mind. They think of a new twist that hadn't occurred to me. These ping-pong knowledge transfers are very common and they benefit everyone. Besides, this friendly attitude helps me keep my mental balance.

I'm always teaching, always learning, and I don't live in fear that someone will figure out my secrets. I know that my success is based on more than a handful of tricks that I could keep to myself.

Sadly, some people don't see it that way—they hoard information. I believe there is a major mental mistake going on here. There isn't a fixed amount of Toaster knowledge, just as life isn't a fixed pie, where my knowledge, income, or happiness have to come at your expense (literally).

Let's say you're a wedding videographer. You can look at other wedding videographers in one of two ways: as colleagues or enemies. If you view them as enemies, you'll always be looking over your shoulder. Just remember, people looking over their shoulder spend a lot of time bumping into things. If, however, you look at them as colleagues, you'll find you can learn much from them and often can have a relationship that is beneficial for everyone.

If the videographer across town does a great job on weddings, the best thing to do is make sure your work is up to the same standards. This is the greatest benefit of competition—it forces you to get better. This is good, clean, competitive capitalism. When peo-

By Lee Stranahan



ple are dishonest or expect something for nothing, negative aspects start to rear their ugly head.

I try to use competition as a motivational tool. If a competitor is successful and good at what they do, I have no ill will towards them. They've earned their success. If a competitor is not so successful, I either work hard to make sure my work is better than theirs or try to forget about it. Of course, you can apply this philosophy to whatever business you're in. It keeps the focus on the right target—you. I find that a lot of people spend far too much energy worrying about what the competition is doing. I'll be honest, I do it, too. It's only natural, but that doesn't mean it's a good trait.

At first glance, this discussion might seem unrelated to the Toaster; however, I think that adopting a positive attitude has a practical payoff. For people joining the personal video production revolution, one of the toughest concepts to grasp isn't the technology; it's adopting the right mindset. It's the difference between being a Video Toaster User and a Video Toaster Loser. Without the right mindset, chances are you won't learn as much and won't enjoy your work.

If you really do enjoy your work and the Video Toaster, then do yourself and the world a favor and share that enjoyment with others. Let's face it: If you aren't enjoying the Toaster, there's something very wrong.

VTU

VIDEO TOASTER USER

BUYER'S GUIDE

A Plethora of Toaster Products

FREE

Since the introduction of NewTek's Video Toaster in 1990, hundreds of third-party Toaster products have joined the personal video production revolution. Inside, you'll find the most complete and up-to-date product listing available for Video Toaster users, including:

- Video Toaster 4000
 - Software
 - Hardware
 - Sound
 - Edit Controllers
 - TBCs
 - Instructional Materials
 - Dealers
- And more!



HOW TO USE THE VIDEO TOASTER USER BUYER'S GUIDE

Welcome to the *First Annual Video Toaster User Buyer's Guide*. As a service to our readers, we asked hundreds of vendors and dealers to supply us with product and service information specifically related to the Video Toaster. On the following pages, you'll find those manufacturers' and dealers' responses to our queries.

To be as product-specific as possible, under certain category headings we have also added sub-categories to make your search a little easier. For example, under the *Software* category, you will also find the sub-categories *Animation Processing*, *Fonts*, *Image Processing*, *3D Models*, etc.

Product listings are organized in the following order: Category (Sub-category), vendor name (in alphabetical order), address, telephone number, FAX number, product name, product description, hardware/software requirements and suggested retail price. For those vendors with multiple products in one category, there is one address and phone listing with the products listed consecutively thereafter.

Some vendors declined to provide price information, or hardware/software requirements or a FAX number; in these cases, we printed as complete an entry as possible. If you require more product information than what is listed in the description, please contact the vendor directly.

In the *Dealer* section, dealers are organized alphabetically by state, listed in alphabetical order by name, and include address, telephone and FAX number. Canadian dealers are organized alphabetically by province, listed in alphabetical order by name, and include address, telephone and FAX number.

While this first effort is under our collective belt, we are already working on improvements for our *Second Annual VTU Buyer's Guide*—like adding a User Groups section and a reader's service card (that you can detach to send off for free product information). But we need your help! Please write us at *Video Toaster User Magazine* and let us know what you want (and don't want) to see next time.

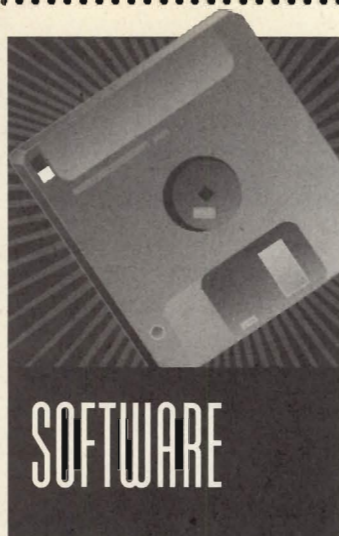
For those vendors and dealers who have not provided VTU with product/dealer information, please do so using the current listing format in this buyer's guide and mail your information to us at:

Avid Publications/Attn: Buyer's Guide
21611 Stevens Creek Blvd.
Cupertino, CA 95014

We hope you find the *Video Toaster User Buyer's Guide* helpful in making your Toaster-related purchases easier and more informed.

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Animation Processing

Axiom Software

541 W. 98th St., #322
Bloomington, MN 55420
(612) 888-0352

FAX (612) 888-0537

Anim Workshop

Anim Workshop provides tools for processing/editing your Amiga format animations (ANIMs). Anim Workshop makes it easy to create an animation from a list of RGB files or to change the format (size, resolution, colors) of an existing animation. Anim Workshop works with ADPro to bring all of the Art Department's image processing power to the animation level.

Anim Workshop can be set up to automatically create an Amiga resolution animation from files rendered by your 3D modeling software. This way, you can preview you animation on the Amiga before laying it down on tape one frame at a time, or record the Amiga animation directly.

Anim Workshop supports all ANIM 5 animation formats, including ANIM brushes. Sound effects can be added to an animation and saved in the new Multi-Media Animation format. Edit animations by adding and deleting frames. Batch process images through Req: ADPro. Full AREXX support. \$99.95

See ads on pages 18-19 and 97

Fonts

ARock Computer Software

P.O. Box 731
Springfield, MO 65801
(417) 866-8803

Masterpiece Toaster CG

All 110 fonts from the Masterpiece Professional Font Collection have been converted to the ToasterCG format and are

ready to load and use immediately. These fonts only work with ToasterCG.

Req: NewTek Video Toaster
\$99

Masterpiece 3D

Fonts for LightWave

50 3D fonts for LightWave. All include upper case letters and numbers. 48 also include lower case letters. Each letter is a separate object. Over 3,000 objects.

Req: NewTek Video Toaster
\$99

InnoVision Technology

1933 Davis St., #238
San Leandro, CA 94577
(510) 638-0800
FAX (510) 638-6453

Montage Fonts 1

Montage is the first third-party application for the Video Toaster featuring a one-nanosecond character generator with real-time font scaling in 16 million colors and 24-bit IFF and Framestore image compositing and blending. Montage Fonts 1 provides 10 additional master typefaces that are real-time scalable. Included fonts are: Optica, Palatine, Eras, Minerva Italic, Kabel, Compacta, Revue, Futura, NewText and Incised Nord. Montage Fonts 1 expands your typeface library with any array of professional fonts for any occasion giving you more variety and creativity in creating titles and graphics.

Req: NewTek Video Toaster with Montage program
\$199.95

See ad on page 41

Kara Computer Graphics

2554 Lincoln Blvd., #1010
Marina Del Rey, CA 90291
(310) 578-9177

Toaster Fonts 1

Four-dimensional, 3D appearance, anti-aliased chromafonts for the ToasterCG. Each font comes in two sizes and includes upper and lower case, numerals and special characters (plus @, ©, Σ, ° and †). Styles include: KaraChrome serif, KaraGold extrude, KaraGold serif and KaraInflated. A hard-drive installation program is provided.

Req: NewTek Video Toaster
\$99.95

Toaster Fonts 2

Four-dimensional, 3D appearance, anti-aliased chromafonts for the ToasterCG. Each font comes in two sizes and includes upper and lower case, numerals and special characters (plus @, ©, Σ, ° and †). Styles include: KaraMarble, KaraWood, KaraGranite and KaraBrass. A hard-drive installation program is provided.

Req: NewTek Video Toaster
\$99.95

Toaster Fonts 3

Four-dimensional, 3D appearance,

anti-aliased chromafonts for the ToasterCG. Each font comes in two sizes and includes upper and lower case, numerals and special characters (plus @, ©, Σ, ° and †). Styles include: Gothic gold, Roman extrude, Gothic metal and Gothic italic. These fonts also include built-in drop and cast shadows. A hard-drive installation program is provided.

Req: NewTek Video Toaster
\$99.95

Toaster Fonts 4

Four-dimensional, 3D appearance, anti-aliased chromafonts for the ToasterCG. Each font comes in two sizes and includes upper and lower case, numerals and special characters (plus @, ©, Σ, ° and †). Styles include: KaraScript gold, KaraBrushed, KaraScript metal and KaraCalligraphic. A hard-drive installation program is provided.

Req: NewTek Video Toaster
\$99.95

Soft-Logik Publishing Corporation

11131 F South Towne Square
St. Louis, MO 63123
(314) 894-8608

FAX (314) 894-3280

TypeSmith 1.0

TypeSmith 1.0 is the first professional outline font editor for the Amiga. TypeSmith can create and edit PostScript Type 1, Compugraphic Intellifont and Soft-Logik format fonts. TypeSmith is perfect for Toaster users who need to switch fonts between Compugraphic and PostScript formats. You can even draw your logo in Art Expression and then import it into your favorite font or combine characters from different fonts.

Req: Workbench 1.3+
\$199.95

See ad on page 53

Unili Graphics

143 Lorraine Ave.
Pittsburg, CA 94565
(510) 439-1580

FAX (510) 439-1580

Broadcast Fonts 3D —

Professional Pack #1

This package contains all 27 professional-quality 3D typefaces from Master Packs 1, 2 & 3. Each typeface contains upper and lower case letters, numbers and 29 punctuation symbols. All characters have been built with our AQPoint Extrusion routines for unsurpassed outline integrity—any object can be scaled, sheared or flown through without sacrificing output quality. Object sides are built so that with phong smoothing turned on, both smooth curves and sharp corners look perfect from any camera angle. Complete phrase-building tutorial

included. Sample scene disk available. Req: NewTek Video Toaster or Caligari \$395

Broadcast Fonts 3D -

Master Pack #1

This package contains nine professional-quality 3D typefaces. Each typeface contains upper and lower case letters, numbers and 29 punctuation symbols. All characters have been built with our AQPoint Extrusion routines for unsurpassed outline integrity—any object can be scaled, sheared or flown through without sacrificing output quality. Object sides are built so that with phong smoothing turned on, both smooth curves and sharp corners look perfect from any camera angle. Complete phrase-building tutorial included. Sample scene disk available.

Req: NewTek Video Toaster, Caligari or Imagine

\$150

Broadcast Fonts 3D -

Master Pack #2

This package contains nine professional-quality 3D typefaces. Each typeface contains upper and lower case letters, numbers and 29 punctuation symbols.

All characters have been built with our AQPoint Extrusion routines for unsurpassed outline integrity—any object can be scaled, sheared or flown through without sacrificing output quality. Object sides are built so that with phong smoothing turned on, both smooth curves and sharp corners look perfect from any camera angle. Complete phrase-building tutorial included. Sample scene disk available.

Req: NewTek Video Toaster or Caligari \$150

Broadcast Fonts 3D -

Master Pack #3

This package contains nine professional-quality 3D typefaces. Each typeface contains upper and lower case letters, numbers and 29 punctuation symbols.

All characters have been built with our AQPoint Extrusion routines for unsurpassed outline integrity—any object can be scaled, sheared or flown through without sacrificing output quality. Object sides are built so that with phong smoothing turned on, both smooth curves and sharp corners look perfect from any camera angle. Complete phrase-building tutorial included. Sample scene disk available.

Req: NewTek Video Toaster or Caligari \$150

See ad on pages 35, 37

Classic Concepts

P.O. Box 786
Bellingham, WA 98227-0786
(206) 671-8384
FAX (206) 738-9719

EuroFonts Video

The only ToasterCG fonts that let you type over 20 languages without changing keymaps—14 typestyles, four sizes each; bonus ToasterPaint fonts; keyboard templates; install, utilities and samples included. Supports French, Spanish, Portuguese, German, Polish, Swedish and more!

\$164.95

See ad on page 77

Graphics**InnoVision Technology**

1933 Davis St., Ste. 238

San Leandro, CA 94577

(510) 638-0800

FAX (510) 638-6453

Montage

Montage is the first third-party application to directly support the Video Toaster with automatic framebuffer updates, multiple DVE transition sequencing and complete integration into the Toaster software environment.

Real-time "click & drag" font scaling in 16 million colors allows for unprecedented text flexibility. Ultra high-level anti-aliasing provides for an effective resolution of one nanosecond.

Brilliant 24-bit color graphics display in IFF-24 or Framestore formats. Image processing capabilities include translucency blending, multiple image compositing, auto gradient color spreads, beveled boxes, wallpaper emboss and more!

Montage also features automated sequencing of up to 999 pages, each utilizing any of the Toaster's DVE transition effects for the ultimate in real-time presentations. Super smooth credit rolls with interactive speed control and GPI trigger support are also included. Proprietary software drivers actually improve the Toaster platform's output signal while an NTSC filter greatly reduces dot crawl and ringing.

Montage enhances the Toaster by allowing users to create network caliber graphics and titles in minutes!

Req: NewTek Video Toaster 2.0, Amiga 2000/3000, 8 Mb Fast RAM, 1Mb Chip RAM, HD with 8Mb free and AmigaDOS 2.0

\$499.95

Soft-Logik Publishing Corporation

1131 F South Towne Square

St. Louis, MO 63123

(314) 894-8608

FAX (314) 894-3280

Art Expression 1.0

This new illustration program is perfect as a special effects tool for video users. You can bend text on curves and warp text in shapes to make professional

logos. You can even warp objects inside shapes and duplicate objects along curved paths. After creating your design, export it as a bitmap picture and use them in ToasterPaint.

Req: Workbench 1.3+, 2MB

\$249.95

See ad on page 53

Image Processing/Special FX**ASDG, Inc.**

925 Stewart St.

Madison, WI 53713

(608) 273-6585

FAX (608) 271-1988

Art Department Professional

ADPro is the best-selling image processing system available for the Amiga. Version 2.3 adds direct support for the NewTek Video Toaster framestore format, painting through a direct connection to DeluxePaint 4.6 and many other improvements.

Req: 4 MB of fast RAM

\$295

Professional Conversion Pack

Adds Art Department Professional support for PICT rendition, Sun Raster files, Targa, TIFF and X Windows bitmaps. Support for these formats goes well beyond the token support by other manufacturers—nearly every file-format variation is supported.

Req: 4 MB of fast RAM

\$90

MorphPlus

The morphing/special effects used in Babylon 5, Quantum Leap, The Tommy Knockers and other productions can be part of your desktop system. Includes morphing, ripples and many other special effects. ADPro compatible.

Req: Amiga, Kickstart 2.0

\$295

See ad on pages 57, 65

Byrd's Eye Software

9001 Northgate Blvd., #135

Austin, TX 78758

(512) 835-4811

ToasterFX

Combine Toaster FX with GVP's Image FX software for a complete paint and image processing package for the Video Toaster that allow direct painting on the Toaster Framebuffer screen. Completely integrates the operation of ImageFX with the Video Toaster, allowing direct access from the Toaster's Switcher screen; FX Croutons bring image processing power directly to the Switcher screen.

Great Valley Products

600 Clark Ave.

King of Prussia, PA 19406

(215) 337-8770

FAX (215) 337-9922

CineMorph

Morphing special effects software powerful enough for professional morph results, but easy enough for novice use. Generate composites, aging or missing person simulations; integrated Amiga-style interface compatible with any Amiga, DCTV or HAM E system.

Image FX

Image FX is image compositing software. Digitally retouching with the most complete set of filters, color gradients, image distortions, masks, and text handling tools on the market. Converts your Amiga into an image press/color correction system with CMYK, RGB, HSV and YUV. Scan in any framegrab from virtually any image capturing device. Includes Cinemorph features.

Syndesis Corporation

P.O. Box 65, 235 South Main St.

Jefferson, WI 53549

(414) 674-5200

FAX (414) 674-6363

PI-PICT Loader and Saver

These "public interface" modules allow Black Belt System's ImageMaster image processing program to load and save the Macintosh's PICT bitmap image file format. The PI-PICT Loader understands PICT bitmaps of any number of colors, from two colors to 24-bit PICT images.

The package includes a Macintosh disk with tools that make it easy to transfer PICT files between the Macintosh and Amiga. One tool works with Apple File Exchange to preserve desktop icons and file type information when Mac files are stored on Amiga disks. Another tool helps set the Mac's file type and creator information when a PICT file is moved from the Amiga to the Macintosh.

Syndesis licensed its PICT translation technology to NewTek for the Video Toaster as well as ASDG for Art Department Professional.

Req: ImageMaster (Black Belt Systems)

\$99.95

LightWave Scene Generator**Unili Graphics**

143 Lorraine Ave.

Pittsburg, CA 94565

(510) 439-1580

FAX (510) 439-1580

WaveWriter

WaveWriter allows you to create ready-to-render LightWave objects and scenes for flying logos in less time than ever

before. Features include: Workbench 2.0 interface with keyboard shortcuts for all functions; visual display of current font and phrase; six new 3D typefaces with full-international character support; and AQPPoint Extrusion routines for custom bevels, serpentine extrudes, scaling and flying.

