

THE DESKTOP VIDEO MAGAZINE

VIDEO TOASTER USER

an avid publications magazine

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"The MegAChip 2000/500 is a must own for anyone that wants to use Toaster Paint™ or Multitask with the Video Toaster."

Lee Stranahan - Former NEWTEK employee & writer of the tutorials for the Video Toaster 2.0 manual. Featured in the Desktop Images Video Toaster Tutorial series.

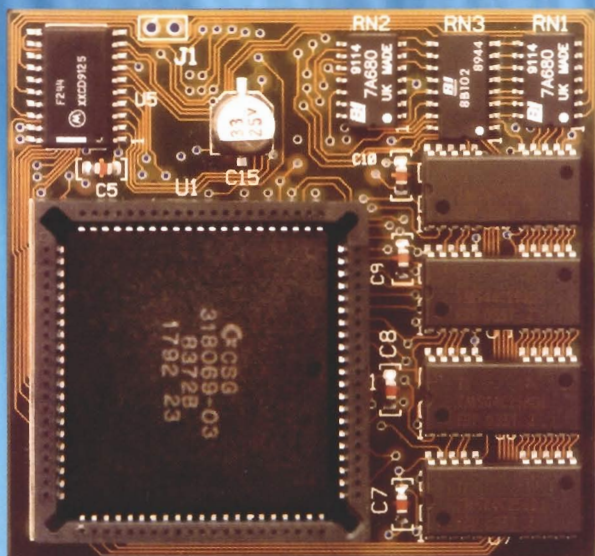
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VIDEO TOASTER USER

DECEMBER/JANUARY 1992 ISSUE NUMBER 9

FEATURES



Cover Photography by:
Matthew Farruggio
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34 POST GROUP'S JENNIFER M'KNEW

A Toaster artist on the way to the top!

By Kathy & Lee Stranahan

40 STONE SOUP

Diary of a Ralph Nader political video (*a la* Toaster). By Patric Hedlund

46 TIMING IS EVERYTHING

Video's crucial timing elements explained.
by Peter Utz

50 USING A TBC WITH YOUR TOASTER

What is a TBC, and why do you need a one?
by Jerry Gainor & Stuart Sweetow

56 MIKE DANGER INTERVIEW

VTU speaks with a blind Video producer.
by Michael Brown

60 TOASTER PAINT TUTORIAL

A special tutorial by the master Toaster user.
by Lee Stranahan

64 TOASTER IN BRAZIL

An interview with video producer Valeria Burgos.
by Stephen Jacobs

68 STARTING A VIDEO TOASTER USER GROUP

How to get organized!
by Michael Meshew



COLUMNS

6

TOASTER TALK

by Jim Plant

8

DR VIDEO

by Rick Lehtinen

22

SLICES

by James Hebert

26

DEAR JOHN

by John Gross

30

TAMING THE WAVE

by David Hopkins

136

LAST WORD

by Lee Stranahan

DEPARTMENTS

14

NEW PRODUCTS

18

TOASTER PRD-FILES

110

USER GROUPS

132

TOASTER GALLERY

134

ADVERTISER INDEX

REVIEWS & TUTORIALS

70

MORPHPLUS

by David Duberman

74

AMILINK PRO

by Alex Bennett

78

MAGNI MONITOR

by Tony Gomez

84

INTRO TO MODELER part III

by Tim Doherty

90

ABCs OF VIDEO part II

by Rick Lehtinen

94

CYBERSPACE

by Geoffrey Williams

100

REALLY USING CHROMA FX part III

by William Henderson

106

TOASTER EFFECTS AND CONTINUITY

by Frank Kelly



SUBSCRIBER UPDATE

We have been exploring the possibility of publishing VTU on a monthly basis for quite some time. In fact, we had firm plans in place to begin monthly publication beginning with this issue. After going through the difficult redesign and upgrade process, however, we have come to the conclusion that we're just not quite ready to produce a magazine of this size and quality on a monthly basis. I realize that this news is very disappointing to those of you who want and need valuable Video Toaster information on a more frequent basis. However, the last thing we want to do is substitute quantity for quality. Please bear with us as our company grows and evolves to meet your highest expectations.

You may have noticed that we have been aggressively promoting the "new and improved" Video Toaster User. Many of you have called to say you have seen our full-page, four-color ads in A/V Video and AmigaWorld. In those ads, and in several large promotional mailings, we have been offering a free copy of "101 Toaster Tricks" by Lee Stranahan as an incentive to new subscribers. Current subscribers can also receive this free publication by renewing their current VTU subscription. The renewal rate is \$36 for 12 issues. NOTE: "101 Toaster Tricks" will be delivered to all new subscribers, renewals and others who have been promised by December 31, 1992.

In addition to the Toaster-specific information we provide each issue, many of you have requested that we expand our editorial focus to include general video production concepts like audio, lighting, editing, etc. In upcoming issues you will begin to see our response to this request. Our editorial department is looking for articles that deal with these subjects as well as reviews on new cameras, VTRs, and other video equipment. If you have an article idea call Executive Editor, David Duberman, at 1-408-252-0508. He'll discuss the article with you and send you a copy of our author guidelines.

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BACK ISSUES
Back issues are available for \$5 each, supplies may be limited.

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Suggestions and comments should be sent by written correspondence to: AVID Letters to the editor. Be sure to include your name, address and phone 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 Editor by mail or FAX 408-725-8035.

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

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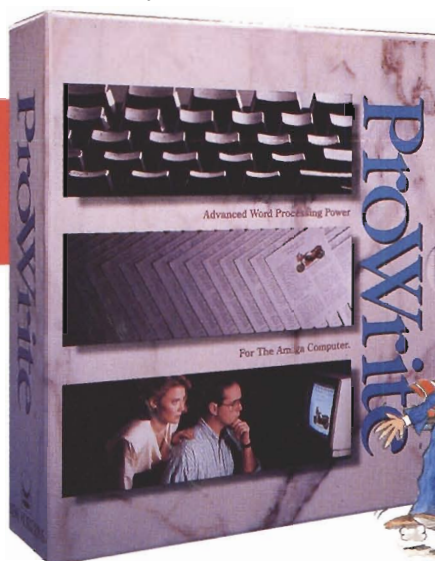
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TOASTER TALK

As the publisher of Video Toaster User I get many opportunities to discuss the concept of desktop video, often with individuals who have never heard the phrase before. Despite this lack of awareness and the somewhat technical nature of the subject, I usually find a surprisingly eager audience. I'd like to believe that it's my electric personality and skillful speaking techniques that mesmerize my listeners, but it's more likely due to the fact that people are inherently fascinated with new ideas and technologies that promise to change the existing paradigm of communication.

Every individual and every organization on this planet is directly impacted, even defined, by this fundamental human activity. Take a moment to think about the vital importance of communication in every aspect of our personal and business lives. It should come as no surprise that a powerful communication-enhancing tool like the Video Toaster has captured the imaginations of so many.

Still, despite the overwhelming success that NewTek has had among the video-literate, the Toaster and desktop video in general are largely unknown among the general population. NewTek is determined to change this situation. In the last six months, millions of people have been exposed to the Toaster through national magazine articles, the NBC Nightly News and, recently, the Inventions show on the Discovery Channel. The video snowball is beginning to pick up speed.

The momentum that the Toaster and desktop video (DTV) is gaining reminds me of the desktop publishing (DTP) market. The similarities between these two applications are many, beginning with the previously mentioned fact that the mode of communication affects the fundamental manner in which individuals and organizations communicate ideas (i.e. the medium is the message). For this reason alone, I am convinced that desktop video will soon equal the popularity and influence of desktop publishing. And because video's sound, graphics and moving visuals are inherently more powerful than the static imagery of the print medium, desktop video has the potential to far exceed the reach and influence of desktop publishing.

Besides the "communication" link, desktop video shares other significant similarities with desktop publishing. For example, remember how negatively DTP was once portrayed by the existing printing/publishing community? Those old pros

sneered at the crudeness of 300 dpi compared to the much higher resolutions they were used to. Now, of course, no one even thinks about it. People discovered that 300 dpi is good enough for most print jobs and it is, of course, far less expensive than traditional methods. Desktop publishing introduced a new low-cost communication option and we've all benefitted from it (this magazine wouldn't exist without DTP technology).

The same kind of situation is happening in the world of video where revolutionary devices like the Video Toaster threaten to upset the status quo of the established video community. We've all heard the condescending jabs, "It's not broadcast quality...look at all those pixels...Well, you get what you pay for." Veterans of the desktop publishing wars will smile when they read this. As Yogi Berra said, "It's déjà vu all over again."

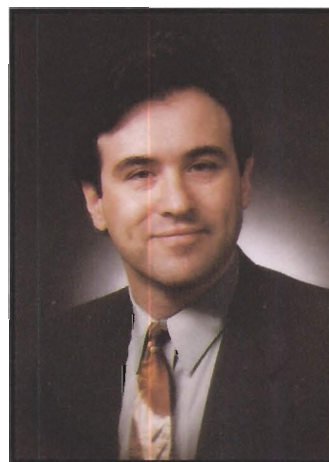
One of my favorite sayings is, "The power of the press belongs to the person who owns the press." Desktop publishing succeeds because it eliminates the financial obstacle between the idea and the professional delivery of that idea. Desktop publishing made it cheaper. Desktop publishing made it easier. In order for desktop video to reach or exceed the same level of success, these same requirements must be met.

NewTek made the first major move in the financial battle by introducing the Toaster at an extremely low price. This shocked the established video market into action and forced many buyers to question the price/performance value of traditional video equipment vs PC-based desktop video solutions. Look for 1993 to be the year that the financial wall between creativity and video production collapses in a dusty heap.

In addition to the economic aspect, DTV technology must greatly simplify the video production process. Let's face it, video is an inherently complex application. The moment you start talking about black burst generators, time base correctors, or waveform monitors and vectorscopes, you've entered "brain lock" territory for most people. The evolving development of digital video technology will go a long way towards addressing and solving many of these complexity issues.

Price and performance and changing the paradigm of video communication: that's what the Video Toaster is all about. Stay tuned to Video Toaster User as we chronicle NewTek's efforts to up the ante in 1993.

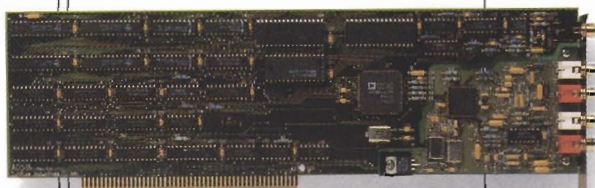
By Jim Plant



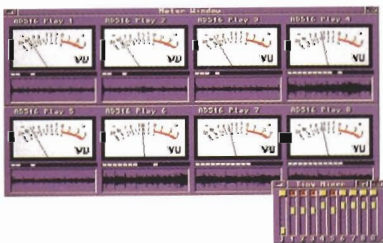
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AD516

The AD516 hardware provides stereo in/out connectors, plus a SMPTE in. Just plug your VTR, CD player, radio, tape deck, or other audio source directly in. Then record in stereo, direct to hard disk, with 16 bits at sampling rates up to 48,000 samples per second. Plus, the AD516's efficient design allows 8 track playback direct from hard disk. The AD516 can synchronize and chase SMPTE time code at 24, 25, 29.97, and 30 fps (drop or non-drop frame). Designed to exceptional audio standards, the AD516 offers 15Hz to 22KHz frequency response and 85dB dynamic range.

Video Production

The Video Toaster goes a long way towards solving your video problems. But what about sound? Do you want to do ADR or voice-overs? Do you need to synchronize background music with your productions? How do you add footsteps, door knocks, and other sound effects to your video or animation? Do you need to fade, cross fade, or eliminate sections of audio? Can you edit your audio, or are you stuck with the first take?

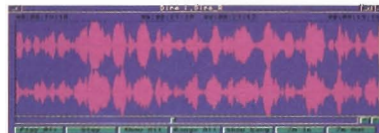
Studio 16 solves all these problems by turning your Amiga into a complete sound studio. With Studio 16's cue list and SMPTE support you can lock sounds frame accurately with your video. Audio triggers reliably, at the same spot, every time. Or you can slip your audio effects, trying them at different spots. And since Studio 16 plays directly off hard disk, the number of sounds you can trigger is unlimited.

Mixer and Meters

Each of Studio 16's eight tracks can be metered and mixed. Unlike two track systems, Studio 16 can combine multiple tracks with no generation loss. And it can record two tracks while playing up to eight!

Waveform Editor

The Studio 16 sound editor graphs the audio waveform and allows you to cut, copy, and paste audio. Up to eight samples



can be edited per window. And edits can be non-destructive or permanent. Zoom, scale, fade, reverse, echo, normalize, loop FFT, resample, and many other functions are available. Named regions can be defined and used in the cue list or transport modules.

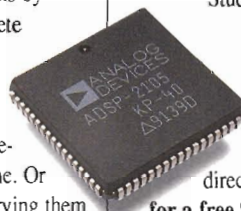


DSP Supercharger

The AD516 includes a special sound coprocessor - the advanced 2105 DSP. The DSP allows Studio 16 to handle those eight tracks while performing real time mixing. The DSP can also do high quality 16 bit effects such as echo, flange, delay and chorus.

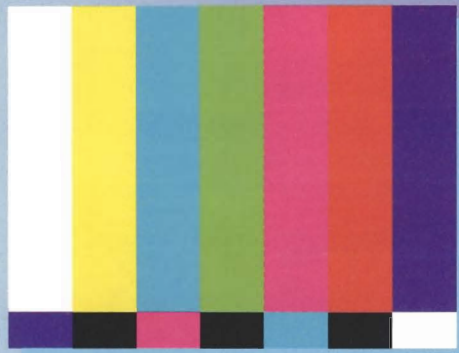
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Studio 16 2.0 comes with either the AD516 (16 bit, 8 track, stereo, \$1495 list) or the AD1012 (12 bit, 4 track, mono, \$595 list). Also available is the DD524 digital I/O card for direct interface to DAT. **Call today for a free Studio 16 information packet.** Tel: (408)374-4962. Fax: (408)374-4963.



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Dr. VIDEO

Welcome back to Dr. Video's Q and A session. Each month the doctor undertakes to answer general questions on all topics related to general 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 advanced—Dr. Video will take on all comers.

Q: *How can I get my VTRs really, really clean?*
D.D.
Cupertino, CA.

Rx: Last month I promised to tell some of the secrets of cleaning a deck. Here goes:

In the first place, let's look at what it is we're cleaning. VTRs in general are subject to two kinds of dirt. The first is environmental: dirt, hair, smoke film, pizza crumbs and cola spills. This kind is somewhat preventable. Your lines of defense include changing the air filter in the heater or air conditioner that serves the room, keeping a dust cover over the equipment when it is not in use and most importantly, eating, drinking and smoking somewhere else. If this is news to you, then blast away as much of the dust and dirt as you can find with a can of compressed air. Don't use your own compressor, no matter how good its filter. It may still put out considerable oil or water in its stream.

The second kind of dirt is more insidious. Videotape contains several compounds besides magnetic oxides. In time, these rub off, forming a kind of varnish at wear points inside the tape transport. Cleaning removes these buildups before they get threatening. Left unchecked, they either degrade your disk's performance by subtly affecting alignment and tape tensions, or break off, forming a wad of goo that clogs heads. In addition, portions of the tape's magnetic coating occasionally flake off and lodge themselves in your machine's nooks and crannies.

Solve the problem with regular cleaning. Use any of the dozens of commercial cleaning cassettes. Some are wet—you add a solvent to the cleaning tape, or it's impregnated with a

solvent. Others are dry, which means that they work by abrasive action. Use the one your deck servicer recommends. If you are a hedge-your-bets kind of person, get both a wet and dry system, and alternate.

Above all, don't figure that if a little is good, a lot must be better. These products often contain abrasives. Overuse may speed deck wear. Don't figure it's a sacrifice worth making to gain increased video quality. As your video heads start to wear out, their signal quality decreases.

To clean any more thoroughly requires a bit of technical skill. The problem is, you can easily damage video heads if you clean them the wrong way. Also, the alignment of all the little rollers and guide pins that surrounds the head drum is critical. Let's say however, that you find yourself in a position where it's worth the risk. Say you're on a shoot and get a head clog. You're dead in the water, and the deck will have to go to the shop. Is there is something you can do in an emergency such as this, to limp along and save the shoot (or edit session) and then get the problem fixed later? Stay tuned. Next month the Doctor will give a prescription for clogged heads.

Q: *"What is a degaussing coil? A friend says I need one to increase the video resolution of my monitors. Please advise."*

L.W.
Camas, Washington.

Rx: Your friend's advice is slightly off the mark. A degaussing coil is a tool found in most TV shops and broadcast facilities. It consists of several turns of wire wrapped into a large coil or wand. Turning on the coil and waving it near a monitor will cause it to dissipate the stray magnetic forces that build up near a CRT. This sometimes has the effect of clearing up minor distortions in the picture display. Another potential use for a degaussing coil is to neutralize built-up magnetic fields on the audio and video heads of VTRs. These stray fields can also degrade performance somewhat.

One rarely hears about degaussing of consumer and prosumer monitors, but professional monitors—we're talking about the ones that cost more than an entire Toaster workstation—nearly always have degaussing

by Rick Lehtinen

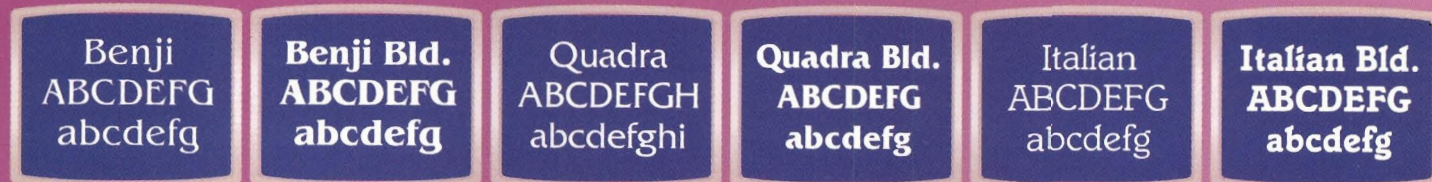


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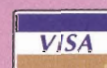
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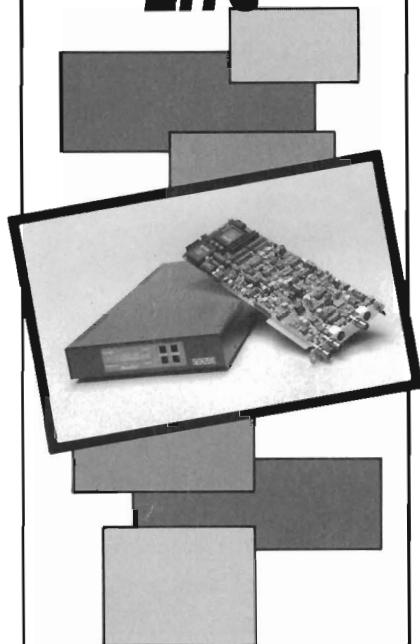
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Dr Video Continued from Page 8

circuitry built in.

It is best to let a trained servicer use the degaussing tool. Doing it wrong will impart more magnetism than it removes.

Q: Will airport walk-through metal detectors harm my recorded videotapes?

B.H.
Salem, OR

Rx: No one really knows, and I mean that seriously. Folk legends of the "My significant other stuck my disk to the refrigerator with a magnet" variety abound in video circles, but I have never seen a tape damaged by anything other than a direct attempt at degaussing it. In fact, one National Bureau of Standards test would lead one to think that accidental erasure of videotape is next to impossible.

If you take apart a commercial tape degausser, you will find a big alternating current electromagnet. It is used by placing a tape in the energized magnet's fields and slowly rotating it, first on one side, and then on another. Anything less than this, and you end up with an incompletely erased tape. After standing next to one of these behemoths, and feeling your wristwatch rattle and the floor shake, it is hard to get excited about the effects of a walk-through screening device or even an X-ray.

Nevertheless, if it were *my* tape, I'd ask if they might pretty please X-ray the cases and let them inspect the cassette itself by hand.

Q: I want to tape a reality segment for a TV show, but every time I get around an accident scene, my camera starts to act up, especially when I get near a police office with a radio. Other times, it's fine. Is this like anything you've heard of before?

B.K.
Boston, MA.

Rx: You didn't mention what kind of camera, but I'll bet it uses tubes for its pickups instead of CCDs. Any veteran news photographer will tell you that keying up a two-way radio near a camera will distort the image. Accident scenes are awash with emergency personnel and their radios, which may account for the fact that your problems only show up at the scene of the wreck. What happens is, the radio's output is picked up by the field coils that make the beams sweep in the camera's tube or tubes. The resulting interference not only raises havoc with the camera's raster, but radio information may make its way into the signal system and be decoded as stray chrominance. Fortunately, the effect is rarely lasting. It exists only for the time the mike is keyed (two-way receivers don't have the same effect).

At one time, it was a point of professional courtesy not to talk on a two-way near a photographer who was shooting. This was explained to me in a very discourteous way by a photographer whose shots I was disturbing. Modern CCD cameras aren't as susceptible to this kind of interference.

Q: Can I hook my Toaster up to the dub output of my VCR? My cuts-only edits are cleaner when I use the dub cable instead of the video output cable.

B.W.
Scottsdale, AZ.

Rx: No. The dub line is a special signal that is internal to the deck. Think of it as assembly language code—it works well but is hard to use. For editing between decks that are close cousins, some manufacturers provide a dub signal input and output. This saves several processing stages in both the source and record decks, which helps keep the signal quality higher. You cannot use the dub line to feed the Toaster because the dub signals are not standard video.

Q: The video monitors I use with my Toaster have faint flickery rolling bars that work their way upward through the picture. Yet when I play back the tapes at a different location, they are all fine. This irritates me, because I have no way of knowing if my video is okay or not. And even if I overlook it, I can't show my Toaster setup to anyone without explaining that the problem is in the monitor.

T.M.
Boise, ID.

Rx: Are your monitors' cases in place? I remember taking all sorts of abuse from visiting directors and producers because we had a similar problem at a production facility I used to work for. After months of worrying, it turned out that the sweep signals from one monitor's yoke coils were getting into the other monitor's picture. It was a simple case of cross talk, which we cured with some sheet metal. (The monitors' cases would have worked better, and left less circuitry exposed, but the equipment was rack-mounted, and we thought leaving them off would make it easier to fix and adjust the monitors.)

We were a reasonably sharp bunch of engineers, but in this case we fooled ourselves by looking for something more ethereal—we thought we were chasing a ground loop. As most Toaster setups are operated from one power source, this shouldn't be much of a problem. However, as more Toasters are used for live applications such as for concerts, stadium scoreboards, videoteleconferencing, etc., expect to see ground loops pop up. The doctor will write more about the causes and cures of this condition next month.

Got a question?

Write to:
Dr. Video,
c/o Video Toaster User
21611 Stevens Creek Blvd.
Cupertino CA 95014

VTU



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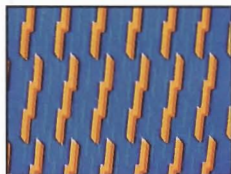


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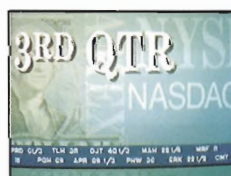
■ "... Network quality stuff!" *Mark Bindrim, Townhouse Post Prod., Washington, DC.*



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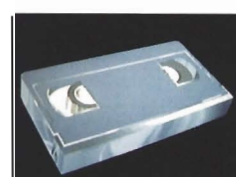


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- "The objects were animated over 'black' which meant that I could use the toasters luminance keyer to play these animations over my client's footage . . . I impressed the pants off my client." *Frank Kelly, Producer, Spot Productions, San Jose, CA.*

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NEW PRODUCTS

Aerodynamically Correct Flying Logos

A pair of new products from Jaeger Software, Rockville, MD, allow Toaster users to create dramatic, aerodynamically correct motion paths for Lightwave 3D.

With Fighter Duel Pro, users put one of 16 included WWII aircraft through its paces. The package has several interesting features: unrestricted panorama, catapult launches, even rudder pedal support. An opponent computer can fly along via the serial port, and a slave computer that continually displays the view to the rear can connect via an optional parallel port adapter.

Users keep track of the action with Jaeger's FDPro Flight Recorder. The flight recorder records the attitude and position information for up to three aircraft for up to 45 minutes at 30 frames per second (on a 9 megabyte Amiga). Motion paths are then imported into Lightwave 3D to animate flying objects, the camera viewpoint, aircraft, spacecraft or, yes, flying logos.

Fighter Duel Pro will run on all Amigas with Kickstart 1.2 or higher, and 1 Megabyte of RAM. FDPro Flight Recorder runs on any Amiga with three or more megabytes of RAM and Kickstart 1.2 or higher. (A hard drive is recommended.)

Contact:

Matthew Shaw
Jaeger Software, Inc.
7800 White Cliff Terrace
Rockville, MD 20855
301-948-6862

All in the Family

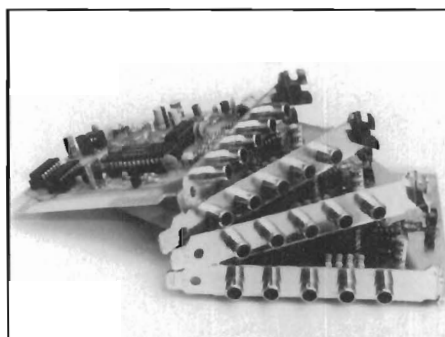
ESE, El Segundo, CA, has added four new products to its "PC-Family" series of video add-on cards. The cards are designed to fit into any PC-compatible expansion slot. Each card performs a specific video function that used to require an expensive rack-mounted device.

Family members include:

- PC-219 RS-170 Black Burst Generator—This module provides five copies of a convenient black burst signal. Use it to genlock cameras or other video equipment, or as a video signal with which to pre-black tapes before recording. Optionally, one of the output can provide sync only, or a 983 kHz audio test tone, instead of the composite black.
- PC-217 Audio Distribution Amplifier—This unit receives a single audio input signal (unbalanced) and produces four copies (1 x 4). An output level control

allows users to adjust gain. Use this when you have to distribute audio to more than one place, say to a bank of VTRs on which you make dubs.

- PC-207A Video Distribution Amplifier—Use the one-input-by-four-output DA to create four copies of a video signal. Also, use the on-card gain and equalization controls to compensate for losses that might occur in long cable runs.



- PC-237 High Resolution Video Distribution Amplifier—Use this high bandwidth 1 x 4 distribution amplifier to distribute signals that are more technically demanding than normal video, say the output of a computer CAD workstation or a high definition television (HDTV) signal.

Each half-card size device is self-contained, requiring no power besides what it can obtain from the computer. All connections into and out of the family cards are by RCA-style connectors.

Contact:

Brian Way
ESE
142 Sierra St.
El Segundo, CA 90245
310-322-2136
310-322-8127(Fax)

EDDi Editor Gains Video Toaster Link

As more PC-based editing systems pop up, is increasingly important that they talk to switchers. As the Video Toaster increases in popularity, it is rapidly becoming an important switcher to which to speak. Now PALTEx International (Tustin, CA) has announced that its EDDi Desktop Video Production Center has available a NewTek Control Package, with which EDDi users can gain direct control of the Video Toaster's six pages of switcher and DVE functions. In

addition, Page A wipe pattern codes are available for programming and recall from inside EDDi's edit decision list (EDL).

EDDi operates within the Microsoft Windows environment, and provides a complete set of VTR drivers and edit list management tools. Toaster owners would use Eddi to control their edit sessions, rolling VTRs and triggering the Toaster under computer control. This makes editing fast and repeatable, and if changes must be made in previously edited material, EDDi can effect the change and re-edit your tape automatically.

EDDi users can use the Video Toaster Link to allow them to use the Toaster instead of conventional video switchers in their productions.

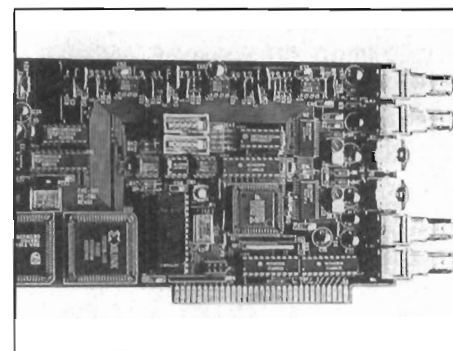
EDDi also supports EDDiMix, an 8-channel (four stereo pair) stereo audio mixer for audio both audio follow video and break away audio mixing.

Contact:

Earl Jamgochian
Marketing Manager
California Paltex Corporation
2752 Walnut Ave
Tustin, CA
714-838-8833
714-838-9619FAX

Desktop TBC Features Y/C, Freeze Frame

The PC VIDEOMATE is a Time Base Corrector / Frame Store Synchronizer designed for all desktop applications. The unit, produced by the FERAL manufacturing division of James Grunder and Associates, Mission, Kansas, fits into the expansion slots of Amiga or IBM PC compatible computers. PC VIDEOMATE operates in either composite or Y/C modes, so the unit



can adapt S-VHS and Hi8 inputs to the Video Toaster. PC VIDEOMATE can also switch between multiple input sources. This simplifies Toaster wiring, because one TBC can serve more than one video source, although not at the same time.

The PC VIDEOMATE be controlled on-screen by the host PC with a mouse or keyboard, or may operate independent of the PC using an RS-422 serial port or optional remote control panel. The unit can store level controls for the unit's proc amp, and the freeze frame is selectable for field one or two.

The PC VIDEOMATE uses 8-bit, 4:2:2 full-bandwidth processing and adaptive digital comb filtering.

Contact:

Amy Flickinger
FERAL / James Grunder & Assoc.

5925 Beverly
Mission, Kansas 66202
913-831-0188
913-831-33427FAX

Network Marketing for Videos

Wouldn't it be great if you could sell your videos? Wouldn't it be greater if someone else could do it for you? Now, Im-Press Studios, Ann Arbor, MI, has announced formation of the Independent Marketing Network for Video and Multi-Media Producers (IMN). Becoming an IMN affiliate allows you instant access to many different markets by giving other producers the right to include your titles in their catalogs, and vice versa. Best of all, membership is free.

It works on the principle of drop-shipping: Suppose you are an IMN affiliate, and your video specialty is fishing. Another IMN affiliate, who specializes in camping or backpacking, may choose to advertise some of your tapes in their mailers and flyers, along with their own. They do this because it makes their selection look stronger, and they can serve their customers better. Now, when they get an order for one of your tapes, they keep a finder's fee, then pass the balance and the customer's name on to you for order fulfillment. They are happy, because they just made a commission on a product they didn't have to inventory. You are happy, because you just made a sale for which there was absolutely no marketing expense.

This network gives every affiliate access to a huge and diverse group of customers, without the up front cost of mining and developing multiple markets.

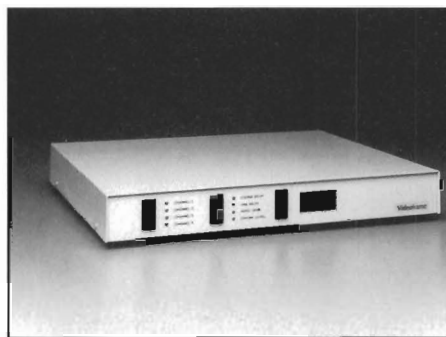
Contact:
Thomas Wnorowski, IMN Coordinator
Independent Marketing Network
3030 Chelsea Circle
Ann Arbor, MI 48108
(313) 973-2453

Video Aspirin Cures Timing Headaches

If you have ever upgraded your desktop video production system from one source to many (going from cuts-only to A/B roll, or from a single camera to a multiple camera set-up), you quickly discover what a headache video system timing can become. Each video source must arrive at the switcher electrically in phase with the others, and phase is dependent on circuitry, cable lengths, even whether or not BNC connectors are correctly installed. The traditional cure for timing woes was a rack full of distribution amplifiers and delay lines. Now, there is Video Aspirin.

The VA/4 Video Aspirin system, produced by Videoframe Systems, Grass Valley, CA, is a four-channel video delay amplifier designed to provide easy, computer-controlled adjustment of video timing and video and chrominance levels.

Designed for the desktop (although a rack mount accessory is available), the VA/4 Video Aspirin allows Toaster users to do away with the jumpers, potentiometers and little green screwdrivers once



associated with video system timing. Because it is computer controlled (MS-Windows and Mac system 6 or 7), adjustments are fast. Because it is digital, results are repeatable and stable. The system can even recall set-ups on the fly, for scene-by-scene level correction. It is also easy for the computer to store multiple set-ups.

In the event of power failure, non-volatile memory stores the most recent setting, and automatically restores it upon power-up.

Contact:
Graeme Little
Director of Sales and Marketing
Videoframe Systems
P.O. Box 3044,
Grass Valley, CA 95945
916-477-2000
916-477-5055FAX

Video Distribution Directory

Now that you've made your epic video, how will you distribute it? Location Production Guide, Orlando, FL, has the answer. Made For Video is a solution book for independent video producers. The book contains the addresses, phones fax numbers at nearly 1000 distribution companies in 44 countries, along with the buyers' names. It also has lists of the top 100 video rental firms in the US, and the top 10 in Canada.

The directory also lists video duplication houses around the world, as well as stock footage libraries, video post production houses and video equipment sales and rental facilities.

There is even a section on US companies that specialize in videocassette packaging and labeling.

Made For Video is designed to be a one-stop source book for video creators who need answers about distribution.

Contact:
Tom Flora
Location Production Guide
P.O. Box 617024
Orlando, FL 32861
407-295-1094
407-293-4948FAX

Live Jam On Disk

Ever wish you could hire your own band to make music for your videos? You'd say, "Something that sounds like..." and they'd play it. As you listened, you could comment to the director, "A little faster, if you

please, and no triangles. I hate triangles."—and it would be so. Finally, just for fun, you could say, "Nice, but now let's hear how it would sound if a mariachi band played it."

Blue Ribbon SoundWorks, Atlanta, GA, has now announced SuperJAM! 1.1, a program that works just this way. A musical expert system, the program allows a Toaster owner to create live, original music at will.

The secret of the system is that amount of musical expertise packed into it. Blue Ribbon's consulting composers empowered SuperJAM! 1.1 with the same fundamentals they themselves use in their work.

The intuitive user interface allows users to select the number and types of instruments, and their positions in stereo space. If you want the music to start, pick a style and tell it to go. Changing styles, tempo, adding breaks or telling the computer to wind down to an end are only mouse clicks away. Best of all, the musicians work can be recorded for re-creation at will.

SuperJam! works with Blue Ribbon SoundWork's Bars&Pipes Professional 2.0, and an appropriate synthesizer or sound board.

Contact:
Todor Fay
Blue Ribbon SoundWorks
Post Office Box 8689
North Highland Station
Atlanta, GA 30306
404-377-1514
404-377-2277FAX

INTERACTIVE Batteries, AUTOMATIQUE lights

Look for a new development in battery and lighting technology to wind its way into the professional camcorder market. Veteran battery maker Anton Bauer, Shelton, CT, is promoting its system of improved signaling between batteries and viewfinders, and between cameras and light kits.

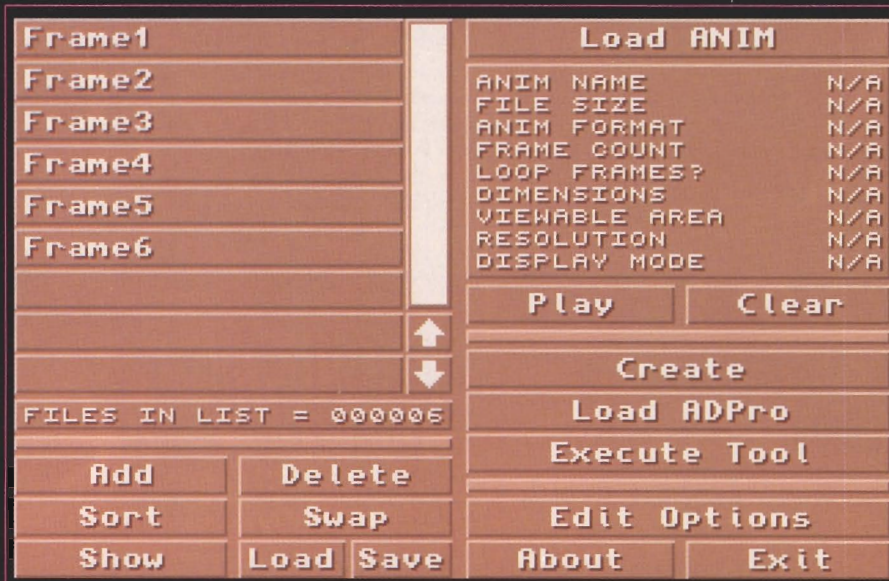
The Logic Series DIGITAL battery provides an accurate indicator of remaining battery capacity, as opposed to a sometimes misleading "low-voltage" lights. It does so by incorporating a micro controller into each battery pack which acts as a "fuel computer". The computer displays the remaining capacity on a custom LCD display, and sends a special signal to the viewfinder of INTERACTIVE-ready cameras.

The AUTOMATIQUE camera light controller, an accessory to Anton Bauer's GOLD MOUNT and ULTRALIGHT lighting systems, sense a signal from the certain cameras, and turns on the light automatically. This saves battery drain and simplifies camcorder operation.

Contact:
Debbie Browning
Anton Bauer
One Controls Drive
Shelton, CT 06484
203-929-1100
203-929-9090FAX

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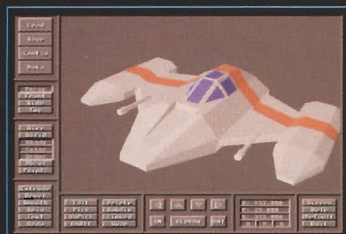
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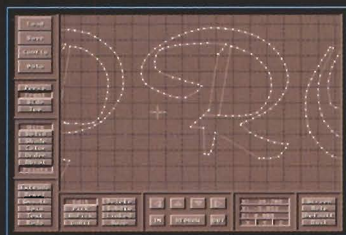
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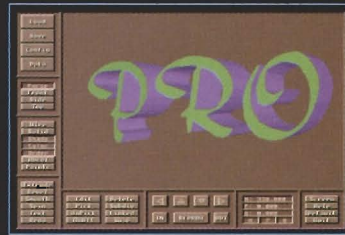
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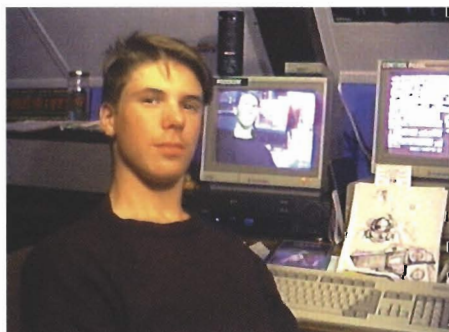
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PRO•FILES

Crystal Planet Productions

At first, John Tarr seems to be your average 16-year-old. He goes to high school, can't wait to get a car, and has homework to do. However, John's homework usually has little to do with classes, per se. You see, John Tarr is President and Founder of Crystal Planet Productions based in Rockland, Maine. When asked if his tender age is a problem, Tarr replies, "On the one hand, it's a drag because people don't tend to take me seriously." That is, until he shows them one of his animations. "I think that, ultimately, my age will be a great asset to me," Tarr continues. "Hopefully, by learning 3D early, I'll be able to go on to, say, Industrial Light and Magic or The Post Group in Hollywood."

"It all started while sitting in my living room when I was about ten years old," Tarr remembers. "Grandma said, 'You need a computer for college.' The next day, I called my local computer store and asked which machine had the best graphics and audio. That was the first time I'd heard the word Amiga."



Soon after, Tarr used his car money to buy his first computer, an Amiga 500. "It was great! I could do all sorts of things with my Amiga. The graphics blew all of the other machines out of the water."

A few years later Tarr read about a new invention called the Video Toaster which ran on an Amiga 2000. Having a great interest in 3D graphics, he quickly sold his A500 and again dipped into car funds to buy the A2000, Video Toaster and a 68030 accelerator.

"I spent my summer vacation gathering all the components for my Toaster system," Tarr recalls. "It was one of the most frustrating times of my life. But, when I booted the Toaster up for the first time, I thought, 'Holy cow! This is cool!'"

Eager to produce 3D animations, Tarr made learning LightWave his first priority. He didn't have the decks and edit controllers needed to lay animation to tape, however. "I made it known in my high school that I was interested in video. A senior took notice and introduced me to a friend. He was a video editor looking to sell off equipment," Tarr explains. "Not only did I get a great deal on decks and an edit controller, but I found myself an apprenticeship in video editing."

A year and a half later, Tarr is busy with all kinds of work. A partial list of his current projects include videotaping sporting events at his high school for a high-light tape, producing the school's first video yearbook, and production work at the local TV station making flying logos and other animations. "I hope all the work I'm doing today will one day take me to meet my idol, George Lucas."

A short postscript: Right before sending this piece to VTU, Tarr called to say he had just driven home his own dream car: a classic '83 navy blue Saab 900s.

John Tarr
Crystal Planet Productions
207/832-5017

Videodata
Communications

Videodata opened for business in January 1983 as a design and production group for audio-visual presentations in Davenport, Iowa.

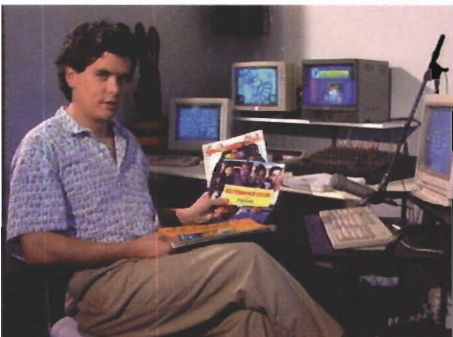
Understanding the power of imagery and its seemingly limitless applications when combined with laserdisc technology, Videodata began the production of an interactive laser disc program. "We began by educating clients on the benefits of the new technology," explains Phil Cunningham, Vice-President and Technical director of Videodata. "Museums, especially, saw the benefit of high-tech, exciting displays and presentations."

Videodata was an early developer for Commodore. Through the award-winning design of "Designasaurus" for the Amiga, Videodata went on to produce other popular games like "Prime Time" and "Star Empire." "When we were beta testers of Digi-View back in 1986, I'd heard of this new project NewTek was working on," Cunningham says. "I finally got a chance to see it at an AmiExpo in Chicago. I was very impressed, to say the least." The idea of adding real-time

Pacific Pictures

Richard Arsenault is president and founder of Castaic, California based Pacific Pictures. Pacific is a full service production facility specializing in educational videos.