Req: Workbench 2.0 & NewTek Video Toaster/Lightwave 3D

\$130

Music/MIDI**Blue Ribbon Soundworks**

1605 Chantilly Dr., Ste. 200

Atlanta, GA 30324

(404) 315-0212

FAX (404) 315-0213

Bars&Pipes Professional 2.0

Bars&Pipes Professional's state-of-the-art features include an unlimited number of tracks and notes; merge and overwrite recording; automated mixing; notation editing and print-out of transposed score, concert score and individual parts; automatic transposition; graphical song construction; graphical tempo mapping; event list, hybrid, notation and piano roll editing; system exclusive recording and editing; real-time non-destructive editing; algorithmic composition; rhythmic generation; loop-mode recording; time-line scoring; macro-tool design and construction; open-ended architecture; expandable design; and more.

Call for more features.

Req: 2MB RAM, Workbench 1.3/3.0, MIDI instrument

\$429

SuperJAM! 1.1

SuperJAM! provides fresh ideas, exciting rhythms and mesmerizing musical feats at the touch of a button. Create accompaniments, soundtracks, styles and grooves quickly and easily. Unlike ordinary music programs, SuperJAM! requires little musical finesse in order to accomplish exciting results. Runs seamlessly with Bars&Pipes Professional.

New version has stereo Turbosounds; two octave chords; visual volume and pan mixing split chord with Bass on bottom, other instruments on top; multiple grooves per style; improved window design; and more!

Req: 1MB RAM, Workbench 1.3/2.0

\$149

The PatchMeister

Universal patch librarian, designed to work with or without Bars&Pipes Professional. Includes over 50 specific drivers plus the ability to easily adapt to almost any synthesizer; also has a full array of "point and click" editing

options for easy access to all of your MIDI data.

Req: 1MB RAM, Workbench 1.3/2.0
\$99

Triple Play Plus

A sophisticated MIDI interface designed to accommodate Bars&Pipes Professional. Features include: three separately-addressable MIDI outs (allowing for 48 simultaneous MIDI channels), one MIDI in and one MIDI through. Triple Play Plus also works with other MIDI sequencers and SuperJAM! to provide three standard MIDI outs. Users of Bars&Pipes Pro will receive special MIDI Out Tools to utilize the interface from within Req: Bars&Pipes Pro.

\$179

SyncPro

Universal synchronization box which allows users to synchronize MIDI with multimedia, video, and audio hardware. SyncPro supports all major synchronization formats including SMPTE, MIDI time code and Song Pointer, and can generate and read all SMPTE formats.

\$199

Creativity Kit

The Creativity Kit, which requires Bars&Pipes Professional, is designed to accommodate the creative needs of musicians, professional and amateur alike. It includes the following tools: Accent Randomizer; All in One, which splits the keyboard into accompaniment and melody voicings; AnyPhonic, which permits only a specified amount of notes to pass through; Auto Modulate; Auto Transpose; Random Notes Tool; Riff-Chord; Rhythm Section; and much more! Req: Workbench 1.3/2.0, Bars&Pipes Professional

\$69.95

Pro Studio Kit

With the Pro Studio Kit, you can easily produce professional-quality MIDI arrangements. It includes: Articulation Modifier; DeFlam; DeGlitch; Event Smoother; Feels Good; Jump Start; Note Converter; Note Filter; Note Mapper; On Hold; Pitch Bender; Remote Patch; ReTranscriber; Strrreeetticch; Super Setup; and Velocity Controller.

Req: Workbench 1.3/2.0, Bars&Pipes Professional
\$69.95

Internal Sounds Kit

With the Internal Sounds Kit, you no longer need MIDI to compose and create music. This package, part of the Bars&Pipes Add-on Series, provides the keyboard, the instruments, and the player, and includes: Spare Keys tool, which allows you to enter notes with the mouse or the Amiga keyboard; AmigaPhone tool, which lets you load an unlimited number of IFF sounds and adjust high or low fidelity, fine tuning, modulation, octave shift, pitch bend,

vibrato rate and depth, emphasis, attack, release and volume.

Req: Workbench 1.3/2.0, Bars&Pipes or Bars&Pipes Professional
\$59.95

Rules For Tools

Now you can create your own tools from scratch using this comprehensive guide to the ins and outs of Bars&Pipes. Rules for Tools, part of the Bars&Pipes Add-on Series, includes documentation plus plenty of source code examples. Req: Workbench 1.3/2.0, SAS/C or Aztec C, Bars&Pipes or Bars&Pipes Professional. InovaTools L also recommended.

\$59.95

Digital Expressions Research

W6400 Firelane 8

Menasha, WI 54952

(414) 733-6863

MusicLab-IFS

MusicLab-IFS is a unique new approach to algorithmic composition that takes advantage of the self-organizational properties of fractals to produce musical scores. Up to eight multi-voiced instrument parts can be algorithmically generated from the scores. Results can be surprisingly similar to classical "large-form" compositions. Great alternative source of original music for multimedia authors. Both IFF SMUS and MIDI are supported.

Req: Workbench 1.3/2.0

\$89

Video Music Box

Video Music Box is designed to help you compose original music even if you have no musical training. Algorithmic composition capabilities allow quick and easy generation of basic background music sequences in many common styles. Program has a complete graphic note editor to easily perform a wide range of standard editing operations with some experimental music options. Additional editors for new chord progressions and patterns provide unlimited flexibility. Both IFF SMUS and MIDI are supported.

Req: Workbench 1.3/2.0

\$109

The Music Bakery

660 Preston Forest Center, Ste. 300

Dallas, TX 75230

(800) 229-0313

FAX (214) 414-3160

The Music Bakery

Music Bakery subscribers receive a new CD every other month for the one-time buy-out price of \$48 each. Each CD contains a wide range of musical styles in full-lengths (approx. four min.), 60s, 30s and tags.

The Music Bakery offers a no-risk free trial offer and a 100% money-back guarantee on every issue. Cancel at any

time and still retain your license. 12 CDs are currently available.

Req: Compact Disc Player
\$48/each CD

See ad on page 131

Textures/Backgrounds

Bearded Wonder Graphics

1866 Ocean Ave.

Brooklyn, NY 11230

(718) 998-1767

FAX (718) 998-1767

Ultimate Wood

Collection/Sampler

Digitized 24-bit JPEG wood textures. 320x400 seamless—four types: Plain, Plank, Parquet and tile; three styles: Plain, Polished and Rough.

Easily scaled to suit individual needs. 24-bit JPEG thumbnail files for easy selection. Printed docs with user tips. Use in 3D Render, Paint, Presentation, desktop publishing and video.

The Ultimate Wood Collection has 48 textures, 122 images; the Sampler set has 13 textures, 39 images—HAM versions are available.

Req: JPEG loader

\$225; Sampler-\$85

Ultimate Rock-Stone-Mineral

Collection, Vol. I, II, III, IV

Digitized and image-processed textures (24-bit and JPEG)—50 320x400 images per volume. Image-processed textures include: simulated color glass and color chrome. Samples of digitized and image-processed textures are in each volume.

Textures are easily scaled to suit individual needs. 24-bit JPEG thumbnail files for easy selection. Printed docs with user tips. Use in 3D Render, Paint, Presentation, desktop publishing and video.

Volumes I and II available now; Volumes III and IV available Summer 1993.

Req: JPEG loader

\$110 each volume

CeV Design

P.O. Box 560175

West Medford, MA 02156

(617) 391-9224

Titler V2.0 Backdrops

24-bit backdrops of generic nature showing graphic patterns such as seasons (snowflakes, flowers) and sunset scenes to set a mood.

Req: 24-bit display card, NewTek Video Toaster

\$30

24 Bit Maps

JPEG-compressed 24-bit color U.S. maps of various 50 states. States are presented on separate screen with fully-gradated regions depicted. Areas

have mountainous regions represented, plus capitol cities are marked.

Req: 24-bit display card, NewTek Video Toaster

\$30

Illustrator: Vol. 10

Has scenery in 24-bit color for illustrating animations. Woods, city, valleys, mountains and outer space—and more scenes—to act as a background for various animations.

You can genlock over DeluxePaint or use to present title graphics.

Req: 24-bit display card, NewTek Video Toaster

\$30

Background Bits 24

Graded colors in 24 bit that can be a building block to add accents to your special-occasion illustration or used in conjunction with titles or logos to create a graded accent. Blues, greens and golds are perfectly constructed as 736x482 full screens or as blocks for a small brush to add to your Toaster.

Req: 24-bit display card, NewTek Video Toaster

\$28

Video Maker V2.0 (24 Bit)

24-bit JPEG-compressed wedding scenes.

Req: 24-bit display card, NewTek Video Toaster

\$30

Digital Animation Corporation

24445 Northwestern Hwy., Ste. 105

Southfield, MI 48075

(313) 354-0890

FAX (313) 354-0796

Video Pro Pak

Video Pro Pak changes how you view the use of animations in your productions! Creative animations and backgrounds at your finger tips—merely add them at will; no budget-busting costs! Individual animation packages: backgrounds, advertising (corporate and independent), holiday and fully-animated sequences—order only those packages you need.

Digital's newest package—Med Pak—has 63 animations for the Hospital/Medical producer.

Packages start at \$395

FrostByte Systems

P.O. Box 98565, 873 Jane St.

Toronto, ONT M6N 5A6 Canada

(416) 769-7516

Beyond Backgrounds - Pro Set

Beyond Backgrounds - Pro Set is a 10-disk set of professional-quality 24-bit IFF overscan images for use as backdrops in video productions, multimedia, and business presentations. These backgrounds are perfect for overlaying titles, animations, logos or any Amiga graphic. Included free are a set of 14

texture maps.

Req: NewTek Video Toaster, Amiga 600, 2000, 3000 and 4000
\$99.95

Graphics Lab, The

1330 Castolan
Houston, TX 77038
(713) 931-6583
FAX (713) 448-5431

Toaster Textures

Toaster Textures are sets of JPEGed images for the Video Toaster. The series consists of algorithmically created textures for CG, ToasterPaint and LightWave.

Full-sized (752x480) and each package includes a full-color locator guide. Volume One is a set of 50 textures created on a Silicon Graphics workstation. Req: NewTek Video Toaster, JPEG loader
\$79.95

See ad on page 75

Infinite Solutions

14780 SW Osprey Dr., Ste. 240
Beaverton, OR 97007
(503) 579-5799

Nature's Backdrop

24-bit textures for use with the Video Toaster. Ten 24-bit textures in each of Volumes 1, 2 and 3 and includes Marbles, Slates, Granites and Sandstone. Req: NewTek Video Toaster, Amiga \$69.95 per volume or \$149.95 for Vol.'s 1-3; add \$4.95 S/H
See ad on page 134

JEK Graphics

12103 S. Brookhurst St., Ste. E-125
Garden Grove, CA 92642-3065
(714) 530-7603

FAX (714) 660-1310

Pro Fills Volume 1

Pro Fills Volume 1 is a collection of 123 patterns and textures created by a professional graphics artist for use in any Amiga IFF application. 60 palettes are included for instant color changes, allowing 7,380 different backgrounds. The Screen Generator program renders Pro Fills screens in any Amiga resolution up to 10,240 x 10,240 with seamless matched edges. NTSC and PAL compatible, the Screen Generator is a solid multi-tasking program with an intuitive user interface. The Pro Fills manual includes professional tips, illustrated tutorials and printed examples of each pattern and texture. Pro Fills adds a professional edge to your video titling, multimedia presentations and 3D applications.

Req: 512k RAM, Amiga 1.3, 2.0, 2.1 and 3.0 compatible
\$49.95

Pro Fills Volume 2

Pro Fills Volume 2 is a collection of 136 patterns and textures created by a professional graphics artist for use in any Amiga IFF application. 60 palettes are included for instant color changes, allowing 8,160 different backgrounds. The Screen Generator program renders Pro Fills screens in any Amiga resolution up to 10,240 x 10,240 with seamless matched edges. NTSC and PAL compatible, the Screen Generator is a solid multi-tasking program with an intuitive user interface. The Pro Fills manual includes professional tips, illustrated tutorials and printed examples of each pattern and texture. Pro Fills adds a professional edge to your video titling, multimedia presentations and 3D applications.

Req: 512k RAM, Amiga 1.3, 2.0, 2.1 and 3.0 compatible
\$49.95

See ad on page 104

Mannikin Sceptre Graphics

3208-C.E. Colonial Dr., Ste. 285
Orlando, FL 32803
(407) 644-9547
FAX (407) 644-7242

Textiles Volumes I-IV

Textiles are algorithmically-generated textures which simulate a wide range of real and surreal surfaces, making them ideal for organic surface simulation, as well as more traditional attributes.

Volume I: Things That Go Bump; Volume II: MegaMaps; Volume III and IV: call for availability.

Req: NewTek Video Toaster
\$49.95 per volume

See ad on page 36

Texture City

3203 Overland Ave., #6157
Los Angeles, CA 90034
(310) 836-9224
FAX (213) 656-9576

Pro-100 Vol. -I CD-ROM

100 24-bit texture images in IFF, TARGA, TIFF and PCX formats including: snake skin, abalone shell, leather, clover, marbles, metals, earth shot, photo scenic backgrounds, special f/x images, blown glass and much more.

All images have been carefully selected and processed for correct orientation, color balance and their use for video, 3D and print. By combining Texture City images and image processing software, you can create hundreds more.

24-bit Image Board

\$199.95

Pro-60 Vol. I

60 24-bit texture images in JPEG format, 752x480. Includes water, moon shots, shadows, graffiti, grass, blown glass, unique special f/x, light reflections, ocean surf and much more.

Includes the Texture City decompressor and Browser Viewer. All images have

been carefully selected and processed for correct orientation, color balance and their use for video, 3D and print.

Req: 24-bit Image Board
\$199.95

Pro-60 Vol. II

60 24-bit texture images in JPEG format, 752x480. Includes animal skins, foliage, granites, metals, woods, stone surfaces, textile, papers, special f/x, clouds and much more.

Includes the Texture City decompressor and Browser Viewer. All images have been carefully selected and processed for correct orientation, color balance and their use for video, 3D and print.

Req: 24-bit Image Board
\$199.95

3D Format Conversion

Axiom Software

541 W. 98th St., #322
Bloomington, MN 55420
(612) 888-0352
FAX (612) 888-0537

Pixel 3D Professional

Pixel 3DProfessional is a multi-function 3D utility program that converts IFF bitmaps to 3D objects by extruding or spinning the image. Objects can be saved out in one of these 3D object formats: LightWave 3D, Imagine, Caligari, DXF (AutoCAD), Sculpt 3D, 3D Professional, Draw 4D, Draw 4D Pro, Videoscape, Wavefront or Digital Arts. PixPro can load and save all of these formats. Other features include: convert any text string to a 3D object using any IFF monochrome bitmap font, spinning or twisting a bitmap image about an axis, object point editing, data reduction functions, intelligent polygon flipping and more.

\$249.95

See ads on pages 18-19 and 97

Syndesis Corporation

P.O. Box 65, 235 S. Main St.
Jefferson, WI 53549
(414) 674-5200
FAX (414) 674-6363

InterChange Plus

InterChange Plus is a professional system for translating between different 3D model file formats such as LightWave objects and scenes, Imagine, Turbo Silver, Vista DEM, VideoScape, Sculpt, PAGERender, CAD-3D, ImageMaster ISHAPE, Professional Draw and Aegis Draw. Tools are provided for scaling, grid-snapping, and point-reducing objects, as well as the InterFont system for automatic generation of 3D text objects from outline fonts. Attributes such as color, specular and hierarchy are translated with the utmost fidelity.

With add-on converters, the InterChange Plus system can be expanded to translate other 3D formats.

Req: AmigaDOS 1.3, 2.0 or 3.0; 2MB RAM
\$99.95

AutoCAD DXF Converter

The AutoCAD DXF Converter works with InterChange Plus to exchange 3D models with Autodesk's popular DXF format. It offers flexibility in translating pen and layer information and also makes 2D side views of any 3D object. The package also includes the DXF Primer, tips on using DXF files, plus useful PC-based tools for creating DXF files within AutoCAD's "AutoLisp" script language. With the AutoCAD DXF Converter, you can convert LightWave objects and scenes to DXF format.

Req: InterChange Plus
\$150

3D Studio Converter

The 3D Studio Converter works within InterChange Plus to share 3D Studio .3DS models and .MLI material libraries with any other 3D file format, such as LightWave, Imagine, etc. All hierarchy information and most material attributes are translated accurately to and from any other 3D formats supported in the InterChange Plus system. The package also includes a freely distributable PC program for converting between DXF and 3D Studio formats.

Req: InterChange Plus
\$150

Wavefront Converter

The Wavefront Converter translates both geometry and surface descriptions in Wavefront ".obj" objects and material libraries, giving near-perfect compatibility between the Amiga and high-end animation workstations.

Req: InterChange Plus
\$295

Topas Converter

The Topas Converter for InterChange Plus reads and writes the ".AMF" modeling files from Topas (Crystal Graphics).

Req: InterChange Plus
\$150

Digital Arts Converter

Digital Arts Converter understands ".AOB" object files as well as Digital Arts surface libraries. Digital Arts software is produced by Digital Arts of San Diego, CA.

Req: InterChange Plus
\$295

TIO Imagine Converter

The TIO Imagine Converter works inside LightWave, making it possible to load Imagine and Turbo Silver objects directly from within LightWave's Load Object interface. Models made in Imagine become single LightWave objects without any extra transition steps. All colors

and surface information are translated to LightWave surfaces.

Req: NewTek's Video Toaster 2.0
\$49.95

3D Models

Anti Gravity Products

456 Lincoln Blvd.
Santa Monica, CA 90402
(310) 393-6650
FAX (310) 576-6383

MotionMan

Articulated human-like model for LightWave 3D: 60 separate objects; complete hierarchy; walk and run scripts; and script-editing tutorials. Use in your own commercial projects.