Production work is not new to Arsenault. "I was making movies when I was thirteen using good old Super 8," he says. Arsenault undertook his first big project when he was just sixteen years old. It was a medieval film with 55



cast members and used special effects like backlighting and sync/sound. Computers also caught his fancy. "I was intrigued by the Atari 800. I bought one and taught myself to program graphics," Arsenault recalls.

After graduating high school, Arsenault went on to the University of Bridgeport, Connecticut. There, he met and befriended fellow student Joe Conti (see June/July VTU). Deciding that

video to Videodata's presentations was now economically possible.

Firmly established as innovators in multimedia presentation, Videodata pushes the envelope in presentation technology by adding real-time video to their interactive displays. "We recently opened new interactive exhibits at the Chicago Academy of Sciences as well as the Chicago Museum of



Science and Industry," he comments. In fact, Videodata has installed nineteen interactive Toaster/laserdisc presentation stations in the Chicago Museum of Science and Industry alone. There are two located at the "Energy Exhibit" and six at the "Women in Science" exhibit.

Other Videodata interactive kiosks can be found at the Museum of Broadcast

Communications, as well as Chicago's Shedd Aquarium. "The Toaster gives us the opportunity to offer clients excellent production quality at a fraction of the cost of other systems," Cunningham says.

And he has the research to back it up. Videodata comparatively tested the technical quality of the Video Toaster's output to that of a Silicon Graphics station with Alias Software. "We created the screens in the Toaster then ported the file over to the Silicon Graphics station as a Targa file," Cunningham explains. "We recorded the video output to Betacam and compared the image to that straight out of the Toaster to Betacam. The images looked great right out of the Toaster!"

Videodata continues to refine its interactive presentation design, concentrating on keeping the quality high and the cost low. "Quality is the absolute bottom line and Videodata never forgets that," Cunningham remarks. "With the Video Toaster, we're able to deliver both without compromising either."

Phil Cunningham and Pat McLaughlin
Videodata Communication
319/355-4341



Halo Graphics

Ralph Scaglione is a senior video editor at a major New York City video facility and co-owner/operator of his own Video Toaster facility. Together with his partner, Producer-Director, Matt Heineman, they are Halo Co. Heineman's strong production background coupled with Scaglione's post-production savvy synergize their Toaster production efforts. "I was thrilled to see the Amiga become a viable production tool for the high as well as the low end," Scaglione comments. "We were already using Deluxe Paint for tests and low end projects, but we yearned for more, and boy did we get it!"

Now, four Video Toaster Systems later, business is humming. "We use them as multiple rendering engines one day, a multi-channel switcher the next," Scaglione explains. He then adds, "There are more combinations of slices than you can shake a pixel at." Halo Co. has over a gigabyte of storage, a video router, 3/4" SP decks, and access to every videotape format (including D2 and D3).

What makes Halo Co. different is that Scaglione and Heineman are video professionals all day every day, and they bring that expertise and efficiency to the Toaster. Their commitment to quality is based on an intimate knowledge of the high-end. They squeeze everything they can out of their Toaster facility to match the high end. Halo Co.'s projects range from an on-air animation for the Comedy Channel to a training tape for the New York City Police Department.

One recent Toaster triumph involved traditional 2D compositing. "We chose LightWave 3D to layout the elements as texture maps on 3D objects. We found that one could work in higher resolutions that would not be possible in ToasterPaint," Scaglione explains. "With the fastest accelerator cards out now and Toaster System 2.0, this technique was quickly rewarded with mind-boggling results!"

Scaglione concludes, "The future holds amazing promise for Video Toaster operators who can make things happen with a touch of class."

Ralph Scaglione and Matt Heineman
Halo Graphics Co.
212/924-2069 (fax)

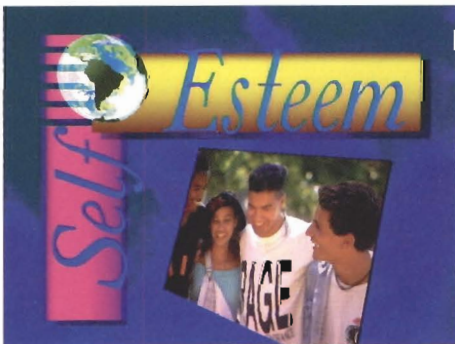
his future was in film making, Arsenault transferred to the USC School of Film and Television in 1986. He not only learned the ins and outs of film work, he also got his first taste of video. "At first I was not convinced in the least that video was a good thing," Arsenault remarks. "I continued to shoot all of my work on film."

Three years later, he received a call from his friend Joe Conti. "Joe called to tell me about the Video Toaster that NewTek was developing," Arsenault says. A few months later, Arsenault saw the new product Joe was talking about. "What excited me most about the Video Toaster was not the feature list of DVEs etc., but the

LightWave operator to run his second Video Toaster workstation dedicated to 3D. "I just picked up a pretty ambitious project involving ten times the amount of production work," he says.

This new project is a series of thirty-minute video modules geared toward high school students, the overall theme being a video survival kit for teens with subjects ranging from substance abuse to resisting gangs. "The series presents important issues honestly, frankly, and realistically with the visual interest of today's cutting-edge television," Arsenault explains. "We'll be using the Toaster, making elaborate use of 2D and 3D animation, graphics, and special effects. With programs like these, hopefully teens will gain the edge they need to succeed in the treacherous 90s."

Richard Arsenault
Pacific Pictures
800/800-6769



implications of such a device. I remember thinking, "This is going to be big."

Now, one year and one hundred Toaster-produced videos later, Arsenault is in a state of rapid expansion. He and his staff of five have moved from his home to an office in Castaic, CA. Arsenault is currently looking for a



Toaster Training A Slice At A Time.

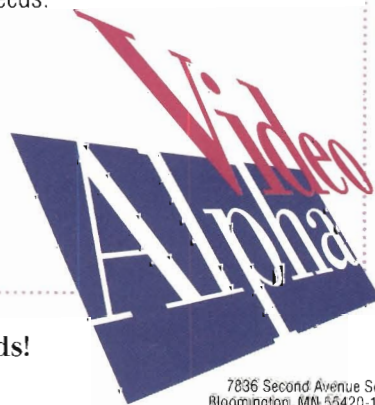
Many training programs have a rigid structure in which everyone starts and finishes at the same place. They can be a real waste of your time and money, because they may teach information that you already know, while overlooking the things you need.

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SLICES

Understanding the Toaster's Digital Channel

Do you understand the Video Toaster's use of the digital channel? If so, you may be among the few. If not, here's the skinny on performing the glitch-free edit you need, and framegrabbing the image you want. This will be a guided tour of the digital buffers and their uses. You may wish to read this column while sitting beside the Toaster, as I will refer to its screen display often. Also, have at least one external video source hooked up. A live camera or VCR is perfect. This may get tedious at times, but your understanding of the Switcher will increase tenfold because of it.

First, digital effects. Although the Video Toaster manual discusses the Toaster's treatment of its framebuffers, I continue to field questions about how they function. There seems to be persistent confusion regarding them. It is supported by the numerous videos I have seen from Toaster users who unintentionally cause "stutter edits" when they engage digital effects on the Toaster. Have you ever seen this, or caused it to happen? This misunderstanding of the workings of the digital channel once nearly caused a negative review of the Toaster in a video production magazine, since the reviewer thought it was a Toaster foible.

It's time to set the record straight.

The Video Toaster's Switcher screen is always "talking" to you. When you select a video source, the Switcher responds by pushing that button in and coloring it dark gray. When you trigger an effect, it responds by sliding the T-bar and resetting the Program and Preview sources to reflect their current status. And when you engage one or both of the frame buffers, it informs you by depressing the Freeze button and/or one or both of the frame buffer buttons.

There's a *big* clue in that last sentence. You may want to reread it. Several times. OK—twice is enough.

The Freeze button and the frame buffer buttons, DV1 and DV2, work in combination to tell you everything you need to know about the status of the Toaster's digital channel at all times. The configuration in which they appear at any time tells you whether the digital channel is in use, where it's in use, and if you can utilize it in your next effect choice. All you need to do is look at the buttons to

know what's happening.

Let's assume you just started the Video Toaster. Notice that the Freeze button is pressed in. This indicates that DV1 and/or DV2 is in use. "In use" means that there is a still image in either buffer, or that the digital channel has been engaged. You can tell which is which by glancing at the frame buffer buttons. Both DV1 and DV2 will be pressed in on the same bus when the digital channel is active. Otherwise, the buffers are dealing with still images rather than live digital video. In this case, just after startup, one buffer contains color bars and the other contains the Video Toaster logo.

So, what does it mean to be digital, and how can you control it?

To comprehend this fully, connect a video source to Input 1. Select Input 1 on both the Program and Preview buses. If the Freeze button is pressed in, click on it so that it releases. The moment you release the Freeze button, the still images in both DV1 and DV2 are cleared. You have told the Toaster that you plan to use the digital channel. Now click on either DV1 or DV2. Both buffer buttons depress, and Input 1 is still depressed. You have just made Input 1 digital on the Program bus.

To see this, go to bank D and select a horizontal or vertical wipe, effect 011 or 013. Hold down the right mouse button and move the wipe so that it splits the screen equally. Now watch the live video source. The side of the screen that is digital shows a 1/15th-of-a-second delay. It is 1/15th of a second behind the original incoming video. This is the difference between the incoming analog video, and the Toaster's digital video. (And it can be used for special effects as well, as we'll see.)

Hold down the Shift key and press the space bar to return the wipe to its starting position. The Program bus should remain digital. If not, follow the steps described earlier to return it to this state. For the Toaster to perform a digital effect, one where the entire picture changes in position and/or size, it must engage this digital channel. You determine the Toaster's use of the digital channel by your choice of effects. You can help the Toaster's use of it by presetting the digital channel on the correct bus for the effect you want to use. Get to know those effects!

- Want to fly the video source off screen? You select a digital-off effect, an effect that flies the digital

By James Hebert



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source off screen. When triggered, the Toaster makes that source digital and then flies it away.

- Want to fly the video source on screen? You select a digital-on effect, an effect that flies the digital source on screen. When triggered, the Toaster makes the Preview source digital and then flies it on screen.

You see how valuable it is to know which effects manipulate the video on and off the screen. This comes from experience, but the images on the effects icons help. Any icon that displays a black dot with directional arrows is a digital effect. (There are a few others as well, you'll discover.) The arrow grows larger or smaller toward its point to indicate the direction of the effect: larger for digital-coming-on, smaller for digital-going-off. Armed with this knowledge, you can activate the digital channel on the appropriate bus before you engage the effect. This allows you to avoid the 1/15th-of-a-second stutter that can occur if the Toaster has to "go digital" by itself when you trigger an effect.

Here's a graphic example of the stutter effect, and how you can avoid it. First, turn off the digital channel on the Program bus by clicking on Input 1. Immediately the frame buffers release, leaving only Input 1 selected on the Program row. This is how you turn off the digital channel. Notice also that the Freeze button is also released. Now select Input 1 on the Preview row. Go to bank D and select effect 047. Watch your Program output carefully, wait for a moment when there is some amount of movement in the scene, and trigger the effect. Did you see the

stutter? If not, go back to the first step in this paragraph and try again.

That stutter is the Toaster switching the Program source from analog (Input 1) to digital (Input 1

“YOU SEE HOW VALU-
ABLE IT IS TO KNOW WHICH
EFFECTS MANIPULATE THE
VIDEO ON AND OFF THE
SCREEN.”

plus DV1 plus DV2), and then peeling away the digital signal. Although it is a very fast maneuver, it still takes time. The analog-to-digital step causes the visible jump. By presetting the digital channel before the edit, you avoid the stutter. It's not a glitch, nor is it an error in Toaster's operation. It's the price you pay for playing in the digital domain. Everyone pays it, even the professionals deal with it.

Many producers have unknowingly caused the

stutter, simply by being unaware of the Toaster's handling of the video signal. The digital switch happens in 1/15th of a second, which in many effects is too fast for the human eye to see. Depending on the effect you choose and the bus that is currently digital, there are instances where you can unwittingly accent the switch, making it noticeable. Proper setup of the buffers avoid this jump, and lend a further vote of confidence to your production work.

Next column, we'll cover using the digital delay as a special effect. We'll also discuss how the buffers play an important part in framegrabbing. There'll also be some insider tricks we've learned over time. All in good fun, and productive video.

A final note: If you're switching a live production, be sure to use digital effects in a sequence that allows you to keep the digital channel in the right place at the right time. If you fly a digital signal on, peel it off. Use digital-on and digital-off effects in an alternating manner and you'll switch with the best of them.

Who knows? Perhaps you'll get a call from a broadcaster in need of a technical director for an upcoming event. Hey, a word of advice if that happens. If they don't have a Toaster—turn 'em down.

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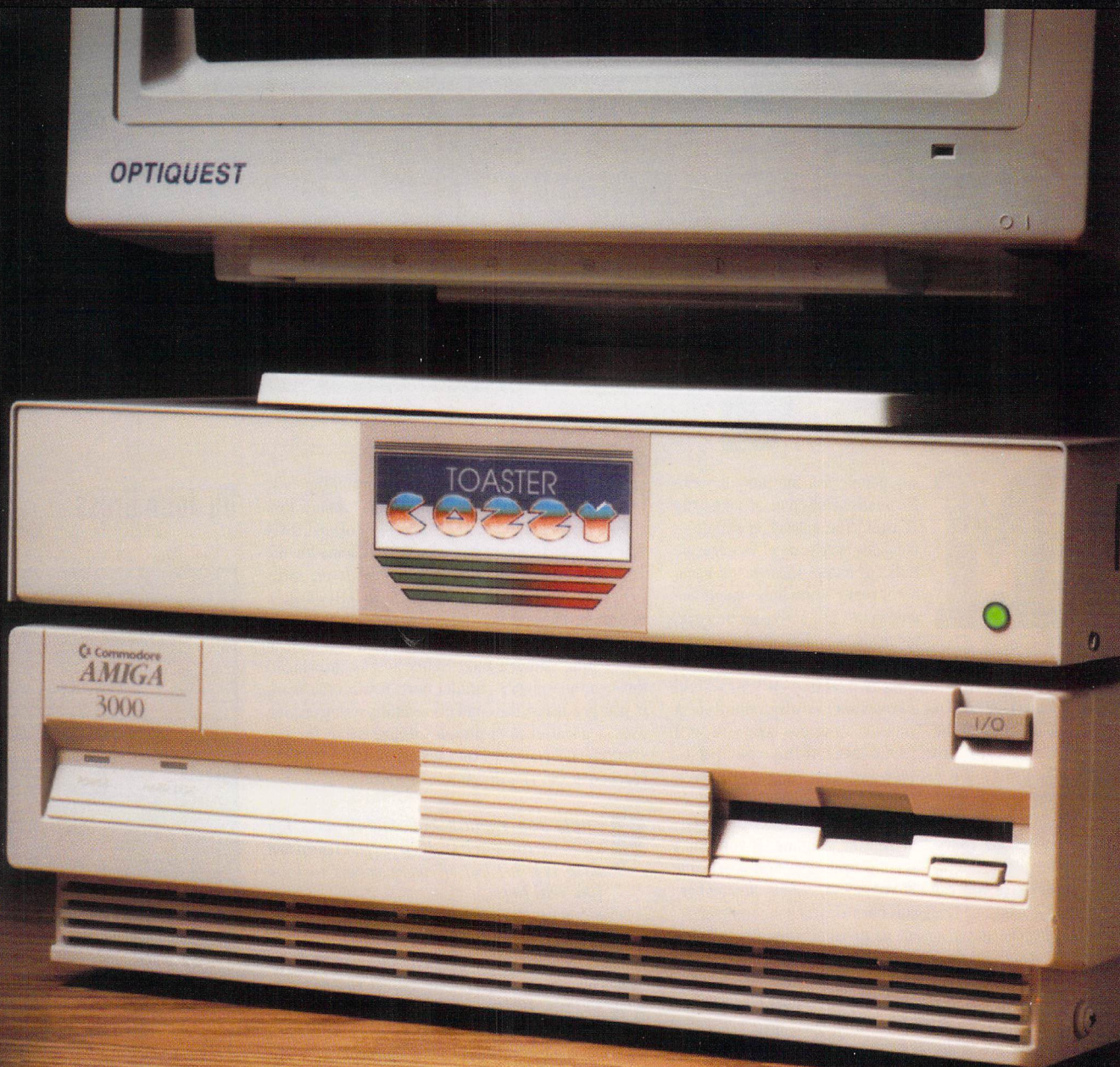
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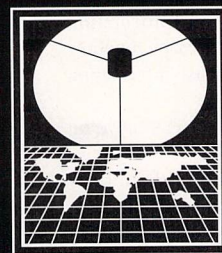
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Q&A DEAR JOHN

Many people ask me how they can get really proficient at using the Toaster. The answer is simple—the same way you get to Carnegie Hall...practice! I know it's hard, but it really is the only way. If you only get to use a Toaster at work, it can be very difficult to practice because you're so busy using it. Guess what—that is practice. Not only is it practice, it's practical experience. Once you successfully complete a project on the Toaster, chances are you will remember how to do everything you did to complete the project and next time you have a similar job, it will be that much easier.

If you really want to become a Toaster God(ess), better get yourself a Toaster at home. If you don't have the money, scrimp and save and work out deals so you can get yourself a system. Remember, the name of the game here is practice. Sometimes, the last thing I want to do after spending all day working on the Toaster is to go home and work on the Toaster, but you have to. I've found that it's a great idea to work one hour every night on a project that is just for me—something that I want to do and don't have to do. The only problem I have with this is that one hour, in most cases, turns into three or four. That's OK, however, because (remember) I'm practicing.

The other key to becoming a Toaster Expert is information. Try to get as much information as you possibly can about the Toaster. That includes reading any magazines that contain Toaster articles and buying good tapes about the Toaster (be sure to ask your dealer which tapes they recommend—many tapes out there are marginal at best), attending Toaster training classes, going to Toaster user groups, and finally, reading the manual. You can't possibly learn everything you want to know from a manual, however, and that's why you have to surround yourself with Toaster information wherever you can find it. You can't waste time nor money in getting information, because information is power.

Speaking of Toaster information, let's move on to this month's letters.

A few months ago, I received a letter from Larry Raymundo from Homebase Inc. in Fullerton, CA, asking about tally light systems for the Toaster. For those of you that don't know, a tally light is a light on the camera that turns on when you select that

camera input on the Switcher. By watching tally lights, the talent can determine which camera they should be looking into. At the time, I informed Larry that I was unaware of any tally light systems for the Toaster. I recently received a call from Andy Frerking at Images in Motion in Milwaukee informing me that they have developed a tally light system that is used with the Toaster. It can control up to four camera tally lights and is interfaced through the Amiga's parallel port. It will even work if you are using the AmiLink editing system which uses a parallel port dongle. Retail price for the system is \$495.00. Images in Motion can be reached at (414) 258-6468.

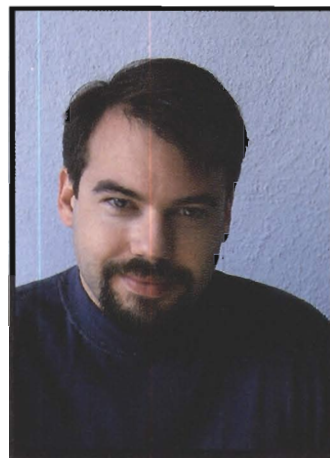
Q Could you explain how LightWave's fog generator works? I've experimented with it a bit but it never seems to look like real fog.

Scott Hayes
Minneapolis, MN

A 3D fog isn't quite like real fog. There are certain settings you need to make the fog look realistic. First of all, it helps to think of LightWave's fog as a big "fog sphere" with the camera at the exact center. There are two main settings for fog—Min(imum) Distance and Max(imum) Distance. These fog distances are measured from the camera. For instance, if you have a minimum distance of two meters and a maximum distance of six meters, then any object closer to the camera than two meters will not be fogged. Any object farther than six meters from the camera will be totally fogged and any object in between will have some degree of fog depending on how far it is from the camera.

How do you know what distances to use? That's easy. Load your objects and go into Layout. If you look at things from the XZ (top) view you will be able to see everything (you may need to zoom out a few times by pressing the comma key). Click on Grid Size to discover the grid square size. This allows you to estimate distances. To find out where the camera is, choose Camera as your edit item and look at the Z position: It will be a negative Z value. This value is measured from the center of the grid, so if you have an object right at the center of the grid, you know exactly how far away the camera is from that object. You can select any object, check out its position, and thereby determine its

By John Gross



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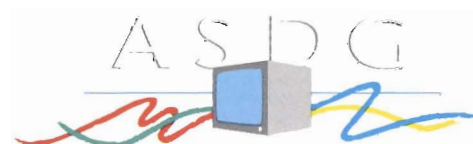
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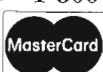
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AMEX

Dear John-Continued from Page 26

approximate distance from the camera.

The next step is to set the fog's color, which actually determines the color of any fog-bound objects. If, for example, you select green for your fog color and then render the scene, any objects past the max fog distance will be totally green. If the background is set to the default colors, this probably won't look a lot like fog.

Choosing Backdrop Fog will use the current background colors for the fog color instead of the fog color you have selected. If we, again, used the default background colors, this also won't look much like fog. It will look more like the objects are dissolving out as they approach the maximum fog distance. The secret to successful fog is to select backdrop fog and make the backdrop a color that looks like fog such as a light gray-blue. You can also use a fog color that is very close to the background color such as a black background and a dark blue fog color.

The other important settings are Linear and Nonlinear. Either of these two buttons will turn the fog on. Linear applies the fog effect in a straight line path from the camera. Nonlinear gives the fog a more realistic, patchy look. I think Nonlinear looks better.

By the way, since the fog is attached to the camera, it also moves with it. Imagine yourself driving through fog, as you approach objects, they come out of the fog. This is exactly what happens with LightWave fog.

Q My station purchased a Video Toaster earlier this year, fitted with a GVP 68030 accelerator running at 33 MHz, eight megs of 32-bit RAM, a 200-Mb hard drive, and an internal TBC card. We are just now getting to the point where we are experimenting with LightWave animation and are running into the difficulties of having to render our results to disk, then going back, displaying each frame and using our regular editor to piece the animation together frame by frame.

The editing suite consists of Panasonic 65 and 665 MII decks and a Grass Valley edit controller running through a Grass Valley 200 switcher.

Among the boss's reasons for omitting a single-frame controller from the original package were his concern about excessive head wear and the possibility of tape stock damage due to repeatedly running back and forth over the same spots on the tape.

Do you know of any problems using a similar setup? What difficulties, if any have you run into using an single-frame controller?

Pat Mullet

WUCM TV-19/WUCX TV-35
via Compuserve

A Recording of computer animation on videotape must be done one frame at a time. Every computer-generated commercial you see on TV is laid to tape (or often laser disc) frame by frame. Currently, there's no way around it. In order to get the frames laid to tape, you need a single-frame controller that will talk to a single-frame-accurate deck. I use the Nucleus Personal Single Frame Controller and dump my animations to MII. So far I've had no problems or dropped

frames at all.

What you are doing right now (manual editing to tape) is pretty much the same thing that a single-frame controller does, without the headache of having to control things manually. If there were going to be problems with head wear, etc. it would happen regardless. You can set an MII deck (and many others) to disengage the heads after a certain period of time or while not actually recording so they will not be in contact with the tape. Also, with the Personal SFC, you can set up a "safe spot" to which the deck rolls between edits.

Ideally the best way to record LightWave animations is to save all of the images to disk and then play them back and record them to tape using your single-frame controller. You can then delete the images off your hard drive and render out the next batch. If you don't have enough disk space to save images, LightWave allows you to render the frame out, record it right to tape, then continue with the next frame. The problem with this method is that it can tie up your deck for a long period of time.

Q What's the best source for images for ToasterPaint/CG backgrounds?

Rick Russo

Downer's Grove, IL

A If you have access to a Video Toaster (I assume you do), a video camera, and the world, you have the best possible source for CG backgrounds. Images that you can use for Pain/CG backgrounds and LightWave textures are all around you. Just open your eyes. Here are some ideas (no charge): newspaper classifieds, curtains, grass, flowers, wood floors, tile samples, rocks, fabric, nuts & bolts, store fronts, rows of books, bricks, stucco walls, concrete, carpet samples, crinkled aluminum foil, food, crowds of people and tree bark. I just pulled these ideas off the top of my head by looking around my house and outside the windows.

Of course, using your captured image as is generally will not work well for an image that you are going to use as a framestore background in the CG. I will always go into ToasterPaint and work on the image before importing it into the CG. The idea here is to draw attention away from the image and onto the CG text. You don't want peoples' eyes to be fighting over whether to read the text or look at the background. Some things that I often do to images is to strip all of the color out of them (Colorize mode with white or black as the current color), and then apply a nice, slightly transparent range of colors (Range mode) over the top of the image. Also, using Darken mode to darken the background works well for text.

John F. Gross is a Video Toaster graphic artist employed by Alpha Video in Minneapolis. He has been using the Video Toaster every day since its introduction and is still trying to catch up on his sleep.

VTU

Questions can be sent by mail to:

John Gross

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TAMING THE WAVE

Let's get on with learning how to use LightWave in a professional sense! Recently, I put together a couple of ads for my Taming The Wave Training System using LightWave, and I've had a lot of people asking me about them. There really aren't any major tricks used in those ads except careful attention to Specularity, Diffusion, and Bump Mapping. The one big secret is how it came out proportionally. In fact, both ads were laid out with the camera rotated 90 degrees. This provided the proper orientation for a page with a vertical or "portrait" orientation while your screen uses a horizontal or "landscape" orientation. The final images were rendered at Print Resolution and sent to Industrial Color Labs in New York for transfer to 3 x 5-inch transparencies. Finally, the transparencies were sent to a print shop for color separation and shipped to this fine magazine. I mention this to remind you that LightWave isn't just for animation.

Speeding Things Up

How about a tool for productivity enhancement? When you're working with very complex objects, you'll find that your setup time in Layout drags a bit, even with an accelerator. A great way to improve this is to create "bounding box" objects of your own. Load a complex object into Modeler and set its layer to the background. In a foreground layer, make a box object that encloses the object as tightly as possible. Save the box versions in a separate directory, giving each box the exact same name as the object it represents. Use these boxes to lay out your scene. Then, using a directory utility such as DiskMaster 2 or Directory Opus, swap the directory names. This will make LightWave think it is loading the same objects (the names are the same), when it is actually getting different ones. This is also a great way to simply replace an object, image, motion, etc.

Recording Considerations

I've had discussions with many people about the merits of recording LightWave animations directly to tape versus rendering them to the hard drive and then to tape. I still feel that going to the hard drive is the best idea. Of course, this means that you'll need a pretty sizeable hard drive, but the advantages make this

worthwhile. The primary advantage is that once an animation is stored on the hard drive as a series of images, it can be inserted into another animation as an Image Sequence. This may not sound like a big deal, but it can make an incredible difference in the look of your animations. Just take a look at Allen Hastings' brilliant "Blade Runner" sequence at the end of NewTek's Revolution video. The clip of Kiki as a geisha on the side of the blimp adds tremendously to the scene.

Another advantage to using your hard drive is that you don't need to tie up a VTR for very long. Since LightWave isn't using it while rendering, it can be off doing something else productive. When rendering is finished, simply set your single-frame controller to display and record the frames and you'll find each frame takes only a few seconds to get to tape. Also, some programs allow you to generate small-scale or low-resolution animations that you can play back in real time on your machine. This lets you make sure that an animation is exactly the way you want it before you put it on tape.

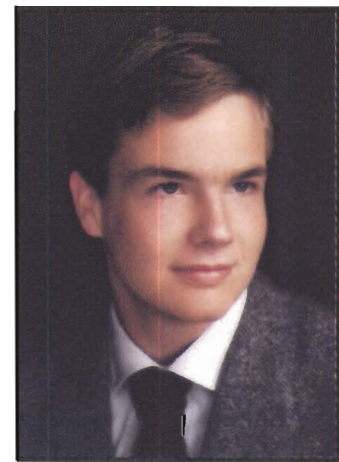
With the prices of RAM, hard drives, and accelerators dropping like stones, it won't cost you an arm and a leg to get into recording this way. Plus, the money you'll be making from your animations should more than pay for your initial investment.

More Tips

Are you trying to get a 3D surface to match a color in a grabbed video frame? Try taking the frame into ToasterPaint and using its color palette to tell you what the color is. Just go to ToasterPaint's palette and click on Pick. Then, click on the color that you wish to match. The RGB sliders on the palette will adjust to give you the correct values for use in LightWave.

Doing a lot of image mapping? If you find that a few images are eating up a lot of memory, it might help you to know that LightWave doesn't insist that images be full screen. In fact, using a program like ASDG's Art Department Professional, you can reduce the size of an image without a very noticeable difference in appearance. Also, if you are using an image as something besides a Color Map, Foreground, or Background, convert the image to a grayscale using ADPro. Grayscale images work great for the various mapping functions such as

By David Hopkins



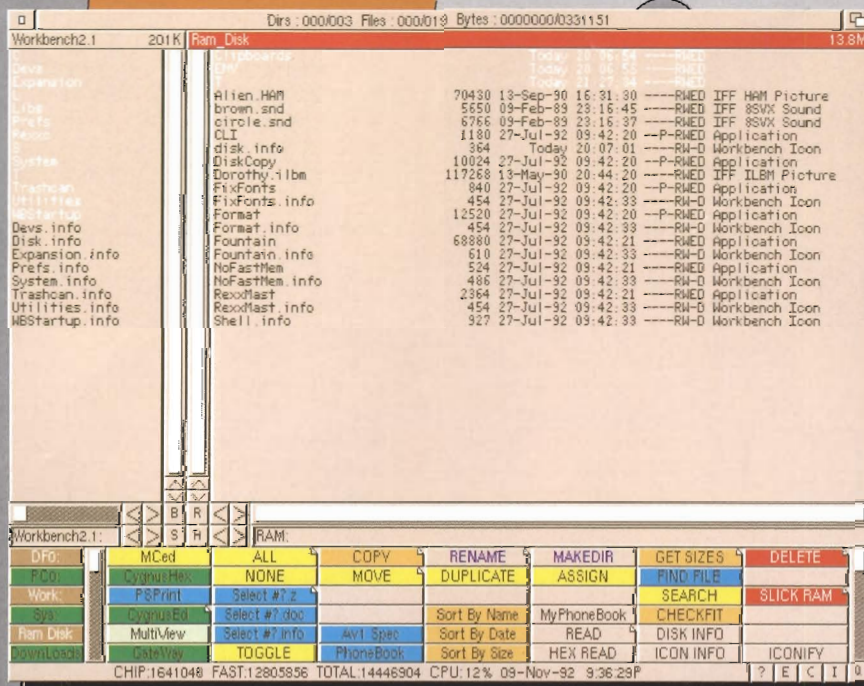
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Specularity, Diffusion, Reflection, Transparency, and Bump Mapping, where the color data is not as important as the brightness levels. A 16- or 256-shade grayscale image takes up significantly less disk space and memory than a 16.8-million-color picture!

Have you ever tried to create a "tail" on a flying item, such as those found on the logo for *Star Trek: The Next Generation*? James Hebert gave a great technique in his "Slices" column last month, but there's also a "quick-n-dirty" way to do it. If the logo (or text) is flat, load it into Modeler and extrude it. Name the surfaces that make up the sides of the extrusion as a unique surface, then save it and load it into LightWave. Set up the face surfaces the way you normally would, but make the sides almost completely transparent and double-sided. Now you can use LightWave's Stretch function to elongate the tail while the item is in motion, then shrink it when the object comes to a stop. Experiment with splines to make the tail behave as you wish. Making the sides semi-reflective with a high-contrast image as a reflection source can add a great deal to the visual impact. The image that accompanies this column gives you an idea of what can be done with this method.

Allen Hastings recently passed along an interesting and useful tip: The reason people don't get realistic results when working with Refraction is because they don't use enough layers of depth. Think of making a glass of water, such as that found in Allen's Kiki.VT rendering which is included with your Toaster software. Your first thought is probably just to make the glass with a lathe in Modeler and then give it the Refraction setting for water (1.333, by the way). Wrong. There should be a number of different levels of refraction in the glass. Picture this: Light traveling straight toward such a glass in the real world would travel through air to the outer edge of glass, then the inner edge of glass, then the outer edge of the water, then the far edge of the water, then the inner edge of the

glass on the other side, then the outer edge of glass on the other side, and, finally, back into air. In short, you would need at least four Refraction settings placed upon at least six surfaces to pull off a realistic glass of water. Nature is a complicated thing to reproduce.

Need to produce a "storyboard" out of an animation you're building? Try increasing the Frame Step setting to render an image every few frames and save it to your hard drive. These images can then be moved into a program like ADPro to convert them to files that fit nicely into a desktop publishing package such as Gold Disk's Professional Page on the Amiga or Aldus' PageMaker on the Mac. You'll have a hard-copy sequence that displays an animation's progress, taking only a fraction of the rendering time.

Contest Reminder

Finally, let me remind you about the "Taming The Waterfall" contest. Details were given last issue, but as a refresher: Your mission is to create a realistic waterfall with LightWave. It can be of any type you wish, but must be submitted as: a FrameStore on a floppy disk, a brief clip of the Waterfall waterfaling on VHS tape, and a document explaining the method you used to create it.

In trade for creating the ultimate waterfall, the winner will get all

of these great things: 1) A cool surprise from NewTek, 2) A complete Master Pack of Broadcast Fonts 3D from Unili Graphics, 3) A volume of ProFills (Volume I or II) from JEK Graphics, 4) A 1-year subscription to Toast & Coffee from VideoGraphix, 5) A Motion Man object from Anti Gravity Products, praise and publication here in Taming The Wave, and NewTek may use the imagery in some of their promotional material! Hey, that's a lot of stuff! I've extended the deadline to February 1, 1993, so hurry and get on it. Employees and families of Mach Universe, Avid Publications, NewTek, Unili Graphics, JEK Graphics, VideoGraphix, and Anti Gravity Workshop are not eligible for this contest. Please send contest entries to the Mach Universe North address below.

Well, that wraps it up for this month. As usual, if you have hints, tips, comments, suggestions, products for evaluation, etc., please write. Due to a tremendously large project that my company has landed with one of the large soft drink manufacturers, Mach Universe has opened a second office. You can write to me at either:

Mach Universe South
625 The City Drive, Fourth Floor
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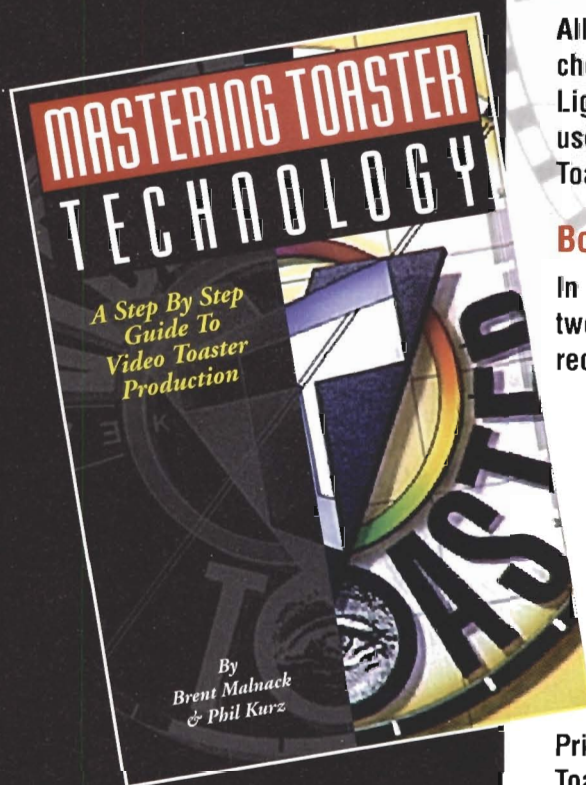
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PRIMETIME



An interview with the Top Toaster Artist at the Post Group !

by Kathy & Lee Stranahan

Jennifer McKnew

is one of a rare breed—a successful woman in the largely male-dominated realm of computer graphics. She has a long and growing list of accomplishments, including 3D title design, animation, electronic storyboarding, photo manipulation, and morphing.

Her rise to the top of her profession has been as rapid as a rocket launch, and the Toaster has been there every step of the way.

Jennifer, growing up in Northern California's Marin County, got her start early. She had always been interested in art and graphics, drawing and sculpting even in elementary school. Graphic design was also in Jennifer's blood, since her grandfather, Charles R. McKnew, was Executive Vice President of Landor Associates, a graphics design house. He was responsible for corporate and brand identity for several huge accounts, including 7-Up, Royal Viking ships, several Phillip Morris accounts, and a number of airlines, including Al-Italia, Thai, Singapore and British Airways.

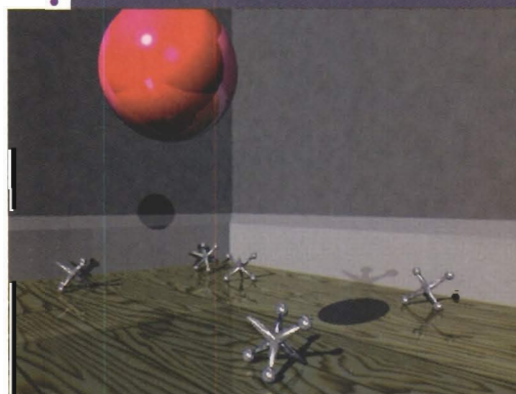
Many traditional graphic artists have been reluctant to acknowledge the advent and intervention of computers. Jennifer's grandfather was no exception. "We would get into debates over computer graphics," remembers Jennifer. "He was a traditional artist, and he said that I shouldn't waste my time with computers."

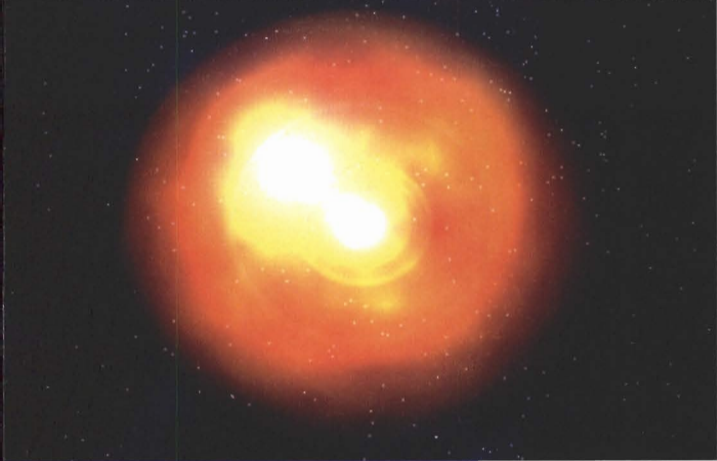
Educated for Success

After Jennifer graduated from San Marin High School, she attended Cal-State Sonoma for one year with an undecided major, although she'd loaded her curriculum with a heavy dose of design classes. Jennifer moved to Los Angeles, and petitioned for acceptance into UCLA for the winter quarter. "It was really difficult to get accepted," Jennifer said. "Not only did they require an incredibly high



Copyright Cosgrove/Muerer Productions (segment title "Belgian UFO")





GPA, I was petitioning to transfer after school had already started—something that is extremely difficult to do.”

Jennifer's GPA of 3.86, coupled with letters of recommendation from previous professors, got her in. Now

her work was really cut out for her: she attempted to change majors midstream, from English to Computer Graphics. “I remember thinking to myself that this was the biggest risk I'd ever taken—the School of Fine Arts at UCLA started with the Fall Quarter, not Winter, and they could have rejected me, and then where would I be? But it was what I wanted, so I went for it,” recalls Jennifer. Her boldness paid off—with an extensive portfolio and demo reel, she was one of only 30 people accepted into the Computer Graphics major.

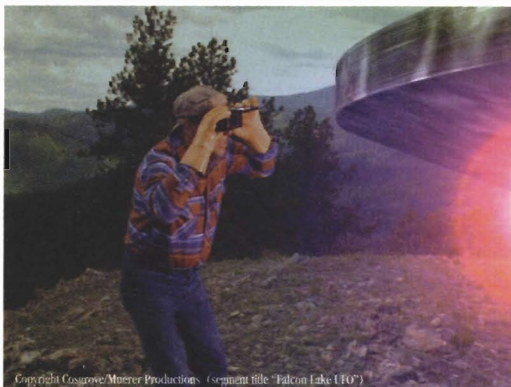
Jennifer remembers her instructor, Rebecca Allen, as being determined and very challenging. “It was looked upon as an honor to be in her class—she demanded excellence. She was very enthusiastic, and I think that enthusiasm rubbed off on me,” says Jennifer. At the end of the quarter, Jennifer was one of only seven people who'd survived the rigors Ms. Allen had put them through.

Before Jennifer left UCLA, she was honored by having four of her works displayed at the Andrew Wight Gallery—two computer animations, a computer graphic static, and a sculpture. In fact, Jennifer's first interest in 3D (before computers) was sculpting objects in clay. From there, her interests moved to 3D sculpting with software, and today she occasionally models a 3D object in clay for visualization purposes before recreating it in the computer.

...Continued next page



For the Disney Channel, Discovery Magazine, "10 Great Unanswered Questions of Science" The Big Bang Theory



Mc Knew...

Enter the Toaster

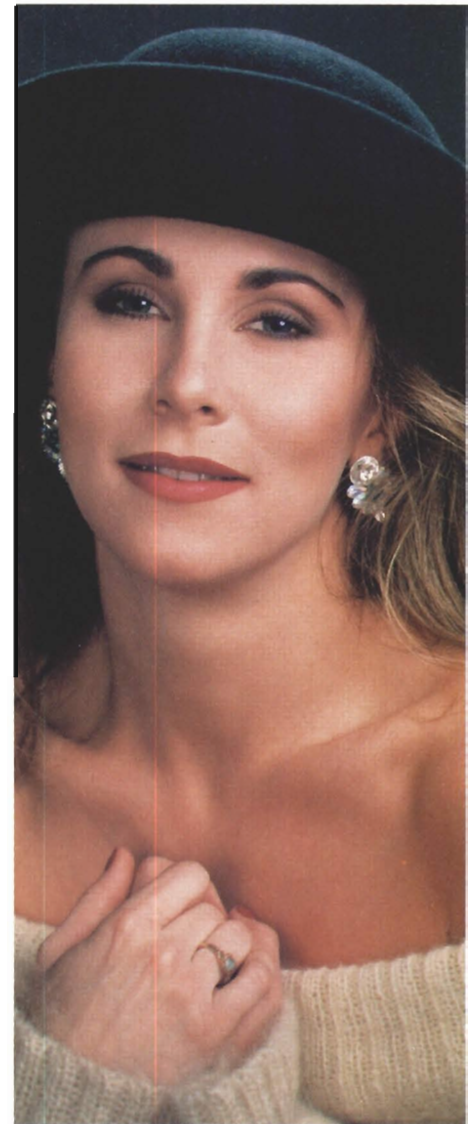
Jennifer saw the Toaster at a convention in Anaheim, California, and immediately knew that she was looking at the future. "I'd only worked with the Mac before, but when I saw what the Toaster could do, I knew that I wanted to work with it. I started to learn the Amiga to prepare myself for the Toaster, which was just about to come out."