Apple's Animation

2216 Terracewood Ln.
Escondido, CA 92026
(619) 740-0035

Mannequin Man

Mannequin Man is a human-like 3D object for use in LightWave 3D. All his separate body parts are separate objects and are hierarchically organized with two motion paths: walking and running. Four scenes are included: walk, run, stand and sit—plus two surfaces: chrome and mannequin wood. Mannequin Man can be loaded into existing scenes in Toaster 2.0, renders very quickly and occupies little disk space. Instruction manual covers hard drive installation, walk and run cycles, surfaces, loading into existing scenes, instructions to create Mannequin Woman and more.

\$29.95

See ad on page 132

The Associated Image Group, Inc.

14900 Landmark Blvd., Ste. 600
Dallas, TX 75240
(214) 788-0066
FAX (214) 788-2909

United States-LightWave Objects

This diskette is full of U.S. map objects—five full U.S. maps configured in various ways (every state has both flat and extruded versions and its own face and side surfaces for maximum flexibility). Alaska and Hawaii are included. Full scenes are also provided, as is a world.pic, which you can use to wrap around a sphere to create a globe.

Req: NewTek's Video Toaster with accelerator

\$29.95 (plus \$2.95 S&H)

The Computer Animation Factory

1008 Mulberry, Ste. 2
Denton, TX 76201
(817) 383-0304

Pro-Motion Model Kits

The first set of Pro-Motion Model Kits

will contain a complete highly accurate human skeleton, ready to animate. After detailing each bone section with a grid, the bone is traced with a high-resolution digitizer using custom Amiga software.

Future kits will cover such topics as male and female forms, sports items, animals and mascots, and character forms—all digitized for the most accurate models you can purchase. Custom formats upon request.

Req: NewTek's Video Toaster 2.0
\$149.95

Crestline Software

P.O. Box 4691
Crestline, CA 92325
(909) 338-1786

Humanoid: Human Animation Designer

From the designers of MotionMan comes an extraordinary new set of four realistic human models for LightWave 3D: a man, muscular man, woman and child.

The set comes with a variety of hierarchical and morphing features: LightWave 3D scene files, which automatically set up the hierarchy of articulated limbs on each figure, enabling the user to design motion with minimum effort; expertly designed walk and run motion files; movable eyes and eyelids; library of morphable facial expressions to simulate speaking, smiling, frowning, etc., and morphing hand gestures; compatible object construction; and a thorough manual.

Each figure comes in two versions (high-detail and low-detail) and are designed in real-world scale—they may be used in commercial applications. Updates are planned to ensure compatibility with LightWave 3.0.

Req: NewTek's Video Toaster

\$195

Dimension Technologies

2703 Vineyard Dr.
Erie, PA 16506
(814) 838-8521

The Cathedral: For LightWave

This highly-detailed model contains over 40,000 polygons, 150 surfaces and 50 stained-glass windows. The object includes realistic texture maps and surfaces and is completely finished inside and out.

Scene files are provided to assist animations. Animators can circle the Cathedral, open the front doors and travel right down the aisle.

Req: NewTek's Video Toaster
\$99.95

Odds & Ends: Objects for LightWave

This package contains over 200 ready-to-use objects created exclusively for use in LightWave 3D. Designed to be an addendum to the LightWave Phonebook,

the objects are broad in variety. Sample categories are: Household, Video, Commercial, Educational, Industrial and Musical.

These objects are not gathered from public domain, but were exclusively created by Dimension Technologies and are fully-surfaced and ready-to-use.

Req: NewTek's Video Toaster
\$59.95

See ad on page 133

The Graphics Lab

1330 Castolan
Houston, TX 77038
(713) 931-6583
FAX (713) 448-5431

Toaster FOBS!

Toaster FOBS! are sets of 3D font objects for use with LightWave. The series consists of algorithmically designed 3D fonts that are not just average extrusions, but have bevels, curved edges and named surfaces for easy surface assignments. Special characters are available and all sets include the full range of standard characters.

Req: NewTek's Video Toaster 2.0, AmigaDOS 2.x and up
\$89.95

JMC Graphics

3 S. State St., Ste. #4
Painesville, OH 44077
(216) 357-0577

Galactic Armada 3D Object Series #1—Deep Space Cruiser

The Galactic Armada Series Deep Space Cruiser is a professionally-designed 3D object in LightWave 3D format. The Deep Space Cruiser is a highly-detailed ship featuring 46 brushmapped surfaces, including one that is twice the size of the normal Amiga screen. A LightWave 3D scene file (fully set up) is provided for animation, as is a 24-bit Deep Space Nebula image for use as a background.

Req: LightWave 3D or object conversion utility
\$34.95

Synthesis Corporation

P.O. Box 65, 235 S. Main St.
Jefferson, WI 53549
(414) 674-5200
FAX (414) 674-6363

Synthesis 3D-ROM

The Synthesis 3D-ROM is a CD-ROM containing more than 500 3D models. The disc also includes dozens of wrappable bitmaps suitable for texture maps (in formats such as IFF, TIFF and Targa). All objects and images are ready-to-use and free of reproduction restrictions.

Req: CD-ROM

\$199.95

Misc. Amiga Software

CeV Design

P.O. Box 560175
West Medford, MA 02156
(617) 391-9224

Animated Action Disks

Wedding animations and animation brushes with motions perfect for mating with the Video Toaster. Has bride and groom in a buggy ride, toasting glasses, wedding bells and various other ceremonial animations in DeluxePaint format—16 colors; IFF, Amiga, ANIM standard files.

Req: 24-bit display card, NewTek Video Toaster
\$28

Wedding Bits 24

DCTV wedding animation run at full speed with DCTV unit and DeluxePaint. Has wedding bells, Star of David, glasses click, bride and groom dance, etc., in full 24 bit. 3D look added by rendering in a 3D program. No single frame recorder required.

Req: DCTV only, DeluxePaint 3-4
\$35

Cybercall, Inc.

20 Cleveland Ave.
Highland Park, NJ 08904
(908) 249-9883

CyberEdit

CyberEdit is the high-end "cuts-only" video editing package for Amiga that addresses the four major concerns of video users: Compatibility with a variety of VCRs and camcorders; editing accuracy; power and speed; and ease of use. CyberEdit provides a friendly intuitive mouse-based interface including VCR transport control and edit list management. It allows simultaneous control of two VCRs/camcorders and edits video by using assemble, audio-only inserts, video-only inserts, A/V inserts and freeze frames. CyberEdit fully supports SMPTE and Sony RC time code and provides automatic recalibration for non-SMPTE users to achieve the maximum accuracy. Multiple source tapes (up to 35) are also supported.

CyberEdit Pro will provide seamless integration with NewTek's Video Toaster. For a limited time, all CyberEdit customers get a free upgrade (\$200 savings) to CyberEdit Pro. Comes with manual and tips.

Req: Amiga 500, 1200, 2000, 2500, 3000 or 4000, Future Video EditLink 2000DT or 3300 series Edit Controller
\$395

Ron Richardson

P.O. Box 52013 Edmonton Tr. RPO
Calgary, AB T2E 8K9 Canada
(403) 277-5743
FAX (403) 277-4061

Evoke!

Videotape transport controller software written specifically for the Sony EVO-9650 Hi-8 single frame VCR. With over 70 on-screen gadgets and over 60 menu items, Evoke! incorporates as many commands as possible into an intuitive interface. Edit modes include assemble, video insert, PCM stereo insert and time code insert.

Req: Amiga, Sony EVO-9650 VCR
\$99-U.S.

Toaster-Support Software**Graphics Lab, The**

1330 Castolan
Houston, TX 77038
(713) 931-6583
FAX (713) 448-5431

Wipe Outs!

Wipe Outs! are sets of wipe effects for the Video Toaster. The Series consist of traditional 2D transitions, 3D designed matte effects and our special Splode Effects. Volume One is a sampler package of over 50 wipe and transitions. Other volumes include business specific wipes, industrial wipes, word wipes, holiday wipes and seasonal wipes. More volumes are planned.

Req: NewTek's Video Toaster 2.0, AmigaDOS 2.x and up
\$69.95

See ad on page 75

Kingsway Productions

2427 Hart Ave.
Santa Clara, CA 95050
(408) 244-9692

The Toasty Stuff Collection

The Toasty Stuff Collection (three 15-disk sets) includes a mixture of files: CG fonts, LightWave 3D objects, 24-bit textures, backgrounds, Toaster tutorials and various Toaster utilities.

Some disks have individual themes, such as Science Fiction & Fantasy or CG Font Compressor (which saves multi-megabytes of hard disk space, with no penalties!). Every disk has all necessary doc files and is Toaster-ready, but can be used with other Amiga software.

The Toasty Stuff Collection is aimed at every Toaster user—from novice to expert—that wants to amass a large collection of Toaster-related goodies.

Req: Amiga, NewTek Video Toaster
\$69.95 per set; \$3.50 S/H

See ad on page 131

PatchWorks Video Software

P.O. Box 450
New York, NY 10024
(212) 873-2390
FAX (212) 873-2390

Essential Toaster Software

Multi-disk package collection of assorted types of public domain and original software designed specifically for the budget-conscious Video Toaster owner. Included are: CG fonts, LW 3D fonts and objects, background images (high-quality, 24-bit, 768x480) for CG overlay and Paint applications, 24-bit fractal landscapes, texture maps, graphics applications, file viewer/converters, assorted utilities, and much more!

Thorough documentation, instructions, tips and hints are provided.

Req: NewTek's Video Toaster

See ad on page 133

Pro Video Productions

Lindale Mall
Cedar Rapids, IA 52402
(800) 888-8808

Pro Wipes

Pro Wipes is a complete set of Action Wipes for the Video Toaster, similar to the Kiki and Sports wipes supplied with Toaster 2.0. Wedding, Industrials, Music and Sports are but a few of the categories covered in this set of over 20 wipes. These are live-action wipes created specifically for video (not simple animated wipes!). Easy-to-use point and click software is included. Pro Wipes are made by video professionals for video professionals! Custom wipes and broadcast backgrounds are available upon request.

Req: NewTek's Video Toaster
\$99.95

See ad on page 131

Terry Vavra

15 Newton Rd.
Pittsburgh, PA 15221

More for the Toaster

More for the Toaster is a five-disk set that provides Toaster users with a variety of goodies that are sure to sweeten most any production. Toaster Effects adds 26 new animated switcher transitions which are truly eye-catchers. Chroma Fonts supplies eight color fonts for the ToasterCG, including an icon set for broadcast/cable TV use. There are four Genlockable DPaint ANIM Sequences. As a special bonus, ScriptWriter-Edit Decision List Program is included.

Req: Amiga, NewTek Video Toaster
\$49.95

PAINT**Electronic Arts**

1450 Fashion Island Blvd.
San Mateo, CA 94404
(800) 245-4525

DeluxePaint IV AGA

For artists, animators and video professionals working on the Amiga 4000 and 1200, DeluxePaint IV AGA now provides more colors at higher screen resolution. Now you can paint and animate with 256 colors in all screen resolutions. Even better, DeluxePaint allows access to over 262,000 apparent colors (using HAM8 mode) at any resolution. That means greater color control and better definition for all your graphics and animations.

Modifiable shape tools, custom brushes, rich gradients, translucency and anti-aliasing effects, stencils, 3D perspective and much more.

Req: Amiga 4000, 1200 (3000 & 2000, but with no 256 color or HAM8 support), Trimedia drawing pad, digitizing tablet and Workbench 2.04 or higher

UTILITIES**ASDG**

925 Stewart St.
Madison, WI 53713
(608) 273-6585
FAX (608) 271-1988

Cygnus Ed Professional

The pioneering ARExx compatible text editor is back with and all new version featuring full Workbench 2.0 and 3.0 support and localized strings.

\$99.95

See ad on pages 57, 65

Byrd's Eye Software

9001 Northgate Blvd., #135
Austin, TX 78758
(512) 835-4811

ToasterVision

A powerful set of Toaster tools, including the Framestore Catalog, Framestore Manager, Toaster Project Manager, WipeMaster 2 (including over 30 new Toaster wipes) and the best-selling Toaster sequencer Toastmaster 2.

Central Coast Software

206 Wild Basin Rd., Ste. 109
Austin, TX 78746
(512) 328-6650
FAX (512) 328-1925

Quarterback 5.0

Upgrades and enhancements to Quarterback are based on user requests. New features include: Integrated streaming tape backup, compression, new backup and restore options, optional password protection and encryption, Workbench 2.0 and full ARExx support. Improved features include: increased performance, extremely fast floppy disk backup, new user interface with 3D look, backup and restore to up to four floppy drives, file selection versatility.

Req: Kickstart 1.2+

\$75

Quarterback Tools

Quarterback tools maximizes the speed and reliability of your Amiga hard disks and floppy disks by reposi-

tioning your files to optimum locations on the disk, elimination file fragmentation, and consolidating disk free space, achieving the fastest possible disk performance. Recovers deleted files easily and safely and unformats disks you formatted by mistake; searches the entire disk for errors, marks bad areas 'out of service' and identifies affected files.

\$89.95 **Dos 2 Dos**

Transfers files between MS-DOS, Atari and the Amiga. Reads/writes and formats 5.25" and 3.5" MS-DOS disks and Atari ST 3.5" diskettes. Converts ASCII file line ending characters and provides Wordstar compatibility. Query/Replace options provide duplicate file name detection. Supports full directory path names, with wild cards in the file names, allows selection of MS-DOS and AmigaDOS subdirectory, and displays sorted directory listing.

\$55

Mac 2 Dos

Lets you read and write Macintosh diskettes on your Amiga, to and from 400K and 800K, using a standard Mac-compatible 3.5 external disk drive connected to your Amiga via the CCS interface. Converts MacPaint files to and from IFF and Mac ASCII files to and from Amiga ASCII and other conversion options are PostScript, Macbinary and standard binary. As it transfers files, Mac 2 Dos automatically transfers and converts icons for the files, or creates icons.

\$99.95

Moonlighter Software Development

3208-C E. Colonial Dr., Ste. 204
Orlando, FL 32803
(407) 384-9484
FAX (407) 384-9391

Ami-Back

Ami-Back is a powerful data backup tool for your Amiga or Video Toaster workstation. Ami-Back offers more features than any other backup program available, including full support for SCSI tape and DAT drives, making it an ideal form of off-line storage for framestores and large animation sequences. Other features: unattended scheduled backups, ARexx support, data compression, password protection and online help; has the ability to recover data from crashed hard drives. Req: NewTek's Video Toaster or Amiga \$79.95

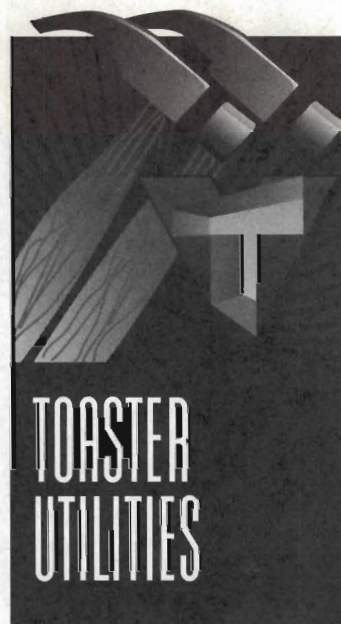
Ami-Back Tools

Ami-Back Tools is a comprehensive collection of disk for the Amiga or Video Toaster workstation. Ami-Back tools can diagnose and treat small problems before they become big disasters. Has disk optimizer, disk analyzer, disk recovery and reviver, clearer,

lab test (for file corruption and virus infection) and more. Supports all current AmigaDOS file systems, custom screens, caching mode for fast optimization, password protection and RDB information backup.

Req: NewTek's Video Toaster or Amiga \$79.95

See ad on page 49



Kingsway Productions

2427 Hart Ave
Santa Clara, CA 95050
(408) 244-9692

The Toasty-Stuff Collection

The Toasty-Stuff Collection is a three-set collection (15 disks per set) with a mixture of files, including: various LightWave 3D objects of all types (fax machines to cruise missiles), 24-bit textures, background screens, and fonts.

Req: NewTek's Video Toaster, Amiga \$69.95 per set; \$3.50 S&H

See ad on page 131

Personal Video Wizards

7836 2nd Ave. S.
Bloomington, MN 55420-1206
(612) 881-3340

The Deli

The Deli is a fast and flexible video sequencer and utility program for the Video Toaster. The Deli allows you to do tedious, repetitive tasks quickly and easily. Its video sequencer creates scripts with hundreds of events in seconds; capture as many framestores as your hard drive holds automatically and has an advance trigger.

The Deli's utilities check framestores for duplicate numbers; rennumbers automatically; convert any number of IFF files to framestores and vice-versa; turn Amiga fonts into ToasterFonts; and

turn all your buffered pages into framestores and numbers them automatically.

Req: NewTek's Video Toaster \$249

See ad on page 61

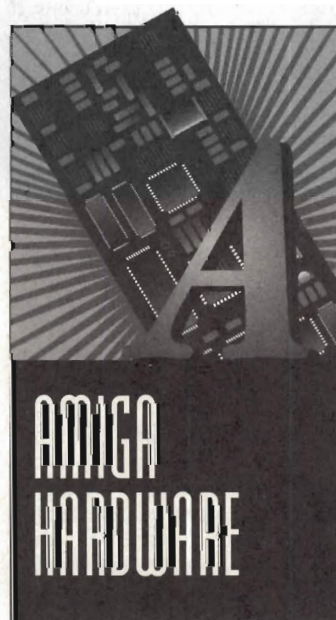
Terry Vavra

15 Newton Rd.
Pittsburgh, PA 15221

More for the Toaster

More for the Toaster is a five-disk set that provides Toaster users with a variety of goodies that are sure to sweeten most any production. Toaster Effects adds 26 new animated switcher transitions which are truly eye-catchers. Chroma Fonts supplies eight color fonts for the ToasterCG, including an icon set for broadcast/cable TV use. There are four Genlockable DPaint ANIM Sequences. As a special bonus, ScriptWriter-Edit Decision List Program is included.