After graduating, Jennifer contacted David Fiske of Animagic, a Hollywood title design house. Fiske had had negative experiences with the Amiga artist he'd hired and was going to "get rid of his Amigas." He was initially unreceptive to Jennifer's request for an interview. But after a one-and-a-half-hour phone call, and a two-hour in-person interview, he created a position specifically for Jennifer. She started on staff for Animagic, where she did animation tests for motion picture trailers.

She convinced Fiske that they needed a Toaster, but ran into a lot of negative reactions from people. The Toaster was brand new, and cynics said that 1) the Toaster wasn't any good, and 2) that she'd have to get in line—the Toaster was very popular, thus hard to come by. Jennifer placed a call to NewTek, telling them where she worked and what she wanted to use the Toaster for; she ended up getting one very quickly.

Animagic merged with Cinema Research Corporation and Jennifer began an internship as a title designer's assistant. Title designers create the opening and closing credits for films. It's a job that's increasingly important since film makers want to hook viewers as quickly as possible. The Toaster and LightWave 3D were used for testing motions. Jennifer also worked on a number of freelance projects, including some commercials, an in-house trailer test for the Mel Brooks movie *Life Stinks*, and the feature film *Double Impact*.

Like many Toaster users, Jennifer turned to NewTek's Tech Support team when she had questions. Tony Stutterheim, who was head of Tech Support at that time, remembers, "We



Copyright Gosgrove/Mueller Productions (segment title "Beauwater's UFO")

Copyright Gosgrove/Mueller Productions (segment title "Falcon Lake UFO")

didn't really get that many calls from women, so whenever Jennifer called we knew who it was. There also weren't that many people in Hollywood using the Toaster at that time. Jennifer would always ask a ton of questions and made some great suggestions. I asked her to send in a demo reel. Her LightWave work was some of the best we'd seen."

Tony used Jennifer's animations on the LightWave reel shown at the 1991 NAB show. Jennifer drove out to Las Vegas from Los Angeles to meet, face to face, with the people she'd been talking to on the phone for the past several months. She began to ask Tony a number of questions about using the Toaster with film. He suggested she talk to someone else who'd come out from L.A. to be at the NewTek booth—Joe Conti.

Joe and Jennifer

Joe was an early believer in the desktop video revolution. As a specials effects artist on films like *Die Hard*, he'd been one of the first use to a personal computer for film work. When he first heard about the Toaster, he immediately saw the possibilities of using it for high end spe-

cial effects work. When he met Jennifer, he knew he'd found a kindred spirit.

"She had a tremendous amount of energy, and

find someone who was so eager for knowledge.' She still has that same drive and curiosity today."

He began working with Apogee Magic, a high end special effects house that did work on such classic films as *Star Wars* and *Close Encounters of the Third Kind*. The producers of NBC's *Unsolved Mysteries* contacted Apogee about an upcoming episode featuring UFOs. Joe recalls, "They had what was a very low budget for TV special effects, \$40,000. For that amount of money, they expected to go with 'glows of light' filmed on an animation stand. The UFOs would have looked like someone lighting a sparkler. They wouldn't even have been able to afford rotoscoping, where we paint pictures of the UFOs over video. A year ago, \$40,000 didn't buy a lot of magic."

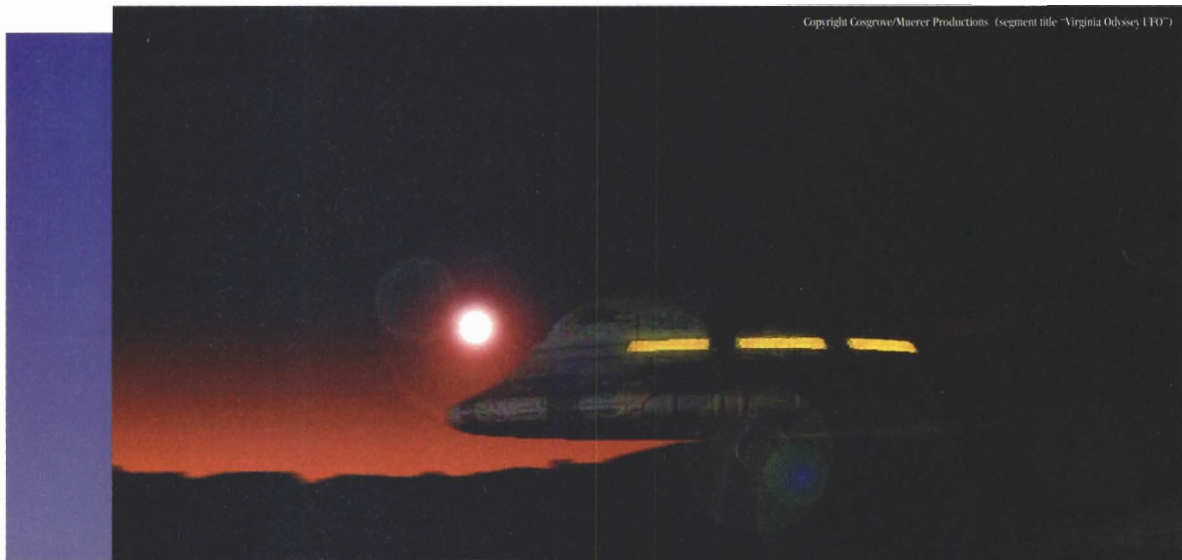
Joe saw this project as the Toaster proving ground he'd been looking for. "It was an incredible battle. People who've been in the industry for years don't believe in miracles, and when I told what I wanted to do and how much we would charge for it, it seemed miracu-



asked question after question about how the Toaster could be used in the motion picture industry. She also asked the right questions," Joe says. "I remember thinking, 'Wow, how great to

...Continued next page

Copyright Cosgrove/Muerer Productions (segment title "Virginia Odyssey UFO")



lous. We went through a week of meetings, and people joked that I'd signed my own death warrant if this thing failed."

Joe got the job and asked Jennifer to work on the project. "She has the integrity necessary to handle this kind of work. This is a high pressure business, and you need to be able to perform better under that pressure."

Jennifer accepted the challenge. The Toaster was used in every aspect of the *Unsolved Mysteries* UFO animations—from storyboarding to designing to producing the final elements seen on TV. Jennifer, Joe and Tim McHugh worked for four weeks with the Toaster to generate the effects. They used LightWave and ToasterPaint to rotoscope light beams. They also used both programs to generate all of the elements to animate the UFOs—from creating the objects in Modeler to choreographing and matting the composited ships. They were able to render 8000 frames of animation in ten days, using three 50 MHz '030 Toaster systems.

While at Apogee, Jennifer went on to do animation on three *Unsolved Mysteries* segments and lead the projects on two of those segments. She also created electronic storyboards for feature films such as *Freejack*, *Sleepwalkers*, and *The Pickle*. Another project involved creating six motion sketches for a Japanese amusement park ride.

The Post Group

Unsolved Mysteries went through post production at The Post Group, perhaps the most prestigious post-production facility in the world. When The Post Group Vice President, Peter Moyer, saw the *Unsolved Mysteries* effects, he realized what the Toaster—and Jennifer—could do. "He asked me to freelance," recalls Jennifer. "But I prefer to work for one person, so I never sent him my resume." Peter didn't want to take no answer for an answer, though. He tracked down Jennifer's home phone number. When "Unsolved Mysteries" went on hiatus, Jennifer became the The Post Group's resident Toaster expert.

Turn any video person loose in The Post Group's Digital Center and they'd feel like a kid with the keys to the candy store. The Group has more than a dozen D-1, D-2, and D-3 format digital video decks. All of these state of the art decks are connected through a router that looks like it's straight out of the Starship Enterprise's Engine Room. Also connected through the router are The Post Group's computers, including their Toasters.

"We can connect anything to anything," says Jennifer. "The networking seemed a little overwhelming at first, but I love the flexibility we have. I've become addicted to networks!"

At The Post Group, she has worked on a number of episodes of the Disney Channel's *Discover Magazine*. She's used the Toaster to create everything from the big bang that started the universe rolling to the rise of continents and the evolution of man. For another project, Jennifer was called upon to create amino acid molecules which are bonded into DNA strands. For authenticity, the work on this had to be perfectly color-coded. In the final animation, you fly through the central hydrogen bonds



within the amino acids.

Another project that required modeling DNA strands was an episode of the TV show *Quantum Leap*. With the help of Roger Dorney and Denny Kelly, the Effects Supervisors for the show, Jennifer created a DNA "ladder" using Modeler's Twist function.

3D Music

Jennifer's latest project with The Post Group is a four-minute 3D opening for the 20th Annual American Music Awards. Jennifer will be rendering over 15,000 frames of animation for the piece, as well as creating the models.

In order to maintain the highest quality, the frames won't be rendered to tape. Instead, they will be recorded to an Exabyte machine, which writes the animation to eight-millimeter tape. This keeps the animation from losing any coded information. Next, the frames are transferred to an Abekas digital disk recorder, which has RGB component output and an aspect ratio of 720 x 486. After the Abekas dumps the animation to a D-1 deck, Jennifer will combine all of the elements in a D-1 edit bay.

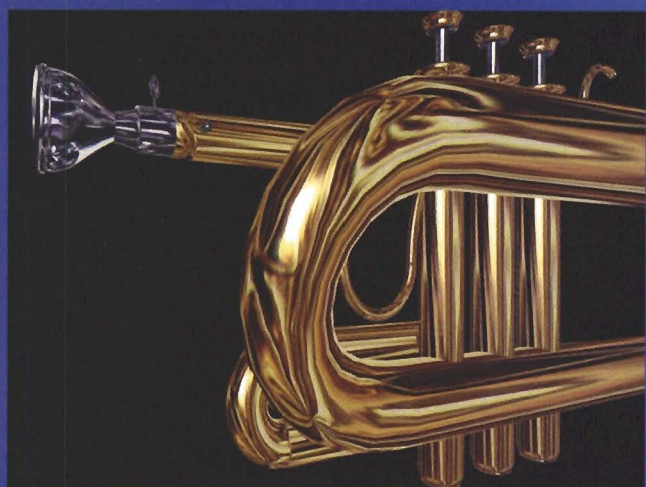
The Toaster has become accepted at the highest levels of production, and is now being used on television shows, TV movies, and feature films. That's an amazing accomplishment for a product as young as the Toaster, and that acceptance is helping a whole new generation of artists move to the cutting edge of an industry that was supposed to be impossible to get into. That's exciting to Jennifer, of course, but there's one area of acceptance that is even more important to her—"My Grandfather loves it," says Jennifer. "He says that he guesses there's room for more than one kind of graphics medium in the world."




These are objects designed and built by Jennifer McKnew for the 20th Annual American Music Awards television show. The four-minute 3D animation, created by The Post Group, will appear throughout the show, which airs on ABC January 25, 1993.

In all, Jennifer is creating:

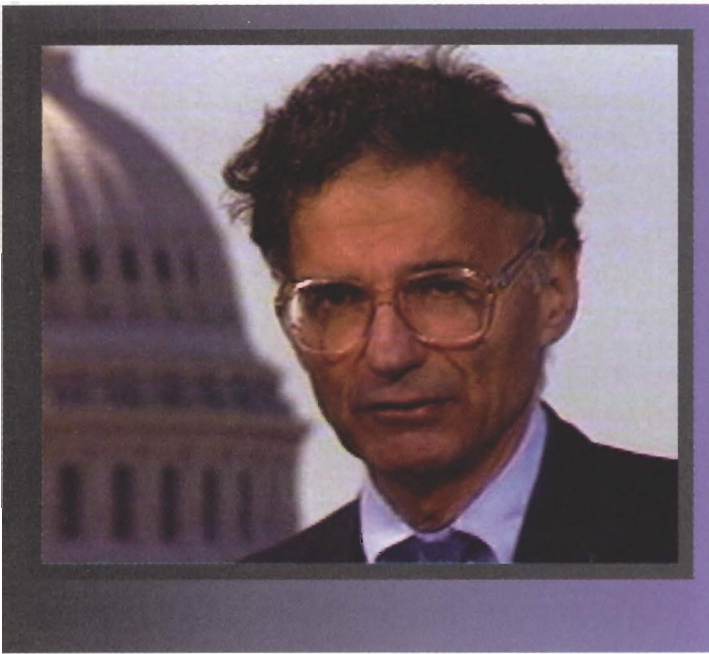
- ten instruments, including a saxophone, clarinet, trumpet, acoustic guitar, electric guitar, violin, piano, snare drum, congo drum, and cymbal
- treble clef and notes
- the galaxy, animated with stars and galaxy dust
- 3D nebulas
- lens flares





MAKING STONE SOUP → with the ← VIDEO TOASTER

A signal sounded across America the night the presidential debates won higher TV ratings than the World Series: the slumbering Silent Majority was waking up and preparing to recalam its vote. Information about public issues is in demand, and that means new productions opportunities for Video Toaster users. This is the story of one experienced video producer's race against the clock in the final weeks before election day, with a complete overview of the video production process and how the Video Toaster was used at each step—from preliminary scripting through final edit.



“TWO PENNILESS WOODSMEN CAME TO A VILLAGE, HUNGRY AND WITH NOTHING TO EAT. THEY BUILT A CHEERFUL CAMPFIRE AND A KINDLY FAMILY LENT THEM A CAULDRON TO PUT WATER IN. THEY STIRRED AND WHISTLED AND STIRRED UNTIL VILLAGERS CAME TO SEE WHAT THEY WERE DOING. “WE’RE MAKING STONE SOUP,” THEY SAID, “JUST BRING WHATEVER YOU HAVE TO THROW IN, AND YOU CAN JOIN US TOO.” ONE BY ONE THE WHOLE VILLAGE GATHERED AROUND THE CAMPFIRE, ONE BRINGING A TURNIP, ANOTHER A BUNCH OF CARROTS, SOMEONE ELSE A SACK OF POTATOES AND SO ON UNTIL THE WOODSMEN HAD CREATED A WONDERFUL PARTY AND PLENTY OF SOUP FOR ALL.”

- TRADITIONAL EUROPEAN FOLKTALE

by Patric Hedlund

No matter who your favorite candidates were through this season of election-year madness, the real winners were the record number of voters who got involved again in the democratic process. We’ll all remember the zany moments of human conflict, but 1992 is also the year when interactive telecommunications tools—video, computers and telephone networks—proved to be powerful tools for stimulating the burst of political concern surging through the nation.

Closed-circuit satellite teleconferences with call-in links from special audiences were widely used in the primaries. On-line computer bulletin boards became a popular way for voters to ask questions and receive direct responses from candidates. “Electronic town halls” were the Computer Billionaire candidate’s proposal to solve the nation’s problems and, though Jerry Brown was first ridiculed for his innovative electronic fundraising, the “800 line” became politically chic. This confetti shower of techno-tidbits add up to major progress in transforming the way Americans participate in their government. Desktop video is a growing part of that equation. Low-cost cameras and production tools like the Video Toaster in the hands of people with fresh voices and diverse viewpoints bring a grit and substance to public dialogue that can make mass media offerings seem shallow and bland.

Ralph Nader, the respected consumer advocate, decided to use video this year to help bipartisan grassroots organizers in 14 states explain Term Limit initiatives to voters. His Center for the Study of Responsive Law had noted the disproportionate amount of money being spent by special interest lobbyists, corporate donors and PACs (political

action committees) to keep incumbent legislators of both parties firmly entrenched in public office. Nader asked Harvey Rosenfield of the nonprofit Network Project in California to help him create a public education tape. Rosenfield asked my company, Sweet Pea Communications (producers of the *Computers, Freedom & Privacy Video Library* series) if we could put something together quickly. Election day was approaching fast. They wanted the tape as soon after Labor Day as possible.

We had to tailor our goals to a Spartan budget and tight schedule. It didn’t all go smoothly. The heroes of this tale are a team of Video Toaster users who each contributed a small bit to meet the challenge. This story is taken from my personal journal about what we learned along the way.

THE SCRIPT

Wednesday

Harvey’s budget is too small and the initial script is too long. Six hours of tapes from a conference examining the pros and cons of term limits have been boiled down to a script of talking heads. The information is good, but it is difficult to understand. How can we portray this abstract data visually so people can grasp key issues quickly?

The conference was recorded on 3/4” tapes with SMPTE time code. Carmen Gonzalez from Voters’ Revolt used VHS window dubs showing the time code to log the tapes and make the first “paper cut” script.

Our system here has 3/4” SP decks and a Video Toaster 2.0 on the A2000, all controlled by a TAO Editorizer we are beta testing for the manufacturer. We key the SMPTE numbers on the script into the Editorizer to create an EDL (Edit Decision List) and do an auto-assemble pull reel

of the rough draft script from the six hours of tapes. (A pull reel consists of a selection of video segments taken from the raw footage, from which the final program is distilled.) Once we tell the edit to begin, the system sets up and executes edits until it needs us to put in a new reel. Then a dialogue box pops up on the graphic screen asking for the tape it needs. Cool. Now we can see how the ideas flow together.

“The original intent of our country’s founders,” Nader argues in the conference, “was that citizen legislators should take a short time out from their real-world work, serve their term, and then go back home, not become career politicians beholden to special interests.” I hope we can get that point across.

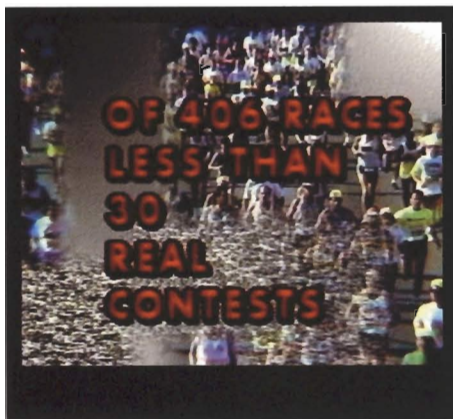
Thursday

Harvey looked over the thirty-minute pull reel and made another draft of the script. We arrange a meeting at his Voters’ Revolt office to comb through news clipping files for resource material.

Stew Harris, a segment producer with *Inside Edition*, has volunteered to tape Nader on a studio rooftop in front of the capital building. The only problem is that we don’t have the lines for him to say yet. It’s my turn at the script now and I know I’ll have to shorten it by about ten minutes and find a way to punch up its visual impact.

I leave Harvey in a state of anxiety about the videotaping we’ve arranged with Nader in Washington D.C. for the coming week and go back to my own office to redo the script in the few hours remaining before Harvey gets on the plane.

Our budget is too limited to plan much in the way of animations, but I feel it is essential to target key ideas for some kind of visual treatment. The script has to be ready in



30 hours, so decisions must be made now, before conferring with Amiga artists about feasibility. I'm fairly adept at Macintosh paint programs, but have used the Toaster only for its Switcher and Character Generator so far. I go to the Amiga to try out a few ideas, then plunge ahead and write lead-in lines, hoping the ideas will work.

Friday

To reduce the amount of slow conference footage, I go to the original source tapes, hoping the brisk-paced comments in the press conference preceding the event has similar content. I log those segments using the Editizer's logging module with automatic SMPTE hot key, print the log out with the SMPTE time code index and replace several sections of the first script with the new shorter units, then begin writing Nader's on-camera bridges to tie the ideas presented in the conference segments into a logical sequence.

I must take wild leaps of faith to write the voice-over segues for my hypothetical animated segments. Once we have Nader on tape saying these lines—and only these lines—we're locked in. No flying back to D.C. for retakes.

I work through the night until Saturday morning, and my partner rushes the script down to Harvey on his way to the airport. Later that day I Express Mail a full master script with separate voice over and on-camera break-out scripts for Stew Harris and the *Inside Edition* group.

Tuesday

Nader and Harvey go over the script, change a few words, then taxi to Stew's D.C. rooftop and do a great job. The originals are recorded on Betacam SP.

Back in Los Angeles, *ProWest Video* transfers the tapes to 3/4" SP. I go back to the Editizer and log in the Nader stand-up and voice-over tapes. He's great, surprisingly animated. The Editizer can control and store settings for the DPS TBC III (and II), so I'm able to correct a color problem in one cut with the DPS color balance function while logging, and know that adjustment will automatically be triggered by the EDL when we come to this clip in the actual edit. The narrative script elements are complete, now all I need is the visuals to make it understandable.

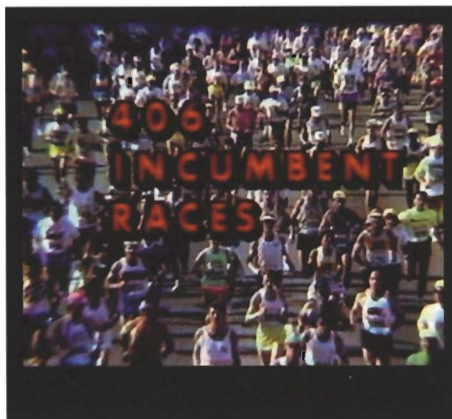
THE PRODUCTION

Monday

I faxed the first few pages of the script to Anti Gravity Workshop. Anti Gravity's specialty is computer effects and animations for feature films. They're great people who do excellent work. The good news is that they want to work with us. The bad news is that at their usual rates the opening alone could cost \$6,000. The total budget for this 24-minute production is less than half the cost of those 15 seconds.

"Thanks, I'll give that some thought," I say sincerely.

With so little time and money, it appears I'll have to create much of the visual interest in the script with video editing tricks using the Toaster Switcher, freeze frames,



luminance keys, ToasterPaint and tiling. In fact, that is probably the only way we can meet our deadline on such a tight budget.

Obviously, a \$6000 quote for the opening 3D graphic makes me receptive to new ideas, but the symbolism of the map of the United States turning into faces of American people still appeals to me.

Tuesday

Computer artist Brian Rembrandt drops by with a reel of photos by Joe Sohm of Chromosohm Media who traveled through all fifty states creating a multimedia presentation called *Visions of America*. Sohm's theme visuals are the faces of young and old Americans framed in a map of the United States matted over a flag. I begin to believe in angels again. Sohm offers his excellent images for the Nader tape and I accept gratefully. I can use Toaster luminance keys to match his visuals with additional material.



Reassured that we can stay true to the spirit of the original opening and stay in budget too, I go back over the script to distill out sub-elements into an Effects (EFX) Sheet that can be circulated among a number of artists to see who can do what. It is clear now that the only way we'll get this done in time is to spread the work out among a number of different people so no one individual is asked to do very much. Sort of like making stone soup.

As video people, not animators, our studio has a totally vanilla Amiga 2000—no additional memory or accelerators. We were still running Workbench 1.3. Sure, we had the DPS Personal TBC III and I.DEN TBC cards onboard along with Toaster 2.0, and a serial extender board, but until I started exploring animation, the meaning of life without accelerator boards didn't fully register.

I was in for a deep shock.

My plan was to explore ToasterPaint by making a simple graph showing the plummeting incumbent turnover rate in congress. I planned to draft the graph in Paint and

position tiling from the CG.

The experiment started at 5 p.m. I want to make a series of 2D cells to edit together. Without an accelerator I find I often have to wait 15 minutes for a simple drawing to render. Worse, the smallest changes to the picture seem to take several minutes to appear on the screen. Pulling Paint images through to the Toaster CG takes forever. "Patience," I counsel my adrenaline-drenched heart, "Patience." That night I am able to completely re-string my guitar and learn all six verses of Woody Guthrie's "This Land is Your Land" while waiting for updates on the display screen. At 5 a.m. the next morning I finally make a test tape from my paltry seven sample cells. By 6 a.m. I stumble off to find sleep. I dream of bumping against walls in a dark cave. Suddenly, a blinding blade of light cuts across the darkness and the cave opens to the edge of a deadly cliff. Tantalizing golden towers beckon across a misty chasm, beautiful and distant. I'm trapped in a Hollywood remake of *Lost Horizon*, and Shangri La has a NewTek logo stamped across it.

I wake with that curious blend of fatalism and irrepressible enthusiasm that must drive all Toaster users who have experienced the potential of the unenhanced Toaster package. We can see the future, right here, in our own desktop video rig—but what agony when we realize how far we still are from our goal!

Wednesday

Despite the dream, I still can't face the implications of what I've learned. Denial wins out. I convince myself it's just me—pilot error, learning curve. "Maybe I know enough now," I tell myself, "to do the same experiment much more quickly the second time." Once again, at 5 p.m., I sit down to try a couple of tests. At 5 a.m. the next morning, again, I drag off in quest of sleep. This time I



can't suppress the horrifying truth.

Thursday

All the worst experiences I've ever had in production boil down to a single rule: "If you have a deadline, *never* tamper with a stable system."

Glumly, I tell my partner I've made a decision that contradicts all my better judgment. I can't see that we have a choice. The status quo is not good enough.

We start calling around and learn that the Great Valley Products (GVP) GForce '040 Accelerator board is well thought of. Their offices are in King of Prussia, PA. I make the call. GVP's Sheila Kirby listens patiently to my explanation about the project and the problem. She's great. She says she'll check and see what they can do and faxes us paperwork to fax back so it can be on her desk first thing the next morning.

Friday

Angels again. Sheila Kirby says they'll participate in the project and send an '040 board. The only hitch is that it

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For Joe Conti, professional freelance animator, the Video Toaster is an all-in-one special effects tool: digital video effects, character generator, paint and 3D. It's all there. "With the availability of the Video Toaster, my clientele totally changed. I went from a mid-level, industrial market to a full high-end, broadcast and motion picture, film quality environment."

Joe uses the Video Toaster for a weekly network television series. The client was so impressed with the money saved on the first segment Joe created, that they gave him a contract for several more. "Owning a Video Toaster is like driving a Stealth bomber...it's the most incredible experience. It produces incredibly high-end results for very little investment. The Toaster puts everything you want at your fingertips and at a price that's affordable."



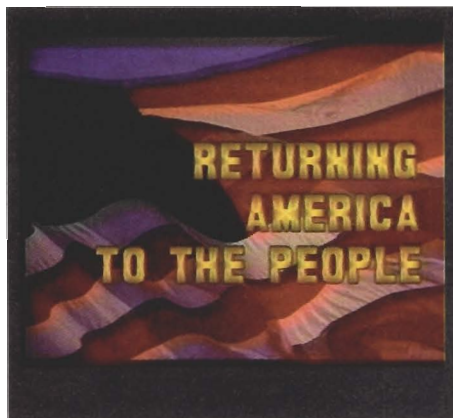
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won't be available until Tuesday. We're grateful. I've had enough nightmares and all night initiations. We'll adjust.

More good news. My detailed EFX sheets are finally getting responses.

Thomas Hollier of Anti Gravity Workshop calls. Thomas is very quick to identify some of our primary needs and works out a way to assist without spending more than a couple of hours.

Sunday

In Pasadena for the World of Commodore, I see Mark Stross, president of L.A.'s Video Toaster Users' Group, in a shirt that looks like a tropical Virtual Reality flashback created in LightWave. Stross cruises the aisles shaking more hands than the governor of a small southern state seeking the presidency. I must be panicking. I buy a Video Toaster keyboard overlay from Jim Plant. It may be like placing chicken knuckles on the path to the village waterhole, but spending money at the Video Toaster User booth makes me feel suddenly calmer.

Monday

Brian Rembrandt, the Mac computer artist, says he will make the graph cells showing how the number of new legislators has declined over the last four decades. Brian creates "Incumbent Man" in a series of 2D cells saved in PhotoShop on a PC format floppy in JPEG.

Tuesday

I take Brian's five disks over to Anti Gravity where Thomas is working on a four-minute animation of artificial life visualizations for The Santa Fe Institute. He takes a break to use *CrossDOS* to read the Macintosh PC formatted floppies, then uses *Art Department Professional's* JPEG loader to import the files for a smooth cross-platform transition. He adds titles and drop shadows in *DPaint* and composites them in *ADPro*.

For my luminance keys, Thomas cleans a map of the United States derived from the wonderful *DrawMap* public domain program which Brian Brown pulled from CIA data files.

Thomas saves all the refined Amiga cells back to disks, and I return to my studio to await the GVP GForce board so I can create my video effects source reel with the Toaster.

Wednesday

While using the system in the morning, waiting for the board to arrive, there is a brief power outage in the area which lasts about ten minutes and then the power goes back on. We have a surge protector at the AC outlet, but the I.DEN TBC starts giving us a problem. Murphy's law strikes again. The engineer at I.DEN is great, says it may have been damaged and that he will send a replacement.

Fed Ex brings the GForce Board. We've been assured that the procedure for installing the accelerator will be no problem, but we first need to upgrade the WorkBench. A hard drive is being sent to facilitate that process. We go to Creative Computers to buy WorkBench 2.0. The technical support at

GVP is great, but something goes wrong when my partner is installing the new operating system. He has damaged the partition and suddenly neither disk will respond. The whole system is crashed.

Thursday

Video It Post calls to say the owners are caught in Hurricane Iniki while visiting Hawaii, but are OK and will participate in the project. I sort of know how they must feel. My video bay is a disaster zone of tangled cables and disemboweled equipment housings. My partner looks worse than the equipment.

I tiptoe around him, putting the finishing touches on my work plan for Video It.

Video It is the key to pulling this project out of the fire in the time remaining. They specialize in high-end D-2 editing. They have configured two master online suites with four Amiga 2500s, each with nine megs of RAM, a GVP '030 accelerator, and a Syquest drive to accommodate clients who bring in Syquest source cartridges. The four Amigas are networked via an Ethernet coax link, allowing them to share a 600 Meg Omega optical drive and a 300 Meg Wren hard drive. In network, they can access pictures from the same disk, transport stills grabbed with a Toaster in one suite to another suite, and share peripherals. Two of the Amigas are equipped with Toasters used for still-store, routing and effects. Two are dedicated titlers using Broadcast Titrer.

My plan is to use their ADO channels, auxiliary Grass Valley 100 switcher, and the exciting "digital pre-read" D-2 capability for digital layering to create effects in a few minutes that would take an animator several days to accomplish. Owner John Kohan-Matlick says that with a PalTex Diad to convert all analog signals into digital, their Toasters are transparent to broadcast quality video. Altogether Video It has one of the slickest synergies of relatively low cost equipment pro-



ducing top quality video in Los Angeles. They suggest Saturday morning. I cross my fingers and say O.K.

Friday

The replacement TBC arrives. My partner takes the crashed system for expert assistance from Creative Computers. He gets there in time to watch other white-faced clients pace the waiting room floor of the Repair department. Sheila Kirby from GVP calls Creative to ask them to give us support. They are princes. He gets back from Creative after 6 p.m. with the Amiga/Toaster now beefy with the GVP board and 120-megabyte Maxtor hard drive. That sounds like good news, but the entire system still has to be reconfigured, integrated and retimed. After the hard drive recovery, files are scattered around between two hard disks. He enters the digital swamp again, transferring 40 megs of material twice. He works until 2 a.m. to reorganize directories and files, to re-install the Toaster, the DPS Personal TBC III and I.DEN TBC cards, and then reinstalls software for the TBCs, multiseri- al board and edit controller.

I get on the system at 3 a.m. to prepare for my 9 a.m. session at Video It. Suddenly, it's all worthwhile. The system sings. I can move between Paint and the Switcher to quickly create CG backgrounds and position titles. I'm able to freeze and clean slides to serve as background elements for luminance keys. In a couple of hours I'm able to do what took me two all-night sessions to accomplish earlier. Turning onto Pacific Coast Highway, headed for Video It, I'm tired, but confident and pleased.

Saturday

Felicia and John Kohan-Matlick are very helpful when I arrive. Editor Tom Reichlin and I breeze through the work list. The Toaster is right at home in this high end installation, and is a workhorse for generating digital effects, titling and frame stores.

We experiment with dual keying using the Toaster and the Grass Valley keyers together to create elements I will turn into wipes back on my own Toaster. We freeze one of Sohm's slide images from the graphics camera, and fly in Toaster frames using the ADO. We use the Toaster "snow" background effect in a series of digitally layered dissolves and wipe patterns to illustrate the way that real competition against incumbents tends to vaporize. Tom helps me construct a sequence to show graphically that out of 406 House of Representative races in 1990, less than 30 (under 8%) were actually competitive races; 79 had no competitor at all, and 297 had challengers who couldn't raise enough funds to be considered economically competitive. On the other hand, 92% of all the special interest, corporate and PAC money raised went to incumbents.

I leave Video It very happy, able to bring back to my studio the effects reel I need to amplify Nader's voice over narration.

Over the next three days we complete the full edit. With



the GForce board the Toaster renders frames and CGs rapidly, almost making me forget it could ever be any other way.

Pro West made Harvey's dubs overnight, and he was able to send the tape to organizers and news entities nationwide. They are used in neighborhood gatherings, community forums, cable access shows, and on broadcast news reports around the country.

On October 25 we threw a stone soup party for everyone who participated in making the tape possible, and on November 3 term limit initiatives passed in 14 out of 14 states voting on them.

Patric Hedlund is currently producing a humorous series about adventures on the electronic frontier. She directs and writes thatirical and documentary projects for film and video and can be reached at

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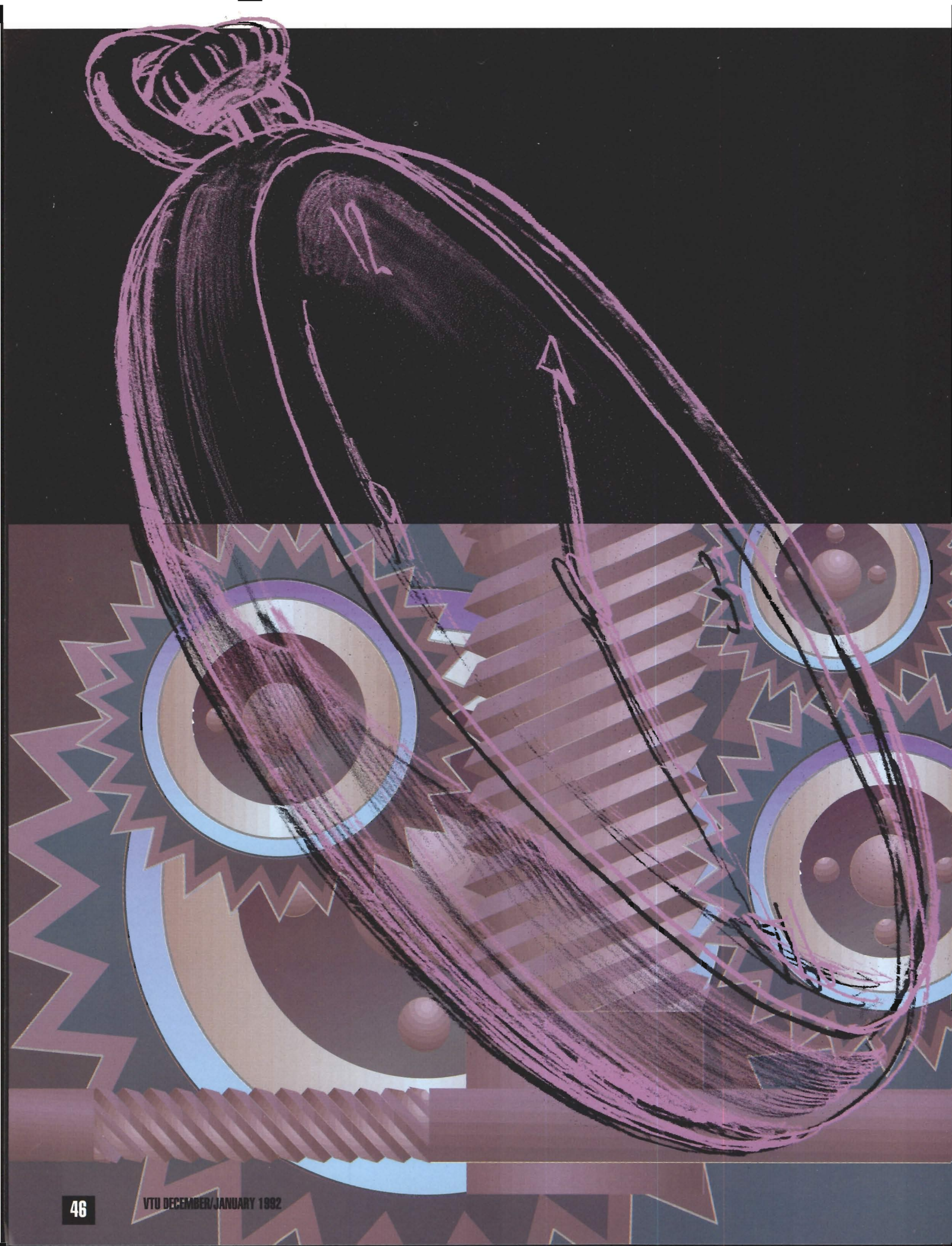
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VT193



TIMING IS EVERYTHING

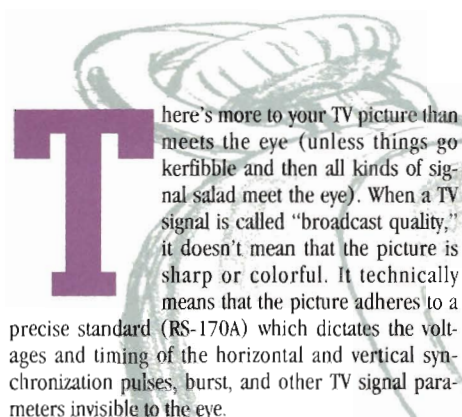
VIDEO'S

TIMING

SIGNALS

PART I

by Peter Utz



There's more to your TV picture than meets the eye (unless things go kerfuffle and then all kinds of signal salad meet the eye). When a TV signal is called "broadcast quality," it doesn't mean that the picture is sharp or colorful. It technically means that the picture adheres to a precise standard (RS-170A) which dictates the voltages and timing of the horizontal and vertical synchronization pulses, burst, and other TV signal parameters invisible to the eye.

When these timing signals go astray, everything on your screen goes astray. Kicker sync and burst signals keep your picture in the right place on your screen (centered, not jumping, jittering, or sliding sideways) and maintain proper color (not magenta faces, not rainbows or color streaks, not flashing, and not monochrome).

Comedians and videographers both flop unless they respect and employ good timing. This series of articles will first explore the basics of video signal timing and its importance to a stable TV picture. In the next article we'll address *system timing*, the art of getting several video machines to work together, especially those that feed the nerve center of your desktop studio, your Toaster.

How Video Works

First a mini science lesson. Your TV set makes a picture by sweeping an electron beam across the screen in a pattern much like your eyes take when you read this article. The beam sweeps one line, turns off at the end of the line, zips back to the beginning—but just a little lower—and sweeps another line across the screen. When it reaches the bottom of the screen, it shuts off, zips to the top, and resumes

sweeping another set of lines. It scans 15,735 of these lines on the TV screen each second.

The signal that turns off the electron gun at the end of each horizontal sweep is called *horizontal sync*. It's the black bar you see at the edge of the TV picture when you misadjust your horizontal hold and your picture collapses into diagonal lines. The signal that turns off the electron beam at the bottom of the picture and starts it again at the top is called *vertical sync*, and is the black bar you see when you misadjust the TV's vertical hold. Both of these sync (short for synchronization) signals play an important role in holding a stable picture on your TV screen. A third signal called *video* tells the electron beam how hard to shoot, illuminating the screen phosphors, making them brighter or darker. For color TV, a fourth reference signal is added, called *burst*. Burst is a very precisely tuned frequency (about 3.54 MHz) which sets a standard to guide the color circuits in your TV. Oscillations in the video voltage (a part of the signal called the *subcarrier*) are compared to the burst oscillations and the phase difference between the two determines what color is to be shown.

All of these signals are mixed together in what is called *composite NTSC video*. Composite means that the color (chrominance) oscillations are mixed with the black-and-white (luminance) oscillations and are further combined with the sync signals. All of these signals converge to create a stable color picture traveling over one wire.

When Things Go Wrong... Go Wrong...Go Wrong...

Your TV monitor, when it is sent no video signal, makes its own vertical and horizontal sweep signals, painting a picture of gray (called a *raster*) across your screen. When you send a video signal to the

monitor, it "locks onto" the incoming sync signals while the video portion of the signal fires the electron gun strongly and weakly to create the light and dark parts of the picture.

When all goes well, the first horizontal line in the composite video signal matches the first sweep of the electron gun on the TV. The same is true for the third line, the 211th line, etc. When the two match exactly, you have a smooth stable picture.

Sometimes the sync signal goes astray and the TV loses track of where it should be scanning. The video source may be sending the 50th line of the picture while the TV monitor may be drawing the 100th line on its screen. If the 50th line appears where the 100th line belongs, the whole picture is shifted downward. You are likely to see the bottom of your picture at the top of your screen, followed by a black bar, followed by more picture. Your picture may be stable, it's just in the wrong place.

Similarly, the horizontal sync could be early or late, shifting your TV picture to the left or the right of where it belongs. TV sets usually adapt to whatever information is sent to them, even if it is wrong, correcting the picture problem in the blink of an eye. Sometimes the error is so great the TV cannot "lock on" or the frequency may be beyond the sweep capability of the TV. For instance, TVs want to scan 15,735 sweeps per second while common computers often generate an image made of 31,500 sweeps per second. This is one reason why many computers need special monitors to display their pictures.

And let's not forget burst. If the burst part of the TV signal is late compared to the rest of the signal, your colors will be off. You could adjust for this by tweaking your TV's hue control until all of the colors came back into line. The video signal is still wrong,

TIMING THROUGH THE YEARS

In the days of ancient Greece, an hour was defined as 1/12th of the day, but the day was measured from sunrise to sunset. Thus the day time hour was longer in summer than in winter.

Until time zones were standardized around the middle of the 19th century, each town had its own time, determined by the local jeweler. All clocks and watches for the community were set to match the jeweler's time. This made long distant travel quite confusing. For instance, the railroad terminal in Buffalo, New York had four clocks to consult when examining a railroad schedule: one showing Buffalo time, one showing the time in Portland, Maine, one showing New York Central Railroad time, and the fourth showing Lake Shore Railway time. Each railroad operated on a different time, usually determined by the time in the largest city the line served.

The most accurate time measuring device is the twin atomic hydrogen maser installed at the U.S. Naval Laboratory. It is accurate to within one second per 1,700,000 years.