Req: Amiga, NewTek Video Toaster \$49.95



Accelerators

Computer System Associates (CSA), Inc.

7564 Trade St.
San Diego, CA 92121
(619) 566-3911
FAX (619) 566-0581
40/4 Magnum

Motorola 68040 based 40/4 Magnum is a 20MIPS/m 3.5 MFLOP accelerator/SBC (Single Board Computer) for all A2000 series personal computers. As an accelerator, it has high speed and low price relative to RISC-based workstations. Three times faster than the fastest 68030-

based Amiga, it lets you produce high-grade animations, ray-traced computer graphics and animations at nearly the speed of RISC-based workstations. As SBC, it provides a much faster alternative to several performance bottlenecks: parallel, serial, and SCSI throughput.

Platinum Edition Derringer 030

New 50MHz 68030 accelerator for the Amiga 500 and Amiga 2000. Upgrade options allow 1, 2, 4, 8, or 16 MB DRAM together with 50 MHz 68882 math co-processor.

\$849

Progressive Peripherals, Inc.

938 Quail St., Unit 1
Lakewood, CO 80215-5513
(303) 238-5555

FAX (303) 238-0600

Zeus (A2000)

28 MHz 68040 accelerator with 64 MB RAM expansion and FAST SCSI-2 hard drive controller, all on a single board. 19 to 26 MIPS performance, up to 7 times the speed of a 25 MHz A3000 or 68030 accelerator. Uses standard 1MB x 8 or 4MB x 8 SIMMs (mix & match). High speed disk access up to 10 times the speed of standard SCSI drive controllers. Fully compatible with the Video Toaster and many other peripherals and software.

Req: AmigaDOS 2.x, Amiga 2000 33MHz-\$995, 28MHz-\$749

See ad on page 1

Silicon Prairie Software

2326 Francis St.
Regina, SK S4N 2P7 Canada
(306) 352-0358

HyperCache Professional

HyperCache Professional is a filesystem and device accelerator unlike any ever available for the Amiga! A must for any serious Amiga user, it can provide performance increased of up to 2200% on your storage devices. HyperCache is an N-way associative line/set cache, and accelerates all device operations, such as program loading, directory scans, Workbench operation, and more! Great for large font and image libraries, it's like have all of your most-used data in a RAM disk. Toaster, Kickstart 3.0 and network compatible.

See ad on page 60

Networking

Interworks

43191 Camino Cassillas, Ste. B2469
Temecula, CA 92592
(909) 699-8120
FAX (909) 699-8120

Enlan DFS

Peer to peer LAN solution for the Amiga computer. With Enlan DFS, you get

power disk, file and peripheral sharing that until now was only available on other personal computers. No dedicated server is required!

Any system can publish its resources and they become immediately available to the rest of the group. Share disk volumes, directories, files, mass-storage devices and back-up devices, and laser printers.

Compatible with Amiga 2000, 3000 and 4000 as well as the NewTek Video Toaster!

Req: 2.0 AmigaDOS or higher, Ethernet cards and cables

\$349.00 for 5-node license

See ad on page 70

Single Frame Controllers

BCD Associates, Inc.

128 N.W. 67th St.

Oklahoma City, OK 73116-8215

(405) 843-4574

FAX (405) 840-3147

BCD-2000A & BCD-5000

The BCD-2000 professional Video Animation Controller for Commodore Amiga computers provides frame-accurate control of most industrial and broadcast video tape and disc machines through the machine's parallel or serial remote port. The controller includes BCD's Freedisk of utilities and is supported by most Amiga animation software.

The BCD-5000 Professional Video Animation Controller for computers with a serial port provides frame-accurate control of most industrial and broadcast video tape and disc machines. While designed as a video animation controller, the BCD-5000 is at home wherever computers are needed to control video machines.

\$995-2000A; \$2,995-5000

Digital Processing Systems, Inc.

11 Spiral Dr., Ste. 10

Florence, KY 41042

(606) 371-5533

FAX (606) 371-3729

In Canada call:

(416) 754-8090

FAX (416) 754-7046

Personal Animation Recorder

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. No time base error, jitter, skipped frames, or botched edit points. Since your animation is recorded in a component digital 4:2:2 format, you can produce an infinite number of first-generation tape copies. Also features outputs for true component ana-

log video (Betacam, MII), composite and S-Video (Hi-8/S-VHS).

\$1,995

Nucleus Electronics, Inc.

P.O. Box 1025

Nobleton, ON L0G 1N0 Canada

The Personal SFC 2.5

The Personal SFC 2.5 is a full-featured, 100%-accurate single frame controller that interfaces your Amiga with professional VTRs for animation recording. Because the Personal SFC is a hardware/software solution, installation is simple, requires no Amiga slots, and does not void any warranties. Other features: direct support for a variety of display devices (including the Video Toaster) and image formats (IFF24, FrameStore, JPEG, etc.); full-featured animation sequencing; miniature B&W 30fps preview; FAST FrameStore compression and conversion; automatic "Render Farm" recording mode for networked Amigas; external ARexx program control; and more. Req: Amiga, AmigaDOS 1.3+, Frame-accurate RS-422 controlled VTR with time code

\$445 U.S., \$525 Canada

See ad on page 36

United Media, Inc.

4771 E. Hunter

Anaheim, CA 92807

(714) 777-4510

FAX (714) 777-2434

VAC-120 Single Frame Controller

Single plug-in board for the Amiga which allows for complete, precise single-frame animation control of any serial RS-422 videotape recorder 1/2", 3/4" and 1".

It fully automates the LightWave3D program, allowing the operator to literally walk away while each frame of the sequence is rendered accurately to tape. \$499

Videomedia, Inc.

175 Lewis Rd., #23

San Jose, CA 95111

(408) 227-9977

FAX (408) 227-6707

Animax

Animax is the first product to put the industry standard V-LAN control inside your Amiga computer. The Animax VTR controller board provides an economical solution for single-frame animation control of one serial videotape/disc recorder. The card fits into any available slot in your Amiga computer. Frame accurate performance with all popular computer graphics and animation programs (including LightWave 3D). Includes software drivers for all industrial and professional video devices currently supported by the V-LAN network.

Animax-2

The Animax-2 control board supports animation, editing, and rotoscoping for Amiga computers, providing an economical solution for frame-accurate control of two serial videotape/disc recorder. The on-board transmitter can frame-accurately control up to 29 additional devices for video editing, animation, and multimedia applications. Includes software drivers for all industrial and professional video devices currently supported by the V-LAN network.

See ad on page 45

3D Digitizer

Visual Surface Technology

1331 St. Louis Ave.

Kansas City, MO 64101

(913) 764-5102

Euclid

3D object grabber. Takes a real-life object and scans it 360 degrees, then loads it into LightWave as an object file.

Waveform/Vectorscopes

Digital Processing Systems, Inc.

11 Spiral Dr., Ste. 10

Florence, KY 41042

(606) 371-5533

FAX (606) 371-3729

In Canada call:

(416) 754-8090

FAX (416) 754-7046

Personal V-Scope

The Personal V-Scope diagnoses color problems by letting you superimpose a digitally synthesized waveform and vectorscope display on any video signal. When used with the Personal TBC III, the TBC III can cure color distortions by properly balancing red, green and blue.

\$995

Hamlet Video Int'l/Grunder & Assoc., Inc.

5925 Beverly Ave.

Mission, KS 66202

(913) 831-0188

FAX (913) 831-3427

Hamlet PC-Scope

The Hamlet PC-Scope is a fully-operational monitoring and measuring device for desktop video, easily plugging into any Amiga. Offering automatic measurements, digital processing and multi-standard capabilities, the PC-Scope is designed to produce highly-accurate, digitally-generated waveform and vector signals for display on any NTSC monitor. Variety of display choices and impressive list of standard fea-

tures—variable gain control, external reference, built-in calibration pulse, as well as SC-H and color framing indication, and much more.

Misc. Amiga Hardware

ASDG, Inc.

925 Stewart St.

Madison, WI 53713

(608) 273-6585

FAX (608) 271-1988

Dual Serial Board

The DSB adds two RS232 expansion serial ports to Zorro II slot equipped with Amigas. Reliable operation at all standard RS232 rates from 110 to 115,200 baud with full XON/XOFF or RTS/CTS hand shake support.

Req: Zorro II slot

\$299

See ads on pages 57, 65

CeV Design

P.O. Box 560175

West Medford, MA 02156

(617) 391-9224

X-Pander Built Chassis

Hardware add-on to an Amiga. Various models of the chassis are available from one 2000 card 100-pin Zorro 2 to a full slot Amiga 2000 (5 100 pin, 1 CPU, 1 video slot) capable of adding a Video Toaster to an A500. Various prices and options are possible. Req: Amiga 500 or Amiga 1000 \$119-\$599 (depending on slots, options)

Horita

P.O. Box 3993

Mission Viejo, CA 92690

(714) 489-0240

BSG-50

The Horita BSG-50 is a versatile black-burst, sync-pulse, and audio tone generator. The BSG-50 provides an economical means for generating the most common RS-170A video-timing signals used to operate various video switchers, effects generators, VTRs, cameras, video edit controllers and other professional video equipment. Timing signals generated by the BSG-50 include black burst, composite sync, composite blanking, horizontal drive, vertical drive and subcarrier.

Provides six BNC outputs (configured as three black-burst and three composite sync); internal six black-burst, four sync, and two subcarrier signals available for output.

Req: N/A

\$289

See ad on page 88

MacroSystemUS

17019 Smugglers Cove
Mt. Clemens, MI 48038
(313) 263-0095
FAX (313) 263-9639

Retina

The Amiga high-resolution display card, 24-bit frame buffer with 16-bit display modes and 8-bit Workbench display modes. 4 MB allows double buffering for animations and large files in 24-bit paint with spare page. Compatible with the A2000, A3000, and A4000 Amigas. Installs into any 100-pin Amiga slot—does not use the video slot. Compatible with Video Toaster, AdPro, MorphPlus, MultiFrame-AdPro, TVPaint 2.0, ProPage, ProWrite and more. XIPaint is a real-time 24-bit paint program that comes with the Retina full-Workbench emulation with resolutions such as 1024x768 or 1280x1024 in 16 colors or even more!
\$599.95

Microsearch

9000 U.S. 59 S., Ste. 330
Houston, TX 77074
(713) 988-2818
FAX (713) 995-4994

ChromaKey +

Work with Video Toaster's keyhole effect for complete control through the Toaster. ChromaKey lets you key a video on video, or video on the frame-store. Also allows the S-VHS input to enhance the quality of the edges. Has been widely accepted by Toaster users. VHS demo tape is available for \$5.
Req: NewTek's Video Toaster
\$395
See ad on page 123

Nova Systems, Inc.

50 Albany Turnpike
Canton, CT 06019
(203) 693-0238
FAX (203) 693-1497

NovaBlox Modular Video Signal Processing System

Series of computer plug-in cards that interface various video formats into a desktop video system. The NovaCard function modules include: TBCs, frame synchronizers, encoders, decoders, transcoders, distribution amplifiers, routing switchers and test signal sync generators. All cards plug into an Amiga or one of several NovaChassis that accommodate from one to 15 cards.

Phoenix Microtechnologies, Pty. Ltd.

18 Hampton Rd.
Kewick, S. Australia 5035
(011) 618-293-8752

Aladdin Systems

(DMX, Analog and Professional)
48-channel software and hardware

transmitter device. Aladdin DMX transmitter for the A500/A2000 is a small piggyback-style circuit board fitted internally to the Paula socket.

Aladdin Analog transmitter for the A500/A600/A1200 and A2000 is a parallel port device (simply attach using a standard printer cable), featuring 48-channel output separated into four banks of 12 channels, each bank can send either +/- 10v analog data. This makes it easy to use analog dimmer racks from different manufacturers, if necessary.

Aladdin Profesional is a 96-channel software and hardware transmitter device. MIDI patch software (for creating MIDI controlled light shows) and remote control software (allowing use of commonly available cordless telephones as sophisticated remote controllers) is also provided.

DMX transmitter for A2000/A3000 and A4000 is a Zorro II type card fitted internally to a standard Amiga expansion slot.

Req: Amiga A2000 (with 68030 accelerator, Hard Drive, workbench V2.0 and 2MB RAM), A3000, or A4000

Powerpoint Software

2800A Lafayette Rd., Ste. 114
Portsmouth, NH 03801
(207) 363-2028
FAX (207) 363-5413

GTCO Ultima 12x18**Drawing Tablet**

The Ultima 12x18 is an extremely reliable, affordable, professional drawing tablet for the Amiga. When used with Powerpoint Software's SmartPen tablet driver, the Ultima performs free-hand design and illustration, precise tracing, hand-written input, and enhanced resolution and accuracy. Special features include a lightweight stylus with an optional inking insert, clear overlay to secure drawings, no power supply (eliminates extra cables), and a lifetime warranty.

Req: Amiga, Workbench 2.0 or greater

\$599 (with stylus or 4 button cursor)

GTCO Ultima 12x12**Drawing Tablet**

The Ultima 12x12 is an extremely reliable, affordable professional drawing tablet for the Amiga. When used with Powerpoint Software's SmartPen tablet driver, the Ultima performs free-hand design and illustration, precise tracing, hand-written input, and enhanced resolution and accuracy. Special features include a lightweight stylus with an optional inking insert, clear overlay to secure drawings, no power supply (eliminates extra cables), and a lifetime warranty.

Req: Amiga, Workbench 2.0 or greater
\$449 (with stylus or 4 button cursor)

Kurta XGT 12x12 Pressure Sensitive Drawing Tablet

XGT 12x12 is the most powerful drawing tablet available for the Amiga. When used with Powerpoint Software's SmartPen tablet driver, the XGT performs free-hand design and illustration, precise tracing, hand-written input, enhanced resolution and accuracy and pressure sensitivity.

Special features include cordless, lightweight, pressure-sensitive pointing devices, offering 256 levels of pressure, airbrush capability, programmable macros, height accuracy, 1,000 lines per inch resolution, clear overlay to secure drawings and a lifetime warranty. Req: Amiga, Workbench 2.0 or greater
\$779

Kurta XGT 12x18 Pressure**Sensitive Drawing Tablet**

XGT 12x18 is the most powerful drawing tablet available for the Amiga. When used with Powerpoint Software's SmartPen tablet driver, the XGT performs free-hand design and illustration, precise tracing, hand-written input, enhanced resolution and accuracy and pressure sensitivity.

Special features include cordless, lightweight, pressure-sensitive pointing devices, offering 256 levels of pressure, airbrush capability, programmable macros, height accuracy, 1,000 lines per inch resolution, clear overlay to secure drawings and a lifetime warranty. Req: Amiga, Workbench 2.0 or greater
\$999

SmartPen Universal Drawing Tablet Driver

Powerpoint's "SmartPen" Drawing Tablet Driver interfaces virtually all tablets to any Amiga model. SmartPen installs easily and supports all Amiga software in any resolution mode.

Features include: on-the-fly scaling, pen and cursor button mapping selectable output formats, selectable baud rate, automatic hard drive installation, and one free software upgrade. SmartPen also works concurrently with the mouse. Powerpoint offers unlimited free technical support.

Req: Amiga, Workbench 2.0 or greater
\$139

TriMedia, Inc.

60 E. Hintz Rd.
Wheeling, IL 60090
(708) 520-0730

DrawingBoardII Pressure Model/AccuPoint

With a professional, pressure-sensing graphics tablet, featuring 12"x12" and larger active areas and an amazing 2,540-line-per-inch resolution, the DrawingBoardII series offers the highest resolution.

Instant pressure compatibility with DeluxePaint IV AGA, OpalPaint and

many other applications soon to be released. AccuPoint brings AmigaDOS 3.0 enhanced-tablet support to any Amiga running release 2.0 and up; supports all 3.0 tablet features. Includes cordless three-button pressure pen, corded four-button cursor (puck), power supply, lifetime factory warranty and AccuPoint software. Supports both NTSC and PAL.

Req: Amiga (A1000 requires gender changer), AmigaDOS 2.0 or greater
12x12-\$699, 12x18-\$1,199

DrawingPad/AccuPoint

A compact pressure-sensing graphics tablet, featuring a 7.7"x7.5" active area and 1,270-line-per-inch resolution—highest resolution is its class.

Call for more information.

Req: Amiga (A1000 requires gender changer), AmigaDOS 2.0 or greater
\$449

AccuPoint TCS Software Kit

TriMedia's standard-setting AccuPoint software supports both CalComp and Wacom serial interface graphics tablets. Includes full-pressure sensitive support! You gain instant pressure compatibility with DeluxePaint IV AGA, OpalPaint and many other applications. Req: Amiga, CalComp or Wacom tablet, AmigaDOS 2.0 or greater
\$99

DrawingBoardII Standard**Model/AccuPoint**

A professional graphics tablet system featuring 12"x12" and larger active areas and an amazing 2,540-line-per-inch resolution.

An upgradable system tablet, you can start out with a basic corded system now, and step up to cordless and pressure sensitive operation later just by adding the appropriate accessory pen or cursor.

Req: Amiga, AmigaDOS 2.0 or greater
\$529-12"x12", \$995-12"x18"

WIZ/AccuPoint

A compact and affordable graphics tablet (digitizer) with a 7.5"x7.5" active area, and 1,000-line-per-inch resolution.