TV signals require very precise timing. The NTSC video signal has a horizontal frequency of 15,734.264 hertz and a subcarrier frequency (burst) of 3.57954545455 MHz. You can see from this how video signals require very precise timing mechanisms.

but at least you can compensate for it with your TV.

In short, if the sync signals are early or late, they will push the picture vertically or horizontally on your screen. If burst or subcarrier is early or late, it will change all of your colors to the wrong colors.

Sometimes, when your TV cannot "lock on" to the sync or burst signals, the picture slides across the screen. Somehow, the TV is making its own picture without listening to the guidance of the sync signals. The TV is creating one drumbeat for its electron gun to follow while the TV signal has another drumbeat which is slightly faster or slower than the TV's; thus, the picture slides. The same is true for burst; if it is listening to its own reference and disregarding the video signal's burst reference, the colors may flutter, rainbow, or cycle from one to another. This might happen if the video signal's burst oscillations were happening just a few cycles per second faster than the TV's burst oscillations.

A third problem involves instability. VCRs are notorious for making unstable sync signals. The tape, as it moves through the machine, stretches, wiggles, shakes, vibrates, and does other microscopic gymnastics which delay or advance the composite video signal as it plays from the machine. The TV is now forced to follow the bad timing from the VCR. These time base errors, when small, create pie-crusty edges to smooth objects. The bigger the error, the rougher

the pie-crust until the picture visibly shakes, squirms, jitters, perhaps rolls, or collapses altogether. The color may also go astray as the TV makes blurry, splotchy colors, flashing colors, sometimes the wrong color, sometimes no color at all.

More Than Just the TV

Your TV set is just the last link in a long chain of electronic devices carrying a video signal. The signal may emanate from a camera, computer, character generator, or VCR. It could pass through a switcher, special effects generator, processing amplifier, color corrector, video image enhancer, time base corrector, a Toaster, or any number of video gadgets. The signal could be transformed from a foreign standard (i.e. SECAM, or PAL) to the American NTSC standard, or could be scan converted from a computer signal to a video signal. All of these machines speak the language of vertical and horizontal sync,

burst, and video levels. All must understand the drumbeat of the video signal and synchronize their electronics with it. Any twisting, bending, jittering, or other woes seen on a TV screen may have been introduced elsewhere in your video system; something may have created bad timing, or distorted the timing as it passed through a particular box.

No machine is perfect. Every machine that the video signal passes through on its way to your TV set adds a little error to the timing or to the color. (Each apparatus also reduces the picture sharpness and adds noise or graininess to your picture, but that is another subject.) Some machines (TBCs for instance) can ameliorate or correct certain errors but usually exact some toll in another part of the picture. The first law of video is: *Pass your signal through as few devices as you can, and when you must add another link to the video chain, make it a good one.* Cheap video equipment adds noise and timing errors to the signal. Expensive equipment adds much less noise and error. Some machines (i.e. television sets) are forgiving and can even hide timing errors. Other machines (i.e. computers with genlocks, and video editors) wretch when fed errant or wayward video signals.

The Importance of Sync Generators

Nearly every machine that makes video pictures makes its own sync to go along with it. TV cameras and camcorders, for instance, have internal sync generators that send out sync signals as part of their composite video. Many computers, character generators, and other video gadgets create their own internal sync, too.

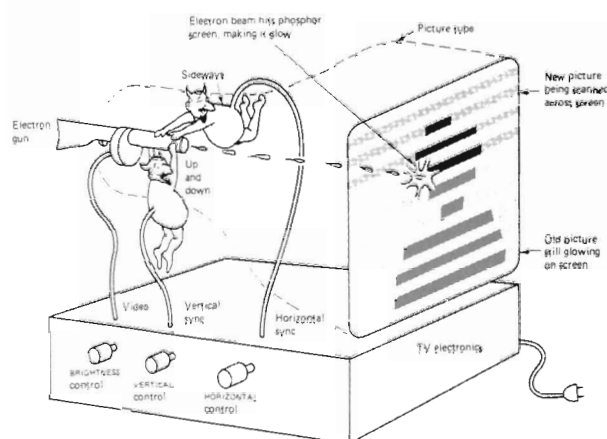
Most industrial video gear (but generally not consumer cameras and camcorders) can accept *external sync* from outside the machine. A separate *sync generator* could send the sync signal to a TV camera or whatever, which in the *external sync mode* will combine the outside synchronization pulses with its own video signal and send out composite video. Computers with genlock boards and time base cor-

rectors with genlock inputs all have this capacity.

One advantage of having an external sync generator is that instead of relying on a machine's \$25 internal sync generator which makes adequate but not perfect sync, you can buy a more expensive, high quality sync generator to drive your system. Your video signals will now be more stable and more precise.

There is a bigger and more important reason for

How TV Works



From Today's Video, Courtesy of Prentice Hall

having an external sync generator and using video equipment that takes external sync. When you want video equipment to work together, it must all be synchronized to *the same source*. One master drumbeat must control all of the video equipment if their pictures are to be mixed, superimposed, keyed, or any special effects are to occur. How this happens will be the subject of next month's article.

To Review

The television picture you see results from the precise timing of many events. This timing information is embedded in the TV picture as sync signals just off the edge of your picture. Stable TV pictures require rock-solid sync or else they jitter, tear, roll, or collapse into diagonal lines. If you ever see these maladies on your screen, you probably have a sync problem. If your picture is off-color (and you're not watching an Andrew Dice Clay comedy routine), you may have a burst or subcarrier problem.

Every television device must deal with sync in some way, and each runs the risk of upsetting the sync timing and disturbing your picture. VCRs, for instance, are notorious for sending out video signals with jittery, unstable sync. TVs, on the other hand, are very forgiving of these irregularities and present a fairly stable picture despite the errors. Other machinery in your television setup may be less tolerant of these instabilities, requiring that the sync be nearly perfect before they will pass the signal through them. This is true of computers with genlocks, and especially true of the Toaster. The Toaster needs to be fed a stable sync signal, like that from a camera or sync generator or *time base corrected* VCR in order for it to "lock on" to the signal and mix its own signals with it. If you're mixing video signals from several devices, they must be synchronized together.

It's time to shut off my electron gun and zip to the beginning of next month's article on system timing. See you then (if I don't burst or sync).

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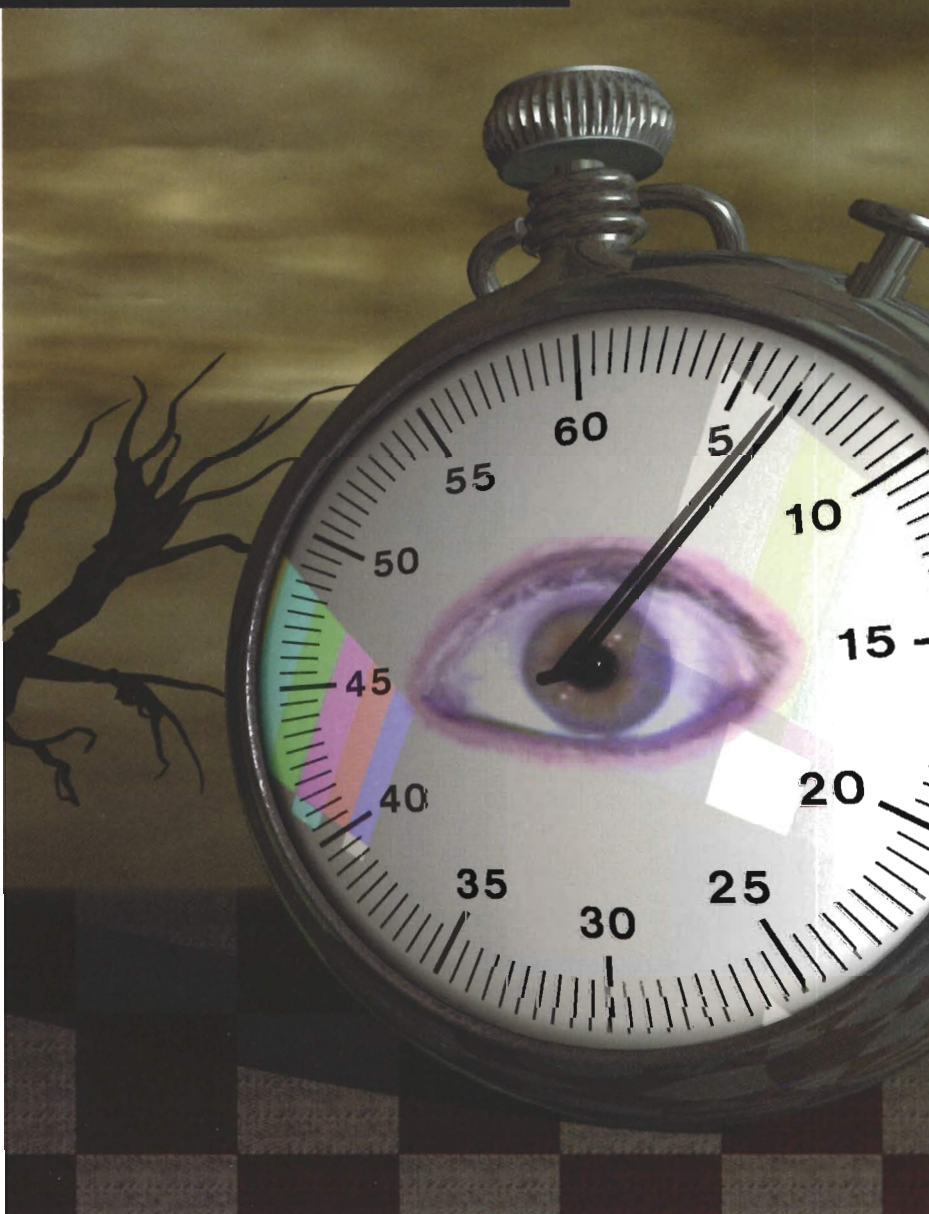
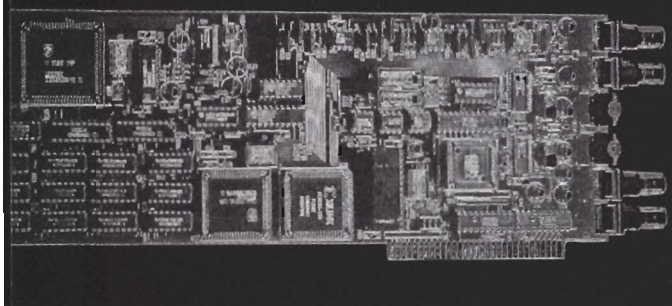
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Using a TBC with Your Toaster

by Jerry Gainor and Stuart Sweetow



If you have ever tried mixing signals from two VCRs into your Video Toaster you've probably seen the need for a time base corrector (TBC). Signals from VCRs are not perfectly stable; put two VCRs together and you have added instability. In order to get two VCRs to lock to each other, the signals need to be synchronized together and the time base errors need to be corrected.

What is "time base error?" It is the imprecise speed of each video scan line during VCR playback. When viewed on a monitor, and even when copied onto another VCR, this minimal error (measured in nanoseconds) doesn't present a noticeable problem. But when you try to connect even one VCR directly to a video switcher such as the Video Toaster that expects perfect "timing" the results are rolling and signal breakup; in short, a mess.

Digitized Video

If you know a little about the Video Toaster you know that it digitizes video signals in order to modify them. An infinite-window TBC (more about this later) works very much the same way. It digitizes each scan line of video, then very rapidly reduces the video noise (grain) and, if designed to do so, corrects the color. It then releases the line of video at the precise moment that permits alignment with the previous scan line. And if the TBC is doing its job correctly, this happens precisely every 63.5 milliseconds, or at each horizontal scan.

Signals from video cameras and most laser disc players do not need time base correction. Videotape is very pliable and subject to stretching and shrinking, so it may not play back each scanline at the precise moment resulting in, you guessed it—time base error.

Video Synchronization

TBCs also stabilize the synchronizing part of the video signal. In fact, they add new, clean sync to the video copy thereby eliminating most glitches, rolls and shakes.

The more sophisticated TBCs have digital video noise correction. The signal is sampled and the grainy video noise is eliminated. TBCs that include a processing amplifier (proc amp) allow control of color, brightness and contrast. TBCs with a built in synchronizer can lock on to virtually any video signal including those from consumer VCRs. Without a synchronizer, you need an industrial VCR that accepts external sync.

What's Out There: TBC Shopping

Time base correctors are not cheap, but they have come down drastically in price. Development of TBCs in the form of a computer card has further driven down the cost of TBCs. Several manufacturers have TBC cards, with new developments of this type of TBC appearing every few months. More on TBCs on a card later. Some manufacturers have included mini TBCs in a few of their high-end consumer camcorders and editing decks. When incorporating a TBC into your video studio, keep in mind your needs now and in the near future, as even the least expensive one is not cheap. Saving a few dollars now on a TBC which needs to be replaced in the near future is false economy.

TBC In a Camcorder, TBC In a VCR

Sony's top of the line Hi-8 consumer camcorder, the CCD-V5000 (about \$2500), has a built in mini TBC. While not as sophisticated as industrial TBCs, the V5000 makes a good source VCR for working with a Video Toaster. Similarly, the Sony EVS-3000 Hi8 prosumer editing VCR has a built in TBC. You do not need to send either one of their signals to an external TBC before going to the Toaster. Keep in mind that these

How Much Correction Do You Need?

The tradeoff of using a consumer VCR with a built in TBC is that the TBC works only with that unit and offers only a few lines of correction. Smaller TBCs like these are capable of correcting only small signal errors. Larger errors will not be corrected.

More sophisticated TBCs, usually standalone models, incorporate 16 lines, 32 lines or a full frame (525 lines) of time base correction. Full-frame (or infinite window) TBCs are needed if you're using consumer VCRs as playback decks. The 16- or 32-line TBCs are designed to be used with industrial VCRs that have external sync. The full-frame TBCs have built-in synchronizers and therefore can lock on to a consumer VCR. This is especially important to note if buying a used TBC as in the past 16/32 line TBCs were very common when memory chips were expensive and buying an infinite window TBC was a luxury.

Amigas, Toaster And TBCs

The Video Toaster board for the Amiga computer has created a large demand for low-cost TBCs. The Video Toaster is a combination digital effects generator and video switcher. If you want to add Toaster effects during video

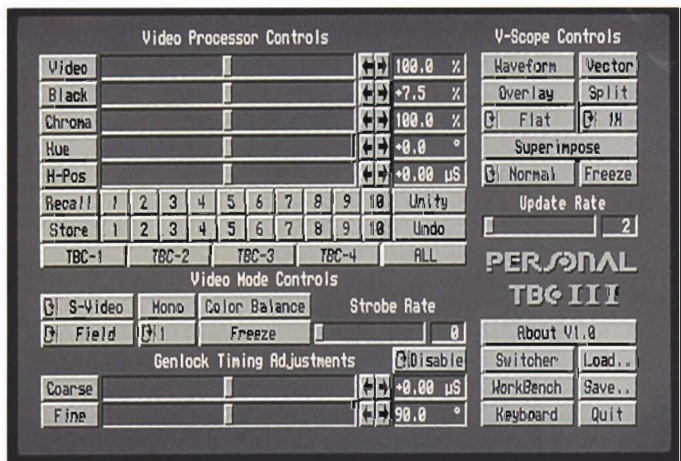
drop-out compensation. Some units require extra control boxes for proc amp controls while still others offer software control that can multi-task with the Video Toaster.

DPS (Digital Processing Systems) recently released the TBC-III (\$995.00 list) a third-generation TBC board. Besides including great software to control the board, new improvements include rock-solid freeze, variable strobe and forced monochrome. Until this release most TBCs cards offered jittery freeze frames at best. This card has Y/C in but not out. This is fine in a Toaster-only system as the Video Toaster has only composite in. However, in many video suites availability of Y/C in and out is important.

I.DEN's TBCard/TR-7 (Remote Box) (\$995.00 + \$195.00-TR-7 list) provides for hardware-only control of proc amp functions. Having Y/C and composite in but only composite out. The freeze frames/fields exhibited some jitter in all the units tested and video I/Os are all RCA connectors (with BNC converters). In the



I.DEN TBCard with TR-7 Remote Control Unit



DPS Personal TBC III Software Interface

consumer units are far from frame accurate. If you want accuracy in your Toaster editing system, use industrial editing VCRs such as the Sony EVO-9850 or EVO-9700 for Hi-8 and the Panasonic AG-7750/AG-7650 for S-VHS. All of these decks have built-in TBCs and only require external TBCs if used in A/B-roll configuration, about which more later.

editing, you need a TBC for each playback deck. To fill the demand for Amiga users with Toaster boards, companies such as Digital Processing Systems, I-Den, Prime Image, Nova Systems



Hotronics AP-41

and Feral Industries offer single-channel TBCs on a board that plugs into an (PC) expansion slot on an Amiga or even an IBM PC.

These newly developed boards are complete, full-frame TBCs that cost around \$1000. While their quality is great for the price, the limitation is that some models do not have Y/C (chrominance-luminance separated) output connectors for better Y/C processing nor do they have

Toaster environment, where all your cables are coming into the back of your system, it's nice to have locking BNC connectors with RCA converters if needed!

Prime Image's TBC/PCB (\$1,050 + opt.Remote \$290 list) offers both software control (included) and remote control (extra). This unit has both Y/C and composite in and out. As well, it transcodes Y/C to Composite and Composite to Y/C.

TBCs With Proc Amps, Noise Reduction, Y/C and DOC

Moving up from TBCs on a card, we find standalone units with these standard features: built-in proc amps, Y/C connectors in and out, and dropout compensation (DOC), either built-in or optional, and even digital noise reduction. Units such as the standalone I.DEN



DPS personal TBCs

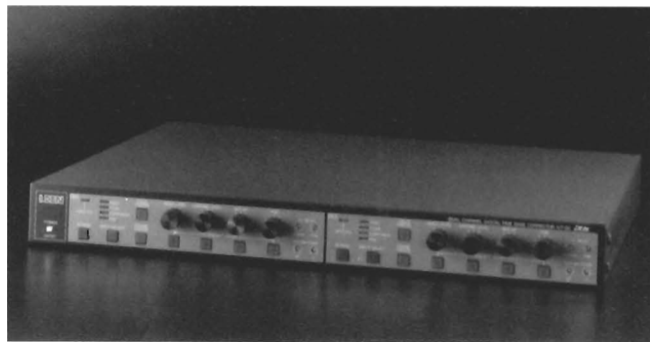
IVT-7 (\$1900 list) and the Hotronics AP-41 (\$1095 list) are full-frame TBCs with built in synchronizers, Y/C inputs and outputs and transcoding between composite and Y/C separated video. The IVT-7 includes built in dropout compensation while the AP-41 offers it as a additional-cost (\$200 list) item. The AP-41 can be upgraded by adding modules for freeze frame, strobe, and digital comb filter.

Most of the companies mentioned have more sophisticated models available which can include full transcoding between Y/C, 3/4-inch dub, Y/R-Y/B-Y, and composite, high-bandwidth greater than 6.5 MHz, variable noise reduction, digital effects, comb filters, 3.58 subcarrier feedback, etc. Your video system is only as good as its weakest link, so plan carefully.

A/B-Roll Editing and Digital Effects

The next step in TBCs are the dual channel TBCs. Whenever you perform A/B-roll editing (dissolves, wipes, etc.), using two playback VCRs together, both need time base correction. An interesting exception to this if one of the source decks has a built-in TBC. In this instance, you will only need one additional TBC. If your add-on TBC has a genlock input, and most do, it may allow you to input your corrected VCR into the genlock input while using your B source, with internal correction, as the normal input. In this case, the sync out becomes your Video Toaster Input 1, while Input 2 has the regular composite video out of the additional TBC. Your entire system is then timed to your A source. Stopping your A source deck or, worse yet, turning it off, results in turning off the sync source upon which the Toaster is relying for a reference signal. If the screen becomes temporarily hard to read, trigger a Toaster transition after restoring the signal from your A deck. If this fails to correct the problem, you may need to restart the Video Toaster. This minor inconvenience is a small price to pay for such a low-cost solution. I strongly urge you to try out your hardware with the TBC under consideration before you buy. Models change constantly.

The Kitchen Sync (\$1895 list + \$129 Y/C out +



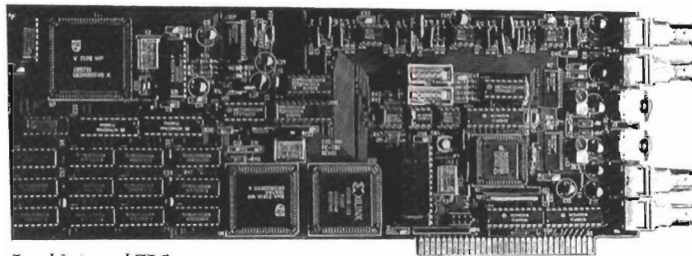
I.DEN IVT-7 TBC

\$189 genlock options) from Digital Creations is one of the newer low-cost dual-channel TBCs. The unit is comprised of both a plug-in card and an external control box. It's a full frame TBC with color correction and Y/C and composite in as standard (Y/C output optional).

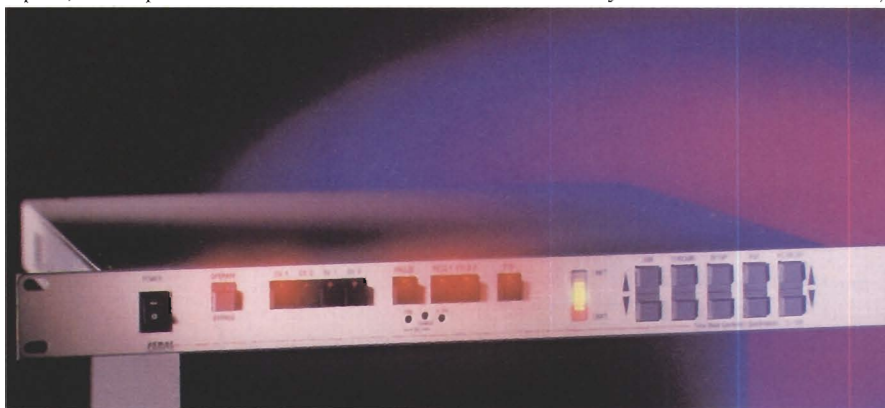
Panasonic's Consumer Digital Video Mixers

Recognizing a prosumer market for lower cost A/B-roll editing, Panasonic has introduced a line of what they call "video mixers". The latest entry, the AVE-5, is an A/B-roll capable, digital special effects unit with built in dual channel quasi-TBC, all for only \$1800. While the unit doesn't actually correct time base error, it does have two full-frame synchronizers that help stabilize the picture and allow for dissolves and other A/B-roll effects.

The AVE-5's specifications are a far cry from the more sophisticated broadcast quality TBCs, but the picture quality is adequate for low-budget video productions. The \$3000 WJ-MX12 offers higher resolution; 500 lines instead of 370 (Y/C) and better signal-to-noise ratio (S/N)—55db vs. 46db (Y/C)—plus other improvements. Another low-cost alternative to dual-channel TBCs is that some users have used the AVE-5 as a dual TBC with their Video Toasters. The exact method has been published elsewhere. This does not work with the WJ-MX12



Feral Internal TBC



Feral C-100 TBC/Synchronizer

as it only has one internal frame synchronizer.

Monsters, Waveform and Vectorscopes

A recent ad for Digital Processing Systems' Personal V-SCOPE (\$995 list), a waveform/vector scope card, shows a green-faced bride on a video monitor. The ad states that their card will diagnose color problems before your video productions turn your clients into monsters. It's true, especially doing A/B-roll editing, that you will run into problems determining which is off-color; your monitor, your camera's color balance or your TBCs. A waveform monitor displays the sync portion of the signal along with the brightness level. When you adjust the luminance control on your TBC, the waveform monitor lets you make sure it doesn't get too hot. The vectorscope displays a pattern that allows you to accurately align the hue and color saturation. Unless your color monitor is properly adjusted, you don't want to rely on it for color accuracy.

In the past, waveform monitors and vectorscopes

cost around \$2,000 each. Recently, some companies have come out with circuits that allow a standard monitor to display these test patterns. The VM-2000 Personal V-Scope from DPS turns a video monitor into a combination waveform/vectorscope. You can either use superimpose the display on your Toaster's

Program output or dedicate a separate monitor. The package includes test patterns for loading into your Video Toaster's framebuffers as well as full instructions for interpretations. The Personal V-Scope integrates fully with the company's TBC software.

Desktop Video

Personal computers are being used in newer ways to augment video production. Traditionally they been used for titles, graphics, animations, editing and even audio. Now they are used to house video processing boards such as low-cost TBC cards and other signal processing equipment. The development of these cards has allowed video producers on a tight budget to take advantage of TBCs.

This "prosumer" market has also encouraged the development of inexpensive standalone TBCs. Several smaller companies tried to enter the market a couple of years ago with low-cost standalone TBCs. But the units had problems and the companies weren't large enough to support much research and development. Fortunately, more established manufacturers such as Prime Image, DPS, and I.DEN—companies with a track record with higher level broadcast TBCs—have entered the prosumer video marketplace. No doubt more TBC manufacturers will join them as the prosumer market expands and desktop video become a reality.

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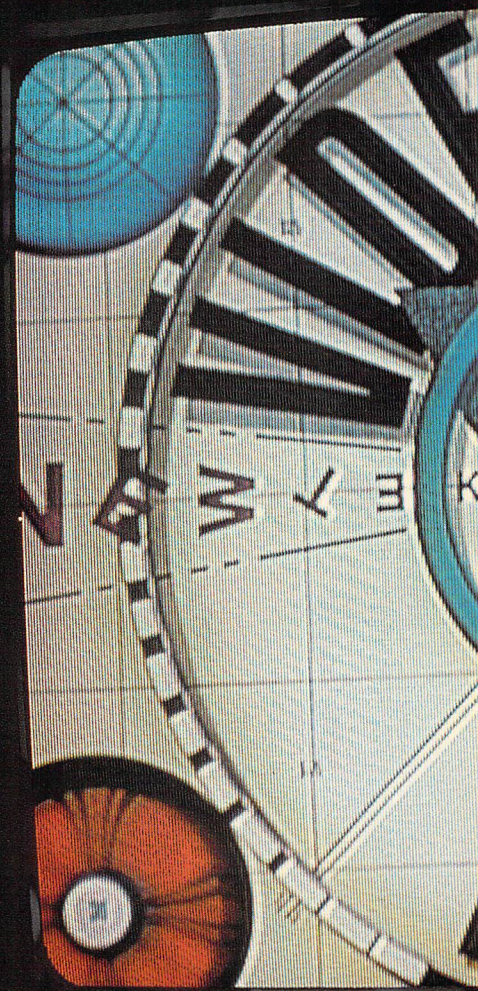
Stuart Sweetow has been involved with in video production for the past 20 years, teaches at UC Berkeley and Bay Area Video Coalition. He is the owner of Audio Visual Consultants, an Oakland, California based video company.

Jerry Gainor has worked in video for more than 19 years and has produced graphics and animations on the Amiga for over six years. He currently teaches Video Toaster and Amiga Video classes at the Bay Area Video Coalition and is the head of the Graphics & Animation Division at Audio Visual Consultants.

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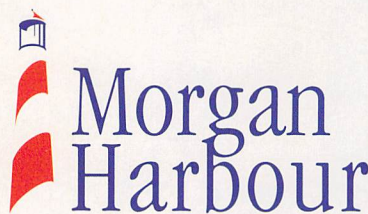


TOASTER Link

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.

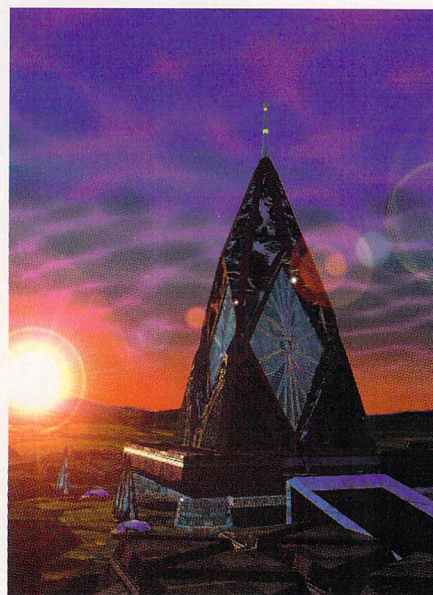


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the world's most powerful print graphics computer. Now, the promise of professional video on your Mac is a reality with ToasterLink.

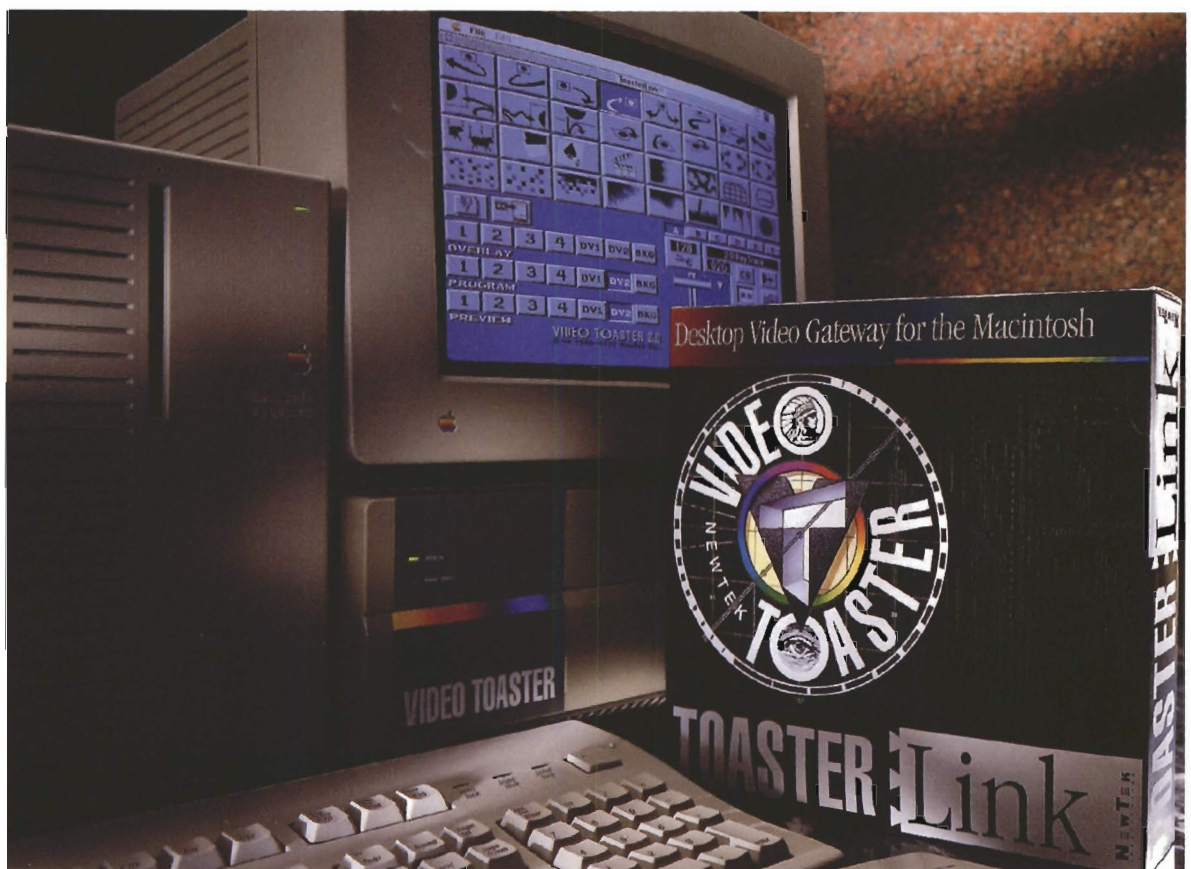
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ary product (the first two
being VisiCalc, the first
spreadsheet, in 1979, and
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I n t e r v i e w w i t h

Mike Danger

b y M i c h a e l B r o w n

There are many stories of how the Video Toaster has enabled people to take on projects that would have been impossible for them before, but here's a story that's truly an inspiration.

Imagine performing a remote shoot and subsequent editing session with your eyes closed. Impossible, right? Well, no one's been able to convince musician, talent manager, and video producer Mike Danger of that. Danger has built a very successful independent video production business, Rockasaurus Productions, in Pensacola, Florida. He has produced music videos, broadcast commercials, home exercise videos, and an internationally successful syndicated television show about professional wrestling. What makes Danger different from most other successful video producers? Danger is blind, having lost his vision in a severe automobile accident six years ago.

This story would only be slightly less remarkable had Mike been an experienced video producer before he lost his sight, but the fact is that Mike became a video producer only after he lost his sight.

Video Toaster User: *If the question's not too personal, Mike, can you tell me how you lost your sight?*

Mike Danger: I was driving home from New Orleans one night on a four-lane highway, and an 18-wheeler with

no lights on pulled out in front of me from a side road. I had no time to react and had to go underneath his trailer. Glass from my windshield got into my tear ducts and eventually severed my retinas. The doctors tried to repair the retinas, but after about the fiftieth surgical procedure, I lost my sight altogether. After two years and about 40 more operations, a period during which I regained my

sight twice only to lose it twice more, I decided that the pain from all those surgeries wasn't worth it and I should just get on with my life.

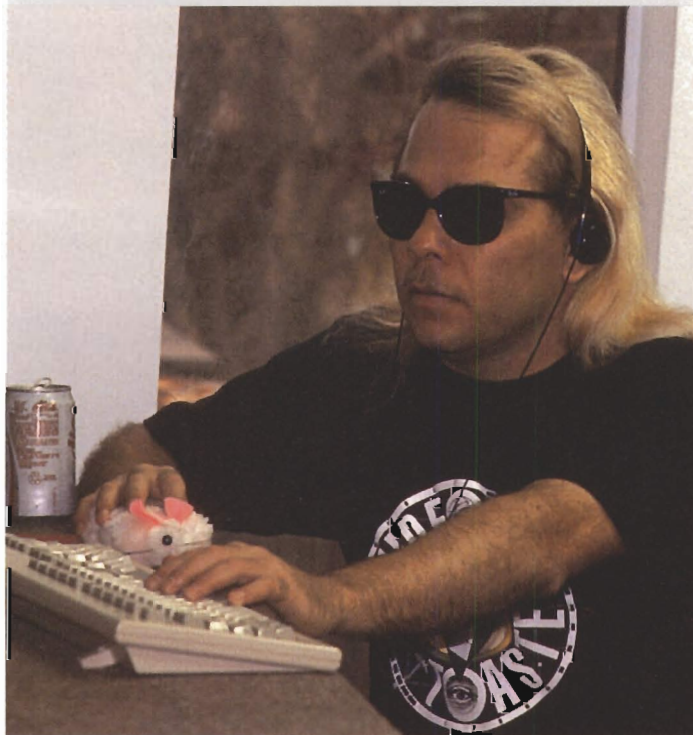
VTU: *Tell me about your professional and educational background.*

MD: I graduated high school and had some college before the accident. I have an Associates Degree in Business Management. But I was also a professional skateboarder, a professional surfer, and I was in a band, and all those things seemed to make more money and to be more of a profession than going to school. I was enjoying myself and making money and getting to travel. I didn't get to do that in school.

VTU: *Were you interested in computers at that time?*

MD: I was never interested in computers. I actually hated the word computer. I always associated computers with those nerdy types with the pocket protectors, but the Division of the Blind persuaded me to take some computer classes. They thought I could learn to use a computer for music or at least learn how to type and use things like that to help me in the future.

The people at the Division of the Blind know me—I'm not going to say as a hard case—but I don't fit into their mold of a typical blind person; I mean I've been involved with wrestling, column writing, and parachuting. I know they look at me and just shake their head. They want to send me to all these courses to learn how to be blind, and I want to skip all that. To me, being blind is not



something that a sighted person can teach you. They can give you hints and all that may be good for the average non-sighted person, but not for me. To be honest with you, I did some research and I found out that none of the people who have gone through those courses have gotten a job because of them. They may have gotten some training out of it or something on the side, but nothing that I would consider a job.

VTU: *Nothing meaningful.*

MD: Right. They might offer you this thing where you can open your own little store in the courthouse or the shopping center, but basically, you just sell candy bars or sandwiches or stuff like that. I said "uh-uh, that's not me."

VTU: *But what made you decide to get into video production, which is a visual medium by its very nature?*

MD: I figured I was going to be blind, so there's not going to be a whole lot of things I'll be able to do as far as getting a job that I'm going to enjoy. Even before I'd lost my sight I'd bucked the system and done what I enjoyed. I didn't care if people said "No, you shouldn't do that." I want to enjoy life. When I was growing up, I always thought there had to be a way to make a living out of what I enjoyed doing—not sit behind a desk.

VTU: *So what did you do then?*

MD: I did take a typing class, and I learned how to program and how to use an MS/DOS computer. While I was taking those classes, I heard about the Video Toaster. I had quite a bit of experience with music recording and a little bit of experience with video. So, to put it mildly, I got a wild hair that I wanted to put together an audio/visual production studio.

VTU: *How did you go about doing that?*

MD: I went to the Division of Blind to see if they could help me with my plans. I put together a proposal that I wanted them to submit to the State of Florida to get a grant to get me started. I wanted a Video Toaster, some DAT audio recording equipment, and some audio effects. At that time, I didn't know anything about the Toaster other than it did some neat stuff. The people at the Division of the Blind said they would pursue the grant, but they said they didn't think I would get it. My proposal was thorough enough, though, that it convinced the state that I could make a go of the project, and they gave me the money and the equipment to get started.

VTU: *What did you do when you got the Toaster? How did you learn to use it?*

MD: In the beginning, it was a real nightmare. The people at the store where I bought my Toaster didn't really know what they were doing. My problems in the beginning really had little to do with the fact that I was blind. For example, these guys didn't tell me that I'd need a time base corrector to work with prerecorded video, and once they had gotten my money, they weren't really interested in helping me anymore.

VTU: *So what did you do then?*

MD: I called NewTek and got in touch with Christina Knighton. Bam! Here was this person who knew more about video and the Toaster than the people who sold me the stuff in the first place! She opened my eyes as to what I needed to do to get this thing to work. She spent hours and hours with me teaching me about TBCs and things like that. Once I got a TBC, I was able to really start working with the Toaster.

VTU: *So, what kinds of productions are you involved with?*

MD: I do a lot of local commercials and I've done several music videos and an exercise video, but one of my biggest ongoing projects is a show that I co-produce with Adrian Street called "The Exotic World of Wrestling."

VTU: *How did you get involved with that?*

MD: When I first lost my sight, I became a professional wrestler as a way of giving society 'the bird' and saying 'I'm going to do whatever I want. You can either like it or not.' I met Adrian when I first started wrestling and I began helping him produce the show. I'd give him my ideas and he would put them on tape. We had heard of the Toaster, but no one really knew what it was capable of. Before I bought the Toas, we were using a Macintosh to

"75% OF THE TIME, USING
AUDIBLE CUES LIKE THAT, I
CAN EDIT JUST AS WELL AS
ANYBODY ELSE CAN."

do very simple graphic overlays. Now that we have the Toaster, we're doing a lot more production work. We're doing a lot more than just overlay words over pictures.

VTU: *Like what?*

MD: We buy footage from other sources, add live interviews, make rock-n-roll videos out of it. We make more than your standard wrestling show. We use standard footage, but add Toaster effects that make people wake up and really look at it. It's doing extremely well overseas right now.

VTU: *Is there something about the Toaster that makes it easier to use than a stand-alone switcher, character generator, and digital video effects processor?*

MD: The thing about the Toaster is that all of those tools are combined into one package that fits into a very small space. It's much less complicated than if you went out and bought separate packages for everything and then tried to get them all working together. The thing about NewTek is that they stand behind their product. They will give you all the information you need, one way or another. You can call them and they will do whatever it takes to get the product working for you. They'll not only tell you how to do something, but they'll go 10, 20, or 30 steps beyond that to make sure that their solution will work with whatever equipment you have. A lot of companies won't do that, they won't spend that kind of time with a customer.

VTU: *How are you able to edit video, without being able to see it?*

MD: I do have an assistant that tells me what's going on, but there are also times when I work by myself. If I'm working by myself, I edit by listening to the sound track. If somebody on the tape walks through a door—opens and shuts the door—I can use the sounds of the door opening and shutting as edit points. I can also use footsteps, people talking, and other audible cues to find my edit points. I'd

say that 75% of the time, using audible cues like that, I can edit just as well as anybody else can. It works out really well that way, and it seems to be pretty accurate.

VTU: *But the Toaster doesn't give any audible feedback. How do you know what's on the computer screen without being able to see it. How do you know which transition effect you've selected, for example?*

MD: My mouse pad has notches in it, so that I can tell where the mouse pointer is going to be on the screen by where the mouse is on the pad. When I'm selecting effects, though, I usually have someone tell me where to start with the mouse. I'm trying to come up with a way of having the computer give me audible feedback, so that I can work by myself more often. I'm not saying that I will always be able to use the Toaster by myself, but that would make it more accessible when I am working by myself. Or if I have someone working with me, the person working with me won't really need to know anything about using the Toaster.

VTU: *How well would you say you know the Toaster?*

MD: I'm not going to say that I'm the biggest Toaster expert around, because I'm not. It's going to take me a lot longer than some people to learn how to use all of its features, but I'm getting better and better. The Toaster sits right there on the desk and I can access all its capabilities with the keyboard. That's one of the good things about it, it's really accessible. You don't have to be computer literate—you don't have to be a computer nut—to use the Toaster.

VTU: *I understand that you also have a Bridge Board in your system.*

MD: Yeah, I use the Bridge Board to help me read my user manuals. I can always have someone read the manuals into a tape recorder, so that I can listen to them, but using the computer is really better. I have a device called an Oscar, which is basically a scanner that reads text and converts it into a WordPerfect 5.1 file on the IBM PC side of my Amiga 2000. Then I have another product, called Votrac, which is a speech synthesizer that reads the text back to me. Using WordPerfect, I can re-write the text to make it more meaningful to me. When you read a manual to yourself, you interpret what you're reading to make it more meaningful for you. By editing the text file, I can interpret the text the way I would if I were sitting and reading the text and make it more meaningful for me.

VTU: *If the Toaster didn't exist, what system do you think you would be using for your video work?*

MD: The Toaster is one of the coolest pieces of equipment I've seen. Without it, I probably wouldn't be editing video at all. If I were, my editing would be pretty much limited to just simple cuts between edit points. I wouldn't have any transitions—there wouldn't be much else to it.

VTU: *Where do you anticipate going from here? What's next?*

MD: Well, I'm working on a movie right now. It's called "The Bra That Ate LA." I'm working on the music and I hope to be working on some of the post production work for that project.

VTU: *So, you're a musician too?*

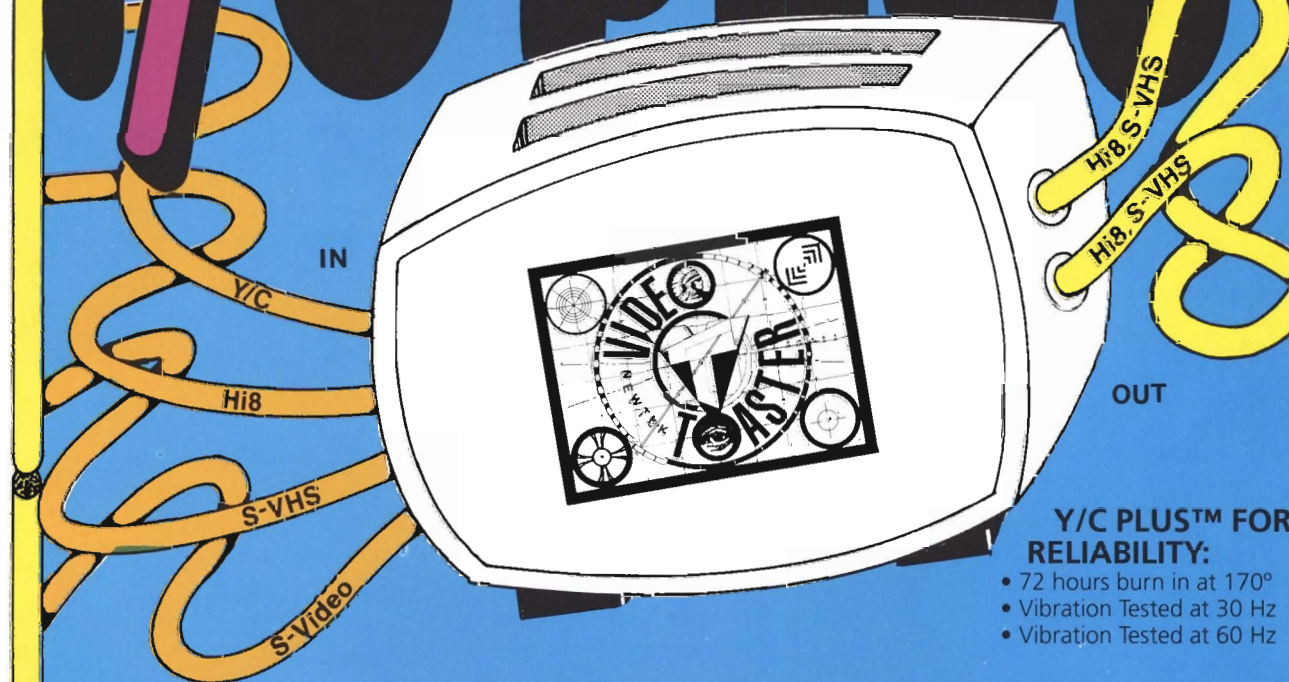
MD: Yeah, I have three albums out and I'm working on my fourth. I have my own record company. I'm not big time, but I've done a lot of stuff. I have a lot of fun.

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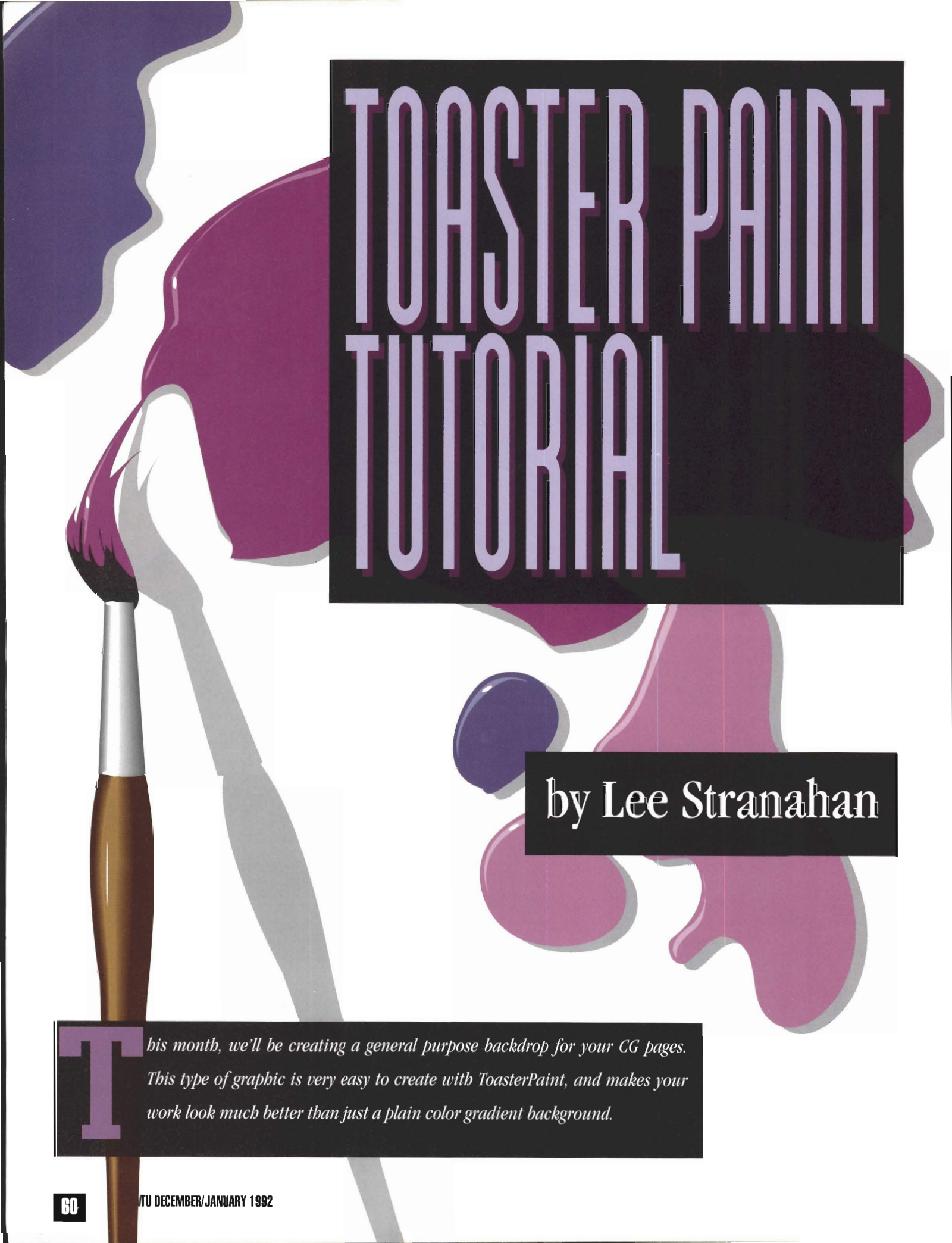
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The background of the page is a white canvas with several large, fluid, organic shapes in shades of purple and magenta, resembling paint splashes or brushstrokes. A paintbrush with a dark brown handle and a silver ferrule is positioned vertically on the left side, with its bristles pointing upwards. The bristles are coated with a thick layer of dark purple paint. A long, soft grey shadow of the paintbrush extends diagonally across the white background from the handle towards the upper right.

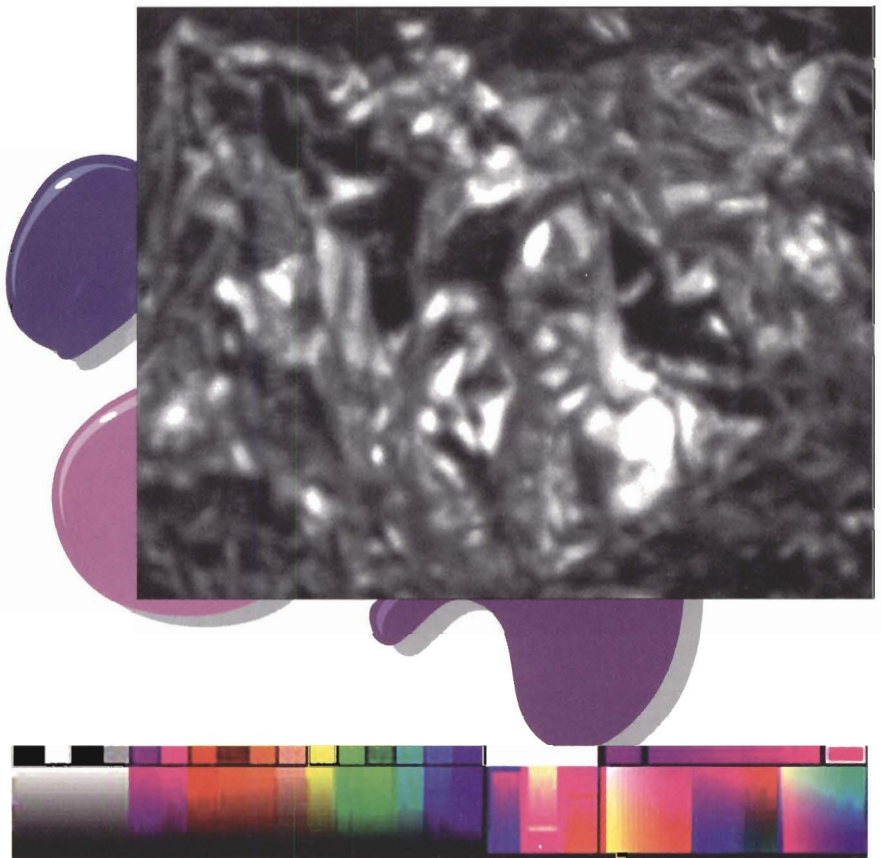
TOASTER PAINT TUTORIAL

by Lee Stranahan

This month, we'll be creating a general purpose backdrop for your CG pages. This type of graphic is very easy to create with ToasterPaint, and makes your work look much better than just a plain color gradient background.

Setup -We'll start by using a textured background. What we're looking for is contrasting areas of light and dark. You could use a number of different things to achieve this effect, but we're going to use tinfoil. Get a piece of foil and wrinkle it slightly. Plug a camera into your Toaster and get a framegrab of the tinfoil. Select DV1 on both Program and Preview and make sure the tinfoil framegrab is there.

Enter ToasterPaint. To bring the tinfoil into TPaint, hold down the right mouse button and select Grab -> DV1 from TPaint's Prefs menu. This will grab whatever is in DV1, in this case, wrinkled tinfoil. The screen will flash and in about thirty seconds, the foil image will show up in TPaint's buffer.



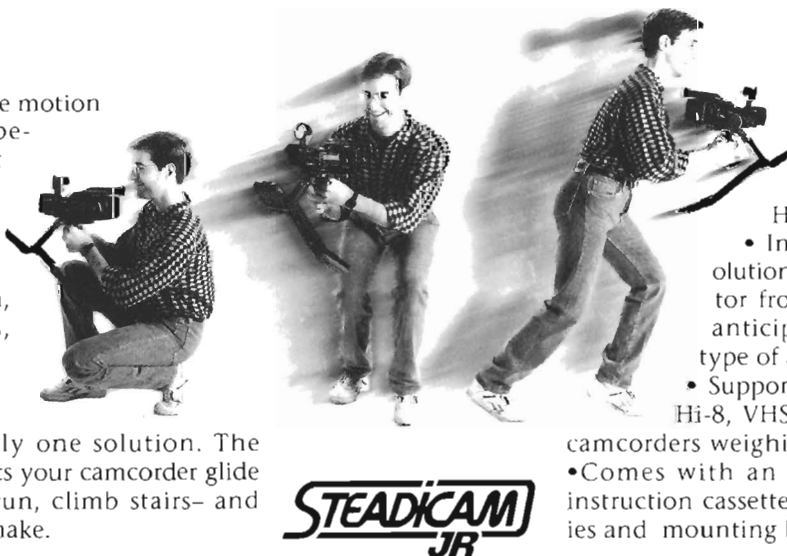
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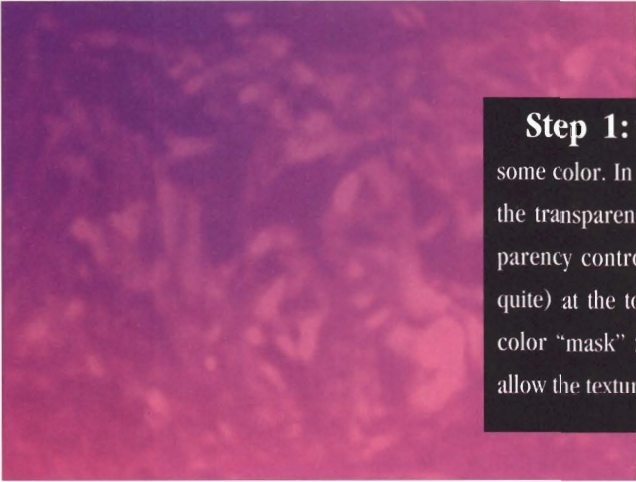
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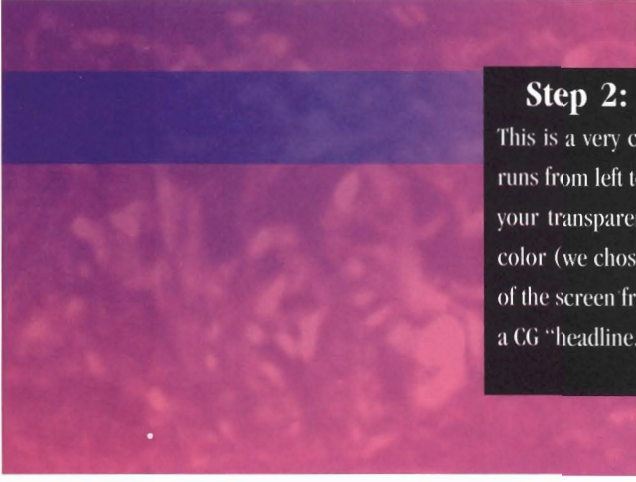
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Step 1: Plain foil is not the most exciting background...let's add some color. In our example, we selected a dark shade of blue. Now go to the transparency control panel by pressing the F1 key. Set your transparency controls the way you see them in Figure A - almost (but not quite) at the top. Press the w key on your keyboard. This will create a color "mask" for the entire image, which will show the color but also allow the texture of the foil to show through.



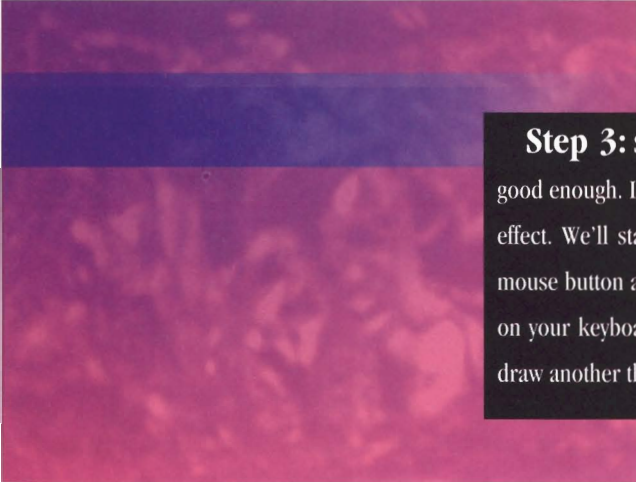
Figure A



Step 2: Now we want to create a "streak" at the top of our page. This is a very common technique in videographics. A streak is a bar that runs from left to right, with one side transparent and one side opaque. Set your transparency controls the way they are in Figure B. Select another color (we chose red), and draw a fairly thin rectangle that runs the length of the screen from left to right. This rectangle makes a very good place for a CG "headline."




Figure B



Step 3: So far, so good. In many cases, what we have we would be good enough. Let's add some depth to our streak by faking out an emboss effect. We'll start by using TPaint's Lighten mode. Hold down the right mouse button and select Lighten from the Mode menu, or press the 2 key on your keyboard. We'll leave the transparency settings as they are. Now draw another thin rectangle at the top of the streak.

Step 4: Now let's create the bottom part of emboss. Select Darken mode and draw another rectangle at the bottom of the streak. We can also add a drop shadow by drawing another rectangle below the streak.

Step 5: We're done! Save this image and leave it loaded in ToasterPaint. Exit the program using the Switcher command from the Picture menu or press the Shift Q key. Enter CG, create a framestore page and use the Alt-F3 function to select a ToasterPaint background. 

LOVE AND ROMANCE FACTS

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"I love you."

A single dead rose means
"I'm outta here."

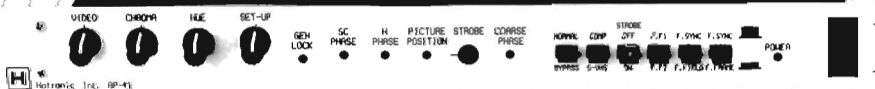
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VIDEO TOASTER

-in-

BRAZIL

Interview with VALERIA BURGOS by Stephen Jacobs

W

hen most of us think of the Toaster, we think of its use here in America. We don't often think of it being used outside of the country. Knowing that a PAL version doesn't yet exist, we think that the Toaster can only be used here. We forget about the rest of the Americas.

In Southern Brazil, the city of Curitiba is being cited internationally as an example of a city that "works." Its unique fusion of urban planning and ecological thinking has produced a city full of parks, active recycling, and relatively little traffic and air pollution.

Now living in Curitiba is Valeria Burgos, a woman who is a unique fusion of artist, journalist, educator and business woman. She is one of Brazil's premiere independent film and video makers. I first met Valeria several years ago at a meeting of AMUSE, the New York City Amiga user group, when she was just beginning to learn about computer graphics. I was able to show her the different types of things that could be done on Amigas, and gave her information on the then "in-development" Video Toaster.

I moved from New York City to Rochester and Valeria returned to Brazil. Unfortunately, we lost touch until this past summer, when we met again at SIGGRAPH.

VTU: What is your background?

Burgos: I am an imagemaker. I began as a journalism major at Faculdade Helio Alonso, a good university for journalism in Rio de Janeiro. The courses at that school were at night. All the professionals went to school at night. They taught the night classes. So I learned from and with professional journalists.

My first year at school I became a free-lance writer for *Manchete* magazine, a photo-magazine like *Life*. The photos were more important than the text, at that time anyway. I was a writer and a photojournalist. I wrote about art, music, theater and movies. I also wrote for another magazine called *Amiga*. It was a gossip magazine for soap operas and things like that. It's funny now, years later, I still work with Amiga.

Thus began my relationship with artists. I started making film documentaries for ABC, with Geraldo Rivera. A film I made in Brazil on gold mines in the Amazon was my first big adventure.

I got a taste for filmmaking. I started my company, Burgos Productions, in 1981, and got my first film shown in the US the same year. I did a second film for American Television on alcohol as an alternative fuel. It was called *Sweet Solution* and I sold it to the UN film department and to PBS Channel 13 as an independent producer.

I began selling the videocassettes of the films. I was a producer for *Sweet Solution One* and hired a director. I re-edited the film



because it wasn't originally edited for an American audience. I had to glue and unglue the film, but I learned how to make good edits. This helped me learn to be a good director for *Sweet Solution Two*. Altogether I spent four years working on this project. The two films *Sweet Solution One* and *Two* were released in 1982 and 1984.

Then I became a writer and a director for video. In Rome I started making a jazz festival documentary. It's called *la Tra Ta*, like the sound of music (jazz and samba). It's two hours and 20 minutes long. I came to America to edit it but forgot that it would have to be transcoded to NTSC. (Note: In Brazil, the broadcast video standard is NTSC, but in Italy it is PAL.) Luckily I found someone who would give me a good price and I edited it here in the states. The other problem was that all the artists' rights belonged to different record companies. That was a big problem.

After I showed my documentary around people started asking me about making music videos. I was sure I could make a good one. My first music video was for a Brazilian rock group called *RPM*. It won six awards. This was a good beginning for me. In no time at all I had made ten videos for famous Brazilian artists. At that time, we had no MTV. Not a lot of places would show them. Global TV had a monopoly. So I began making a "long form" music video, like a live show, with the Brazilian pop star "Marina". This 53-minute video was shown on TV Manchete in 1987 and sold to individuals in the home market.

VTU: How did you get started using computers in your videos?

Burgos: My second video for Marina was the first time I used a computer for videos. I was doing solarizations. Suddenly, a piece of the video got stuck, altering the effects. Later *Veja* magazine said I knew "the language of the computer and video" because half the piece was clean and half was solarized. Suddenly I had this reputation for knowing computer video that came mostly by accident.

VTU: What did you do then?

Burgos: I got some money to travel to the U.S. to learn more about computer graphics. I went to conventions and videotaped everything so that I could watch it again later and understand what I was seeing better. I went to SIGGRAPH, to NCGA, to all of them. I saw things like Silicon Graphics stations, TDI, Video Toaster, etc. I met some French journalists and animators and went to France to see what was happening here. I shot 16 hours of tape in France alone!

I saw an educational/corporate video studio at American Express. I convinced Bamerindus, the sec-

ond largest private bank in Brazil, that they needed one like this. They financed my studies on computer graphics so that I could build them a station. I did all this traveling and taping from 1988 to 1990. Then I built the in-house studio for the bank.

VTU: What was it like to work for the bank after being so independent?

Burgos: I'm glad that I have the kind of personality that lets me scream sometimes when I need to. I have to keep telling them "I need a switcher. I need a CG." The whole budget for computer graph-



ics, animations, everything in the bank was \$20,000. So I bought an Amiga and a Video Toaster and I stayed there one year. They never paid me for buying the equipment and they never bought their own, so we had a big fight and I quit. I couldn't afford to use my own equipment only for them. They never came to see how I used it. So I just took it out. Now they've stopped all in-house production and whenever they need titles or animation they go to a post house just to make titles.

VTU: Even though you no longer work for the Bamerindus, they commissioned you to do a Christmas video piece for them, didn't they?

Burgos: Yes, it was a promotional piece for the Cultural Foundation. They paid \$36,000 for 1,000 videotapes. They wanted me to do a video of the Paixao Segundo Sao Mateus, the Passion Play according to Saint Matheus. It's a very old play in German by Bach. We shot the orchestra and singers and then added graphics and titles. I used some Gustave Dore biblical illustrations that I colorized. Sometimes the colors fade in and out from the pictures.

I used the Toaster to title the video. Since the play

is all in German, I thought that people would be bored. I hired a poet and he made a short story from what they were singing. Then I arranged the story into titles that fit the timing of the music to make the emotions very strong.

Some of the poet's text asked, "How do we stay in life without Christ? What is the world without Christ?", so I also added images from nature and from today's world that we see on TV news every day.

I like that it's like a long form music video, except instead of rock and roll I used Bach. That's one way to look at it. Another way to see it is like a mass, or like an opera you can stop and freeze and rewind and slow. I didn't expect that it would be received so well in Curitiba. They are not used to the idea of video art. But they took pictures from it for the front page of the newspaper.

VTU: Is the Toaster popular in Brazil?

Burgos: It is perfect for Brazil. Brazil is a beautiful country, but it has no administration, and thus a poor economy. So all the videomakers use the Toaster.

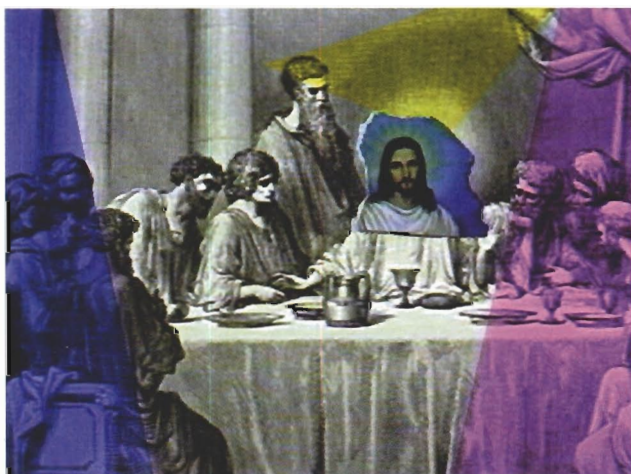
VTU: What are your plans for the future?

Burgos: I am building Atelier D'Image, a school/cabaret/nightclub. It will be the first school for imagemakers in South Brazil. The only other one in all Brazil is in Sao Paulo, The Academia de Video. They are good friends of mine. The first floor is a school for teaching video with a studio. The second floor is a little cabaret and bar, like Angelika (film center in New York City) and the offices. The third floor will be a large studio.

VTU: Why did you decide to do build a school?

Burgos: In Brazil there are no career "videomakers" yet. I want to fight and get accreditation for degrees in computer video. This is important because in my mind, today anyone can buy equipment and make videos.

The school's name, Atelier D'Image, says everything. We will teach how to be a professional video-



maker, an imagemaker. I want to teach people to think in images, to teach how the image begins; from the beginning with photographs to the high end with computer graphics images for video, film art or publicity.

To live by the image you must know what you want to show and the story behind the camera. I learned how to make the most of the equipment from the Amiga and the Video Toaster. Creativity.

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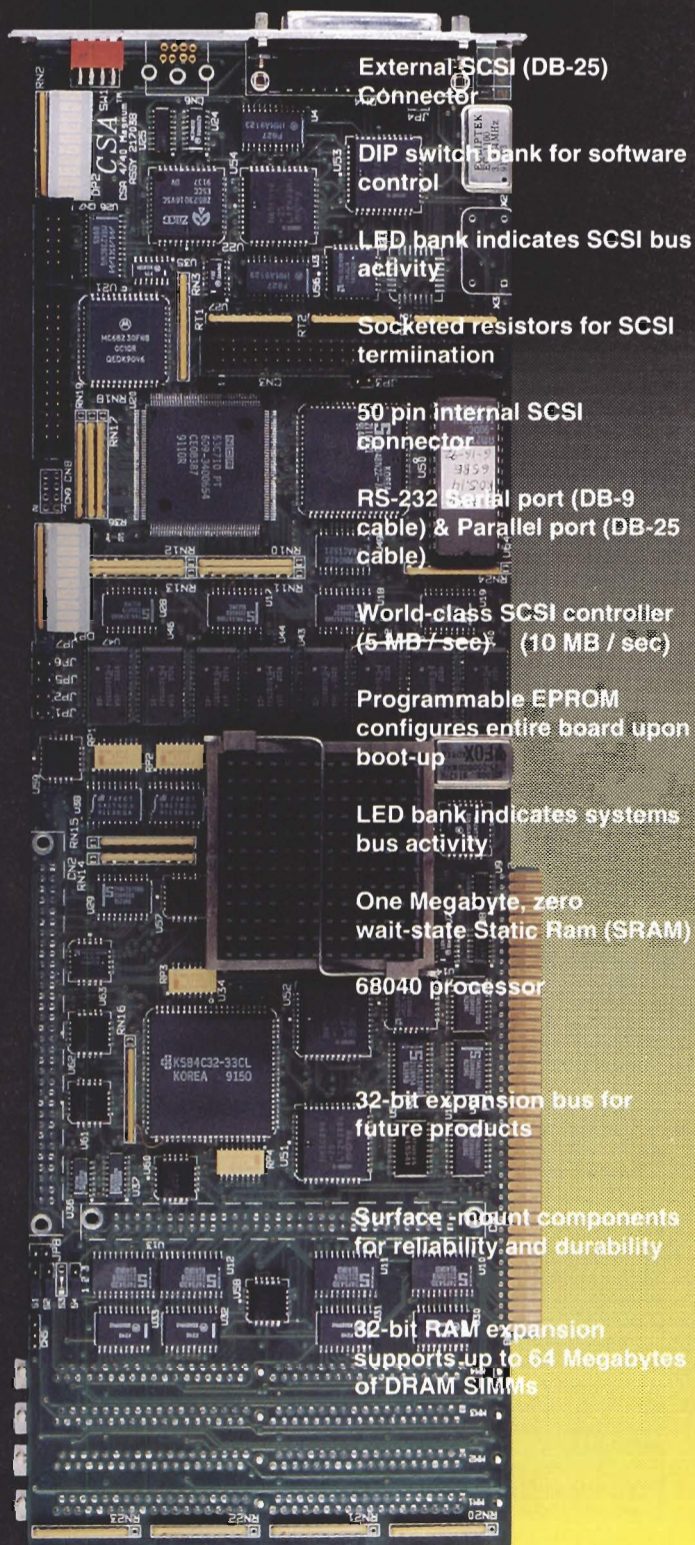
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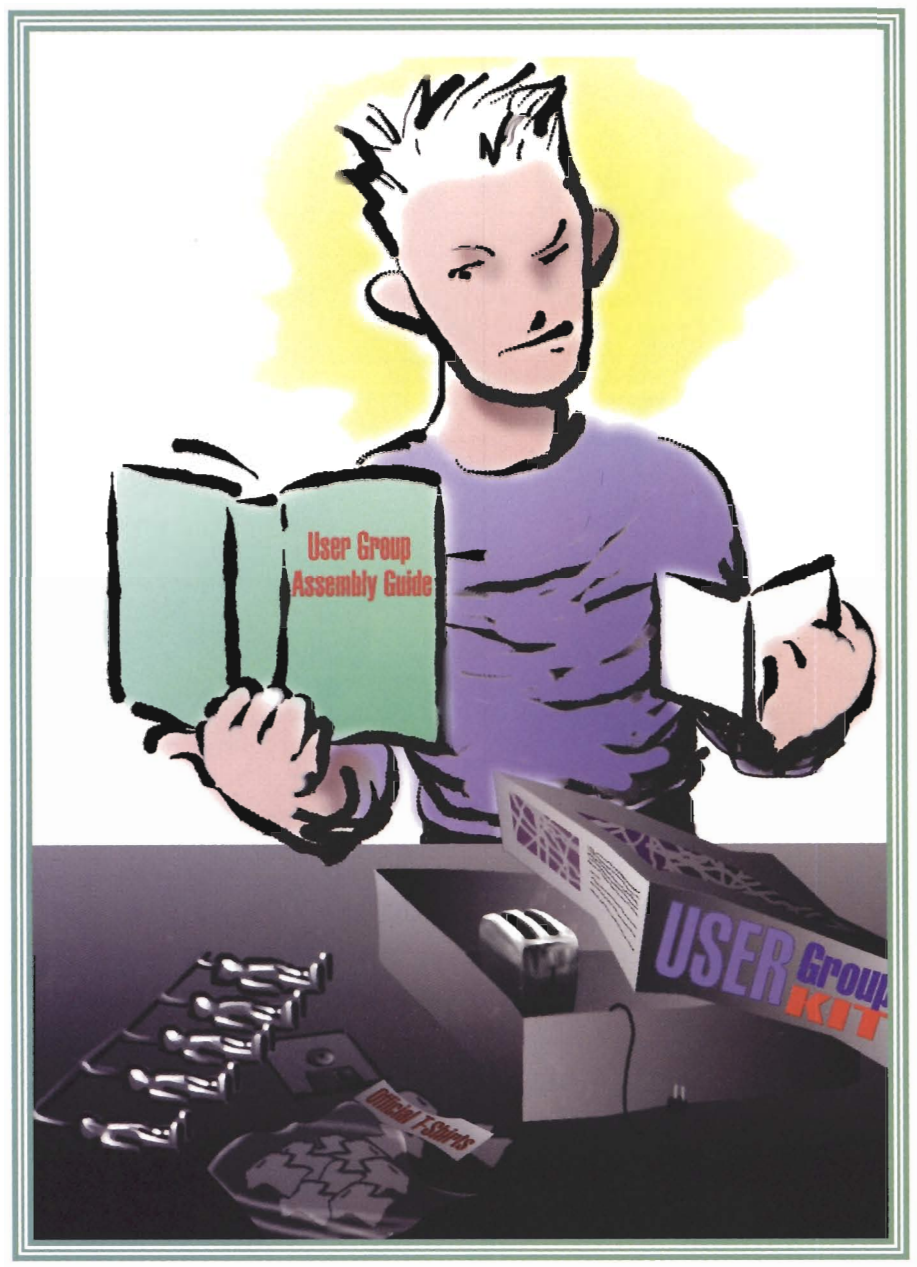
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STARTING A VIDEO TOASTER USER GROUP!



by Michael Meshew

I

've received a number of inquiries about how I started our Video Toaster user group, T.O.O.L. (Toaster Owners Of Louisville) in October, 1991. It's easy to visualize the benefits of a Video Toaster user group, but hard to realize those benefits without the advice of others who have started groups of their own.

I was one of those fanatics who was on the waiting list of NewTek's Video Toaster long before it was released. I had received my Video Toaster before the local Amiga dealer had received theirs. I was asked by the local Amiga dealer, Mr. Horan's Computer Lab, to give demonstrations with my Video Toaster to computer graphic classes that they had scheduled. These demonstrations put me in touch with people who eventually purchased Toasters and joined our user group.

The Quest for Members

In my search for members, I contacted local Amiga user groups to see if any members were interested in joining. The local Amiga dealer was my source of information about these Amiga user groups. There were two groups in my city. In conversations with their members I received the names and phone numbers of other Amiga user groups throughout the state. Each of the Amiga user groups in my state ran a BBS and I had accumulated the telephone numbers of all of their BBSs. I then logged onto all of these BBSs with my modem, post-

ing messages announcing the formation of our Video Toaster user group along with invitations to join.

If you don't know of any Amiga dealers or user groups in your area, try looking in magazines that print lists of user groups and BBSs such as *Video Toaster User*. *Computer Shopper* is another monthly magazine that publishes a national directory of user groups and BBSs. Once ToasterLink is available for the Mac users, your local Macintosh dealer may be a good source for information. If you don't have a modem, get one. It's one of the best ways there is to network with others of like mind but unlike location.

Another potential source of user group members or references is your local professional video dealer. Most of these dealers sell Video Toaster accessories such as single frame decks and cameras and are in contact with Video Toaster users on a daily basis.

MultiMedia Publicity

We also posted announcements in a locally published computer newspaper inviting people to attend our meetings. I then contacted our local newspaper, *The Courier-Journal* and presented information about our user group such as the diverse range of our members' backgrounds and for the many different applications that we use the Video Toaster. I also sent the Video Toaster demo reel that was available at that time. I invited the newspaper to send a reporter out to one of our meetings to do an article on our group as well as the Video Toaster itself. I gave the reporter all of the press clippings available on the Video Toaster from my collection of articles from Amiga magazines and consumer and professional video magazines. I then contacted NewTek in advance of the reporter's visit so they could send all of their information to help the reporter prepare his article.

I planned the events so that the article would serve as an announcement to all in the community of the formation of our Video Toaster user group. The article included the date, time and location of the next user group meeting for all who were interested in attending.

Another method that I have used to attract members into our user group are connections with the local art community. I have compiled a videotape of some of our work, combined with the newspaper article about our user group and visited local art groups to let them know that we exist and what our members are creating.

Another means of attracting new members is our listing in the user group section of this magazine! With each new issue, I usually receive four to five telephone calls per week about the Video Toaster and our user group.

One important point to make when advertising your Video Toaster user group is to inform potential members that they do not have to be owners of a Video Toaster in order to attend the meetings. There are a lot of people interested in this new technology who would rather have their questions answered by owners of Video Toasters than by a dealer with a perceived bias.

Getting Ready for Meetings

To prepare for the first user group meeting after all the publicity, I contacted NewTek and they provided us with plenty of promotional material on the Video Toaster to distribute to everyone attending the meetings. Christina Knighton is the NewTek representative you will want to speak with to help you with promoting your Video Toaster user group.

Once you have started a Video Toaster user group

there are several decisions that you have to make regarding the group's functions. First you'll need to decide where the group meets. Most groups meet at the same location once a month. We have found it to be more educational to have each meeting at the studios of our members. This way each of our members has the opportunity to see how different studios operate and the owners of the studios can solicit our opinions concerning any problems that they may be having while we are there.

The drawback to meeting at a different location every time is that it's difficult to inform potential members where the next meeting will be held. A single location where everyone knows where the next and all future meetings will be held is more likely to attract larger numbers of interested members.

Once you've determined the location of your Video Toaster user group meetings, you'll need to decide how often to meet. We have our user group meetings every two weeks. Every other user group I've been in touch with meets once a month, but our group seems to enjoy meeting more often. Thanks to all the new products and information surrounding the Video Toaster, there are plenty of demonstrations to give and information to share every fortnight.

This leads us to the next decision, which is the format the meetings should take. We always have demonstrations of new and existing software and hardware involving the Video Toaster and computer graphics in general. Several members bring demo reels to show us their latest work. There's always a question and answer series where we discuss our members' problems and possible solutions.

Another function of our user group meetings is to distribute the latest disks of public domain textures, images, fonts and 3D objects that come from BBSs or are created by our own members. I'm in charge of maintaining that collection, which lets the newer members of our group obtain all the previous disks that they missed.

One more important subject to discuss concerning a Video Toaster user group is dues. Our group doesn't have as many members as some of the groups in larger cities and since we meet at different member-supplied locations, we haven't had to pay any rent for a meeting location. These factors contributed to very low costs of maintaining the group, so we did not charge any dues.

If you're starting a Video Toaster user group and you want to keep your costs low, it would be best to try to convince a local Amiga or video dealer to let you hold your meetings at his or her retail location. If the owner needs convincing, tell him or her about all the potential benefits of attracting Video Toaster users into their business for meetings. Another low-cost alternative for meetings is to use a room in a local university for your meetings. Usually if a member of your group is a student or faculty member of a university, the institution will let you use a classroom for meetings at no cost as a service to the community.

In conclusion, starting and running a Video Toaster user group requires a lot of work and dedication. Fortunately, the benefits of sharing information, ideas and techniques far outweigh the work of running a user group. I hope that through this article I have given you some ideas on approaches in creating a Video Toaster user group or attracting new members to an existing one.



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MorphPlus Review

by David Duberman

In a sidebar article to last month's "Synergistic Salsa" article about Amiga graphics support software, I described two morphing programs for the Amiga; CineMorph from GVP and ImageMaster from Black Belt Systems. The two-dimensional morphing functions that these programs provide let you change one (optionally moving) shape arbitrarily into another—a lady into a tiger and back again, for instance—for video magic that, if done right, will have clients pounding on your door. While the programs work separately from the Video Toaster, their 24-bit output can be rendered to videotape via LightWave or similar means, and used in Toaster operation in many ways. For instance, a morph sequence could be mapped onto a rotating sphere in LightWave. Although ASDG's MorphPlus wasn't available at that time, it is now, hence this follow-up piece.

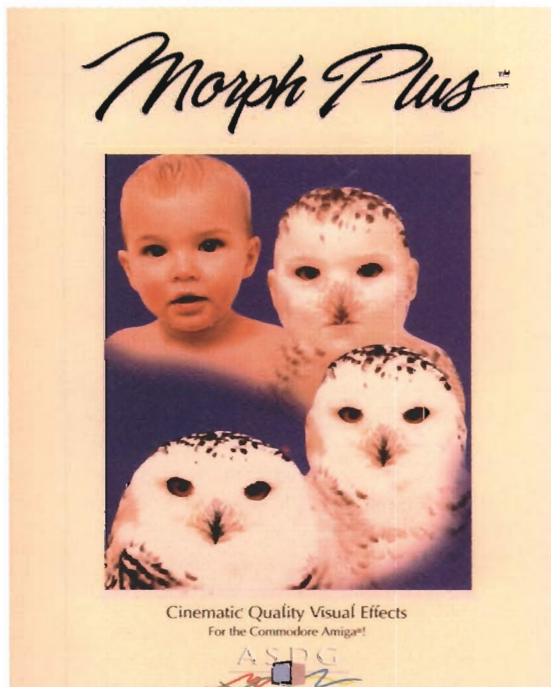
The ADPro Advantage

ASDG is most famous for their image-processing software Art Department Professional (ADPro), which converts images between different software formats such as IFF, GIF and TIFF, and provides many useful functions such as color adjustment, cropping and resizing, and much more. MorphPlus is a very closely related product, so much so that if you already have ADPro, you can use most of the new functions simply by copying MorphPlus's operators into your ADPro Operators drawer. Since it's (mostly) a self-contained program, though, we'll cover it as such.

First, you should know that you need at least four megabytes of memory to run this program. But if you're serious about graphics, you already have at least twice that, right? It's also important to realize that MorphPlus, like ADPro, takes a modular approach: all program functions are contained in separate files, categorized as Loaders, Savers, and Operators. This eases revisions and upgrades and makes all ASDG products able to integrate efficiently.

Using MorphPlus

When the program starts, the control panel shown in Figure 1 appears. The upper right section lets you load and save images. Graphics formats supported by MorphPlus are IFF (up to 24 bits), Anim, which lets you load and save frames from a standard-format Amiga animation, and JPEG. There's also a new, improved Universal (smart) loader that handles Anim files. You can composite two images during loading, specifying the transparency between the two by a uniform percentage, or with a third grayscale "Alpha" image each of whose pixels specifies the transparency at that point in the image. There's also an Undo feature implemented via



a "Temp" loader and saver.

Once you have an image loaded, you can set the display format and display it with the controls in the Screen Controls section, which supports all standard Amiga graphics modes, including the new 256-color and 256,000-color modes in the Amiga 4000. If the picture is larger than the current display mode, you can scroll through it with the keyboard cursor controls. If you have DCTV you can display the image in that format as well, but scrolling isn't supported.

The Color Controls let you adjust the displayed image's red, green, and blue balance, plus brightness, contrast, and gamma, which controls brightness without losing detail. It's important to note that these don't affect the internal 24-bit image data unless the Apply Map operator is used. This makes it easy to undo changes effected here.

Operators

Besides Apply Map and DCTV (display), Operators include Blur, Color To Gray, Crop Visual, *DeInterlace*, Define Pixel Aspect, Gray To Color, Horizontal Flip, *Interlace*, *KillTemp*, *Perspective*, *Refract*, *Rendered*

To Raw, *Ripple*, *Rotate*, *Scale*, *Sphere*, *Twirl*, Vertical Flip, and *Warp*. New operator names are italicized and will be discussed here; refer to published reviews of ADPro for descriptions of the others.

KillTemp simply deletes a Temp Saver image held in the temporary buffer. Most of the others apply preset physical distortion algorithms to an image to simulate a real-world effect. *Perspective* enables tilting of the entire image in space on any combination of the three axes. *Ripple* allows one or more circular wavefronts to perturb your image; amplitudes can increase or decrease in size with distance, if you like. *Rotate* rotates a circular portion of your image, and *Twirl* creates a circular spiraling effect. *Sphere* wraps your image around a virtual sphere for a pseudo-3D effect. *Refract* applies variable distortion to an image based on the brightness levels present in another image of the same size, in an interesting use of the "alpha-channel" concept. Needless to say, implementation of all these functions is the standard ASDG high-quality handiwork. In most cases the interface is as intuitive as possible, and you're offered more controls than you'll likely ever need to use.