Req: Amiga, AmigaDOS 1.3 or greater
\$299

AccuPoint Accessory Pressure Pen

Accessory cordless pressure sensitive pen for use with DrawingBoardII Standard Model (included with Pressure Sensitive Model). Upgrades your DBII to full pressure-sensitive support! Instant pressure compatibility with DeluxePaint IV AGA, OpalPaint and many other applications (when used with TriMedia's AccuPoint software).

Req: TriMedia/CalComp
DrawingBoardII or DrawingPad tablet
\$199.95

Wacom Technology Corp.
501 S.E. Columbia Shores Blvd., #300
Vancouver, WA 98661
(800) 922-6613
FAX (206) 750-8882

Super Digitizers
Graphics Tablets: 50-510C 6"x9"
Tablet with cordless battery-less pressure-sensitive pen—\$695
50-420E 12"x12" Tablet with cordless battery-less pressure-sensitive pen—\$995
50-421E 12"x12" Electrostatic surface tablet with cordless battery-less pressure-sensitive pen—\$1095
50-310E 12"x18" Electrostatic surface tablet with cordless battery-less pressure-sensitive pen—\$1595
For prices, see above

Misc. Toaster Hardware

AmiWare
3160 Steeles Ave. E.
Markham, ONT L3R 4G9 Canada
(416) 931-8760
FAX (416) 940-9633

Ami Route
8x8 video routing switcher; audio follow video; vertical interval switch glitch free; 5-year warranty; comes with rack mount.

Hutchinson Companies
110 W. Arrowdale
Houston, TX 77037-3801
(713) 448-6143
FAX (713) 448-5431

Flicker Master
Flicker Master is an optical filter made from a space-age polymer which attaches to the face of your computer or monitor. Due to its unique properties, Flicker Master enhances contrast in all display modes and greatly reduces interlaced flicker when working with ToasterPaint, DPaint and other graphics programs that use Amiga's interlaced resolutions.
\$17.95

PreVue Technologies
P.O. Box 2617
Grass Valley, CA 95945
(916) 477-2905
FAX (916) 272-1528

BreadBoard
The BreadBoard is essential for integrating a Video Toaster into a larger video system. It serves two primary purposes: to delay the video input signals and to provide separate Video Toaster key signal outputs. Once the Toaster inputs are properly delayed, they can be sent in time with the Toaster program output to a downstream switcher. Likewise, the separate key signals, Key Source and Key Insert video, can also

be sent, properly timed, to a downstream switcher. Once installed, the BreadBoard will function without any further attention or maintenance.
\$398

DejaVue
The DejaVue Control System allows the Video Toaster to store the control parameters required for a complex video effect by storing panel settings required to create an effect.
\$498

Toast Timer
The Toast Timer is an adjustable black-burst advance board for use with the Video Toaster. It genlocks to either house black burst or a stable test signal such as color bars and provides a black-burst output that is advanced by a nominal 400 nanoseconds (the internal delay of the Video Toaster). When this output black burst is connected to Input 1 of the Video Toaster, the Program output will then be in time with original house black burst. Separate horizontal and subcarrier timing adjustments are provided. In addition, the black level can be varied from 0 to 15 IRE units.
\$298
See ads on pages 77, 97 and 104

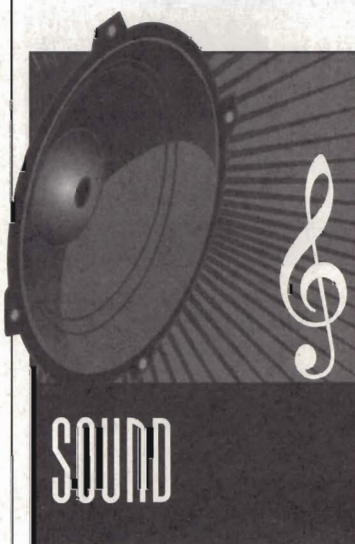
TAO-Technical Aesthetics Operations, Inc.
501 W. 5th St., P.O. Box 1254
Rolla, MO 65401
(314) 364-4925
FAX (314) 364-5631

Editizer
Video Toaster control with the TAO Editizer. The Editizer V2.0 has some unique features for controlling the Video Toaster. A serial communications scheme provides the mechanism for control. Software included with the Editizer includes a Toaster Control Panel window, and the Transition Specs Dialog, which allows entry of the event-by-event switcher information, the selection of various Toaster-spec settings including bank, program bus and frame stores (stored in the EDL and saved to disk). The Toaster Control Panel of the Editizer may be used to set cross-points, select effects, etc. When the desired Toaster configuration is found, it may be copied directly into the Transition Specs for the current edit event.
See ad on page 87

Y/C Plus, Inc.
1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481
FAX (913) 235-3485

Y/C Plus, Model YCP-100
True Y/C (Hi-8 and S-VHS) adapter for the Video Toaster. An add-on card

expands the Toaster to a four-input by two-output system. No software is required. Horizontal resolution greater than 450 lines; less video artifacting; sharper vertical and horizontal lines; superb character generation and greatly improved LightWave. All cables included (Y/C cables are not).
\$949
See ad on page 43



Digitized Sound

SunRize Industries
2959 S. Winchester Blvd.
Campbell, CA 95008
(408) 374-4962
FAX (408) 374-4963

DD524
Digital Audio I/O board that allows for direct import and export of digital audio between the hard drive in the Amiga and Digital Audio Tape (DAT) without a generation of loss. Uses industry standard AES/EBU and S/PDIF connectors. The DD524 can also be used for hard disk backup to a DAT Player/Recorder.

Studio 16/AD516
Studio 16 and AD516 board is a complete, non-linear, 16-bit audio recording and editing environment with SMPTE time code support. The AD516 hardware provides stereo in/out connectors, plus a SMPTE in jack. Record and play back video, voice and music tracks to and from a hard disk in real time. Just plug your VTR, CD player, radio, tape deck, or any other audio source directly into the board. The efficient system design allows eight-track playback direct from hard disk in real time. The AD516 is an eight-track, CD-quality, stereo board for the professional sound and video studio.
Amiga 1500, 2000, 2500, 3000 or

4000, Workbench 1.3 or higher
\$1,495

Studio 16/AD1012
Studio 16 and AD1012 board is a complete, non-linear, 16-bit audio recording and editing environment with SMPTE time-code support. Record and play back video, voice, and music tracks to and from a hard disk in real time. The AD1012 can digitize one channel of audio with 12 bits of resolution at sampling rates up to 100,000 samples per second. The AD1012 is a four-track, CD-quality, mono board for semi-professional video production.
Req: Amiga 1500, 2000, 2500, 3000 or 4000, Workbench 1.3 or higher
\$595

Toaster Handler AD1012
These new Toaster Handlers replace your existing Studio 16 software device drivers, allowing you to play one or two tracks of audio off your hard drive while simultaneously performing a Video Toaster effect. The driver configures to your card to buffer more data than the standard Studio 16 drivers allowing you to disable multi-tasking for several seconds while Studio 16 audio continues to play. Included are two 128K static RAM chips, one channel software driver, two channel mono software driver, one channel compressed (for longer playback) software driver.
Req: Studio 16/AD1012, Amiga 1500, 2000, 2500, 3000 or 4000, Workbench 1.3 or higher
\$249

Toaster Handler AD516
These new Toaster Handlers replace your existing Studio 16 software device drivers, allowing you to play one or two tracks of audio off your hard drive while simultaneously performing a Video Toaster effect. The driver configures to your card to buffer more data than the standard Studio 16 drivers allowing you to disable multi-tasking for several seconds while Studio 16 audio continues to play. Includes one-channel software driver, two-channel stereo software driver.
Req: Studio 16/AD1012, Amiga 1500, 2000, 2500, 3000 or 4000, Workbench 1.3 or higher
\$249
See ads on pages 25, 27

Synthesis

Blue Ribbon Soundworks
1605 Chantilly Dr., Ste. 200
Atlanta, GA 30324
(404) 315-0212
FAX (404) 315-0213

The One-Stop Music Shop
Featuring the award-winning E-Mu

Proteus SoundEngine, the One-Stop Music Shop includes hundreds of 16-bit linear CD-quality digital samples compiled from vast libraries of sound. Each and every sample has been professionally recorded, looped and edited to optimize the quality and variety of included sounds. Included are: MIDI interface, One-Stop's ASIC chip (can handle 32 channels of digital audio decoding and reconstruction in real-time with minimal distortion and artifacts), special editing software—no extra cables or special hardware required. Write video soundtracks, original music, multi-media scores and more.

Req: A2000, 2500, A3000, A3000T, A4000
\$649

The Other Guy's Software

297 E. 200 N., P.O. Box H
Logan, UT 84323
(801) 753-7620
FAX (801) 753-7666

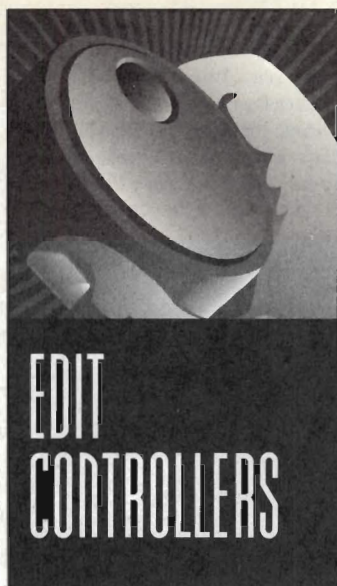
Synthia Professional

Synthia Professional is a complete sound and processing studio (16-bit sound, effects processor, visual editor and file interface).

Features: eight synthesizers (two forms of additive, plucked string, interpolative, two forms of percussion, subtractive, and FM/PM), sample rates from 4,000Hz to over 50,000 Hz; more than a dozen special effects you can add to synthesized or digitized samples; MIDI implementation and utilities; visual editing, visual looping and crossfading; resampling and more.

Synthia Professional is a must for any musical or sound application.

Req: Amiga
\$395



Circuits & Software

4347 Ramsgate
Bloomfield Hills, MI 48302
(313) 851-3536

GPI Interface for Video Toaster

Allows your edit controller to trigger Amiga/Toaster effects. Configurable for any controller and any pre-roll length. Converts your edit controller output signal into Amiga GPI signal. Plugs into 2nd mouse/game port of Amiga and your edit controller. Powered from Amiga. Operates in preview and edit modes; Amiga triggered precisely at the edit point.

Req: None
\$150

See ad on page 133

Interactive MicroSystems, Inc.

9 Red Roof Lane
Salem, NH 03079
(603) 898-3545
FAX (603) 898-3606

MediaPhile 3.0SAA/422

This unit controls an industrial video deck equipped with an RS422 serial edit control port. Up to seven decks can be controlled through the Commodore A2232 Multi-serial Port Board. Instructions are provided to modify the board. One controller is required for each deck.

Req: Commodore A2232 Multi-serial Port Board
\$200

MediaPhile 2.0P Universal Tape Deck Controller

This unit provides tape position input from two video or audio tape decks equipped with MediaPhile remote edit control ports. It's possible to install over 45 popular prosumer and consumer decks.

Has three serial outputs for Sony S-port and JVC swap-port control, one GPI remote switch output and two SMPTE

time code inputs. Can be used together with other MediaPhile controller; plugs into the parallel port of any Amiga.

\$200

MediaPhile 2.0A Infrared Controller

This unit sends infrared and serial remote-control commands from your computer to video decks, camcorders, laser and compact disc players and other devices. Two independent serial outputs are provided for Sony S-port and JVC swapport control. The MP2.0A unit is designed for use with MP2.0P and MP2.0S series controllers to provide fully-multitasking device control, and to learn infrared commands from remote controls. The MP2.0A unit plugs into the audio port of any Amiga.

\$200

MediaPhile 2.0S Serial Edit Controller

This unit provides tape position input from two camcorders or video decks equipped with Sony remote edit control ports. Tape position data is brought into the computer from Sony 5-pin CTL-L and 2.5mm LANCs ports. Has three serial outputs, one GPI remote switch output and two SMPTE time code inputs. Cables included; use together with other MediaPhile controllers; plugs into the serial port of any Amiga.

\$250

MediaPhile Servers Program

The MediaPhile Servers disk contains a collection of software interface modules that provide third-party programs with control of video decks, and laser and compact disc players through MediaPhile controllers. Support is provided for the Amiga Vision, CanDo, Scala, The Director, Showmaer, MicroFiche Filer, Sculpt Animate 4D, and VideoScape 3D programs. A general purpose ARexx server is provided.

\$200

MediaPhile Utilities Programs

This three-disk set includes the MediaEditor edit decision list program, the MediaController transport control program and the TCGEN SMPTE time code generator program.

Performs automatic edits with most prosumer and industrial S-VHS, Hi-8, Beta and 3/4-inch decks. Features include an intuitive graphical interface, preview, insert and assembly edits, special effects including A/B-roll dissolves, wipes and title overlays, synchronized audio, and accurate time code tape positioning.

\$200

InterVideo

P.O. Box 844
Twin Peaks, CA 92391
(909) 337-2507
FAX (909) 337-4307

RS232 Controllable VCR

RS232 VHS recorder with built-in switcher and time code generator reader.
\$1,765

Nucleus Electronics, Inc.

P.O. Box 1025
Nobleton, ONT L0G 1N0 Canada

The Personal Editor

The Personal Editor builds upon the proven technology and functionality of The Personal SFC to add frame-accurate two-deck video editing control to your Amiga. Standard editing features include clip logging, straight cut editing and single frame control. When used with a Video Toaster, the Personal Editor can also perform modified live edits with Toaster DVEs and Framestores. Generated editing lists can be modified, printed and stored on disk for later retrieval. Contact Nucleus Electronics for full feature list and VTR compatibility.

Req: Amiga, AmigaDOS 1.3+, RS-422 controlled Source VTR (time code recommended), frame-accurate RS-422 controlled editing VTR with time code
\$645 U.S., \$765 CDN

RGB Computer & Video

4152 Blue Heron Blvd. W., Ste. 118
Riviera Beach, FL 33404
(800) 535-7876

AmiLink

AmiLink, the most accurate and flexible Toaster editor, controls all types of video devices, such as laser disks, read/write opticals and videotape decks. Applications range from editing simple home videotapes to creating the most sophisticated video productions and animations possible.

AmiLink works with the following manufacturers' gear for a perfectly synchronized post-production editing network: Panasonic, Sony, JVC, Aekas, Pinnacle, Accom, Ampex, Pioneer, Hitachi and audio mixers made by GVG, JVC, FOR-A, Graham-Patton and Soundcraft.

Systems start at \$995

AmiLink Jog Shuttle Wheel Console

A professional jog shuttle wheel console designed to work with the V-Lan interformat interface system. Completes the A/B-roll system. With jog shuttle wheel and Internal Machine Control, everything is internal, either in the form of the jog shuttle console, or in the form of a machine control and card that goes right into the computer. The only thing external for the AmiLink system are the decks and the monitors. The jog shuttle wheel has a V-LAN transmitter built into it. The console, as far as the jog shuttle wheel, is a laser-optical sensor that conforms to the ballistics of any device that it's controlling.

\$1,995

See ad on page 29

Sweet Pea Communications

P.O. Box 912
Topanga, CA 90290
(310) 455-3915

The G.P.I. Box

Routes and provides switching of GPI triggers from editing controllers, such as The Editizer and AmiLink, to your video switcher and other devices. Allow multiple GPI triggers during each single edit event to be sent to single devices such as the Toaster.

Req: Adaptable
\$89; (\$4 S&H)

United Media, Inc.

4771 E. Hunter
Anaheim, CA 92807
(714) 777-4510
FAX (714) 777-2434

UMI 400 Series

UMI 400 series (UMI 420-2VTR, UMI 430-3VTR, UMI 440-4VTR and UMI 450-3 VTR with switcher control) is a fully upgradeable edit controller. Lets you plug directly into any serial RS-422 machines 1/2" and 3/4". There are several available options to customize the systems for your needs.

System capabilities: 250-event EDL, 3.5" disk drive, GPI—three channels for control of external devices (switcher/Toaster), jog/shuttle, built-in time code generator, and much more. Call United Media for full list of system capabilities and features.
\$3,250

Videomedia, Inc.

175 Lewis Rd., #23
San Jose, CA 95111
(408) 227-9977
FAX (408) 227-6707

SuperMICRON

SuperMICRON is a V-Lan compatible A/B/EXT edit controller providing animation plus video editing in one system. Packs state-of-the-art production tools into one console—a user-friendly dedicated keyboard with its own embedded master computer. Keyboard includes jog, shuttle, and cruise control of source and record transports. Features serial switcher control of devices such as NewTek's Video Toaster, variable speed control, audio follow video mixer and a programmable GPI trigger. Call Videomedia for full list of features and capabilities.

Y/C Plus, Inc.

1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481
FAX (913) 235-3485

KDP-A750

(GPI Trigger for Panasonic)

Adjustable trigger for interfacing to Panasonic AG-A750, NV-A500 and NV-A510. Delays the trigger point by five seconds for accurate editing. Features quick

on/off switch, adjustable delay from four to 14 seconds. Special 9 pin to 9 pin cable supplied. A must for editing.
\$199

KDP-440

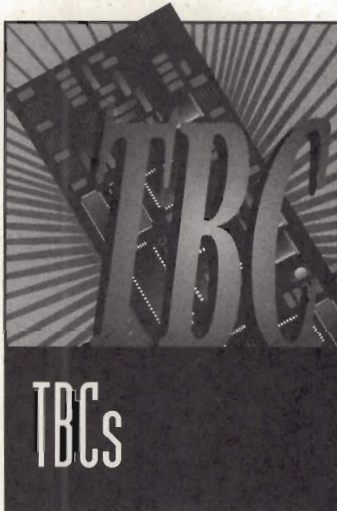
(GPI Trigger for Sony Rm-440)

Specially designed interface that triggers effect or character generation at the edit point versus preroll point. Triggers a single effect and is adjustable for five seconds or 10 seconds pre-roll setting. RCA input and nine-pin cable output. Features quick on/off switch for quick effects operation. Cables included.