DeInterlace and *Interlace* are a truly unique feature of special interest to videographers. Due to a 1/60-of-a-second time difference between successive scan lines of a video frame, if morphing is done on a standard frame grab in which there is any motion, extra distortion can be introduced from the twisting pixels. *DeInterlace* "unthreads" a frame into two separate half-height fields 1/60 of a second apart, which can then be morphed or warped without distortion. *Interlace* re-integrates them post-mor-

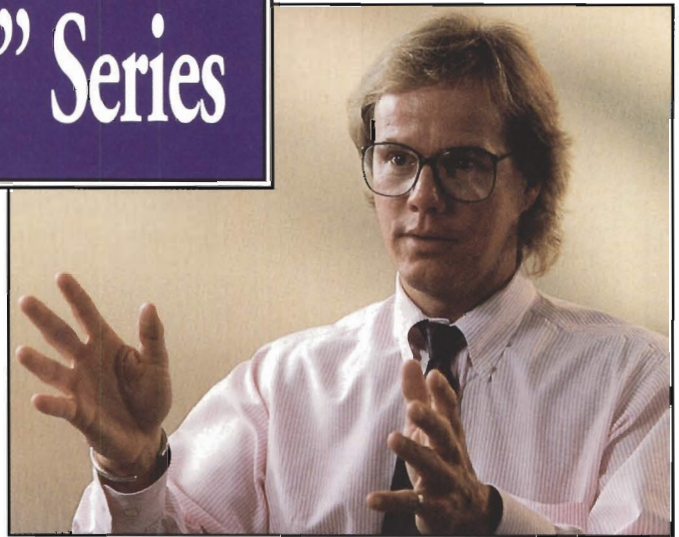
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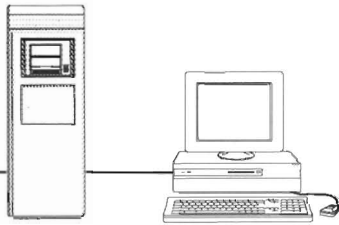
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ping. That way all pixels are kept in their own time domain. ASDG provides a script which helps automate this procedure. By the way, if you start with a non-video image such as a scanned or digitized photograph, this isn't necessary, but if working with a frame grabbed from videotape, the extra effort will prove well worthwhile.

Warping Vectors

Warp is the basis of MorphPlus's morphing function. It lets you create moving distortions of an image by placing vectors which specify how the different parts of the image are to move around. A vector is shown as a solid line connecting a start point and an end point. You can also place points, which tack down part of the image and prevent its movement. If the image were made of a sheet of rubber and you could stretch parts of it in different directions, you could vaguely approximate what Warp can do.

Although commands are available from drop-down menus—unusual for ASDG software—operation of the program is far more efficient with the keyboard equivalents. Warp's more conventional interface permits a full-screen display window for the grayscale image, although an information panel takes up the bottom quarter of the screen. You place vectors by holding down a key and indicating start points with the mouse pointer and button. After placing vectors you can interactively move start points, end points, or entire vectors. You can flip vectors, reversing the warp path. Want Cut, Copy, and Paste? You got 'em.

The interface is terrific—as intuitive and flexible as any I've seen. If you have an Amiga 4000 (lucky you!) you get to see your 24-bit image as a 256-shade grayscale. Otherwise it's 16 shades, which looks fine. You can adjust the image's contrast and brightness on the fly, and zoom in and out, with scrolling while zoomed. You can adjust the colors used for vectors and various types of highlighting. Vector start and end points can be large or small. You can choose to display only start points or end points, or entire vectors. You can hide selected vectors.

Vectors can be tied together with edges during or after initial placement. This simulates having an infinite number of intermediate vectors between them and is useful when warping a relatively large portion of an image. You can select multiple vectors for group movement by pressing a key and pointing at the ones you want—no clicking necessary.

One of MorphPlus's most powerful features allows definition and naming of selected groups of vectors, after which they can be saved, loaded, selected and deselected by name, as well as subjected to all the standard vector editing functions. If warping a face, you'd probably have groups named "Right Eye," "Left Eye," "Hairline," "Nose," and so on. What's more, you can define a priority or depth for each group, with a higher-priority group's warp occurring "over" that of groups with

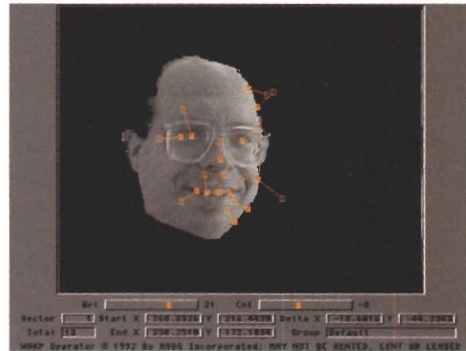
lower priority. Hierarchy setup is visual, eliminating the need to remember depth numbers for different groups.

It gets better. Normally, points move with a constant velocity. For example, if you're warping over 30 frames, all vectors will be exactly halfway between the start and end points at frame 15. However, MorphPlus's Group Motion control section lets you set multi-point straight-line and spline curves in a graph-like environment for each group. This includes a sophisticated "undershoot" and "overshoot" capability, where motions can actually "ping-pong" slightly. The manual example describes using this by

having someone's eyes bug out. At first they contract slightly (undershoot), then they get a little too big (overshoot), and finally shrink a bit to the new expanded size. This is the kind of powerful yet subtle touch that marks the difference between the pro and the amateur.

That's not all there is to Warp, but if I say

any more there won't be room to describe Morph and the other companion programs. Morph is a standalone program that works in conjunction with MorphPlus via Amiga's multi-tasking operating system. This means that both programs must be running simultaneously, yet another reason to add memory to your system.



The Morph Program

Morph supports moving morphs, or morphs between two motion sequences (e.g. 30 frames of Lulu dancing turning into Tony dancing), as well as moving warps, or warps of a single motion sequence (e.g. Frank turning his head while folding his ears over his eyes). In the former case, if morphing between two sequences of unequal length, you can opt to repeat the last frame of the shorter sequence, or drop the excess frames of the longer one. You can also morph between two still images or warp from a still, in both cases producing a sequence.

Instead of using two separate pictures for vector placement, the single window offers an "onion-skin" grayscale view with the pair of images overlaid on each other with a variable transparency set by the user. So far everything is very similar to Warp, but you're working on both images at the same time. But there's a big difference here in the variable nature of the vectors. They can be Common To Both, Source Only, or Destination Only. What this means is that you can warp the source and destination pictures independently of each other while morphing between them! Is this raw power or what? An example of this can be seen in ASDG's magazine advertisements for MorphPlus. Near the bottom of the last frame you can see the top of the baby's rattle. Instead of trying to morph that feature into part of the owl, it's simply warped out of view.

More on vectors in Morph: Tweening is available, so that if you're doing a moving morph you don't have to set all vectors individually for every frame, unless subject movement is very complex. Also, there's a full-motion wireframe preview where you see the vectors actually following their paths, which can help solve the eternal question "How the #@% did that pixel get *there*?"

The program is project-oriented. Once you've told it which images to use it creates grayscale versions of each on disk. This speeds moving between pairs of frames when doing a moving morph because the program doesn't have to recalculate the grayscales each time.

But make sure you have about 100K free disk space per image if working in high-res.

And there's still more. For good measure,

ASDG has thrown in FRED, which can best be described as an animation assistant. Without getting into too much detail, if you want to process or create an animation with certain ADPro effects, you must process a sequence of files rather than an animation. FRED helps automate this process.

FRED includes the Compositor AnimOp (animation operator), which "allows you to easily create combinations of fades, wipes, and composites between two or

more sequences of images." There's also a great 300-page manual with tutorials, reference including all ARexx commands, hints and tips, and an index.

Conclusion

Very often when I see a program as good as this one I wish they'd gone the next logical step before releasing it. There are a few things missing from MorphPlus that prevent it from being great. For example, you should be able to select vectors with a drag box or polyline (an irregular area defined by straight lines drawn between any number of points that you click on). You should be able to rotate and scale

selected groups of vectors. It would be really nice to be able to see a before and after simultaneous view, even if reduced in gray scale.

Nonetheless, MorphPlus is the Rolls Royce of Amiga morphing software. If you want more of a multipurpose image-processing program that includes a perfectly good morph algorithm, get ImageMaster. GVP's CineMorph is a fine dedicated warping and morphing program, but I find its row-column approach restrictive (some people love it!). But for professional warping and morphing power, with a whole slew of extra image-processing functions thrown in, there's only one choice. MorphPlus comes at a premium price, but if you depend on software like this to help you earn a living, it will pay for itself with one job.

"MORPHPLUS IS
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AmiLink Review

by Alex Bennett

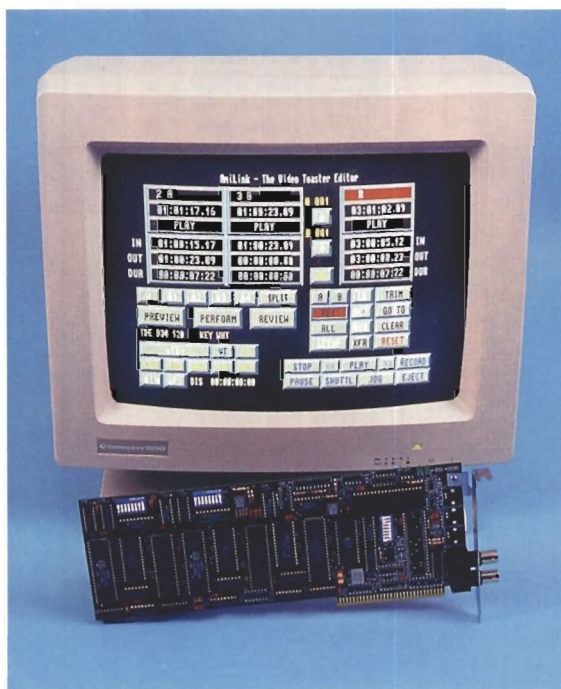
There is no question about it: Great video isn't made in the camera but in the editing. Even the most mediocre footage can be made interesting with skilled editing. Of all the facets of video production, the one I find most interesting and creative, while also being the most arduous, is editing. I have often described the process to the uninitiated as being like knitting a sweater. The individual stitches are tedious, but when you are finished, the result is a work of great pride.

Editing Roots

I first learned how to edit in the old reel-to-reel days. What this really involved, by necessity, was editing one chunk onto another chunk. Insert editing techniques were crude at best. The process of backing up the reels a certain number of turns, letting them roll, and then punching down the edit button and praying that you got it right, offered little room for creativity. Next came the first 3/4-inch editing machines. In this case you were editing slice-to-slice. They at least allowed you to preroll and insert, but since they had no forward or reverse visual search, it was really slow going. As time went on, the 3/4-inch machine allowed more and more creativity, but editing was still cuts-only and accuracy remained an elusive goal.

A few years ago I was working on *The Alex Bennett Comedy Hour* on Channel 44 here in San Francisco. By this time I had a cuts-only VHS system which I used to edit the comedians' sets off line. Then we would go to the studio armed with SMPTE time code numbers and edit on the big system. I marveled at its ability to control a bank of one-inch machines, tell a Digital Video Effects (DVE) generator what to do and even generate a computerized script so that you could go back and redo an edit or for that matter, the whole show. I sat there in envy and wished that someday I could do the same thing in my apartment with essentially the same equipment I had used for the off-line edit. Four years later that dream came true in the form of AmiLink.

AmiLink is an editing controller. The AmiLink/VT system takes it a step further by doing just what the high-end system at the TV station did by controlling the DVE, which in this case is the Video Toaster. This means that it can not only perform A/B roll edits, but can also cue the Video Toaster to do



its stuff, which can be anything from a simple dissolve, to a wipe, to character generation.

AmiLink System Configuration

At this point, I think we had better give you an overview of the system. The VCRs are hooked to serial controllers called V-LANs that connect to the RS-232 connectors on the machines and control all aspects of their operation. These boxes are connected in turn to a master transmitter which is then connected to the serial port on the Amiga. One major pain is a dongle plugged in between the computer and the cable as a form of copy protection. Due to its size, the dongle fits awkwardly in tight spaces, but the program doesn't work unless it notes its presence. Once all the connections are made and the program is installed, you are ready to begin.

Upon booting up the program, you're greeted with a menu asking what configuration of the program you want. By choosing "Run Toaster" the program boots the Toaster. When booting is completed, AmiLink displays its main screen. The screen in an A/B-roll mode consists of three panels, two of them representing the A and B machines and the third the recorder. Each panel has an entry for the "in," "out" and "duration" points and at the top, the tape time index. (If the presence of time code is detected, the tape time index tells you the SMPTE time and is noted as such by an asterisk.) Below the panels are buttons for transitions such as Cut, Dissolve, Wipe, Key, CG and GPI. In addition there are buttons to call up Framestores and to bring the Video Toaster screen to the front. The rest of the buttons are for VCR operation: a series for marking in and out points; and buttons for Preview, Perform and Review. All of these actions can be accessed on the screen with your mouse as well as from the keyboard. When you register the product, RGB sends you key tabs for your keyboard that make it resemble a CMX editor.

There is also a series of pull-down menus. One of these is the patch bay. In this mode you can assign each machine to a channel on the Video Toaster Switcher or (one) as the master recorder. Up to 32 machines can be defined. A channel for black, as well as an auxiliary such as a camera, can be set as well. In addition, a setup screen lets you dictate exactly how the program operates. Everything from use of a trackball as a shuttle device to tagging the out points of the various machines is controlled from this screen.





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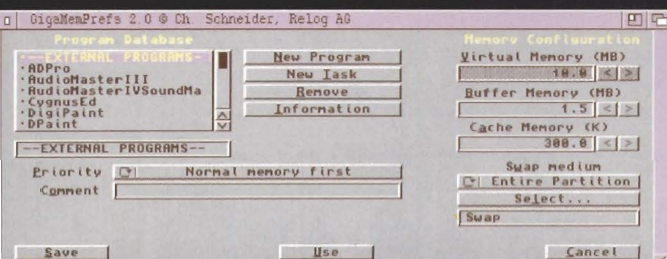
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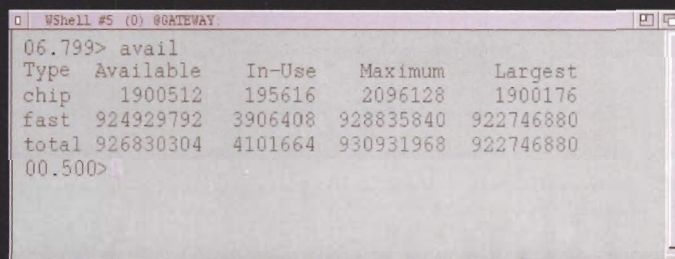
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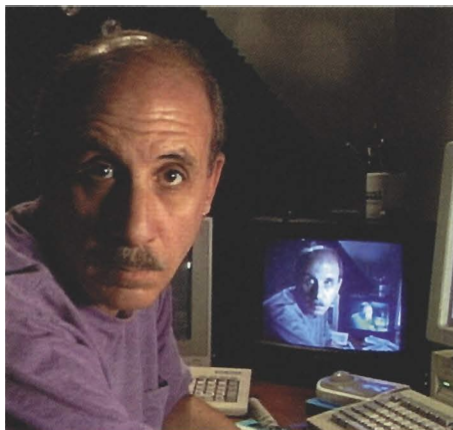
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Editing With AmiLink

Cuts-only editing is a fairly simple matter. You



Bay Area media personality: Alex Bennett

choose the in points on the machines, tell the AmiLink which tracks (video and audio) you want to record on, and click the Perform gadget. After the edit is finished, stop the machines. When you then make an out point on the recorder and add a new edit event (and you've told the program to tag record in the setup menu), the old out point automatically becomes the new in point. Needless to say, all points have the ability to be trimmed and changed.

A/B roll takes a bit of time to master if you've

never done it before, but with AmiLink it's much easier than I expected. Let's say we just did the edit described in the last paragraph. Rather than add an event, you simply mark the out point on the recorder, press the comma key, and the duration of the recorder is also applied to the source machine. This is important since it keeps the machines matched with each other. Then press the Tab key and the next event is brought forward along with the source and record out points now as the in points and marked with a red "T". As long as the "T" is present the two machines will stay matched. If you trim one, the same amount will be trimmed with the other.

Now mark your "B" machine's in point. Next, determine which type of transition you want. If you want a dissolve, click that button and up comes the screen. Pick a speed (slow, medium, fast or a speed that you set), and you're ready to go. A Toaster effect is just as simple. Click on the Wipe button and the screen comes up requesting the speed and the effect you desire. The CG is brought up the same way (although you don't need the B machine for this). You simply tell AmiLink what page you want and you're set. When you preview or perform the edit, the AmiLink not only controls all three machines to perform the A/B roll perfectly but controls the Toaster as well.

Should you want a Framestore, black background or a camera to take the place of either machine, a pull-down menu lets you assign either window to such a function.

It's Automatic!

One of AmiLink's most powerful features is automatic scripting. As you edit, your moves are entered into the EDL (Edit Decision List). Anytime you want to go back to one of those edits, you can call it up automatically. Other edit list features let you ripple your edit list, so that a change you make earlier in the tape can be compensated for by rippling down to change all the other edit points in the show. Also possible is cut and paste not only for events, but time code as well. You also have the ability to translate your EDL into a CMX compatible list. But the best part of the EDL is if you want to edit another copy with some revisions. You make the changes, go to auto assemble and watch AmiLink edit the entire tape automatically—hands off.

As a whole the program is extremely versatile and contains most of the features found in a professional editing suite. For example, one feature provides for split edits, which permit activation of the audio and video tracks at different times after the edit point (e.g. when you want the sound to come on before the video). The program also enables the triggering of other GPI devices aside from the Toaster.

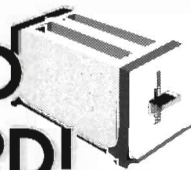
AmiLink shouldn't be thought of as just some homemade version of the stuff the "big boys" use. It is the stuff that the big boys use! All RBG has done is make it more accessible to people like us. Major production houses and broadcast professionals are using AmiLink. The fact that it works

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from the same computer as the Toaster turns the Amiga into a complete video production workstation that one never need leave in order to accomplish all of his or her editing needs.

Problems?

While I found AmiLink did all I needed, there were a few problems. First, the manual leaves a lot to be desired. It is, at times, difficult to understand, and the graphics only show the screens from the first version of the program. The addendum that was sent with the release of version 2.0 contained information about new features, but no new graphics to reflect the revised screens. Certain aspects of the program aren't covered at all. I've discussed this with one of the manual's authors and he assures me that a new, improved and easier-to-understand version is on its way. Another problem is the omission of a feature that many other edit controllers contain; a tape logger. This is the ability to view a tape and mark various points in the tape that can later be called up for faster searching. It seems that this would be a simple feature to implement so I have no idea why it's not there.

A persistent problem seems to be bugs in the program itself. Let me first say that using a program like AmiLink on the Amiga is pretty complicated, and when you change one factor, it's almost inevitable that other things will go wrong. An example of this occurred when I upgraded to AmigaDOS 2.0. Suddenly I had a mouse gone wild. Every time AmiLink booted up, I got the Toaster

LightWave screen. It seems that the mouse cursor was OK under 1.0, but under 2.0 it landed in different places and activated LightWave. As soon as RGB found out, changes were made. Which brings me to a real positive point; great user support. RGB maintains a user bulletin board system (BBS). AmiLink is constantly being revised and bugs removed. Any registered user with a modem can gain access to the newest revised version via the BBS. This is really convenient since it means that you don't have to wait for another version to be released for some minor bug to get fixed. In fact, today, as I was finishing this article, a package arrived from RGB. It was the first release in a new policy of sending an automatic quarterly update along with technical notes pertinent to that version.

Conclusion: Favorable

Aside from the above problems, I have been thrilled with AmiLink. It does everything I need and the learning curve is excellent. Improvements on the way have great promise. In the new beta version on the BBS you can set your own speed for dissolves and bring up a ChromaFX effect with your transition. In addition RGB has announced V-LAN boards (the machine controller) that can be installed in your Amiga. They are even offering a new V-LAN transmitter box that contains some controls and a jog wheel. There is also a version called AmiLink/CI which uses the more inexpensive editing machines and controls them through their "L" connector.

AmiLink isn't cheap, but then again neither is any controller system, and based on that criterion it is priced just right. The program itself is designed to emulate the expensive CMX on-line editing machines so that even the most seasoned professional will feel comfortable with it. The power of a really versatile edit controller is, at long last, available to the desktop crowd. The fact that it works directly with the Toaster sends it over the top in my mind. The first time I performed an A/B roll successfully I felt such power over my editing that I couldn't believe it. Finally, I had the same advantages as the big boys.

VTU

The AmiLink editing system is available in a wide variety of configurations and prices. The A/B-Roll serial version discussed here sells for a suggested retail price of \$5994. Contact:

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The Magni Monitor:

A Professional Waveform Monitor/Vectorscope System for Your Toaster Production Suite

by Tony Gomez

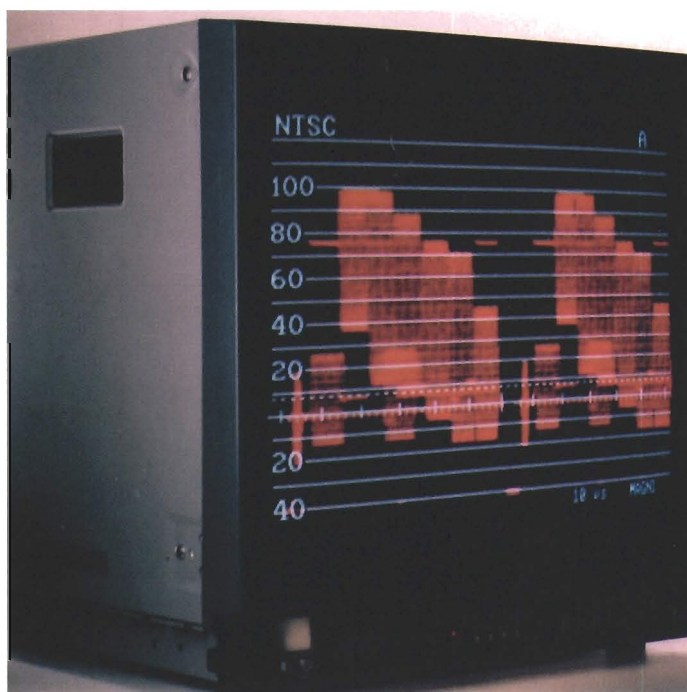
The writer has previously written about the important need for video waveform monitoring in the production suite (see *Video Toaster User* April/May '92). This article continues the discussion, but with a different approach to the solution. It's assumed that the reader has a basic understanding of waveform/vectorscope monitoring as described in the previous article.

A trend in today's desktop video production arena is the transition of the monitoring functions of professional video equipment into more affordable desktop systems. Monitoring your production suite's Video Toaster Switcher Program output is one such application. Magni Systems Inc., a world-renowned broadcast video instrumentation company, has recently introduced their Magni Monitor system to perform this task admirably, and at a cost less than other professional dedicated waveform/vectorscope systems.

The basic Magni Monitor (MM) system (\$1,795 list) consists of the MM-W/V Base unit, a Remote Unit, Remote Cable, Power Supply, and a comprehensive Operators Manual. An optional LCD Display Unit (\$475) can also be ordered separately, or with the basic system for a total of \$2,245. The Base Unit is a stand-alone chassis 1.75" high x 19" wide x 12" deep. The Remote Unit is an elegant 5.25" x 3.35" x 2.0" black panel with six white menu buttons, nine function buttons, and a rotary dial. The Remote Unit connects to the Base Unit by way of a supplied RJ11 telephone cable.

Connections

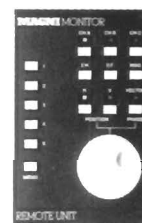
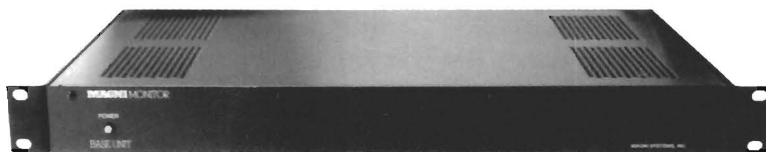
No external controls are available from the front panel. All connections are made to the MM through the rear panel. Remote 1, an RJ11 telephone connector, is wired to the supplied Remote Unit. Remote 2, if used, is connected to an optional second Remote Unit. Video inputs consist of four pairs of looped-through BNC connectors: A, B, C, and Reference. The A, B, and C video inputs can be composite, S-Video, BetaCam, MII, or even RGB. The actual connection depends on your desired video input format. Video outputs consist of Waveform and Picture. The Waveform video output is the actual waveform monitor or vectorscope display which is viewed



on your composite video monitor. The Picture video output may be connected to another composite video monitor or the optional LCD display unit. Picture video output can be the selected A, B, or C video source chosen by the Remote Unit, the Waveform output, or a user-adjustable mix of both.

"User-Compassionate" Remote Unit

The MM's Remote Unit deserves accolades for being much more than just "user-friendly." To borrow a phrase from Magni, it's "user compassionate!" This Remote Unit offers a level of thoughtfulness and ease of use that other microprocessor-controlled remote units should emulate. Nine buttons at the upper right control the most often-used functions: Ch A input, Ch B input, Ch C input, 2H (two consecutive horizontal line scans), 2F (odd-even field display), Mag (Magnification), H (horizontal) position, V (vertical) position, Vector mode, and a Rotary position control. This rotary dial moves the H and V position in Waveform mode, rotates the vectorscope trace in Vector mode, and adjusts image size during the Variable Gain Control mode. The dial is also used in Menu adjustments to the waveforms.



Remote Unit "Quick Keys"

The five left-sided Menu keys numbered 1-5 are used as Quick Keys for the most used functions as follows: In the Waveform mode: 1- variable gain on/off; 2- 2 line/2 field scan select; 3- filters (full bandwidth, luminance only, chrominance only, paraded); 4- alarm on/off for SC/H monitoring; and 5- reference-either Int. or Ext. In the Vectorscope mode, they perform as above except: 2- 75%/100% vectors; 3-PAL control.

Setting Up Your Toaster Production Studio

With the Magni Monitor: A Tutorial

Monitoring the Video Toaster's Switcher Program output is necessary to assure your production quality and maintain consistency. In the tutorial which follows, the MM will be connected to provide a full time monitoring system. The Composite Video mode will be used. The Y/C hookup method will be described later.

Connect your Video Toaster's Switcher Program Output to either the Ch A, Ch B, or Ch C video input on the MM's base unit. From the chosen input, connect the

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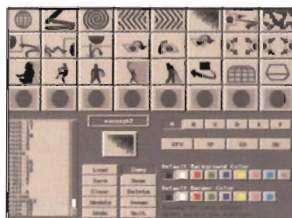
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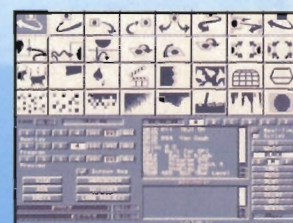


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ToastMaster 2 - The best-selling Toaster sequencer has been upgraded and included in this package at no extra charge. ToastMaster 2 now displays actual crouton imagery and allows script and real-time control of the Toaster - complete, accurately timed 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.



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looped video output to your master video recorder or video monitor. Connect the Remote Unit to the Remote 1 jack with the supplied telephone cable. Connect the Waveform output to your composite video monitor chosen for the waveform/vectorscope function. (In my studio, a two-channel Preview monitor is used: Ch 1 is connected to the Toaster's Preview output, Ch 2 is connected to the MM's Waveform output.) Optionally, connect the Picture output and remote cable to the MM's Display Unit. From the VT's Switcher select Bank F color bars. Select the H position on the remote unit, and observe the Waveform display on your

chosen composite video monitor. Use the rotating knob to position the trace horizontally. With the V position selected, rotate the knob and position the trace vertically until the lower part of horizontal sync falls on the -40 IRE graticule. This sets the lower vertical calibration line. Verify that the Gain mode is Off (default) by toggling the 1-Quick Key. The default waveform trace is green against a black background with an overlaid gray-white graticule. While this may be acceptable to some, it may not suit your tastes. Using the MM's menu for changes, the waveform/vectorscope display can easily be changed to your preference.

Changing the MM Waveform/Vectorscope Display Color Preferences

Let's change the default waveform/vector display to a white trace against a dark gray background with a yellow overlaid graticule. First we'll change the waveform trace color. From the Remote Unit, press Menu, then select the following menu buttons: 5-SetUp Functions, 2-Display, 1-Waveform, and 1-Color. A three panel RGB slider is displayed, and the Ch A button light is blinking. This indicates the rotating knob adjusts the Red value. Rotate the knob for 100% red, then select Ch B button for Green, and rotate to 100%. Select the Ch C button for Blue, and rotate the knob for 100%. This creates a white waveform trace color. Press Menu to accept, and you should see a white display against a black background with an overlaid white graticule.

Now, let's change the background color from the default dark black to dark gray. Go back to Menu, 5, 2, and then select 3-Background Color. Adjust each of the RGB sliders to 25%. Press Menu to accept and verify the white trace against a dark gray background. Next, we'll change the graticule color from white to yellow. Go back to Menu, 5, 2, and then select 2-Graticule, and finally select 1-Graticule Color. Adjust the Red and Green RGB sliders to full 100%, and the Blue slider to 0% for the highest yellow graticule color. Return to Menu to verify the graticule color is now bright yellow. Finally, we'll change the intensity of the waveform trace. Press Menu again, then select 5, 2, 1, and select 2-Intensity and rotate the knob for about 25%. Selecting Menu again results in an average intensity white waveform on a dark gray background with a bright yellow graticule. These color preferences also work in the Vector mode. Your own production suite's environment probably has unique display needs, so you can easily customize the MM's waveform/vectorscope trace to satisfy your own color preferences.

Waveform Monitor—Additional Preferences

There are many other non-color preference related Menu options which control the MM's waveform display. We'll go through the most important ones. Select either the H or V button on the Remote Unit, and press Menu to obtain the Waveform Menu. Set the following conditions: 1-Variable Gain Off (default), 2-Sweep Functions. Set it to 1-line sweep and Odd field trigger. Select 3-Input Functions, and press 3-Filters. This brings up a sub-menu of 4 filter display operators: 1-Full Bandwidth (both luminance and chrominance are displayed); 2-Low Pass Filter (luminance only); 3-Chroma Filter (chrominance only); and 4-Parade, in which a unique "parade" of full, low-pass, and chroma displays are shown sequentially. Select 2-Low Pass (my preference, because it removes the chroma modulation which often tends to make reading luminance detail difficult), and return to the Menu. Select 3, then 4-Fast Clamp (fast clamp removes any annoying 50/60 Hz hum component from the display).

Return to Menu, 5, 4-Miscellaneous, and set the following: 1-Self Cancel, 3-Enable Quick Keys, 4-Crystal Lock (for stable Toaster or other video switcher outputs). If you have the optional LCD Display Unit, go to the main Menu, select 4-LCD Backlight, and select 2-Picture Backlight. Rotate the knob on the Remote Unit until the ratio of underlay program video to waveform overlay on the Display Unit is acceptable. Finally, let's give the display an ID name by selecting Menu, 5, 2, 4-ID Label. Using a combination of the



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rotating knob to select your characters, and any key to accept them, enter a maximum of ten characters, spaces included. We chose "VT PROGOUT" to identify Video Toaster Program Output. This ID appears in the lower left of the waveform/vectorscope display with the same color as the graticule.

Vectorscope—Additional Preferences

On the Remote Unit, select the Vector mode button. A circular vectorscope pattern displays your color preferences. Selecting Menu brings up the Vector Menu, which has 5 main functions similar to the Waveform Menu. Verify that the following settings are the default condition: 1-Variable Gain Off (default); 2-75% Vectors On (default); 3-skip; and 4-LCD Backlight (defaulted to your preference).

The Y/C Video Connection.

The MM can also be connected to monitor a stable Y/C video source, such as that from an external Y/C video switcher, Y/C camera, or even the Video Toaster's Y/C output (if one uses the new Y/C Plus Interface for the Video Toaster). Important Note: the MM isn't designed to display non-time-base-corrected video sources, such as VCR playback, without an objectionable amount of image jitter.

It's assumed that your system's stable Y/C output is available from the now standard 4-pin mini-DIN socket. You must adapt from that output connector to a split-Y/C BNC connector to use the Magni Monitor. MarkerTek's three foot Y/C breakout cable, part No. SV-215 (\$42.95), does the job. If this Y/C cable adapter isn't long enough, use matching lengths of longer BNC video cable to extend the length of each Y and C cable. Using this Y/C adapter cable, connect the Y (luminance) output cable side to Ch A video input on the MM's base unit. Connect the C (Chrominance) output side to Ch B video input. Important: Connect the Composite video version of your stable Y/C source to the Reference input and cap the Reference looped output with a 75 ohm termination. Connect the Ch A (luminance) looped output, and Ch B (chrominance) looped output to a Y/C 4-pin mini DIN connector for your master record VCR. Connect the MM's Waveform output to your chosen video monitor.

Since the Y/C signals are input separately, only the luminance can be displayed on Ch A, and only the chrominance can be seen on Ch B. This means that you'll only get a waveform trace on Ch A, and only a vectorscope display on Ch B. More information about the Y/C connection to the Magni Monitor can be obtained by contacting MAGNI's customer support telephone number.

How Does The Magni Monitor Stack Up Against The DPS Personal V-Scope?

The question naturally arises as to how the Magni Monitor system compares to the DPS Personal V-Scope. One would expect significant differences in the MM, since it costs approximately \$1,000 more.

The most distinctive difference is the implementation approach taken by Magni—a stand-alone monitoring base unit which doesn't require a host computer. It's coupled with a remote unit panel with buttons, a rotating knob, and a friendly menu structure. Since Magni Systems Inc. is a professional video instrumentation manufacturer, their approach in designing the Magni Monitor is to be expected. Historically, video technicians have used buttons and knobs for controlling and monitoring their video sources. However, if they are to accept computer-assisted menus, they must be friendly and easy to use. So, Magni has devised its proprietary system of menus, prompts, and

controls. Once any menu adjustment has been made, the base unit responds and the display changes. Because it doesn't require an external computer, the Magni Monitor is easier to connect and it responds to user input more directly. The Quick Keys make using the most important menu functions very convenient.

In the area of display variations, the MM has a seemingly endless variety of color choices for waveform, background, graticule, etc. Also very significant is the calibration and accuracy of the waveform. The graticule can actually be used to read off units of time (from 0.2 microseconds to 5 microseconds). A Magnification feature provides a 10X magnification in

Horizontal Scan mode for closer inspection. Variable gain is also provided for either Waveform or Vectorscope mode. In the Waveform mode, the MM also has a 2-Field Trace mode, which displays in sequential order the luminance of the odd field then the even field. Incidentally, this is the way all NTSC interlaced video is created. This sequential two-field display is extremely useful for testing the performance of VCRs which have two sets of heads for creating the odd and even fields respectively.

In contrast, the DPS Personal V-Scope approach to waveform/vectorscope monitoring follows the current desktop trend: to mount all the control electronics on



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an internally installed PC compatible printed circuit card, and have all possible menu choices available "on-line" displayed on your computer's RGB monitor. Their integrated PV-Scope software also provides access to their second generation PTBCH time base corrector card's proc-amp functions. These require an RS-232 connection from your Amiga to either the PTBCH or PV-Scope card. In addition to the separate 2H or 1H displays for the waveform, or vectorscope display, PV-Scope provides the newer professional Overlay mode in which both traces are seen overlaid on each other. The Magni Monitor does not have this feature. PV-Scope also has a unique Split mode which displays a side-by-side trace in a lower quarter screen size. This is very helpful in the Superimpose mode, since Program video is seen in the top half, and the waveform and vectorscope traces are seen in the lower half.

The PV-Scope trace was designed to be "eye friendly," but its display is not user adjustable to the same degree as Magni's. The PV-Scope's display is fixed—a white trace on a neutral gray background with a black graticule. The PV-Scope's horizontal time axis graticule is not as accurately calibrated as Magni's. Two filters are provided: Flat and Low Pass, equivalent to the Magni's Full Bandwidth and Low Pass. A magnification feature is not provided, making close inspection of the waveform difficult. There is no Field Display mode. Otherwise, the PV-Scope does provide many of the most essential waveform/vectorscope monitoring features, but without the additional features, and for a significantly lower price (less than \$1000).

The Bottom Line

The Magni Monitor is the most professional waveform/vectorscope monitoring system designed for use on conventional composite video monitors. It has most of the features of the more expensive stand-alone separate waveform/vectorscopes, but at a more affordable price. Being able to customize your own waveform/vector displays and seeing them on conventional video monitors is a powerful feature of the Magni Monitor system. The set-up menus are easy to use, and the Quick Keys provide quick access to the most used functions. Professional video personnel will be quite comfortable with the Magni Monitor system, and the new legions of Video Toaster producers can now use a more affordable waveform/vectorscope monitoring system that's as good as the more expensive stand-alone units.

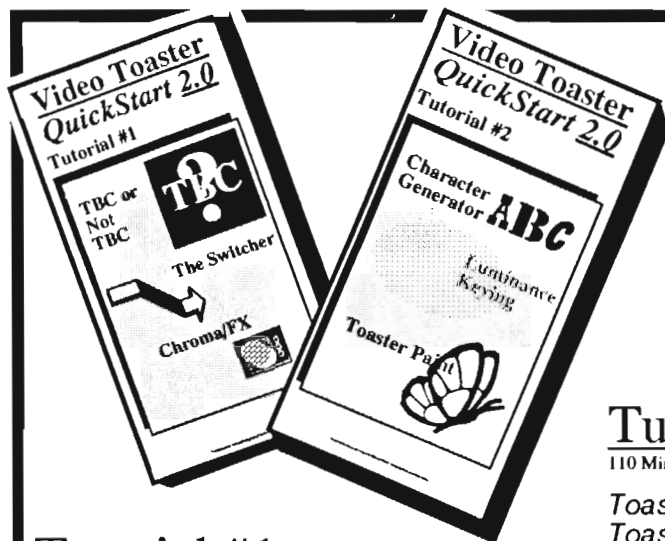
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OUR EXPERTS

Lee Stranahan is known across the country for his ability to show people the power of the Video Toaster. He wrote the Tutorials for the acclaimed Video Toaster 2.0 manual and last year he logged over 30,000 miles giving seminars, speaking at conventions and user's group meetings, and working at trade shows for NewTek. He is currently featured in the Desktop Images instructional tape series.

Tony Stutterheim is the director of NewTek's award-winning Revolution. As the former head of NewTek's Video department, he has been working with the Toaster since before its release. A prize-winning photographer and video editor, Tony is also responsible for many of the amazing LightWave 3D animations seen on NewTek's promotional tapes. He is currently starting his own high-end production/post-production/3D graphics studio.

John Gross is the lead instructor at NewTek University, NewTek's training program for its authorized dealers. John's classes at NewTek U have earned him high praise as a teacher and Toaster expert. He writes the "Dear John" column in *Video Toaster User* magazine, and has also worked as a graphics/3D artist in Minneapolis.

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Introduction to Modeler III

by Tim Doherty

First-time Toaster owners who are amazed at the friendliness of the Switcher's iconified transitions are just as likely to be perplexed by the Video Toaster's 3D slice. Arguably, it is the most confusing component, particularly to new users. With wireframes that can appear tangled, and terms such as spline tension, surface normals, and background layers, inexperienced animators can easily be intimidated. However, it is actually less complicated than the terminology or software first suggest. Though 3D modeling is an art unto itself, it requires only a bit of guidance and an investment of time to become comfortable with LightWave and Modeler.

If you have read and worked through the first two installments of this introduction (*Video Toaster User* June/July and October/November 1992, available as back issues), you should, by now, have a firm conceptual understanding of the Modeler, including orthographic projection, the 3D coordinate system, polygon names and surface normals. You should also have developed a working knowledge of features such as creating or selecting points/polygons, the use of layers, and commonly used tools like Move, Cut, Paste, and Delete. In this installment, we'll focus in detail on other tools for manipulating object parts, discussing how the tools function, as well as some practical applications. We'll also talk more about the power of the program's layers. Most of the descriptions involve hands-on examples, so you'll need to load Modeler and practice as you read.

The Modify Tools

Size and Stretch

Load ("L") the NewTekLogo object from the Tutorials directory into the current layer. Click on the Modify/Size button. Move the cursor to X : 0, Y : 0, Z : 0 in any view, then drag the mouse in either direction while keeping the left button depressed. As its name implies, Size expands or contracts the selected objects or parts. Dragging the mouse to the right expands the selected items, while moving it to the left shrinks them. Size is uniform on all three axes, so that the object stays proportional. Return the logo to its original size with Undo ("U"), then move the pointer to the right of the object and repeat your last operation. Now, as the object gets larger, it also moves outward from the location of your pointer. The further away you place the pointer, the greater the distance it moves as it expands. This is because commands in the Modify and Multiply menu occur relative to the pointer's position. By varying the distance between the pointer and the selected objects when you execute the command, you can achieve very different results.

Return the logo to its original size and orientation with Undo, then go to the Back



view. Move the logo along the positive X and Y axes, so that it is located in the top right side of the window, centered somewhere around X : 2, Y : 2, Z : 0. Click on the Size button again. Place your pointer over the approximate center of the logo in the Bottom view and expand it once again. Notice that, in the other two views, the object's position changes, even though the pointer was placed directly over it. Size operates on all three axes at once. In any one orthographic view, we can only specify the placement of the pointer on two axes at a time, so resizing on the third axis occurs relative to its zero coordinate. To specify the center point on all three axes at once, click on the Numeric button and enter the appropriate coordinates.

Unlike the Size command, Stretch does not keep the object proportional. You can vary the amount of expansion or contraction along any two axes by simply dragging your mouse. Try stretching a sphere, and notice how easy it is to squash it into a pancake or pull it into an oval. Also note that, because this command operates only on two axes at once, the results depend on the sphere's location relative to the pointer but not to the X : 0, Y : 0, Z : 0 coordinates.

Magnet

The Magnet tool is a bit more unusual than the other Modify commands, but no less powerful. It allows you to create deformations which have a very organic look by pulling on a volume of points. The closer points are to the center of the volume, the greater their deformation. The further away they are from its magnetic force, the less they're affected. Points outside of the box are not influenced by its pull. To illustrate this, reset Modeler (Shift-N), load ("L") the ChromeTeapot object from the

Objects/Kitchen drawer, click on the Modify/Magnet button, then click anywhere in the Back view. The Magnet's default dimensions are one meter square, which are too large for the small object we've loaded. We can resize the magnet by clicking on the Numeric button, and entering a new radius. (Note that, although we can resize it, we, unfortunately, cannot alter its square proportion.) For this example, enter a radius of 0.1 meters. Then press the "A" key to shrink our windows so that the Teapot fills all three views. In the Back or Bottom view, position the magnet over the right side of the Teapot by holding down the left mouse button and dragging it to approximately X : 70, Y : 55, Z : 0 (millimeters). Next, place your mouse pointer over the center of the magnet in the Bottom view, then press and hold the right mouse button and drag the pointer to the right about 50 millimeters. Release the mouse button. Notice how smoothly deformed the Teapot's side is. Changing the radius of the magnet controls the size of the area on which we can operate. Figure 1 shows three different deformations of the Teapot, each dragged by the same amount but using a different radius.

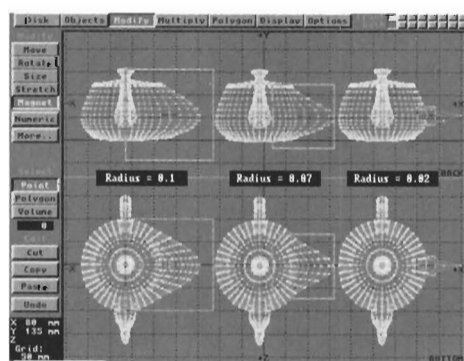
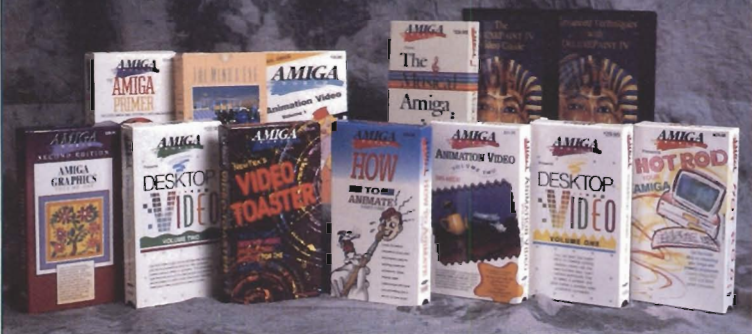


Figure #1



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TM14

Applications for the magnet tool are varied, and tend to be specialized. You can add smooth, natural looking bumps or indentations to your objects, which is particularly important when working on organic shapes. By deforming both sides of the Teapot, then morphing back and forth between the altered and unaltered models in LightWave, you can make the Teapot appear to breathe. You can make an object twist and squirm, or bulge in and out, as it transforms into an entirely new object.

Shear

Additional Modify command buttons are available by clicking on the More button. The first of these, Shear, allows you to tilt selected objects. Shear's most obvious use is in manipulating fonts or logos. Reset Modeler (Shift-N), then load the NewTek logo again. Click on the Shear button. Position the pointer over the logo in the Bottom view, then drag the mouse to the right while pressing the left button. In the Back view, the logo slants like italicized text. Shear operates on any two axes at once. Notice the difference between dragging the mouse directly to the right along the positive X axis, or dragging it to the right and up (positive X, positive Z). Also, try using Shear in different windows. By shearing the logo from the side window, you can slant it upwards, similar to the logo for *Star Trek: The Next Generation*.

A nice animation technique is to shear a logo to the left, saving it under a different name such as NewTekLogo.left, then shear it to the right, saving it under the another name (NewTekLogo.right). Load all three into LightWave, position them off screen to the left, then animate them as follows: NewTekLogo.left moves to the center of the screen in, say, 30 frames. When it has stopped moving, morph it quickly (around seven frames

or so) to NewTekLogo.right. Hold it in that position for a couple of frames, then morph it back to NewTekLogo in about six frames. The resulting animation will give a very satisfying, cartoon-like reaction to the object's movement, thereby enhancing an otherwise dull logo treatment. This illustrates how simple but creative modeling techniques can drastically improve your LightWave animations.

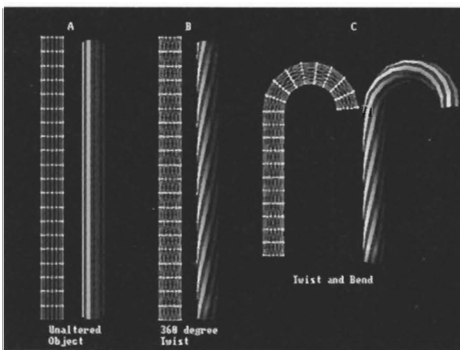


Figure #2

Taper

Modeler features two taper commands. Both taper an object along two axes at once, but Taper 1 works uniformly along the selected axes, while Taper 2 works independently upon the axes. Let's try using them on the NewTek logo. Restore the logo to its default position and appearance with the Undo key, or reload it. Click on the Taper 1 button. We want to taper the logo on the X and Z axes, so we'll use the Bottom (X,Z) view. Position the pointer over the center of the object, then press the left mouse button while dragging the pointer directly to the

right. Observe how the top of the object tapers outward in the back and left views. Still holding down the button, drag the mouse to the left. The object tapers inward. Undo ("U") this operation, reposition your pointer away from the object in the same view, then taper it again. Notice the difference. As with other tools, the relative position of the pointer when you execute the command makes a big difference in the results you achieve.

Restore the logo, select Taper 2, then drag the mouse in a straight line along the positive X axis. The object tapers outward in the X plane, but stays unaltered in the Z plane. Moving the pointer up or down in the Bottom view tapers along the Z axis. Thus, one axis can be tapered separately from another.

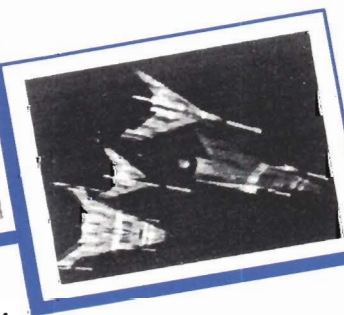
Undo any changes you've made, then taper the object outward again along the positive X axis. As before, the top of the logo expands. But what if we want the opposite effect, in which the bottom points are expanded outward? This can be achieved by changing the Sense in the Numeric requester. With plus (+) sense selected (the default), operations occur along an object in the positive direction. By clicking on Sense -, we can reverse this. Try it now. Notice that the logo tapers outward at the bottom, or negative, end. Changing the Sense direction is very significant for proper control of the Shear, Taper, Twist, and Bend tools in the Modify menu.

Twist and Bend

Twist is another specialized command. It can be used to create strange and unusual shapes. I often use it experimentally. It is also a functional method of creating cylinders twirled like a barber's pole, or like a pedestal base. Bend has more practical applications. It is used to make smooth curves in objects. Like all Modify commands, you



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can use Twist and Bend interactively with the mouse, in which case their relative position to the pointer influences the results. You also have numerical control over them, including options to change the sense, set the angles and degrees, specify the X,Y,Z position against which the action will be executed, and pick the axis.

Figure 2 shows a cylinder which was turned into a candy cane using the Twist and Bend commands as follows: First, I created a 16-sided cylinder, centered at X : 0, Y : 0, Z : 0 and aligned along the Y axis. The top polygon of the cylinder was then extruded, also along the Y axis. The Extrude command will be discussed momentarily, but for now it is important to note that the object was extruded into many segments. This was necessary to give the object more points on which to execute the Bend and Twist commands. After creating two surface names, CandyRed and CandyWhite, I renamed all of the Polygons to CandyWhite. Clicking the Select Polygon button, I drew a lasso around the entire object in the Bottom view, thereby selecting all of its polygons. Then, still in the same view, I moved my pointer around the object, deselecting every other side group of polygons. The rest of the polygons, still selected, were renamed CandyRed. The resulting object, ready to have two colors applied in LightWave, is shown in Figure 2A.

Next, I twisted the object using the Numeric requester settings: Y axis, 360-degree angle, Center X : 0, Y : 0, Z : 0. This produced the object shown in Figure 2B. All that remained was to draw a volume around the top one third of the model, then bend it in the Bottom view along the positive X axis. I used my mouse to create the bend. The final object is shown in figure 2B.

Note that, when using Bend or Twist, the axis you are looking down in a window is the axis along which the operation occurs. Thus, to execute either command on the X axis, you would move to the Left window which shows the Y and Z axes. This is different than other Modify commands like Taper or Size, which operate on the axes of the window you are in. The Sense button can then be used to set the direction of the operation. Also, like the other Modify tools, the position of the mouse, relative to the object, is important for controlling the amount and type of Bend or Twist.

The Multiply Menu Extrude

The Extrude command is used to give depth to selected object parts, turning two-dimensional surfaces into three-dimensional objects. Though points or even entire objects can be extruded, the operation is generally performed on selected polygons. As previously mentioned, the segmented cylinder in Figure 2A was created using the extrude command. This was done by selecting the top polygon of a cylinder, then using the command's Numeric requester to extrude the polygon into multiple segments along the Y axis.

The tool's default values extrude polygons for a distance of one meter and into one segment. If this is acceptable, you can execute the command by simply clicking in the appropriate window, then pressing Return or clicking on the Make button. Extrusion occurs along the axis you are sighting on in the window. Thus, to extrude on the Y axis, you would click on the Bottom (X,Z) window. If you need to enter different extrusion values, open the Numeric requester. A new Extent value changes the length of the extrusion. More Segments extrudes the polygon into more sections. If all you want to do is add depth to a logo, one segment is fine. If you want to create an object to further manipulate with other tools such as Bend, then increase the number of segments. You can also pick the axis of extrusion numeri-

cally. Finally, you can change the scale for the entire requester.

There are a few points to keep in mind when using Extrude. First of all, polygons should be facing away from the direction of the extrusion. Otherwise, the surface normals of the extruded surface will face inward. This makes it easy to extrude a flat, 2D logo into a 3D one, since, usu-

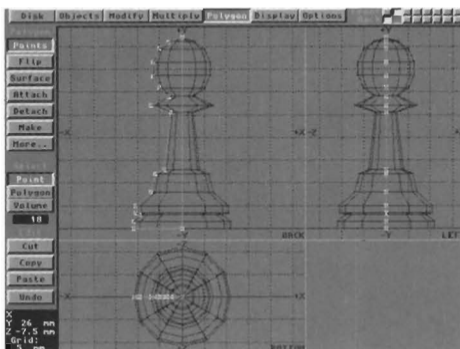


Figure #3

ally, the logo will be facing you along the negative Z axis, and you'll be giving it depth along the positive Z axis. However, in the case of the cylinder in Figure 2A, the top of the cylinder was facing along the positive Y axis, the same direction I was extruding it. I, therefore, had to flip it ("F") prior to issuing the Extrude command.

Secondly, Extrude does not function properly with double sided polygons if both sides are selected. If the cylinder's top in Figure 2A had been double sided, and I selected both sides at once by clicking on it, the result of the extrusion would have been copies of the polygons

and/or their vertices rather than a 3D object. The correct procedure is to deselect one side using the "I" key.

Finally, remember that, when you execute the command, the polygons you've picked will deselect. Therefore, if you make a mistake such as extruding along the wrong axis, be sure you select the polygons again after undoing your error. Otherwise, when you change the axis and extrude again, everything in the current layer will extrude.

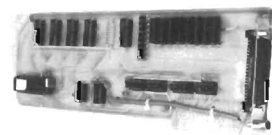
Lathe

Reset Modeler (Shift-N), then load the DarkPawn object from the Objects/games/chess drawer into layer 1. Switch to layer 2 ("2"), then press "Alt 1" to turn layer 1 on as a background layer. Resize the windows ("A") so that the pawn object fills all three views. Next, click on the Polygon/Points button so that you can add points to the current layer. In the Back view, trace around half the pawn in a counter-clockwise order. When you have finished, join the points into a polygon by pressing the "P" key. Your workspace should now resemble Figure 3.

The Lathe tool is used to spin an outline into a 3D object. The outline we've just created is ready to be lathed into a complete pawn. Switch from Select Points to Select Polygons mode. Since the outline is the only object in the current layer, we don't need to select it. (Remember: If you don't select anything in the current layer then, by default, everything is automatically considered to be selected.) Click on the Multiply/Lathe button. Move your pointer into the Back view and hold down the left button. The white line which follows your pointer is the axis around which we will lathe the object. You can place it anywhere in the view along either axis, where it will remain when you release the mouse button. Our

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pawn outline must be lathed around the Y axis from the X : 0, Z : 0 coordinate. Position it there now. If you have trouble because the axis line switches back and forth between X and Y orientation, try moving it around the perimeter of the window. Moving it along the top or bottom of the window gives you a vertical (Y) axis line, while moving it up and down either side of the window gives you a horizontal (X) axis line. After you have positioned it directly on top of the Y axis at X : 0, Z : 0 (checking its location in both the Back and Side views), press the Return key, or click on the Make button. A pawn should appear, closely resembling the original object in layer 1.

As you can see, Lathe is a powerful and easy way to create objects which are symmetrical about an axis. As with other Modeler tools, results depend on the relative position of Lathe's axis. Undo the last operation, then move the axis to somewhere around X : 10, Z : 0 millimeters before re-executing the command. Now the pawn has a hole in the center. This is a fast method for creating donut shaped objects. Lathe's Numeric requester gives you precise control over positioning the axis. Thus, if you are having trouble placing the axis on a particular edge of a polygon, simply check the location of one of the edge points by using the "I" command, then enter that Center value for Lathe. Other Numeric requester features allow you to increase or decrease the detail of the Lathe by changing the number of segments, or to adjust the angle of the operation. For instance, if we only wanted half a pawn, the angle could be set from 0 to 180 degrees.

Mirror and Clone

Mirror and Clone provide two methods of duplicating an object or part. As its name explains, Mirror creates a mirrored copy of the object. If, for example, you had created a human's right hand, you could simply use Mirror to create the corresponding left hand. Like Lathe, Mirror will prove to be a big time saver as your modeling skills improve. The Mirror command operates about an axis line, which is positioned in the same manner as the Lathe axis.

Unlike Mirror, Clone creates duplicate objects. If you made a clone of the human right hand mentioned above, you would end up with two right hands rather than a right and a left hand. However, Clone is more versatile than just pasting a duplicate. Its power is found in the Numeric requester. You can make multi-

ple copies of an object, determining how far apart they should be by setting an offset value. For example, try setting the number of clones to 5 and an X offset value of .05 meters. You end up with five pawns evenly spaced along the X axis. Undo this, then change the offset values to X : .05, Y : .05, Z : .05. Press Return again. Now the pawns are spaced in a line which runs up, to the right, and inward. The rotation command provides still more control. Clear the workspace, then add a rectangular box with dimension from X : -1, Y : .2, Z : .2 to X : 0, Y : 0, Z : 0. Set the number of clones to 10, the Y offset to .2, and the Y rotation to 36 degrees. When you press Return, the result will resemble spiral stair steps. The rotation amount is added to each clone, so that the first clone is rotated 36 degrees, the second one 72 degrees, and so on to 360 degrees. By changing the degrees of rotation, you can create many different, complex shapes.

Skin and Morph

The Lathe command used an outline to create a 3D shape. The Skin and Morph commands make use of outlines in a different fashion. Skin requires a series of two or more outline polygons stacked behind one another at varying depths. When the command is executed, the outlines will be joined into a single 3D object. In effect, it is like covering a skeletal frame with skin. A typical example of using skin would be to make a canoe or row boat. Design the basic shape of the boat as seen from above. Copy this polygon, paste it beneath the first, then stretch it so that the sides are narrower and the length just slightly shorter. Repeat this a few more times, then select all the polygons and click the Skin button. In a moment the polygons join to form the shape of the boat. Skin has no Numeric requester; the command is completely automatic. Note that Skin does not require that the various outlines have the same number of points.

Morph is a more esoteric version of skin. With Morph, you specify only the starting and ending polygons. Then, using the Numeric requester, you determine how many in-between segments to create. The difference between Morph and Skin is that Morph gradually changes the shapes of the in-between layers from the first polygon you created to the second.

Thus, the two polygons can have very different shapes and morph smoothly alters the shape of the segments. To execute the command, make sure both polygons are selected, click on the Morph button, then enter a value for the number of segments. Unlike Skin, the morphed outlines must have the same number of points.

Multiple Layers

The basic concept of using foreground and background layers was introduced in the last issue. It was also demonstrated in the Lathe tutorial discussed above. However, layering is not limited to a single foreground or background. You can open multiple layers of either type. This layering feature is both powerful and functional. Multiple foreground layers are opened by holding the shift key while you click on the top row of layer buttons, or while you press the appropriate number keys. Opening background layers is accomplished by holding the Shift key while clicking on the bottom row of layer buttons, or pressing the appropriate Alt-number keys.

Let's consider a logo like the NewTekLogo object again. Constructing an object like this from scratch would be easiest to do via multiple layers. In the first layer, we would manually create a polygon for the letter "N." Then we would switch to layer 2, activating layer 1 as a background. In layer 2, we would design the "E" object, using the background "N" as a reference for size and placement. Moving to the third layer, we would turn on 1 and 2 as backgrounds, then design the "W." This process is repeated for the "T" and "K" letters in layers 4 and 6, respectively. Since we have already designed the letter "E," there is no point in re-creating it. Instead, we can copy it from layer 2, then paste it into layer 5, again using the other background layers as a guide for repositioning.

Separating the individual letters into different layers makes it easy to retouch, reposition, resize, or otherwise alter them. Once all the letters have been positioned properly, we can extrude them evenly and at the same time by activating all six layers as foregrounds. Then, when we issue the Extrude command, it operates as if all six letters were together in one layer. When you want to return to a single active layer, or otherwise reconfigure the layering scheme, simply click on any layer button. Since the logo's letters are still separate, we can continue to easily alter them, without the need to select individual letters by enclosing them in volumes. When we are finished retouching the logo, we can save the individual layers as one object by again activating foreground layers 1 through 6 at the same time, then issuing the Save command.

Modeler's tools are many and varied. When used in conjunction with the program's layering capabilities, they provide great flexibility while at the same time minimizing the complexity of your workspace. Practice using them. Remember that there are usually several different ways to construct a particular model or part. Be creative. And above all: have fun!

VTU

Tim Doherty is a professional LightWave animator. Contact him at TKD Animation, 218 Rancho Del Oro Dr., Suite 126, Oceanside, CA, 92057 or 619-967-9402.



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ABCs of Video II

A lesson in Video Economics

by Rick Lehtinen

Perhaps you remember a certain camcorder commercial that played a lot last year. A frustrated shopper tries camcorders in store after store. As she tries each model, she asks the various salespersons: "Will these tapes play in my VCR?" Each seller, in turn, looks dejected and confesses that they won't.

At length, she finds a handsome salesperson (the others were all somewhat dweeby) who confidently answers that "Yes, these tapes *will* play in your VCR." The shopper beams.

It's an effective commercial. Unfortunately, as we'll see in this article, it may teach the wrong principle. Choosing a camera format based on whether or not it is compatible with your living room VCR is a serious case of the tail wagging the dog. Worse, it may lead you into making some buying decisions that you may regret down the road.

Giving the format hucksters their due as marketing experts, let's now develop a more effective plan for equipment purchase: one that's based on sound technology, a knowledge of video fundamentals, and a little bit of business sense. This way, your investments can build and work together, giving you the most for your money now, and an easier upgrade path in the future.

You literally owe it to yourself to learn a little bit about video fundamentals.

Baby Ducks

NewTek's Paul Montgomery once shared with me a principle he'd learned while marketing products in the days before Toaster. When a duckling hatches, it assumes that the first thing it sees is its mother. It tends to follow it from that point on.

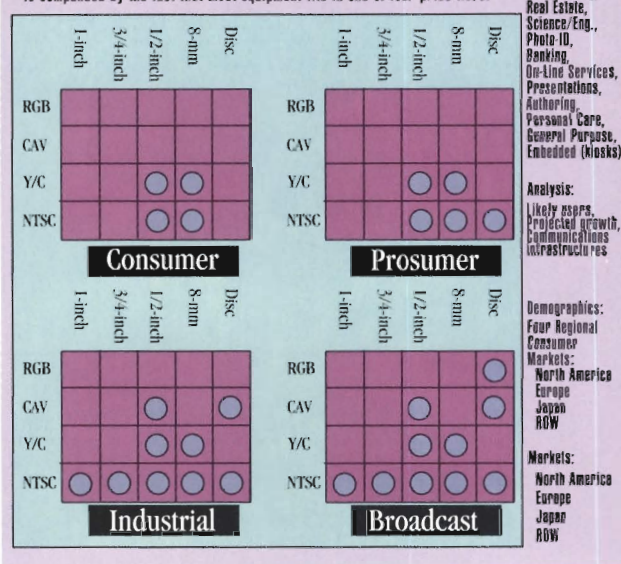
It can be the same way with video equipment. If one's interest in video was stirred by broadcast television, and later heightened by VCRs, it's only natural to return to TV programming as an information resource for learning about the next step—shooting pictures and making your own video.

Unfortunately, before the invention of the Video Toaster, the available selection of consumer production equipment was pretty grim.

Today, that's all changing. Many manufacturers have noticed Toaster's acceptance, and are coming out with a broad variety of equipment to meet the needs of this video revolution. But the baby duck syndrome prevails. Like so many Homer Simpsons, when we hear the word "video," our faces get a dreamy look, we smack our lips and our mind forms images of whichever camcorder we last saw nationally advertised on TV.

Now, forking over simoleons for whatever we see advertised on the tube has become part of the American way. Unfortunately, when it comes to video equipment, you may be painting yourself into a corner. In choosing the cam-

Figure 1: Multiplying the number of video signal formats by the number of video record systems yields a large number of possible formats. The choice is compounded by the fact that most equipment fits in one of four price tiers.



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corder, you also make decisions about your future editing equipment. In choosing the editing decks, you limit your choice of the edit controller and other pieces of your future setup. Eventually, you may end up so committed to one format or another that your options become severely limited. You may come to a point where you can't throw it out and start over, or do what you need to with what you've got.

You need more information than you can get from TV commercials and slick pitches to make these choices.

Format Frustration

There are at least a gazillion videotape formats and options. The source of much format confusion lies in the mistaken assumption that all video signals are alike.

To review a little from last time, there are four types of video signals:

1. RGB; the pure video primaries of Red, Blue and Green
2. CAV; the Component Analog Video signals derived from RGB via algebraic summing circuitry

3. Y/C; separate black-and-white (luminance or Y) and color (chrominance or C) signals
4. composite (NTSC, the single-channel solution used for broadcasting and Toaster video production)

There needs to be some medium to record and store these signals. Once you start looking around, you'll find there are many viable video recording systems:

1. One-inch videotape (a system that became the industry's backbone)
2. Three-quarter-inch videocassettes (used for U-Matic and D-2)
3. Half-inch videocassettes (used for VHS, S-VHS, BetaMax, ED Beta, Betacam, MII, Betacam SP and D-3)
4. Eight-millimeter videocassettes (used for 8mm, Hi-band 8mm, and some data recording systems)
5. Disc-based video recording systems

Some of these systems come in several price and quality ranges. If you are not familiar with at least the first three of these grades, you might want to get more information before spending money:

1. Consumer (mass advertised, readily available, buying decisions made by primarily emotional factors)
2. Prosumer (more specially advertised, available in specific stores and shops, purchased with a specific task in mind)
3. Industrial (targeted advertising, available only from dealers, purchased only after cost justification and often as part of a budgeting process)
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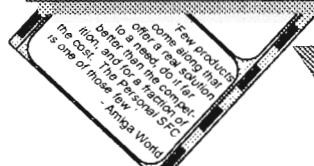
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ABC's Continued from Page 90

Videotape: Handle With Care

Common-Sense Tape Handling Pays Off Handsomely

Your videotape is as important as your recorder in making Toaster video productions. It is as easy to treat tapes right as it is to abuse them. If you take care of your tapes, they will serve you better. That means more fun, and maybe better profits.

Proper tape care begins with proper environment. Humidity, temperature and cleanliness are all factors to watch. Experts offer many guidelines, but they can be summarized in a simple rule of thumb: If you're comfortable in your video workroom while wearing a light sweater or sport jacket, your tapes are probably fine. If you are too hot or it feels stuffy, the storage conditions aren't right for your tapes either. Cold, on the other hand, doesn't matter as much. As long as your tapes and decks are at about the same temperature, they should be fine.

Cleanliness is also important. If you want to eat, smoke or drink, do it somewhere else. Food migrates, especially sticky stuff, such as soda syrup. This can form a resting place for airborne contaminants, such as cigarette ash. A little piece of ash, far smaller in diameter than a human hair, looks like Mt. Rushmore to a whirling videotape head. When it hits, it momentarily lifts the tape from the head, forming a video splotch called a dropout. Too many dropouts make a tape look old, and worn out before its time. Also, film from exhaled smoke can build up on tape surfaces, decreasing the output level.

Ever find yourself with a desk full of videocassettes, and a pile of their empty containers at your feet? Learn to replace cassettes as you use them and you'll cure two bugbears. First, you give your tapes an extra level of insurance in case someone "accidentally" opens a soda can. Second, getting the containers up off the ground keeps dust and dirt out of them.

Relax And Unwind

Some experts recommend fast-forwarding a tape all the way to one end, then rewinding it without stopping, before recording. This serves to even out any irregularities in the tension of the tape as it packs around the reel hub. It is also a good thing to do every twelve months or so if you are keeping a tape in storage.

When storing tapes, do not depend on a cardboard sleeve to keep dust out. Augment the sleeve with a zip-lock style plastic bag. And if you ship a tape, don't settle for a rental store plastic shipper. Use a good quality shipper with latching closure. Wrap the cassette in a plastic liner, then tape the shipper closed.

Finally, if an edited tape is valuable enough that you worry about its loss, go ahead and break the record lock-out tab on the back of the cassette. You will be unable to reuse it, but the security that comes preventing anybody from accidentally erasing it is worth the price.

Yes, you can put a piece of tape over the missing lockout tab to fool the deck, but there are three drawbacks to doing so:

1. It puts sticky stuff in your deck, from where it could potentially migrate and foul up the works.
2. As the tape ages and flexes, it may not completely fool the sensor that looks for the tab. This may make operation intermittent.
3. The sensor may poke through the tape, and become stuck. This might lead to sensor damage when the tape ejects.

VTU

the market)

Just for fun, take a look at Figure 1. All of these options multiply together to create a baffling array of choices. But don't despair. Reading publications such as Video Toaster User is a great way to learn what you need to make informed buying decisions.

You Get What You Pay For

Not surprisingly, the price of equipment relates directly to the signal quality it normally produces. The best images are produced by RGB systems. Unfortunately, they are so complicated and costly that few are available. CAV systems are almost as good as RGB, and are readily available, even if they are expensive. Y/C, while not as clean as CAV, usually makes a better picture than composite. Y/C pricing is just a step above composite, but not nearly as high as CAV.

RGB systems require up to four signal channels or wires to carry a picture. CAV needs three. Y/C needs two. Composite needs one. Each added wire adds circuitry. This is another reason video equipment is priced as it is.

Let's list some equipment options, this time sorting the pile by price.

For three figures (\$999 or less), you can buy standard VHS and 8mm products. These are best used for shoots where the start is the end, i.e., informal productions such as video letters where there will be no editing.

For four figures (\$999 or less), you can buy S-VHS or Hi8 equipment. This is an excellent domain for Toaster Users, because the image quality is high, yet the price is low compared with other alternatives.

At the higher end of this price tier is the venerable 3/4-inch U-Matic format. If any format could ever have been considered an industry workhorse, it was U-Matic. However, its use is fading as S-VHS picks up steam.

In the low end of the five figure bracket (\$25,000 or less), you find U-Matic SP and MII. Slightly above that, there's Betacam SP. At this altitude, the editing's fine, but the camcorders and deck/camera combinations get frightfully expensive.

For around \$50,000, you can look at one-inch (although it has been nearly supplanted by D-2 and D-3). Toaster Users are well advised to

be careful about one-inch, even if they get used gear at a screaming price. One-inch gear is expensive to maintain. Major components, such as the head motor, can cost more than an entire

Table 1. Comparison of formats and prices

Format	Cost	Resolution	Comments
VHS 8mm	\$\$\$	250 lines	Good only in 1st generation
S-VHS Hi8	\$\$\$\$	410 lines	Usable for basic editing and acquisition
U-Matic	\$\$\$\$	350 lines	Good for 3 generations.
M-II U-Matic SP Betacam SP	\$\$\$\$	350 lines	Good for many generations
One-inch D-2, D-3	\$\$\$\$\$	350 lines	Excellent for multiple generations.
D-1	\$\$\$\$\$	400 lines	Highest available quality
Optical discs	\$\$\$\$\$	varies with record format	varies with record format

Toaster Workstation.

At the high end we find D-1, priced around \$75,000. This is probably as close to a perfect record medium as one will find. Its ability to layer effects over itself many generations deep with negligible losses make it a format of choice in the highest end post production facilities. However, if as a Toaster user you have enough money to even think about using D-1, then buy a dozen Toasters instead. Network them together into a render farm, and start cranking out high volumes of graphics and animation.

We won't say much here about disc-based recording systems. Quality is often excellent, but the price is often high. You also run the risk of being the only guy in town with such gear. The technology has a bright future, however. This is all summarized in Table 1.

There are two important points to note. First, not all formats are suitable for all applications because manufacturers have not supplied all the pieces. For instance, there are no D-1 camcorders, it is a studio format. You have to shoot in something else, and then transfer it for editing.

There is a similar problem finding editing equipment for 8mm. One work-around is to shoot in 8mm, then edit onto S-VHS or U-Matic.

If The Shoe Fits

Many users divide up the tasks of signal acquisition, editing and playback. They select the best equipment in each category, regardless of whether the formats are the same (i.e., will the camcorder's tapes play in the VCR?). The drawback of such an approach is that one has to be careful to make sure the equipment will interface properly. However, it's easy once you know the basics. The positive side of the tradeoff is that this approach allows the greatest flexibility and the easiest path for future growth.

Manufacturers are making the job easier as well. Many decks now come with multiple formats in and out. For instance, just as S-VHS decks include composite ins and outs, some CAV decks now include Y/C ins and outs. The result is less confusion for everyone. We will talk about wiring equipment together over the next couple of months.

Exciting Conclusion

Now back to the commercial. Hopefully we have shown that the larger part of your video investment should not be steered by the lesser. Logic should state that it is the less expensive playback unit that should rise to the occasion, and not the more expensive camera that should stoop.

Stop listening to mass market pitch men. Buy video equipment to meet your current and future needs. You may have to do a little research, and even look harder to find what you want, but it is important to pick equipment that will help you grow.

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CyberSpace

by Geoffrey Williams

We'll be covering freely distributable utility programs of use to Toaster users on a regular basis in this column. If there is a specific type of utility you are looking for, let me know and I'll try to find something that will do the trick for you. If it doesn't exist, we'll let the readers know and hopefully a programmer out there can create it. Also, if you have written a utility that would be useful to Toaster users, contact me at the address at the end of this column and we'll let VTU readers know about it.

24-bit Images—Pretty But Large

If you poke around on the bulletin boards, you'll find a wealth of clip art and images, with some of the best in 24-bit format. There is a small problem with 24-bit images on a BBS, though. The standard IFF24 format is much too large a file to be practical in a BBS environment, as files are often over a megabyte in size.

While the Framestore format is more efficient in terms of file size, it is considered a proprietary format by NewTek. This means that you can't load Framestore files into other 24-bit buffers or into programs such as Art Department Professional. Unless you have a Toaster, you can't use the images, nor can you load them into other programs for image processing or manipulation. This makes the Framestore format dead in the water for use on a BBS, as only Toaster users can use them. Since there are many 24-bit cards and other display options for the Amiga, as well as utilities to translate Amiga images into those of almost all other computers, it makes little sense to upload images with such limited use.

Enter JPEG Compression

For true full-color 24-bit images, the format of choice is to start with an IFF24 image and compress it using JPEG. JPEG is a standard format on all computers for compression of 24-bit images. If you have a JPEG image compressed on a PC, you can decompress it on an Amiga and vice versa. JPEG is now available on all computer platforms.

Early commercial releases of JPEG adopted on the PC used slightly non-standard JPEG file formats. Since then, things have settled down with most adopting the JFIF standard, which is the one used with all Amiga JPEG products.

JPEG is what is known as a "lossy" compression format. The more you compress an image, the more image degradation there will be. JPEG uses very intelligent processing algorithms so most pictures can be compressed quite a bit without noticeable loss. However, every image is different.

Assuming that you start with a 1.1 megabyte IFF24 image, you can use the lossless (100%) compression ratio and reduce the image easily, down to half its original size or less (Note: Technically, this setting is not really lossless, something most people do not know, but it does eliminate all possible artifacting that might be visi-



ble to the human eye.) More typically, you can get images down to 1/10 their original size with no noticeable loss in image quality (it's there, but the eye can't see it).

JPEG for the Amiga

The first Amiga utility programs for JPEG compression and decompression appeared in the public domain and were created from the original source code provided by the Joint Photographic Experts Group, the committee that set the JPEG standard. They work, but are somewhat awkward to use. These utilities are called DJPEG (decompress) and CJPEG (compress). They convert from and to a format known as PPM, a subset of PBM (portable bit map), a format designed to be a standard for conversion across platforms. You must then use the included PPMT024 and 24TOPPM utilities to finish the procedure. These utilities must be used from the CLI.

Even after you have gone through all of the effort to convert the files, when you attempt to load them into ToasterPaint it won't work. There are two types of IFF24 files, compressed and uncompressed. PPMto24 only saves uncompressed files, and oddly enough, ToasterPaint refuses to load them (although almost all other 24-bit-capable programs will). The conversion of

Toaster created images to JPEG files works fine.

The current version 3 can be found as Amy_JPEG3.0.LHA. It was compiled from the official source code by Brian Wright for the Amiga community. The PBM utilities included in the archive were written by Albert-Jan Brouwer and Jef Poskazner.

While searching for utilities for this article, I did not find a converter that was adequate for use with the Toaster. The best one I have seen (other than commercial programs such as Art Department Professional) was a CanDo based utility created by Steven Blaize. (CanDo is a commercial program that makes it easy to write your own utilities, even if you are not a programmer.) He designed it for Texture City, a commercial collection of stunning quality textures that can be used with LightWave as brushwraps and as backgrounds for titling. With a little encouragement, I persuaded him to release it as a separate shareware product. It should soon be making the rounds on the various boards. Look for it as BROWSER.LHA.

It might seem that it would be easy to write an ARexx script that could batch-process Framestores, use ToasterPaint to convert them to IFF24 images, and then JPEG them. Unfortunately, there is a bug in the file requester in ToasterPaint that causes it to lose its place when run through ARexx. I've known people who have tried to do this and had enormous problems making it work, which explains why there are no PD utilities to do this. We desperately need NewTek to release a Framestore conversion utility so that we can make this process a little easier. Having to use ToasterPaint for the conversion is ridiculous. Fix it please, NewTek—we have work to do and don't need to do things the hard way.

There is a CanDo utility that can run ToasterPaint and convert Framestores to IFF24 images. It gets around the problem because it uses CanDo functions for the

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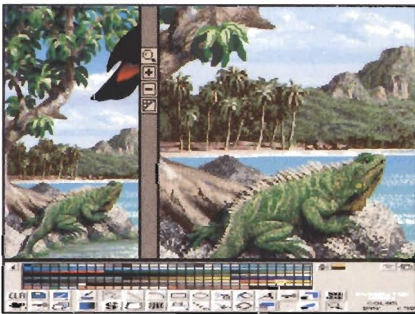
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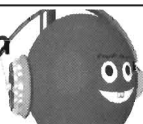
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file requester and CanDo keeps track of the selected directory. TFG2RGB was written by Richard G. L'Honmedieu. The archive is TFG2RGB.LHA.

Short of single-frame recording, the best way to show LightWave animations is to use DCTV. Included with DCTV is the ADAM utility, written with CanDo by Dan McCoy. It waits for each frame to be rendered, grabs it, converts it into a DCTV frame, and then compiles it into an animation. It's great, and before Digital Creations started including it with DCTV, it was one of the most popular utilities in the AVG library. It has now been surpassed by a utility that does all that ADAM does and more. Most importantly, it can batch-convert JPEG images.

REND24

REND24 was written by Thomas Krehbiel, and it is very full featured. The version you want is 1.04f, as previous versions lacked many features. As you can see from the picture, the interface is very simple. He wrote it specifically to ease the process of creating LightWave animations.

While it can load a JPEG file and convert it into DCTV, HAM-E or standard Amiga formats, it does not convert them into IFF24 images. Its main purpose is creating animations, and for that HAM or DCTV is your best choice of format. It is very useful as a JPEG previewer, as you can fairly quickly view files in either HAM or DCTV mode. It is also useful as a viewer for GIF (CompuServe's Graphics Interchange Format) and eight-bit grayscale images produced by Art Department Professional.

Using it to create an animation is simplicity itself. For example, let's say we want to create a 200-frame LightWave animation. Run REND24, tell it where the files from LightWave will be saved (using wild cards to set filenames) and where the converted animation should be stored. Click on the gadget to tell it to wait for frames to be rendered, and set the Frames gadget to 200 so that it knows when to stop.

One of the things different from ADAM is that it does not need to save the individual converted frames before compiling them into an animation. You can have the rendered frames deleted after conversion, but of course, once deleted they are gone forever (it's great if hard drive space is limited, but you had better hope that the power does not go out).

You can use the gadgets to specify the final format of your animation, whether in DCTV format, HAM, HAM-E or 16 or 32 colors. You can also have grayscale or lumascap output. The images can all be

scaled along the X and Y axis, and can be half-height or half-width and double-width, especially useful when going from interlace to noninterlace images.

You can set an NTSC limit so that only video-safe colors are used, and even use Floyd-Steinberg dithering

to create more apparent colors when in 16 or 32 color mode (although dithered animations play much slower). It also has palette locking, which is very important as palettes that vary between frames can slow down animation playback. You can create a ping-pong animation that plays backwards and forwards, and you can eliminate the two additional frames that are normally added for looping.

One limitation of

REND24 as a JPEG viewer is that it does not like images larger than 768 x 480. ViewJPEG is a small utility that will show

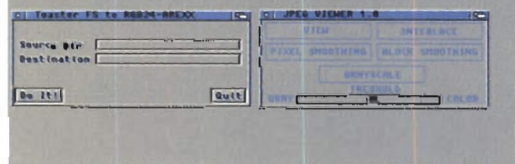
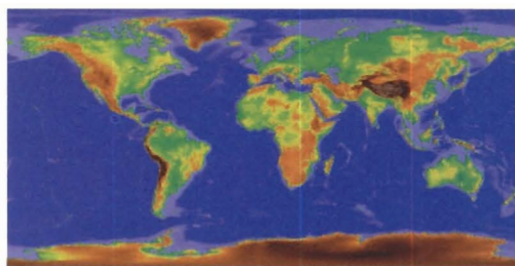
even large JPEG files as HAM or grayscale images with control over color threshold. You can smoothly scroll around oversized images. It supports the pixel smoothing and block smoothing features of JPEG, so you get very good results. It is also quite fast and has become my choice as a JPEG previewer.

If you prefer to view your JPEG images with DCTV, the CLI command JPEG2DCTV can do the job. As a CLI command, it is very easy to incorporate into scripts. You have control over the aspect ratio of the image, which is very useful if your JPEG image was created on a computer, such as a Mac, that has square pixels (the Amiga pixels are 1.2 times taller than they are wide). You can turn on cross-block smoothing, and activate auto-scaling which will create the DCTV image from the center of the JPEG image. After the image is rendered, you can save it as a DCTV image.

Mapping the Globe

This article was inspired by a JPEG image that I discovered on one of the local boards. It would be very useful to LightWave users, but I realize that many people have no idea how to convert it, hence this article.

The archive contained two JPEG images of the earth, one in color and one in grayscale. What makes these images so unique is that they were created from a 720 x 360 array of elevation data of the earth, with one number for every half degree of longitude and latitude. Frank Neumann wrote a couple of simple programs to convert this data into images. They provide a very realistic view of the earth. Used as maps and



wraps, they can create quite impressive 3D globes; just add clouds.

Everything described in this article is available for the downloading on various BBSs. If you would like a disk with everything described here, including the Earth images, an article on JPEG, and all of the utilities, send \$5 to:



Geoffrey Williams
Toaster JPEG Offer
1833 Verdugo Vista Drive,
Glendale, CA 91208.

A FOUNTAIN OF FONTS by Scott Gillies

If you're a regular user of Toaster CG, you'll be able to relate to this situation: You're mere inches from completing a job. Your client has just finished watching your final rough cut.

"Any problems?" you ask.

"No. Everything looks fine," your client replies.

"How about the typeface we used at the end part, you know, the part with your logo made of cheese and the dancing chickens?"

"It seemed fine to me...."

Yet, you're unsure. The font definitely was the best selection from your arsenal. But at the back of your mind you wonder if there isn't a better font floating around out there. If only you had a few more to try. If only....

Beef Up Your Font Collection

Well, there are ways of building up your font repertoire. You need only scan the advertisements in this publication to see that for yourself. But if you're at all like me, you might find commercial font packages just a bit hard on your budget. I knew there had to be a better (and cheaper) way. And there is! You can obtain piles of fonts from the world of PostScript and magically transform them into ToasterFonts.

These are the ingredients you'll need:

- a copy of Post v1.7 (PD)
- a copy of Mkbmap v1.2 (PD)
- a copy of Toastfont (a utility that comes with your Toaster)
- any number of Adobe Type 1 or 3 PostScript Fonts in ASCII format

There are some extras you should have to smooth out the process. The first is a modem. Even if you don't need extra fonts, get a modem anyway. Once you're comfortable using it, you'll have access to plenty of free and almost-free software that can help you in almost every way you use your Amiga. It's also the easiest way to get the first two ingredients on the list. If you're a telecommunications novice, check your local bookstore for a "how-to" guide. Or better still, get involved in a

local Amiga users' group. They'll open your eyes to the beast that has been lurking behind your Toaster.

Next, I strongly advise that you get to know your CLI or Shell. However intimidating you may find it, it is necessary for the completion of this project and it's also an invaluable tool to have at your disposal. Again, your local users group or computer bookstore are places to go for help.