Req: None

\$199

See ad on page 43



Digital Creations, Inc.

P.O. Box 97
Folsom, CA 95763-0097
(916) 344-4825
FAX (916) 635-0475

Kitchen Sync

The Kitchen Sync allows you to completely synchronize two independent video sources for use with virtually any switcher or digital video effects system requiring synchronous video inputs. The Kitchen Sync has two complete time base correctors (TBC) on one card that can plug into any IBM compatible slot on an Amiga 2000 or 3000. Composite or Y/C input (Y/C output optional). Perfect low-cost front-end for the Video Toaster.

Req: A2000, 2500, 3000 or 4000 AT slot
\$1,295

See ad on page 39

Digital Processing Systems, Inc.

11 Spiral Dr., Ste. 10
Florence, KY 41042
(606) 371-5533
FAX (606) 371-3729
In Canada call:
(416) 754-8090
FAX (416) 754-7046

Personal TBC III

Time base corrects and synchronizes your video feeds to eliminate signal errors; gives rock solid freeze, variable strobe and forced monochrome. Fully compatible with the Video Toaster.
\$995

Feral Industries/Grunder

& Assoc., Inc.

5925 Beverly Ave.
Mission, KS 66202
(913) 831-1791
FAX (913) 831-3427

Feral Micro 4:2:2

Designed for all desktop video applications, the Feral Micro 4:2:2 TBC/Synchronizer plugs into any personal Amiga. This infinite window, compositing and Y/C unit is designed to eliminate time base error in video playback and synchronize to any video source. Offers multiple input selection, composite and Y/C inputs and outputs, transcoding between S-VHS and composite video, genlock with SC and H-phase controls and memorized proc amp level controls, plus many more features. Graphic software included.
\$1,095

FOR A. Corp. of America

313 Speen St.
Natick, MA 01760
(508) 650-3902
FAX (508) 651-8729

PCU-20

PCU-20 remote mouse controls FA-20 plug-in TBC by interface via RS-232 and provides menu-driven calibration of video and chroma gain, hue, color, Y/C delay, genlock, H-phase, freeze and three levels of noise reduction. Controls up to 10 FA-20 TBC cards for cleanest possible pictures in IBM compatible video.
\$495

Hotronic, Inc.

1875 S. Winchester Blvd.
Campbell, CA 95008
(408) 378-3887
FAX (408) 378-3888

TBC/Frame Synchronizer

The new low-cost AP41 TBC/Frame synchronizer is compatible with 1/2", VHS/S-VHS, 3/4" U-matic or U-matic SP, Betacam, Hi-8 and satellite feed. Available in three different models. Provides a stable signal for editing. With proc-amp controls, the operator can control the video level, chroma level, black level and chroma hue for those video programs that may have been recorded with the wrong camera setting or poor lighting. Accepts composite or Y/C S-VHS input. Call local dealer

Nova Systems, Inc.

50 Albany Turnpike
Canton, CT 06019
(203) 693-0238
FAX (203) 693-1497

NovaMate Time Base

Corrector/Frame Synchronizer

Y/C and composite TBC with transcoding. Plugs into a computer chassis or one of several standalone and multi-channel enclosures. Features a full-frame and field freeze and strobe. May be software controlled or via NovaTrol serial control panel.

NovaMate Plug-in version—\$1,300
Mate/IT Standalone version—\$1,800
Mate/2T dual channel—\$3,150
Amiga and DOS software included.
For prices, see above.

See ad on page 32

Prime Image, Inc.

19943 Via Escuela
Saratoga, CA 95070
(408) 867-6519
FAX (408) 926-7294

TBC/PCB

The TBC/PCB is an all-digital time base corrector/synchronizer plug-in board for desktop video applications. Provides required timing for all VCRs, cameras and other video feeds used in desktop video. Offers Y/C inputs and outputs, using convenient four-pin S-VHS connectors for Y/C. Digital advantages include no internal alignment adjustments, no-drift operation and no surface mount ICs to cause intermittent performance. Power consumption is six watts. Remote control available or operate from host computer. Prime Image pays shipping. One-year labor and material warranty.

Req: AT Bus, Amiga
\$950

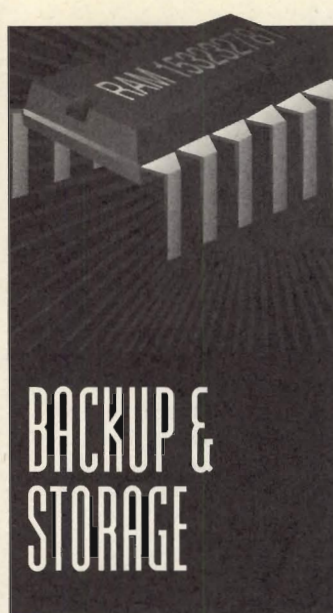
Y/C Plus, Inc.

1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481
FAX (913) 235-3485

YCP-FS

Plug-in time base corrector/frame synchronizer for Amiga. Wide band 5.5 MHz for better resolution and sharper pictures. Multiple input Y/C (Hi-8 or V-VHS) or composite video with state of the art transcoding. Digital 4:2:2 processing further enhances the overall picture quality. Control software works with the Video Toaster for easy operation. Optional wired remote control panel available.
\$1,099

See ad on page 43



Central Coast Software
206 Wild Basin Rd., Ste. 109
Austin, TX 78746
(512) 328-6650
FAX (512) 328-1925

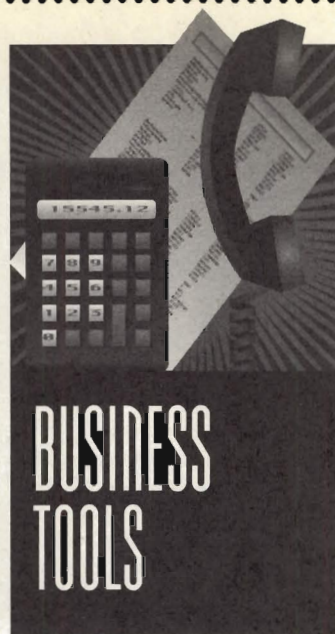
Touchdown-100 Tape Drive

Capable of storing 250 megabytes of data on a single data cartridge, the Touchdown 100 is the perfect solution backing up your hard disks, or archiving your important documents. Its high speed of over six MB per minute means that you won't be waiting around while backing up your system. And for its suggested retail price of only \$650, the Touchdown 100 is by far the best bargain in tape drive storage for the Amiga.
\$650

Moonlighter Software Development, Inc.
3208-C.E. Colonial Dr., Ste. 204
Orlando, FL 32807
(407) 384-9484
FAX (407) 384-9391

TapeWorm-FS

TapeWorm-FS is a filesystem for tape drives. It allows any SCSI tape drive to act like an AmigaDOS Volume: You can get directories, add files, copy files, etc. Access times are on the order of 20 seconds on DAT tape drives. Keeps all versions of a file, so that even when you overwrite a file, the original version is still accessible. Ideal for near line storage of framestores and large animation sequences.
Req: Amiga, or NewTek's Video Toaster with SCSI tape drive (DAT, 8mm or QIC)
\$129.95



Lucky Fish Software
4830 Briarwood, Ste. D4
Royal Oak, MI 48073-1353
(313) 288-3753
FAX (313) 288-3753

ts_Prompt

Professional teleprompters software. Includes 1,000 smooth scroll speeds controlled by mouse or keyboard; reverse and inverse view modes; ASCII text file imports; print option; and a clear, intuitive user interface.
Req: Amiga
\$99

New Horizons Software Inc.
206 Wild Basin Rd., Ste. 109
Austin, TX 78746
(512) 328-6650
FAX (512) 328-1925

QuickWrite

Entry-level word processor. the ideal word processing solution for single-drive systems. Requires only 512K of memory. Some features include a 50,000 word dictionary, mail merge, WYSIWYG display, fully-customizable, compatible with ProWrite and Professional Page DTP programs; perfect for all simple word processing needs.
\$50

ProWrite

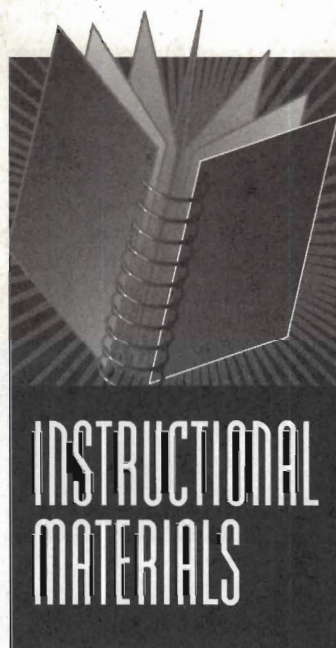
Professional features abound in this best-selling Amiga word processor, where ease-of-use becomes reality rather than marketing. A 3D interface that works under 1.2 and up, multiple columns, Postscript printing and a full WYSIWYG display, spell checker and 300,000 word thesaurus, and insertion of HAM and IFF pictures are just a few of the many capabilities offered. Version 3.3 includes a new file convert program for documents in other formats; new fonts.
Req: Amiga, two disk drives, Kickstart 1.2+

\$99.95
See ad on page 7

Soft-Logik Publishing Corporation
11131 F South Towne Square
St. Louis, MO 63123
(314) 894-8608
FAX (314) 894-3280

PageStream 3.0

PageStream 2.2 is the number-one sellinop publishing program for the Amiga, and it's about to get better. PageStream 3 is an all-new program featuring ARexx, AGA color support and gradient fills! PageStream 3 is the most powerful desktop publisher ever!
Req: Workbench 1.3+
See ad on page 53



Action Graphics
4725 Dorsey Hall Dr., Ste. A402
Ellicott City, MD 21043
(410) 992-0749
FAX (410) 740-0902

A Guide to Toaster Production: Vol. 1

This is the first video in a series that covers specific production services for the Video Toaster: everyday applications such as converting line art/pictures/ slides/ computer files into Paint Box style graphic screens and improved 3D animation techniques, how to use the switcher to create animated charts, graphics, maps and images, create customized 2D & 3D designs with your own logos, tips, hints and tricks professionals use on the Toaster, and much, much more.
See ad on page 132

Adita Video, Inc.
116 Bermondsey Way N.W.
Calgary, AB T3K 1V4 Canada
(403) 274-7494
FAX (403) 275-6213

How to Shoot Super Videos

The Super Videos series consists of seven instructional videotapes, each ranging from 90 minutes to two hours in length. It is the most comprehensive video instructional course ever produced. The program covers everything from basic camcorder functions to advanced editing with professional editing decks and the Video Toaster. The presentations combine actual live classroom segments and professionally narrated segments which are supported with on-screen graphics and hundreds of video clips shot specifically for the series. Call for tape titles.
Req: VHS VCR
Any 3: \$79.95; All 7: \$175; or \$39.95 each

Alpha Video
7836 Second Ave. S.
Bloomington, MN 55420
(612) 881-2055
FAX (612) 881-4835

The Definitive LightWave 3D Series

The Definitive LightWave 3D Series features John Gross, a nationally recognized LightWave 3D expert and *Video Toaster User Magazine* columnist. The five-tape series teaches the basics of Toaster animation (the viewer can work hand-on while viewing); advanced lighting techniques, spline control, morphing, envelope creation and ray tracing; proper surface techniques; techniques to create new objects or modify existing ones; how to add speed and productivity to your creation and rendering time.

All tapes come with a 30-day money back guarantee. Individual tapes are \$59.95, plus S&H. Complete five-tape set is \$269, plus S&H. Call local Amiga dealer or (800) 852-4436.

For prices, see above.

The Understanding Video Series

The Understanding Video Series is a three-tape series aimed at explaining the technical basics of video in simple non-technical terms. The Series explains: the differences between tape formats, tape signals and what to consider when purchasing video equipment; how the Video Toaster processes video signals and how it interacts with the full variety of signals and formats on the market today.

All tapes come with a 30-day money back guarantee. Individual tapes are \$29.95, plus S&H. Complete three-tape set is \$79.95, plus S&H. Call local Amiga dealer or (800) 852-4436.

For prices, see above.
See ad on pages 2-3

Amiware

3160 Steeles Ave. E.
Markham, ONT L3R 4G9 Canada
(416) 931-8760
FAX (416) 940-9633

Toaster Training '92

180 minutes of help to master the exciting techno universe that is the Video Toaster! Fully produced with the Toaster, this tape walks the viewer through the various features of the Toaster (Switcher, ChromaFX, Paint tutorial, Character Gen, 3D animation, etc.). Included is a Toaster Tools disk.

Avid Publications

21611 Stevens Creek Blvd.
Cupertino, CA 95014
(800) 322-AVID
(FAX 408) 725-8035

Video Toaster User

Keyboard Overlay

The power of the Toaster is now at your fingertips with the Video Toaster User Keyboard Overlay.

Made with high-quality spiral binding and sturdy construction, the Video Toaster User Keyboard Overlay attaches securely to your keyboard.

Includes keyboard-equivalent overlays for Switcher, ToasterPaint, LightWave 3D, Modeler and ToasterCG—every Toaster owner should have one!

\$29.95

See ad on page 84

Horizon West Productions

P.O. Box 2729
Corrales, NM 87048
(505) 891-1689
FAX (505) 891-1689

Killer Graphics—The Series

A new series of video tutorials has been released under the banner "Killer Graphics." The videos in this series are project based, showing real projects in real time. Releases include: Real Time Solutions with DCTV; 3D animated Logos with DCTV; Graphics for Special Events with DCTV; Aladdin Fundamentals and others.

\$29.95 each (plus \$3 S&H)

See ad on page 88

Kingsway Productions

2427 Hart Ave.
Santa Clara, CA 95050
(408) 244-9692

Secrets of the Panasonic

AG-1960 & AG-1970

This is a two-hour plus production that explains every single switch, port, and function of the Panasonic AG-1960 and AG-1970 S-VHS Editing Decks. Secret tips and techniques are spread throughout the video and are included in each of the sections: Setup & Operation, Editing & System Expansion, Audio Modifications, and AG-1960 vs. AG-1970. The program corrects erro-

neous information contained in the Panasonic manual, inserts new information, while providing plenty of super secrets along the way.

\$39.95; plus \$3.50 S&H

L.&N. Productions

P.O. Box 391
Brownsville, CA 95919
(916) 675-1227

A3000/Toaster!

The A3000/Toaster! is a do-it-yourself video with a 15-page booklet. Both the video and booklet takes the novice through every step required to either modify the A3000 chassis or the Toaster board as two separate methods (instructions do not apply to the A3000 Tower). A coax cable is provided for the second method.

Orders are accepted by mail for check or money order (price includes S&H and U.S. taxes—shipping is via U.S. two-day priority mail) and by our toll-free number: (800) 676-4510 for either Visa or Mastercard.

A3000 25/50, 7MB RAM, NewTek's Video Toaster

\$35

Mobile Video and Photography

7418 E. Helm Dr., Ste.249
Scottsdale, AZ 85260
(602) 998-9059

How to Successfully Market in the Promising World of Video

This product allows the Toaster user or basic video entrepreneur to feel confident in their career and start making some high-revenue sales, combined with a strong base of referrals. The video is not only informative, but provides guaranteed marketing procedures that will work—or your money back.

\$29.95

See ad on page 134

Positron Publishing

1724 N. 145th St.
Omaha, NE 68154
(402) 496-2667
FAX (402) 334-2195

Mastering Toaster Technology

Master Toaster Technology (MTT) is a how-to guidebook to using the NewTek Video Toaster to create professional video results. In MTT, readers will learn the steps to: Create perfect 3D logos, make static and traveling mattes, turn AutoCAD files into 3D LightWave animations, build reveal animations to write text and logos onto the screen and much more.

MTT is written by Video Toaster authority Brent Malnack and AVVideo editor Phil Kurz. In addition to the book, MTT buyers receive a two-disc set packed with software goodies, including Logo Loader, which converts IFF brushes to Toaster CG Colorfonts, a

custom 3D beveled font and chroma-font, six animated wipes and custom 3D objects, including a rollercoaster construction kit.

Req: Logo Loader requires AmigaDOS 2.0

\$49.95

See ad on page 59

Rave Video

611 N. Orchard Dr.
Burbank, CA 91506
(818) 841-8277

Video Toaster Essentials; 8-tape instructional set

Video Toaster Essentials is an entire overview of the Video Toaster's switcher and special effects including: Luminance Keying, Chroma Effects, keyboard shortcuts, maximizing memory usage, avoiding jump cuts and more. Other videos are: LightWave 3D Essentials—3D animation in LightWave's layout and renderer is made easy; LightWave 3D Flying Logos—step-by-step instruction on converting simple printed logos into 3D objects; LightWave 3D Modeler—learn how easy 3D modeling can be; LightWave 3D Surfaces—give your 3D objects texture and realism with special techniques used by top LightWave artists; Professional Techniques for ToasterPaint and ToasterCG—learn how to create professional high-quality graphics and images, and more; ToasterPaint Essentials—the complete ToasterPaint system is explained and demonstrated; and ToasterCG Essentials—learn how to operate and master the CG book.

\$49.95 each

Sweet Pea Communications

P.O. Box 912
Topanga, CA 90290
(310) 455-3915

Todd Rundgren Speaks!

Your chance to hear the wild inside story of how Todd Rundgren made his sensational new Amiga-based MTV video, "Change Myself." See and hear Rundgren's comprehensive, witty, hard-hitting story of his personal discoveries and despair, triumphs and crashes using the latest in Amiga-related hardware and software. If you are creating animation or graphics in the Amiga environment or with the Video Toaster, you need this tape. Recorded at the March '91 meeting of L.A. Siggraph at the Jet Propulsion Laboratory in Pasadena, CA, Todd Rundgren Speaks! will surprise you and challenge you to examine your methods. 60 minutes.

\$23.95; \$4 S&H

Toaster Crustaceans

1730 Arcane St.
Simi Valley, CA 93065
(805) 522-4864

The Video Guide to ToasterVision

Ken Byrd, the creator of ToasterVision, takes you on an in-depth, exciting two-hour guided video tutorial on ToasterVision, the most powerful integrated Toaster software tools available today. ToasterVision's five modules are demonstrated with one-on-one tutorials that help you gain the utmost power from ToasterVision.

See and learn how to: create new Toaster projects; create new wipe patterns; compress and manage framestores; view framestores or preview LightWave 3D animations; automatically sequence Toaster events; learn the secrets to producing gradient logos, never before available on the Video Toaster.

Req: VHS VCR

\$49.95; \$5 S&H

The Upper Crust Video Library, Vols. 1-8

Covering two years of presentations at the Los Angeles Video Toaster User Group, The Upper Crust Video Library of Toaster Tutorial tapes contains a wealth of practical information and useful tips from Toaster professionals (Lee Stranahan, Ron Thornton, Mark Stross, David Hopkins, Dave Thompson, Tim Doherty, Burt Wilson and Tony Gomez, just to name a few), on every aspect of the Video Toaster. Volumes 1-8 are about two hours each (a detailed breakdown about specific volumes is available free). A \$10 sampler videotape is available, with payment applied toward library purchase.

Req: VHS VCR

\$34.95 each; Sampler—\$10 each

See ad on page 69

Videographix, Inc.

1102 Jefferson St.
Algoma, WI 54201-0127
(414) 487-3828

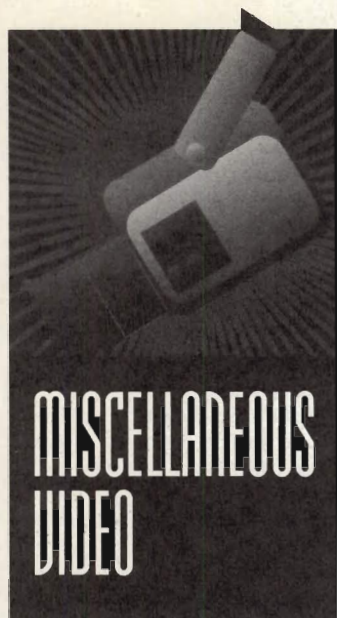
Videographix Today/Toast & Coffee: 6-tape set

Volume 1, Numbers 1-6 of the videotape magazine Videographix Today/Toast & Coffee are now available in one complete set.

Learn Video Toaster tips from some of the industry's leaders, including John Gross and Brent Malnack. See a variety of software products demonstrated as well as the installation of several key hardware peripherals. In addition, this set gives you the unique opportunity to tour Video Toaster facilities and experience how other people are using their systems for both work and play.

\$119.90 plus S&H

See ad on page 133



ASDG, Inc.

925 Stewart St.
Madison, WI 53713
(608) 273-6585
FAX (608) 271-1988

Multiple products (see below)

HP Scan Jet IIc Scanner driver—\$200
Epson Scanner driver—\$200
Polaroid CI 3000/CI 5000 Driver—\$200
Laser Graphix LFR Driver—\$250
Professional Scan Lab II Driver for Sharp's JX320, 450, 600 and 610 scanner—\$499
Call ASDG for each driver's specific capabilities and benefits.
EB920—is a high-speed thin wire (cheapernet) only ethernet board from the company that helped design SANA-II (driver included). Directly supported by ENLAN-DES Oxxi, Novel, all SANA II software and other software products—\$349

See ads on pages 57, 65

Azimuth Communications

P.O. Box 70154
Riverside, CA 92513
(909) 351-4001

Clocks

Tape reel clocks—made from 1" tape reels.

Classic Video Products

93 Cottage Lane
Aliso Viejo, CA 92656
(714) 362-3741

The Action Boom

The Action Boom takes out camera shakes. Achieve totally fluid footage while walking or running on any terrain, even in the wind. Includes color monitor with professional sun hood. Shoots 1" squirrels eye view—up to nine feet high. Camera capacity one to 15 pounds. Entertaining training tape (shot entirely on Action Booms)

included.
\$749.95
See ad on page 132

ESE

142 Sierra St.
El Segundo, CA 90245
(310) 322-2136
FAX (310) 322-8127

ES-219

4-output RS-170A Black Burst generator. The outputs are ideal for synchronization of any video system or for pre-blackening tapes.

None

\$195

PC-207A

1x4 Video Distribution Amplifier computer card. Amiga and PC compatible. Is the perfect solution when distributing a video signal to more than one monitor or VCR, or when compensating for lengthy cable runs. Broadcast-quality specifications.

None

\$145

PC-217

1x4 Video Distribution Amplifier computer card. This card is a must when sending audio (or time code) to multiple sources or along lengthy cables. Broadcast-quality specifications.

None

\$95

PC-219

5-output RS-170A Black Burst generator computer card. Both Amiga and PC compatible. Is perfect for synchronizing desktop video systems. Optionally one output can be specified for either sync or an audio tone.

None

\$175

See ad on page 77

Horita

P.O. Box 3993
Mission Viejo, CA 92690
(714) 489-0240

VDA-50

The new Horita VDA-50 wideband multiple I/O video distribution amplifier consists of two or three separate high-performance video distribution amplifiers with user selectable jumpers on the PCB that allow it to be configured for various multiple or single video DA applications. The desktop version is configurable as a dual 1x2 and 1x3 DA, or a single 1x6 DA. The rackmount version is user configurable as a triple 1x2 DA, dual 1x4 1x3 or 1x5 1x2 DA, or single 1x8 DA. Looping input permits multiple VDA units to be easily connected for expansion or to pass the input video signal on to other pieces of equipment. The Horita VDA-50 can operate from battery power for use in the field.

\$229

See ad on page 88

Hotronic, Inc.

1875 S. Winchester Blvd.
Campbell, CA 95008
(408) 378-3887
FAX (408) 378-3888

Broadcast Switcher

The Hotronic AQ21 Switcher is a broadcast-quality standalone switcher with built-in dual time base corrector (TBC). The TBC/Frame Sync is designed to handle noisy, marginal tapes. The AQ21 is used in A/B-roll editing, mixing non-synchronized sources either in NTSC format (composite) or Y/C format. Can be controlled by host computer or optional remote control. Offers a wide variety of digital effects. Is a full bandwidth switcher with RS232 serial interface for external communication and control, and GPI input for A/B roll edit controllers.

Call local dealer

Illuminati Electronic Systems and Cables, Inc.

3907 N. Federal Highway, Ste. 140
Pompano, FL 33064
(407) 368-7349
FAX (407) 368-1501

DataStream Digital Interconnect and VideoStream Pro & Pro-X Composite Video Cables

The DataStream Digital Interconnect cable is being used by audiophiles to connect their digital equipment together. The True 75 Ohm impedance characteristic is held to +/- 0.5 Ohms for the length of the cable. The solid copper shield has unmatched ability to reject any kind of interference, and the cable functions at ultra-low reflection through 2 Ghz bandwidth. Maximum operating bandwidth: 35 Ghz. VideoStream Pro and Pro-X are true 75 Ohm composite video cables that demonstrate ultra-low reflection characteristics through a 2 Ghz bandwidth. Maximum operating bandwidth: 35 Ghz. Call for details.

Images In Motion

237 South Curtis Rd., P.O. Box 13751
Milwaukee, WI 53213
(414) 258-6468
FAX (414) 258-8794

Tally Light Controller

The Tally Light Control System from Images in Motion is designed for use with NewTek's Video Toaster to control up to four camera tally lights. The box interfaces between the computer and the camera remote unit via the computer parallel port. The control software runs transparently with the Video Software as it monitors the switcher program status activating the appropriate camera tally light according to which input is selected.

NewTek's Video Toaster, ARexx

\$495

Mediacom, Inc.

P.O. Box 36173
Richmond, VA 23235
(804) 794-0700
FAX (804) 794-0799

AdClips, Vol. One

210 video clips for multimedia production. AdClips contains 48 minutes of broadcast-quality footage with unlimited, royalty-free, non-broadcast reproduction rights. Broadcast rights are negotiated separately. Clips range in length from 4-41 seconds. Subjects include: Historical, city scenes, nature, wildlife, corporate/industrial, recreation, transportation and lifestyles. NTSC (call for PAL info). Five-minute VHS demo, containing 73 clip segments, also available: \$9.95 (applied to purchase).

\$299 for S-VHS (SMPTE optional), Hi-8, VHS, 8mm and commercial formats \$349 for 3/4" U-Matic and 3/4" SP \$424 for Betacam, Betacam SP and One-Inch

\$433 for MIU

\$639 for D2

For prices, see above

NRG Research, Inc.

840 Rogue River Hwy., Bldg. 144
Grants Pass, OR 97527
(503) 479-9433
FAX (503) 471-6251

Photoflood Kit

NRG's Photoflood Studio Lighting Kits provide a 100-degree beam pattern for broad, smooth light coverage of a large area. The beam pattern is non-offensive even when working close to a subject. Kits are available in 2-light 1,000 watt or 3-light 1500 watt configurations and include light heads, lamps, sturdy tip resistant 8' stands and a hard transport case with custom foam interior. Each light features a dual position switch which provides instant selection of 250 or 500 watts of light output. Made in the U.S.A.

\$399.95-\$524.95

Power Pro+, perpetual

power belt

NRG presents the ultimate power belt and #1 choice of consumers and working professionals. Made in U.S.A., weighs only 4.9 lbs., features advanced high-density, memory free sintered Ni-Cad power cells which remove for interchange, a five-step multi-color power indicator display and much more. Call NRG for full list of features.

\$399.95-\$424.95

Lite Rite—Total Lighting Control

The new Lite-Rite DC light controller from NRG Research allows a videographer to perfectly match the intensity of an on-camera light to any shooting situation. At the turn of a thumbwheel any 12-volt DC light up to 100 watts can be instantly adjusted to one of 80 different light levels. Call NRG for full

list of features.
\$129.95-\$149.95

Versalite Professional

The standard of professional on-camera lighting, made in the U.S.A., is the NRG Versalite-Professional. It brings unmatched lighting performance to any full-size camcorder or industrial camera, utilizing an ultra-efficient lamp system that provides 20-30% more light output and hundreds of hours longer lamp life than competitors' lamp systems. Call NRG for full list of features. \$189.95

See ad on page 44

Phoenix Microtechnologies, Ltd.

18 Hampton Rd.
Kewick S. Australia 5035
(011) 618-293-8752
(011) 618-293-8814

Aladdin Lighting Control System

48 or 96 channel lighting control software/hardware combination. Outputs industry standard DMX 512 protocol data to control digital dimmers. The ultimate in sophisticated lighting control and ideal for use in TV/video production and theater. ARexx controllable and fully multi-tasking.

Prime Image, Inc.

19943 Via Escuela
Saratoga, CA 95070
(408) 867-6519
FAX (408) 926-7294

Std Con/PCB

From the digital people, an industry first: a plug-in standards converter for international desktop video applications. Inputs: NTSC, PAL, PAL-M, PAL-N, SECAM and NTSC 4.43. Outputs: NTSC, PAL, PAL-M, PAL-N, SECAM and NTSC 4.43. Time base corrects/synchronizes; Y/C 3.58 and composite in and out. Shipping paid by Prime Image. One year warranty labor and material.

Req: AT Bus, Amiga
\$1,695

Videoframe Systems

P.O. Box 3044
Grass Valley, CA 95945
(916) 477-2000
FAX (916) 477-5055

VA/4

Video delay/level adjusting amplifier (four channel)

None

\$895

Winsted Corporation

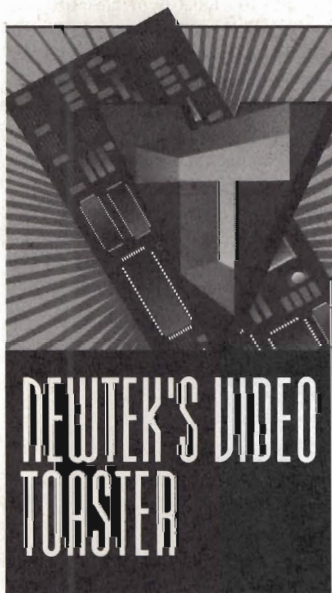
10901 Hampshire Ave. S.
Minneapolis, MN 55438
(612) 944-8556
FAX (612) 944-1546

Toaster Desk

The Winsted Corporation has introduced a new Toaster Desk designed

specifically for desktop editing. The attractive black desk is an integrated workstation, with three equipment shelves adjustable in 1" increments. A recessed monitor well allows easy, comfortable viewing without neck or eye strain. An extra deep back panel includes two wire management trays for no-mess cord control. Both casters and leg levelers are included. Ergonomically designed for operator comfort, it accommodates all major brands of editing systems, providing ample work area and storage space. A variety of options are available. Call for more information.

See ad on pages 107



NewTek

215 E. 8th St.
Topeka, KS 66603
(800) 843-8934

Video Toaster 4000

NewTek's Video Toaster 4000 is the newest generation of Toaster technology. The Toaster 4000 includes over 300 effects, many with features like drop shadows, glints, highlights and full-color animation. Toaster 4000 CG allows you to create great-looking text pages, with mouse-controlled "drag-and-drop" page assembly, PostScript font support, and the ability to select font style, font size, color, transparency, shadows and outlines on a character-by-character basis. ToasterPaint allows you to create 16.8 million color graphics for video quickly and easily.

The Toaster 4000 also includes LightWave—the award-winning modeling, rendering, and animation system. LightWave now has features like realistic lens flares, depth of field effects, character animation features,

and blazingly-fast rendering times. LightWave Modeler lets you draw with spline curves, combine objects with Boolean functions, and create text objects using PostScript fonts.

\$2,395

Video Toaster 2.0

The Video Toaster 2.0 is the world's first all-in-one broadcast-quality video production studio. From motion pictures and television to business and education, industry professionals have come to rely on the Video Toaster for its nine essential tools: real-time digital effects, ToasterCG, ToasterPaint, LightWave 3D, dual frame buffers, luminance keyer, real-time color processing, and the still store/frame grabber. From novice to network producers, the power of a high-end production studio is on the desktop—you can add the same level of Hollywood quality and excitement to your videos!

Call your local dealer for prices

ToasterLink

ToasterLink is the desktop video gateway for the Macintosh. ToasterLink allows you to expand your graphic ideas into the dynamic realm of video and show them off to anyone with a VCR. With the click of a button, ToasterLink exports your Macintosh designs to the Video Toaster for the broadcast-quality output that video professionals around the world turn to everyday.

Use your Toaster to capture high-quality video images from a camcorder, VCR or laser disc and you'll have full-color, full-screen video images on your Mac, unlike anything you've seen before. Once inside the Mac, these images can be retouched, enhanced and printed using all the powerful graphic and desktop publishing tools that make the Mac the platform of choice for serious print graphic designers.

Complete systems start at \$4,595

See ads on pages C4, 13-15, 110

Centennial Video Systems

2500 N.W. 39 St.
Miami, FL 33142
(305) 633-2200
FAX (305) 633-0030

Video Toaster 2.0, Spanish Version

The powerful Video Toaster 2.0, but in Spanish! Includes Spanish manual, extra fonts for Spanish character generator and workstations with Spanish keyboard.

SERVICES

Action Graphics

4725 Dorsey Hall Dr., Ste. A402
Ellicott City, MD 21043
(410) 992-0749
FAX (410) 740-0902

All Pro Toaster

Action Graphics provides support/production for your Video Toaster system. We offer the best support in the area for sales, on-site training, installation and consultation. In addition, we provide full graphics/animation production such as: graphic design development, file conversion to 2D-3D graphic designs and graphic screen improvement with stylized backgrounds and moving elements. Our services can be useful in any visual application from video production, training, interactive multimedia, live speaker support to medical, architectural, sales advertising and government environments.

Broadcast Video Productions

337 W. Elm St.
Deep River, CT 06417
(203) 526-5371

Shooting, Directing and Producing

17 years commercial broadcast experience with shooting, directing and producing. Video and film formats: NTSC and PAL. Live action, event, table top, aerials and underwater. Commercial and corporate productions, national and international programs and formats. Credits include: Daytona 500, Indianapolis 500, Phoenix International, Laguna Seca, Pocono Raceway, Houston Speedway, Loudon International, Del Mar, Le Mans, US Ski Team, World Cup Soccer, NFL, NBA, Special Olympics, America's Cup Australia, Stanley Tools, STP, Paramount Pictures, Timex Corp., Gaylord Hospital, B.B.P., CNN, Lifetime Channel, Wheel of Fortune, Skip Barbour Racing; Awards: Telly (1992); Addy, UPI, United Way, MDA. Additional: IBEW, IATSE, IFTW

Digital Animation Design Associates

337 W. Elm St.
Deep River, CT 06417
(203) 526-5371

2D/3D Graphics Design

Complete design and production of 2D and 3D graphics. Any and all of your computer-based graphics desires. From a company logo to 3D animation reenactments. Full Paint box palette. Credits: Stanley Tool, Skip Barbour Racing, Vision 23, MPI, BVP, First Brands, Prestone, American Fluid Technology

Graphic Impressions

502 Main St., P.O. Box 254
Wausaukee, WI 54177-0254
(715) 856-5627

FAX (715) 856-5627

Amiga File Imaging

Amiga computer files converted to 35mm negatives, 35mm slides, 4x5 transparencies, Epson 600 DPI scanning, 16.8 high speed modem transfers, BBS support, 48-hour turnaround. The service also supports MS-DOS files to film. With extensions of BMP, DPIIE, GIF, JPEG, PCX, Rendition, SunRastor File, TIFF, Targa and XWindows, this a 100% Amiga hardware/software film service with over 20 years of photography and processing experience. With our high-speed modem service, you can eliminate shipping and handling of disks and upload files to our service 24 hours a day.

See ad on page 133

Hi-Tech Trading Company, The

11100 66th St. N, Ste. 26
Largo, FL 34643
(813) 546-6407
FAX (813) 544-1018

Equipment Broker

We are a new and used broadcast and industrial equipment broker.

Hammond Photographic

11280 Washington Pl.
Culver City, CA 90230
(310) 390-3010

Film Output Service Bureau

We output Amiga computer graphics to 4x5 color transparencies or negatives and 35mm slides or negatives. We can handle all Amiga IFF graphic formats including 24-bit IFF and AGA graphics. We can output Video Toaster framegrabs in 24-bit IFF and LightWave renderings up to and including the print resolution. Prices vary according to quantity ordered.

Turnaround is normally overnight in-house. Images are recorded at 4,000-line resolution on an Agfa-Matrix Professional PCR II film recorder. Call or write for price lists, order forms and free 35mm slide samples. We service

only Amiga computers.

See ad on page 134

Industrial Color Labs Inc.

6890 Highbridge Rd.
Fayetteville, NY 13066
(315) 449-1155
FAX (315) 449-2323

Computer Slide Imaging Service

Computer slide imaging is digitally recording of any Amiga bitmapped image to photographic films, for display or other means of reproduction (slide shows, magazine ads). Photographic enlargements up to 40 x 60 from your bitmapped images. \$9 each 35mm; \$50 for 4x5s.

See ad on page 131

ProVideo Productions

937 Via Lata #200
Colton, CA 92324
(909) 783-4848
FAX (909) 783-4491

Video Toaster Services

Toaster workstation configuration; on-site training; video production; post-production; duplication; 16mm/8mm/8mm movie film transfers to video; standards conversion; slides and photos to video; on-location videotaping available for TV commercials; product demos; training, etc.

Service Management

Group, Inc., The

10400 Little Patuxent Pkwy., Ste. 440
Columbia, MD 21044
(410) 992-9975
FAX (410) 992-9979

Gold Service

Under an exclusive agreement with Commodore, the Service Management Group provides service for Toaster systems, Amiga products and most third-party add-ons. The SMG can add your Toaster and other peripherals to Commodore's Gold Service program. Should a problem occur, next day repair on any item in your entire system is a single phone call away, without any additional costs or hassle. Support for Toaster Systems is even available if your warranty is expired or you weren't originally eligible for Gold Service.

Spectrum Companies

7 N. Blake Dr.
Arden, NC 28704
(704) 687-7410

Slide/Graphics Service Bureau

High resolution 35mm color slides or negatives made from your files. Over 4,000 line resolution—for \$5 each. We support all file types, we also offer color prints, 24-bit flatbed scanning service, 4x5 film output and full Postscript support. Complete graphic design and video production studio

billed by the hour.

Since 1989, we have provided a full spectrum of service to customers who need digital output for video production, magazines and brochures, cassette covers, corporate presentations and art galleries.

See ad on page 131

Unili Graphics

143 Lorraine Ave.
Pittsburg, CA 94565
(510) 439-1580
FAX (510) 439-1580

2D-3D Font Conversion Service

Custom conversion of Postscript Type 1 or Type 3, Compugraphic Intellifonts and DR2D files to professional quality objects for use with LightWave 3D or Caligari. You must be licensed to use the font or drawing to be converted. 24-hour turnaround. Standard conversions start at \$50.

Workbench 2.0 & NewTek's Video Toaster/Lightwave 3D

Alabama

Alabama Computers, Inc.

6210-D Madison Pike
Huntsville, AL 35806
(205) 837-9324
FAX (205) 721-0684

C & G Video Systems

P.O. Box 188
Spanish Fort, AL 36527
(800) 277-8273
FAX (205) 626-4656

Custom Supply, Inc.

2509 5th Ave. S.
Birmingham, AL 35233
(205) 252-0141
FAX (205) 251-1718
See ad on page 111

Arkansas

Micro-Tronix

1614 Towson Ave.
Fort Smith, AR 72901
(501) 782-4048

California

Adolph Gasser, Inc.

181 Second St.
San Francisco, CA 94105
(415) 495-3852
FAX (415) 543-2615
See ad on page 113

Compuhelp Computers

16131 Victory Blvd.
Van Nuys, CA 91406
(818) 901-0280
FAX (818) 901-0280
See ad on page 113

Computer Showcase

510 1/2 Frederick St.
San Francisco, CA 94117
(415) 664-0484
FAX (415) 664-0485

Controlroom Productions

143 S. Cedros Ave., Suite L
Solana Beach, CA 92075
(619) 259-9697
FAX (619) 259-9696

Creative Computers

4453 Redondo Beach Blvd.

Lawndale, CA 90260

(800) 872-8882

FAX (310) 214-0932

See ad on pages 90-91

DevWare Video

12520 Kirkham Ct., Ste. 1-TU7
Poway, CA 92064
(800) 879-0759
See ad on page 103

Electronic Design

6922 San Fernando Rd.
Glendale, CA 91201
(818) 843-6199
FAX (818) 843-7446

HT Electronics

275 N. Mathilda
Sunnyvale, CA 94086
(408) 737-0900
FAX (408) 245-3109
See ad on page 102

KJ Computers

10815 Zelzah Ave.
Granada Hills, CA 91344
(818) 366-5305

Media Tree

2739 Geary Blvd.
San Francisco, CA 94118
(415) 563-1953
FAX (415) 563-0137
See ad on page 112

Metrovics, Inc.

3808 Catalina St.
Los Alamitos, CA 90720
(310) 430-3509
FAX (310) 594-9146

New Media

153 S. La Brea
Los Angeles, CA 90036
(213) 935-5300
FAX (213) 935-5399

Pacific Video Products, Inc.

1100 Gene Autry Way
Anaheim, CA 92805
(714) 634-8585
FAX (714) 634-8169

Pro Video Productions

937 Via Lata, #200
Colton, CA 92324
(714) 783-4848
FAX (714) 783-4491

San Francisco Video

731 Bryant St.
San Francisco, CA 94107

(415) 227-0200

FAX (415) 227-0204

Studio Spectrum, Inc.

1056 N. Lake St.
Burbank, CA 91502
(818) 843-1610
FAX (818) 843-1145

T.S. Computers

11300 Hartland St.
North Hollywood, CA 91605
(818) 760-4445
FAX (818) 505-1811

Ventura Video & Computer

2646 Palma Dr. #345
Ventura, CA 93003
(805) 339-9725
FAX (805) 339-0724

Ventura Video Productions

2112 E. Thompson Blvd.
Ventura, CA 93001
(805) 652-0325
FAX (805) 652-0483
See ad on page 112

Walt Davis Enterprises

931 N. Cole Ave.
Hollywood, CA 90038
(213) 993-3030
FAX (213) 461-0946
See ad on page 93

Warner Engineering-Pro.

Video Products Div.
3545 Midway Dr. #G
San Diego, CA 92110
(619) 224-5094
FAX (619) 224-9972

Winners Circle Systems

2618 Telegraph Ave.
Berkeley, CA 94704
(510) 845-4814
FAX (510) 845-2400

VMI, Inc

211 Weddell Dr.
Sunnyvale, CA 94089
(408) 745-1700
FAX (408) 745-6721

Colorado

Computer Room, The

2760 S. Havana St.
Aurora, CO 80014
(303) 696-8973

Davis Audio-Visual, Inc.

1801 Federal Blvd.
Denver, CO 80204
(303) 455-1122
FAX (303) 455-2021
See ad on page 114

Connecticut

Infotronics, Inc.

766 Main St. S., P.O. Box 935
Woodbury, CT 06798
(203) 263-5350
FAX (203) 263-5350
See ad on page 114

Florida

Brandons, Inc.

1819 Kings Ave.
Jacksonville, FL 32207
(800) 874-5273
FAX (904) 398-1591

Centennial Video Systems

2500 NW 39 St.
Miami, FL 33142
(305) 633-2200
FAX (305) 635-0030
See ad on page 55

Computers Plus

2455 W. International Speedway Blvd. #206
Daytona Beach, FL 32114
(904) 25-AMIGA

Computers Plus

10991 San Jose Blvd. #31
Jacksonville, FL 32257
(904) 268-2359

Computer Room

981 W. Commercial Blvd.
Ft. Lauderdale, FL 33309
(305) 771-9035
FAX (305) 772-0334

Computer Source, Inc.

1650 Art Museum Dr.
Jacksonville, FL 32207
(904) 399-1221
FAX (904) 399-4002

Computer Video Associates

9125 U.S. 19 N.
Pinellas Park, FL 34666
(813) 576-5242
FAX (813) 579-4204
See ad on page 114

Creative Equipment

5555 W. Flagler St.
Miami, FL 33126
(305) 266-2800
FAX (305) 261-2544
See ad on page 115

Eagle Computers

1122 S. Wickham Rd.
West Melbourne, FL 32904
(407) 951-9732
FAX (407) 951-9734

U.S. Computer Corp.

13553 66th St. N.
Largo, FL 34641
(813) 530-4561
FAX (813) 530-0799

Georgia**Showcase Inc.**

2323 Chesbire Bridge Rd.
Atlanta, GA 30324
(404) 325-7676
FAX (404) 321-3636

Wolf Camera and Video

150 14th St. NW
Atlanta, GA 30318
(404) 289-9653
FAX (404) 898-8734

Idaho**Blackrock Computer Plus**

308 W. Center
Pocatello, ID 83204
(208) 232-0012
FAX (208) 232-0207
See ad on page 115

Creative Edge, The

220 4th St. East, Box 357
Ketchum, ID 83340
(208) 726-3182
FAX (208) 726-3264

Illinois**Discount Video Warehouse**

P.O. Box 36
Mt. Prospect, IL 60056
(800) 323-8148
FAX (708) 299-4206
See ad on page 101

MicroTech Solutions, Inc.

1885 N. Farnsworth Ave., Ste's. 6-8
Aurora, IL 60505
(708) 851-3033
FAX (708) 851-3825

Ring Software

726 E. State St.
Geneva, IL 60134
(708) 252-0009
FAX (708) 252-0009
See ad on page 115

Rising Star Graphics

401 E. Illinois, Ste. 531
Chicago, IL 60611
(312) 836-7827
FAX (312) 836-7826

Roscor Corporation

1061 Feehanville
Mt. Prospect, IL 60056
(708) 299-8080
FAX (708) 299-4206

Swiderski Electronics, Inc.

1200 Greenleaf Ave.
Elk Grove Village, IL 60007
(708) 364-1900
FAX (708) 364-5019

V-Tip, Inc.

407 Green St.
Rockford, IL 61102
(815) 968-5885
FAX (815) 968-5879

Indiana**Country Club Computer**

8247 Indy Ct.
Indianapolis, IN 46214
(317) 271-4000
FAX (317) 271-1001

C.P.U. Inc.

5168 E. 65th St.
Indianapolis, IN 46220
(317) 577-3677
FAX (317) 577-3676

Digital Arts

122 W. 6th St.
Bloomington, IN 47404
(812) 330-0124
FAX (812) 330-0126

Iowa**Electronic Communications Systems**

2906 Brady St.
Davenport, IA 52803
(319) 322-1525
FAX (319) 322-5920

Desktop Video Systems

14111 W. 95th St.
Lenexa, KS 66215
(913) 782-8888
FAX (913) 492-6908

Smith Audio Visual, Inc.

1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481
FAX (913) 235-3485

Wolfe's Camera/Video

135 S. Kansas Ave.
Topeka, KS 66603
(913) 235-1386
FAX (913) 235-2810

Kentucky**Expert Services**

7559 Mall Rd.
Florence, KY 41042
(606) 371-9690
FAX (606) 282-5942

Mr. Horan's Computer Lab

12975 Shelbyville Rd., Bigg's
Middletown Station Mall
Louisville, KY 40243
(502) 244-9595
FAX (502) 244-9510

Louisiana**Modern Business Machines Inc.**

4609 Fairfield St.
Metairie, LA 70006
(504) 885-5961
FAX (504) 455-8610

Maine**Maine Video Systems**

495 Forest Ave.
Portland, ME 04101
(207) 773-2355
FAX (207) 773-6687

Maryland**CTL**

9301 Georgia AVE
Silver Spring, MD 20910
(301) 585-6311
FAX (301) 650-0683

Software Advantage

837D Rockville Pike
Rockville, MD 20852
(301) 424-3024
FAX (301) 424-3113
See ad on page 117

Video Wizard

110 W. Padonia Rd.
Timonium, MD 21093
(410) 666-5511

FAX (410) 666-5240
See ad on page 117

Massachusetts**Camera Co., Inc., The**

858 Providence Hwy.
Norwood, MA 02062
(617) 769-7810
FAX (617) 769-5750

Computer Works

92 Newbury St.
Peabody, MA 01960
(508) 535-9757
See ad on page 116

Crimson Tech

325 Vassar St.
Cambridge, MA 02139
(617) 868-5150
FAX (617) 499-4777

Memory Location, Inc.

396 Washington St., Rte. 16
Wellesley, MA 02181
(617) 237-6846
FAX (617) 237-9525

Valley Communications Systems

20 First Ave.
Chicopee, MA 01020
(413) 592-4136
FAX (413) 592-4682

Michigan**Slipped Disk**

170 W. 12 Mile
Madison Hts., MI 48071
(313) 546-3475
FAX (313) 546-3637
See ad on page 118

Thalner Electronic Laboratories, Inc.

7235 Jackson Rd.
Ann Arbor, MI 48103
(313) 761-4506
FAX (313) 761-9776

Cruse Communications

4903 Dawn Ave.
E. Lansing, MI 48823
(517) 332-3579
FAX (517) 332-7757

Minnesota

Alpha Video
7836 Second Ave. S.
Bloomington, MN 55420
(612) 881-2055
FAX (612) 881-4835
See ad on pages 2-3

Missouri

VMI Company of St. Louis
2368 Schuetz
St. Louis, MO 63146-3412
(314) 569-1334
FAX (314) 569-0742

Data Graphix
2500 A.S. Holland
Springfield, MO 65807
(417) 882-1899
FAX (417) 882-1167

Nebraska

Double E Computer Systems
1125 S. 119th St.
Omaha, NE 68144
(402) 334-7870
FAX (402) 334-2195

Nevada

Electro-Tech
4545 E. Tropicana, Ste. 5
Las Vegas, NV 89121
(702) 435-3201
See ad on page 121

New Hampshire

System Eyes Computer Store
650 Amherst St.
Nashua, NH 03063-4015
(603) 889-1234
FAX (603) 886-3939
See ad on page 118

New Jersey

KBI Systems
177 Mill Ln.
Mountainside, NJ 07092
(908) 654-3600
FAX (908) 654-9273

New Mexico

Hits Computers
3620 Wyoming NE Ste. 110
Albuquerque, NM 87111
(505) 275-7076
FAX (505) 291-0703

New York

Adwar Video
2370 Marrick Rd.
Bellmore, NY 11710
(516) 785-1200
FAX (516) 785-1348
See ad on page 120

Amigo Business Computers
192 Laurel Rd.
East North Point, NY 11731
(516) 785-7334
FAX (516) 785-1348
See ad on page 120

Armato's Pro Video
67-16 Myrtle Ave.
Glendale, NY 11385
(718) 628-6800
FAX (718) 628-7441
See ad on page 119

B & H Photo-Video
119 West 17th St.
New York, NY 10011
(212) 807-7474
FAX (212) 242-1400
See ad on pages 78-81

CTL Electronics, Inc.
116 W. Broadway
New York, NY 10013
(212) 233-0754
FAX (212) 227-3273
See ad on page 119

Digital Design Solutions, Inc.
1280 Scottsville Rd., Ste. 20
Rochester, NY 14624
(716) 235-7040
See ad on page 118

Industrial Color Labs Inc.
6890 Highbridge Rd.
Fayetteville, NY 13066
(315) 449-1155
FAX (315) 449-2323

MicroWorks, The
3670 Delaware Ave.
Buffalo, NY 14317
(716) 873-1856
FAX (716) 873-9262

Software Link Inc.
190 E. Post Rd.
White Plains, NY 10601
(914) 683-2512
FAX (914) 683-5158

North Carolina

VIP Computer Systems, Inc.
P.O. Box 3457
Chapel Hill, NC 27515
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FAX (919) 841-6978

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FAX (513) 461-3330
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Columbus, OH 43212
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FAX (614) 291-9353

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FAX (216) 321-2294

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FAX (216) 233-4200

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FAX (215) 921-0996

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FAX (215) 223-8207

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FAX (412) 653-9369

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Quakertown, PA 18951
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FAX (215) 538-9509
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Chicora, PA 16025
(412) 445-7228
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FAX (215) 544-3385

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FAX (214) 969-0165

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FAX (204) 702-9168

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FAX (713) 486-5633
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Station, The

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FAX (206) 852-4729
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FAX (414) 435-3619

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FAX (604) 874-2859
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FAX (416) 369-9819
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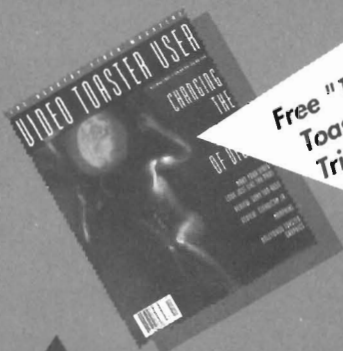
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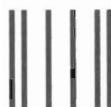


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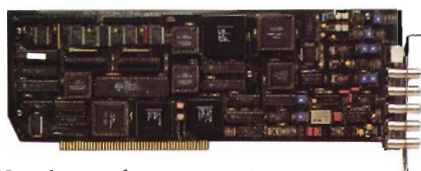
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