There are a couple of commercial programs that you might want to pick up as well. One is Calligrapher, published by InterActive Softworks. This font editing and creation utility allows you to work with large fonts. The usefulness of this program will become apparent when we look at the problems that can occur during a conversion. Calligrapher is a bit hard to find. But it appears to be the best, if not the only, Amiga font utility. The folks at NewTek use it when messing around with their fonts. The other program I recommend is Directory Opus, or a comparable tool (SID v2.0 and Diskmaster come to mind). A user-programmable directory utility will make the chore of converting fonts as easy as clicking a button. Finding Fonts

Now, what about the PostScript fonts? What are they and where do you get them? PostScript is a computer language that is used mostly to define a document (text, graphic, or both) for output to a display device, the most common being a laser or inkjet printer. A PostScript font is a structured font, consisting of a text-based file which describes the lines, curves, sizes, and shapes of each character in the font. We want to create an Amiga bitmap font (which is not a structured font) from the PostScript file. This is done by the Mkbmap program, which uses the "post.library" from Post v1.7, to look at the information in the PostScript file and create a smooth, clean Amiga font of virtually any size.

There are many PostScript fonts available out there in the PD libraries, on local bulletin boards, and on services like CompuServe. Many fonts are free, but some may require a small shareware fee. The files tend to originate in the Mac or IBM worlds and are ported over to the Amiga for use in desktop publishing.

Doing It

The process can be broken down into two steps: PostScript to Amiga bitmap conversion, and Amiga bitmap to ToasterFont conversion. Once you have installed Post and Mkbmap into your system, enter the Amiga Shell or CLI. Your PostScript fonts should be in the directory "PSFONTS:". When acquiring fonts, you may notice that you get several files for each font. The only one you need will normally have ".PFB" at the end of the filename. Discard any other files. Locate the PostScript font you want to convert and make note of the filename. You may want to view the actual text of the PostScript file to locate the font name that appears inside. The Amiga filename must exactly match this name (case sensitive) or post.library will not be able to translate the file. While in the Shell, if [psfont] is the name of the PostScript file and [bitmap] is the name of the target bitmap file, enter the following to perform the first conversion:

```
mkbmap -n fonts:[bitmap]/*  
[psfont] X,Y,Z, etc.
```

Enter this and all other commands as shown on a single line, substituting parameters as described here. X, Y, Z, etc. are the Amiga font sizes, measured in pixels of height, which will be created. The resulting ToasterFont will have a height, in scanlines, that is half the value of the Amiga bitmap height. Since the Toaster can only handle fonts up to 80 lines tall, the largest Amiga font you can



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make will be 160 pixels high. You will end up with is a standard Amiga bitmap font in your Fonts: directory. Mkbmap creates any directories for you that don't already exist.

Now that you have created the Amiga bitmap font, you can use Toastfont, the conversion program that came with your Toaster, to turn it into a font that the CG can use. The command format, if applied to the above example, is:

```
toastfont
fonts:[bitmap]/[size1]
sys:toaster/toasterfonts/
[toasterfont].size2
```

The size you add to the name of your Toasterfont (size2) should be half the pixel height of the Amiga bitmap font. (size2) is the height in pixels of the Amiga font to be converted.

So, to convert a PostScript font called "Faustus" to Toaster CG format, you would type the following to lines into the shell:

```
mkbmap -n fonts:Faustus/*
Faustus 100
```

(this makes a 100-point Amiga bitmap font called Faustus)

```
toastfont fonts:Faustus/100
sys:toaster/toasterfonts/Faustus.50
```

(this creates the 50-line Toasterfont called Faustus.50)

Now, there are some problems you can run into. The most common is caused by PostScript files that Post v1.7 does not like. The only two solutions are to toss the font in the trash or to learn how to program in PostScript. I tend to opt for the former.

The second problem arises when trying to convert larger bitmap fonts. Toastfont can only convert fonts with a total combined width of 16,383 pixels or less. The width is a measurement of all characters in the font placed side by side in one long row. This is where Calligrapher comes in. Using Calligrapher, you can delete any characters that you don't need and change their width to 0 pixels. Once you have reduced the total width below the maximum, the font will convert.

Conclusion

And there you have it, a step-by-step guide on how to amass a vast number of fonts for your CG. If you're still unclear about any aspects of this process, or have trouble finding any of the ingredients, I am offering a set of disks which includes a detailed instruction file (which has lots of stuff in it which wouldn't fit in this article) and many tips and tricks designed to help you over the hurdles that I smashed into while working out the bugs in this process. I will also include Post v1.7, Mkbmap, a Directory Opus configuration file designed for Toaster use, and a generous selection of fully tested PostScript fonts to get you started. If you think you would benefit from this package, please send a Canadian funds money order or cheque for \$15 to the address below. This will cover the disks, the postage, and my time. Enjoy your new-found fonts and go buy a round of drinks with the money you've saved!

Scott Gillies is an Editor/Animator at McLellan Productions Inc. in Toronto, Canada, (home of the World Series Champions). Contact him for the story disks at:

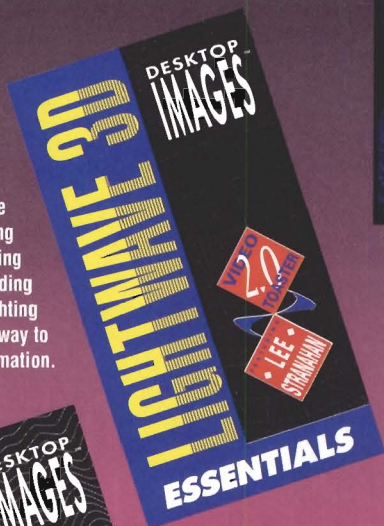
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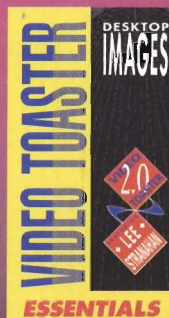
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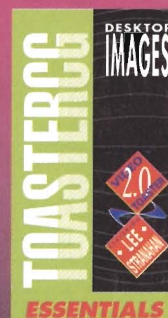
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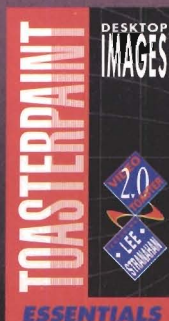
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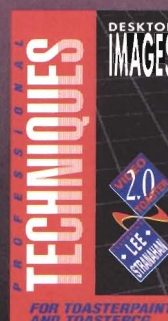
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Really Using Chroma FX part III

by C. William Henderson

In the last installment of this series (Really Using ChromaFX Part II, VTU Aug/Sept 1992), I mentioned that I would show you how to save your current ChromaFX before overwriting them with new ones. I referred to that as being in the sidebar. Oops! There was no sidebar. It seems the editor had so much hot stuff in that issue that the sidebar was dropped. Drat those editors! So it was decided the sidebar material should be in this issue, and, to accompany it, VTU would pay me for another ChromaFX article. Love those dratted editors! So, I promise the aforementioned sidebar material will appear at the end of this article.

In previous articles we covered such important aspects of ChromaFX as: plain and multicolored filters; using ChromaFX from the Switcher; applying ChromaFX to Framestores; embossed video; natural color posterization; wild color posterization; line drawings; color cycling; and making backgrounds with ChromaFX.

Before going on to new things, let's wrap up the last article by mentioning those default ChromaFX that make interesting backgrounds. They are the effects numbered 20, 24, 29, 30, 32, 33, 37, and 39, along with PurRedYelBar and Magentafield we created. You may find others that appeal to your needs and tastes. Several background illustrations accompany this article.

Interesting New Effects

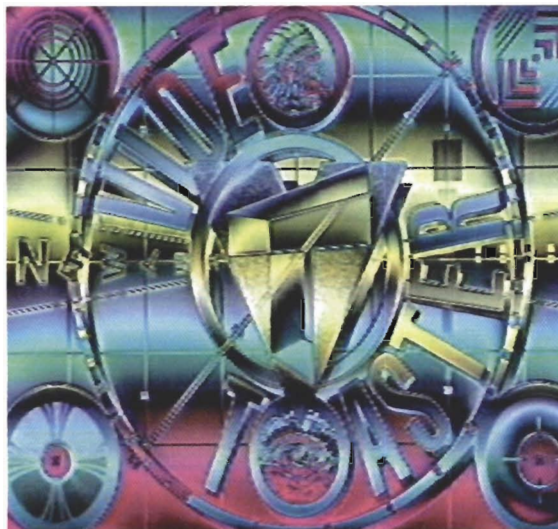
In researching material I didn't think necessary for the other two parts, I discovered some interesting effects. Let's start with buttons we haven't yet explored in the Color Strip Control Panel.

We have already explored Horizontal Spread (diagonal line) which produces an even gradation from one color (and brightness) in the Color Strip to another. The Horizontal Spectrum button (sine wave) also makes a spread, but with the *most* intermediate colors. That means if the two colors are red and green, the spectrum will not be red, yellow and green (the short way around the color wheel), but red, magenta, blue, cyan and green (the long way). If you have the same color at both ends of the spectrum spread, the entire color wheel spectrum will be shown. Try it.

Another button to explore is Random Color (vertical bars). This produces completely random colors, including random saturation and intensity, each only the width of the Edit Marker (cursor). This effect creates a snow-like pattern in your video image at the brightness range where the random colors occur in the Color Strip. I haven't found it very useful in a video image, but it is a quick way to create lots of different colors from which you can copy those of your choice. Then you can create a Horizontal or Spectrum Spread between them. If you don't like the initial random colors, just click the button again to get a different set.

Last is the Snow button. It produces just what it says, snow in your image where the alternating black-and-white Edit Marker width bars occur in the Color Strip. I find this useful only in specific brightness ranges which can be isolated and well defined in the video image, i.e. large snowy text on a regular video field, or regular text on a field of snow.

Now, let's explore the Color Table Control Panel. We have previously worked a lit-



tle with the Shift and Rotate buttons. The Shift buttons use only the top line of the Color Table, shifting it slightly to a lower place in the table and wrapping the part off the screen around to the other side. Thus, with most effects having darkest at the left and lightest to the right, there is a sharp diagonal division in the table where darkest and lightest wrap around and meet. As the T-Bar is dragged down, the shifted lines in the Color Table are reflected in the video image. The manual is a little confusing on designating these buttons. The Shift button on the left shifts down and to the right and the one on the right shifts down and to the left. But don't worry about getting confused, the images on the buttons show it correctly. You may wish to specifically mark the buttons in the manual.

The only difference between the Rotate and Shift tools is that the Shift effect is squeezed into the top half of the Color Table, then either the darkest or lightest color is rotated on itself so the wrap becomes a mirror image of itself. This eliminates the hard edge contrast of darkest against lightest. As the manual states, these are very effective with Nuke effects. And like the Shift buttons, the Rotate buttons produce the reverse of their implied designations. Again, change the manual.

The Vertical Posterize button is self-explanatory. It is similar to the Posterization Slider in the Color Strip, but allows the T-Bar to access several posterization degrees without having to create and render each time. As you move the T-Bar down, the posterization becomes more pronounced.

We have used the Vertical Spread button (diagonal line) before. It produces an even color transition between the colors of the top line and their location equivalents on the bottom line.

Using Vertical Spectrum

Vertical Spectrum (sine wave) is a very different button. It, too, makes a spread, but with a spectrum of all the colors (luminance and saturation too) between the top colors and their positional equivalents in the bottom line. It's kind of like Horizontal Spectrum in the Color Strip, but not quite. Let's try one!

First, click on the Vertical Spread (diagonal line) button to make a regular spread from top to bottom. Now, using the RGB Value Gauge accompanying the two former articles as a color guide, click on the Top Line button and in the top line create a spread from black (darkest box) to bright red (R-15, G-0, B-0) (Lightest Box). Now click on the Bottom Line button and make a spread from black (Darkest Box) to green (R-0, G-15, B-0). Your Color Table should now show a red gradation on top and a green on the bottom. The Color Table should show a vertical spread going from red on top to green on the bottom with a grayish transition between the two.

Now click on the Vertical Spectrum (sine wave) button. Notice the grayish scale is replaced with a graded yellow one. This is the short color wheel spectrum between red and green. Click on the Swap Lines button (up-down arrows). The green is now on top, and, surprise, the between spectrum is cyan, blue and magenta; the long color wheel spectrum between red and green. Imagine a color wheel with red at the top. Going clockwise equally space magenta and blue, with cyan directly below red, with green and yellow filling out the wheel back to red. The Vertical Spectrum button

always makes its spectra from the top colors to the bottom colors counterclockwise. Thus, from red to green, the short spectrum; from green to red, the long one.

Please note that the manual states that, like Horizontal Spectrum, if the equivalent top and bottom

colors are the same, Vertical Spectrum produces a complete spectrum between them. This is not correct. It produces the same color for the entire spread, just as Vertical Spread does when the top and bottom lines are the same.

Load several other effects with varying top and bottom gradations and after clicking Vertical Spectrum, click on the Swap Lines button to see the differences.

Make your own crazy spreads. Start with the top line. In the Color strip click on the Lightest Color box,

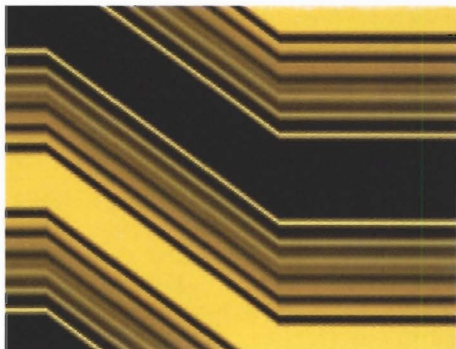


Figure 1. 20 Gold with left rotation (background)

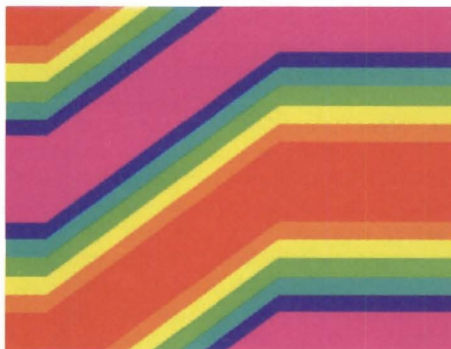


Figure 2. 37 Poster-Solar with right rotation

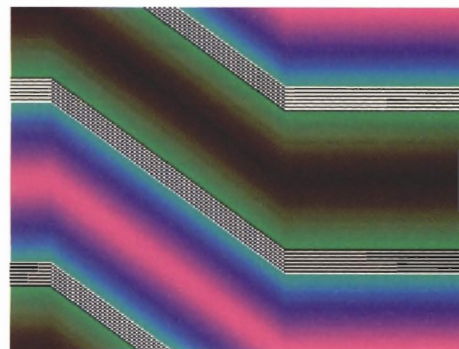


Figure 3. Abstractdiag (created with Toaster 1.0)

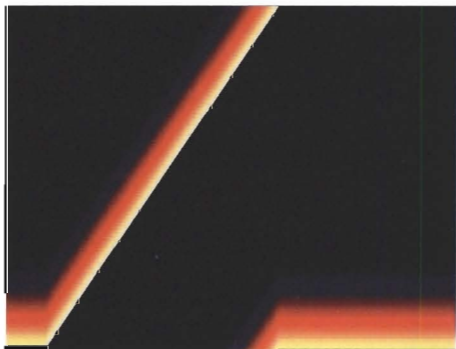


Figure 4. 39 Snow Mids. left rotation



Figure 5. Colortwins. my own filter - left rotation.

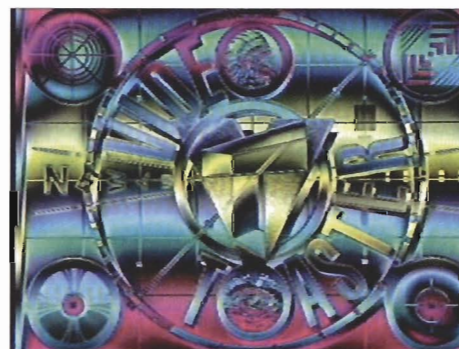
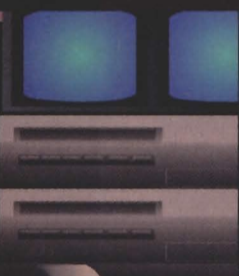


Figure 6. Glasslogo. 50 Color Bands - right rotation.



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click on Random Color, then click on Darkest Color Box. The entire Color Strip is now filled with numerous different colors. Now click on one of the colors, click on Horizontal Spectrum, and click on another color. Do this several times until there are several spectra in the Color Strip. Make certain the spreads are relatively wide, otherwise your video image will appear grainy, or full of snow. Now switch to the bottom line and repeat the process with different color spectra and spread widths. Click on Vertical Spectrum. The effect should be spectacular. Notice how the Color Table changes with the Swap Line button. Try your new effect with a video image, having Transition (Filter Control Panel) on and switching between the Black-and-White and Color buttons (Chroma Control Panel). As you move the T-Bar (or right mouse button or clashboard or cycling), your image will become tinted with wild coloring.

You can also do this with posterization. In the top line's Lightest Color Box create a flesh color of R-12, G-10, B-10; and make a spread to black. Next, with the Sharp Transitions button depressed, move the Posterization Slider until you have only two or three posterization colors. Click on the Bottom Line button and repeat the process using a blue (R-10, G-11, B-12) in the Lightest Color Box. Click on Vertical Spectrum and try this on a video image, using the T-Bar to vary the posterization tint. Or try cycling. Note, that by clicking the Swap Lines button, you get a different spectrum.

You might try what you have just previously done with negative gradations or posterizations. Click on the Negative Video button in the Color Strip Control Panel and proceed as before. These make unusual cycling effects.

And, finally, as we wind down this series of articles, let's get to the task of saving your ChromaFX so they won't be overwritten by new effects when you exit the ChromaFX screen.

Saving Your ChromaFX

You may recall that in the first issue of this series, I mentioned that Toaster version 2.0 has a limit of 100 ChromaFX, but over that number, or specific groupings of desirable effects can't be saved in projects as was possible in version 1.0. In fact, there is no provision in 2.0 to save your latest ChromaFX creations at all except to overwrite the previous set of effects when ChromaFX

is exited. To save them without overwriting existing effects, you must exit the Toaster itself prior to making any ChromaFX changes or additions.

To temporarily exit the Toaster, return to the Switcher and press Control-Control-Alt-Alt. This should display the WorkBench or Shell screen. Most people have a disk utility such as SID or DiskMaster. If you don't, this part of the discussion should still be of interest. I'll tell you later how to solve the problem from the Shell. DiskMaster will be the program used here, but any program that can copy and rename files will work.

When DiskMaster starts up, it displays two columns of files and directories and a center column of commands. In the left column, display your hard drive directory; then go to the Toaster subdirectory; then to the ChromaFX subdirectory. A minimum of two files will be displayed; ChromaFX.default and ChromaFX.effects. If you haven't made any changes or created any new ChromaFX, the contents of the files are identical. ChromaFX.effects is the critical one since it is the one that boots up when you enter ChromaFX. It is also the one that, if you have changed or added effects, is modified automatically when you exit ChromaFX. If it contains effects you don't want to lose, you don't want it to be overwritten until you can save it under another name. The ChromaFX.default is the one that Toaster goes to when you want to restore a modified effect to the original by clicking on the Restore Original button.

To save the ChromaFX.effects file under another name, go to the right-hand column of your disk utility and display any directory; a floppy drive or your hard drive root directory will do. Now copy ChromaFX.effects to this latter directory. Change its name to ChromaFX.1 (or any number or name you choose; I like to number my saves consecutively) and copy that back to the ChromaFX directory. Delete ChromaFX.1 in the second directory. You now have your original ChromaFX.effects file and an identical copy saved as ChromaFX.1 in the Toaster's ChromaFX directory and can proceed overwriting with your new effects. You can always make ChromaFX.1 into ChromaFX.effects by reversing the procedure.

The Toaster allows you to restore any ChromaFX effect to its original default by clicking the Restore Original button for the numbered effect you choose in the Numeric Window. But, if you have changed a large

number of effects and want to restore them all, it becomes a laborious task. The process is made much easier by using DiskMaster. Copy ChromaFX.default to another location, change the name to ChromaFX.effects and copy it back into the ChromaFX directory. A word of caution: you must copy ChromaFX.effects to another file name *before* entering ChromaFX and modifying its effects because Control-Control-Alt-Alt will not work from the ChromaFX program. Also, when substituting another file (e.g. ChromaFX.1) for ChromaFX.effects, you must leave the Toaster with Exit in Toaster Preferences for the new ChromaFX.effects file to load, since it can't unless Toaster is rebooted.

Now you can press Control-Control-Alt-Alt to return to the Toaster. If you don't have a disk utility and are comfortable with the text editor ED or a word processor, you can make batch files to do the job. Thanks to Arnie Cachelin of NewTek, here are some batch files that will work.

ED is relatively easy to use; and since it comes with every Amiga let's use ED. First double-click your Workbench icon; then double-click the Shell icon. Stretch the resulting window downward from the lower right corner. We will create four files, each having a name descriptive of its function. Of course you can use any name you wish. The files will do the following:

1. Change ChromaFX.effects file to one named ChromaFX.(a number)
2. Change ChromaFX.(a number) to ChromaFX.effects
3. Change ChromaFX.default to ChromaFX.effects
4. Change ChromaFX.effects to ChromaFX.default

In the following examples, you must type each file *exactly* as shown (except DH0 if that is not what you call your hard drive. Substitute your designation for DH0). This includes all spaces (or lack thereof) and periods. That way, these files can be operated from any disk drive or directory they are in. Note: "K number" must be the first line with nothing else. The symbol <number> means you must type a number after the filename when you *execute* the file. Remember to leave a space after the filename when you type in the number. Let's create the first file.

1. Type the following:

ED save-effects-to-number

(a window will open with a cursor in the upper left and "creating new file" in the lower left)

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```
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COPY ChromaFX.effects TO
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```

(press Esc, then X, then the Return key.
Your file is saved.)

2. Type the following:

```
ED saved-number-to-effects
```

Now type:

```
.K number
CD DH0:Toaster/ChromaFX
COPY ChromaFX.<number> TO
ChromaFX.effects
```

(press Esc, then X, then press the Return key)

3. Type the following:

```
ED default-to-effects
```

Now type:

```
CD DH0:Toaster/ChromaFX
COPY ChromaFX.default TO
ChromaFX.effects
```

(press Esc, then X, then press the Return key)

4. Type the following:

```
ED effects-to-default
```

Now type:

```
CD DH0:Toaster/ChromaFX
COPY ChromaFX.effects TO
ChromaFX.default
```

(press Esc, then X, then press the Return key)

You should now copy these files to the ChromaFX subdirectory on your hard drive. Type the first one as follows:

```
COPY save-effects-to-number TO
DH0:Toaster/ChromaFX
```

Copy the other three similarly, substituting their names for save-effects-to-number. You may wish to copy them to a floppy disk also, substituting DF0 or DF1 for DH0. If you wish to copy other files to other filenames and other directories, follow the above examples, substituting your preferred names and directories.

Now, to use these files from the keyboard, do the following: To copy your ChromaFX.effects to a file named ChromaFX.3, using the shell or CLI you would first get into a directory that contains the files you just wrote. If you wish to enter the ChromaFX subdirectory, type:

```
CD DH0:Toaster/ChromaFX
```

Then type:

```
EXECUTE save-effects-to-number
3
```

(note the space between "number" and "3"). Similarly, to change ChromaFX.effects3 to ChromaFX.effects, type:

```
EXECUTE saved-number-to-effects
3
```

Warning: Don't *ever* overwrite ChromaFX.default unless you have saved it elsewhere or want to beg NewTek or a friend to give you another copy. Why not copy it as ChromaFX.defsaved to your hard drive and a floppy as a precaution? You don't have to stick with NewTek's defaults if you have better ones. Simply copy your set of effects as the ChromaFX.default file.

Now you are free to try all kinds of experiments with ChromaFX, not having to worry about modifying existing effects or reaching the Toaster's limit of 100. Be creative to your heart's content. **VTU**

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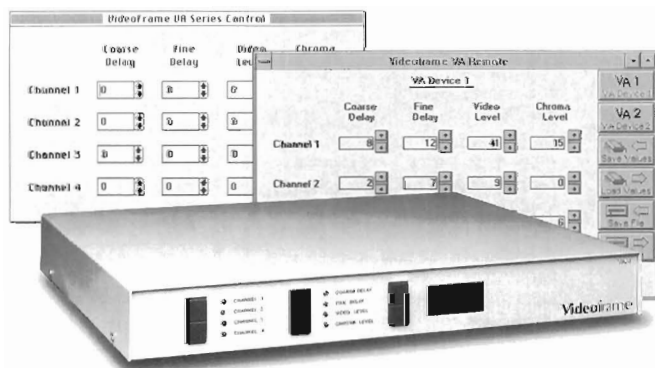
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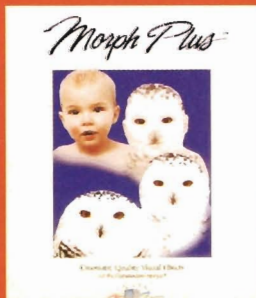


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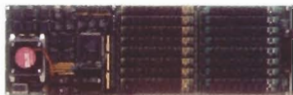
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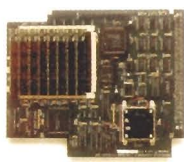
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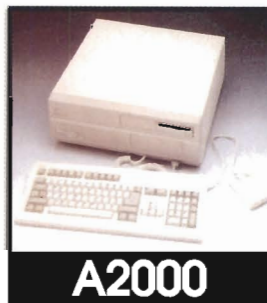


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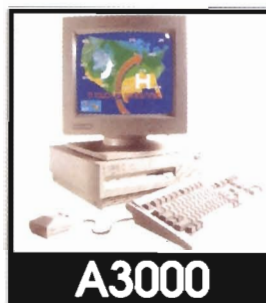
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A3000

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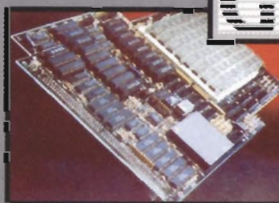
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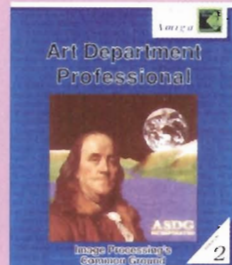
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Toaster Effects and Continuity

Every Toaster Tells a Story, or Rules of Toaster Etiquette Explained.

by Frank Kelly

Here's your worst nightmare: You've spent your last nickel outfitting your Toaster system and are now presenting your first paid project. Your client's response to your salute to Toaster effects using his footage is something akin to the expression one gets after eating one too many slices of pizza. If you're lucky, the client, instinctively recognizing that something is terribly amiss, politely asks you to "fix it." If you're not so lucky, you'll be coughing up the deposit and watching your first potentially paid project offered to someone else.

Recently I've been dismayed to see a number of videos produced by exuberant Toaster owners who apparently feel compelled to utilize many effects that are both unnecessary and distracting. So what's the cure? Some might say experience is the best teacher. Others might suggest taking a filmmaking class at a local college, or perhaps the use of a memory-resident program that keeps you from going ballistic with too many effects. There is a much easier way to deal with the situation: Learn the art of storytelling. Although this might sound like a simplistic and naive approach, it applies to nearly every conceivable production.

A good storyteller doesn't give away the ending, then proceed to tell you the middle. When you arbitrarily select effects just because they look "cool," you might be inadvertently drawing attention away from the message you are trying to communicate. You might even be sending a subliminal message to the viewer that the story is over even before it starts. Have you ever noticed that you can almost always tell when a commercial break is about to occur during a made-for-television movie or series? Subliminal cues include the music building to a dramatic peak, a tight closeup of an actor's face at the moment of crisis, and of course a fade to black or a dissolve to a promotional logo. Even the commercials themselves (at least the good ones) have a logical beginning, middle and ending, complete with the same type of visual and audible cues to compliment their continuity and enhance the effectiveness of the sponsor's message. In commercials, these cues and continuity pointers occur at an accelerated rate, but they are there nonetheless.

Through this process of mass media conditioning, people who watch even a small amount of television on a regular basis will react predictably when given the proper cues. This conditioning can also trigger negative responses when editing techniques are applied in a haphazard manner. Too many false cues make the viewer feel uncomfortable—not exactly the mood most clients appreciate.

Don't Skip This Part!

Although you might be tempted to skip ahead to search for the "meaty" part of the article, don't! It's that short attention span of yours that the good doctor is trying to help you with. Have a little patience, and trust me, you will be rewarded. If you can suffer through the next few paragraphs, you will have injected into your



consciousness something that you won't be able to get rid of no matter how hard you try; a sense of continuity. When you begin to work in video or film production you rarely have the luxury of working from the beginning through to the end. You usually have to arrange your shooting and editing around any number of other people's schedules. The only hope of maintaining your sanity in this kind of environment is to maintain a sense of continuity with the story. That means remembering that every story has to have a beginning, a middle and an end, as well as which part you are working on at any given point in time so that nothing gets left out.

But Doc, I'm making commercials and training videos! What's all this "story" crap have to do with what I'm working on?

Oh ye of little patience, you must have skipped ahead to read this part. Go back to the beginning of the article and read it all the way through, please. Every video format, be it commercial, training, or instructional, must have the basic elements of a story, or it won't be accepted by the audience.

When you do post production, you're selecting effects and deciding where to edit those effects into your production. It's very important throughout this process to maintain a sense of the project's story or continuity in your head. Divide your effects into three basic categories: beginning effects, middle effects, and ending effects. For example, dissolves from one related moving picture element to another are almost always middle effects. Most DVE effects and wipes are designed to reveal a new element or location or communicate the passage of time from the previous shot. It certainly makes sense that these would occur in the middle of the story, not the very beginning, so these effects shouldn't be used to begin or end a story. Logically, "fade from black" is used to open a story, and "fade to black" is used to end it. Freeze frame shots are great for CG backgrounds, but normally they should have some sort of graphic treatment such as colorization with half-dissolves to a background color or overlay some sort of framing elements to keep from distracting the eye from the words on the screen. Whatever the visual effect, try to remember that it should be used to accomplish something important to the story. Does this particular edit communicate the passage of time or movement to a different location, or does it introduce a new piece of important information, a new character or other important story element?

When you're trying to translate the continuity of a story to an industrial or commercial project, just remember that your products or informational themes are the characters in your story. Each plays a part in the story. They get introduced. They have a specific purpose to accomplish. They may or may not interact with other story elements, but they require a consistent framework in which to exist so that they can be easily recognized and accepted by the viewer. Straight cuts (picture-to-picture edits with no effects) can be very effective. Don't feel obligated to use dissolve effects on every transition just because you have the capability. Before you

click on the Warp DVE because you think it might look "neat," think about what you're accomplishing with the edit. Are you introducing a new element? Think before you select an effect. That's the end of the continuity lecture. There will be a pop quiz on Thursday for those who skipped past to the next paragraph. Be sure not to let any of them see your notes. You were taking notes, right?

The Good Stuff

One thing that your newly developed sense of continuity gives you is the ability to reduce wasted effort in trying out effects just for the sake of seeing how they might look. Or more importantly, not having to go back when the project is finished and "fix" what is wrong, when you're not really sure what's wrong in the first place. The added bonus of having a finished product whose visual look flows with the objective of the message, or perhaps even creating a more persuasive way to communicate it, will pay off in kudos from clients and referrals for your artistic flair. Note that some of the most highly regarded (and highly paid) artists are minimalists.

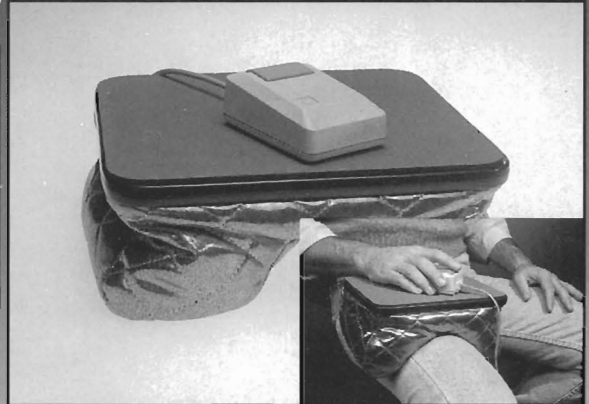
There are, of course, many other elements in the production process that are important to the overall feel of the finished product, such as lighting, camera technique, audio, music, graphics, and so on. Most of the time you're not in a position to control all of those elements. Consider them to be the slices of bread that go into the Toaster. Once they're in there, it's your job to see that they don't get burned.

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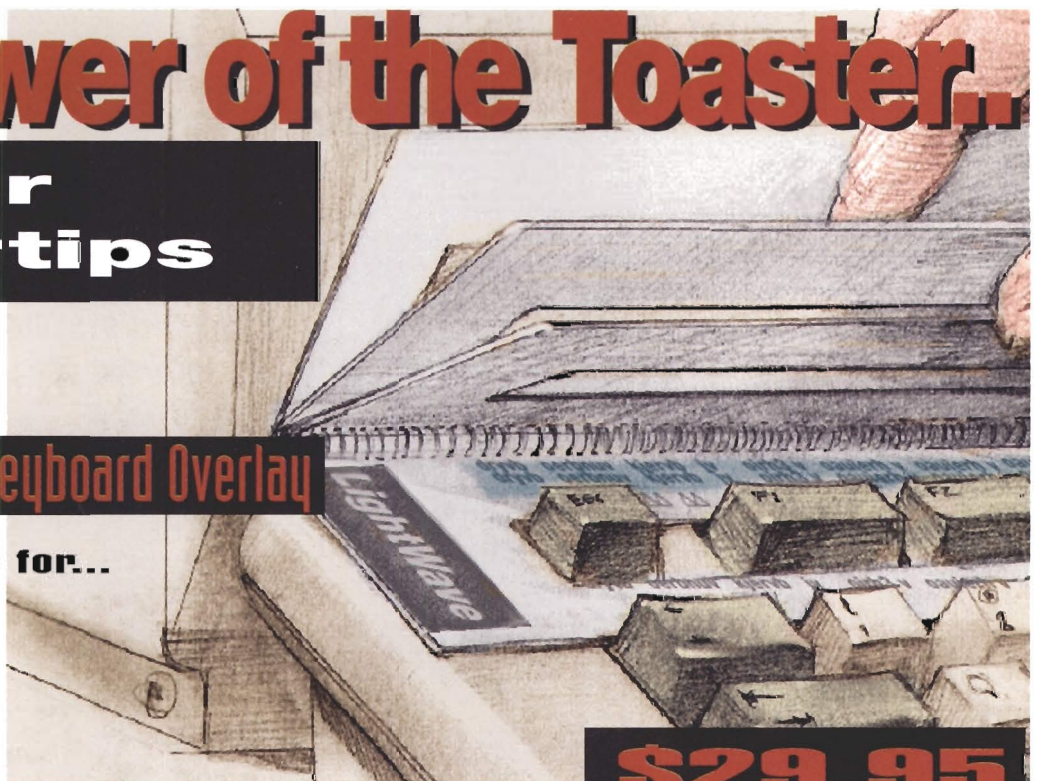
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AG-1960

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- The AG-1960 is the only editing VCR in its class that lets you access the frame-by-frame pulse on the control track for unsurpassed accuracy
- Time search, Blank search, Interval recording, Digital tracking
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Hardware Features:

- Three VCR control ports for true A/B roll. Each VCR port can support a different protocol. (For example, you can use a Panasonic AG-1960 as A' source, Sony EVS-3000 as B' source and JVC BR-S822 as record VCR).
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- MPC Audio and MIDI support for embedding sounds and MIDI sequences in your EDL
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Software Features:

- VCR Control – up to three VCR controllers on-screen simultaneously, jog and shuttle control. You can use either your mouse or keyboard.
- Tape Logging – Multi-event search, copy directly into edit list, multiple log windows may be opened simultaneously, log files or selected events may be printed to a window.
- Multi-event controller can handle up to 16,000 events.
- Interactive graphical "Time Line" window. Split audio editing, cut/copy/paste events. Preview, Perform, Review Automatic and manual EDL ripple.
- Time code generator in Drop/Non-Drop frame
- Optional support for Autodesk 3D studio and NewTek Lightwave 3D.

\$1795⁰⁰

RGB COMPUTER & VIDEO

AmiLink/CI

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 list 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 999 events.
- AmiLink/CI runs on any Amiga with one MB RAM and is compatible with Panasonic 5-pin control (AG-1960) and Sony Control L.
- Available in Cuts-Only and A/B Roll configurations.

CALL

SONY

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.

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 time 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
- JG/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
- Includes RM-E9700 Edit Controller and Title Keyboard (character generator).

EVW-300

3-CCD Hi-8 PROFESSIONAL CAMCORDER

The EVW-300 is a complete one piece camcorder which includes a variety of innovative and advanced operational features. So, whether you shoot 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-1B battery) ergonomic design provides well balanced and comfortable operation.

NEW! PROFESSIONAL SONY S-VHS SYSTEM

SVP-9000/SVO-9600

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.

They both feature:

- Using the S-VHS format, they deliver superb picture playback and recording. With newly developed Digital Y/C separator maintained picture quality even in composite.
- Newly developed video cross talk canceller eliminates color blur providing more accurate color and sharper images.
- Four channel audio system – Two Hi-Fi 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. Made 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.
- Soft pause for gentle tape operation.
- Both feature SYNC IN for synchronizing with other video sources

Optional Interfaces:

- **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 Time Code interface board (can only be used with SVBK-140 board).

COLOR PRODUCTION MONITORS

PVM-8041Q (8")

- AC and DC operation (with NP-1A or 1B batteries)
- Underscan, Pulse Cross, Blue only mode
- Analog RGB inputs plus component input
- NTSC/PAL/SECAM/NTSC 4:4:3 multi system playback
- External sync input also sync on green
- S-video input minimizes cross color/dot interference
- Built-in speaker for sound monitoring

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 (S-Video) inputs
- Better than 450 lines horizontal resolution
- Switchable color temperature – 6500° K for broadcast standard, 9300° K for the most pleasing picture
- Blue only mode – for precise color and hue adjustment.
- Built-in speaker for audio monitoring (4 audio inputs)

PVM-1341 (13")

- Similar to PVM-1340 with beam current feedback circuit, color temperature selection, blue only mode, comb filter, dark line 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 HTSC 4:4:3 video signals – automatically adjusts for each color system.

FOR PHOTO & VIDEO"

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Canon L1 Hi8



VL Mount System – The Right Lens for Every Scene

Now you can have the kind of creative versatility previously only enjoyed by the professional filmmaker. Interchangeable lenses let you pick the perfect lens for any situation – from wide angle to telephoto. With optional EOS adapter VL use Canon EF 35mm lenses (over 30 different lenses available) on the L1 while retaining autofocus and autoexposure. Plus when used with the L1 the local length of EF lenses is multiplied by 5.4 times, so when a 300mm telephoto lens is used, it becomes on the L1 an incredible 1600mm super telephoto. A further advantage is that the only optical perfect center portion of the lens is used for absolutely stunning image quality.

Features:

- Hi-8 Hi-Fi stereo, Piezo Auto Focus, Digital effects, audio/video fade in/out, hi-speed shutter self-timer, interval timer, tilting and delf functions.
- Includes 8-120mm (15-1) zoom lens with 8-blade iris for unprecedented f-stop control. (Delivers beautiful soft focus effects when desired.)
- Optional XZ converter retains optimum image quality while conventional teleconverters cause optical glitches at certain points in the zoom range.

Cinema Products



Imagine, you can walk, you can run, you can climb stairs, you can move and shoot as smooth as ice and your camera never shakes!

Imagine that your camcorder seems to be floating, balanced at all times, isolated from your unwanted motions. Free to move with your camera, you shoot with uncanny smoothness while gently guiding and controlling the camera position in any direction – panning, tilting, booming.

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NEWTEK'S VIDEO TOASTER 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.

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.

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.

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. ToasterPaint images can be used with any digital or switcher effect and the luminance keyer, for extremely flexible graphics presentations.

Character Generator

ToasterCG is the only desktop video system in the world that can create VIO-encoded, 35ns (nanosecond) high-resolution titles. ToasterCG makes (and texts) to your presentations simple.

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.

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.

ChromaFX ColorProcessor

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, postization, color vignettes, and other totally unique effects such as Blue, Chrome, Gold, Zebra, and more.

Lightwave 3D

The Ultimate 3D Rendering and Animation System for Broadcast Graphics

LightWave 3D offers all the 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.

TOASTER PERIPHERALS

HORITA

BSG-50 Blackburst & Sync 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.

- 8 BNC video/pulse outputs
- Outputs can easily be configured to meet specific user and equipment needs
- 4 black-burst, 4 sync, and 2 subcarriers available
- Each sync output individually settable for composite sync, composite blanking, H-drive or V-drive
- Separate buffer for each output provides maximum signal isolation
- 480, 1KHz sine-wave audio one output
- EC powerable for use in the field
- An unusually versatile black-burst, sync pulse, and audio tone generator.

TIME BASE CORRECTORS

DIGITAL PROCESSING SYSTEMS INC.

DPS VT-2000 PERSONAL TBC

Features:

- The VT-2000 is a full-frame TBC/Synchronizer which handles virtually any VCR, camcorder or laser disc player to be interfaced with computer video systems.
- Compatible with the Amiga 2000 series (Newtek Toaster) and all IBM PC and other ISA bus computers
- NTSC composite and S-video inputs, genlock capability and infinite window timing
- Includes Proc Amp control

NEW! DPS TBC II

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HOTRONIC AP41

STAND-ALONE TBC/FRAME SYNCHRONIZER

Features:

- Compatible with 8mm, Hi-8, VHS, S-VHS, U-matic and U-matic SP
- Frame synchronization with full frame memory
- Full proc amp control with no interruption presets
- Preset by Preset Drop-Out compensator

999.95

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 Proc Amp control, field or frame freeze, timing

699.00

I.DEN

DIGITAL TIME BASE CORRECTOR/ FRAME SYNCHRONIZER

- Will time base correct & transcode inputs from Hi-8, 3-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
- 2-5 dB chrominance & luminance noise reduction
- Full Proc AMP controls, drop out compensator
- Built-in RS-170 sync generator with genlock input and black burst output
- V/C delay adjustments, field and frame freeze
- Wide 5.5 MHz frequency response offers 450 lines of resolution. Full 8 bit processing
- 4:4:4 58 dB S/N ratio

1799.00

DIGITAL CREATIONS

The Kitchen Sync

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 Proc 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

1549.00

Nucleus Electronics

The Personal SFC

Single Frame Controller

Features:

- 1/2-1/3 frame recording to frame accurate VCR's
- Full featured animation sequencing
- Record as you render or record from frames on disk
- Simplified tape pre-stripping function
- Records frames and interframes through Toaster
- Miniature B&W 30 frames per second animation preview
- VCR remote control including joystick shuttle
- Time-lapse and stop motion recording

DIGITAL PROCESSING SYSTEMS INC.

Personal V-Scope

The Personal V-Scope from the makers of the Personal TBC produces a digitally synthesized waveform monitor and vectorscope display that can be superimposed on any video signal. It also provides a buffered video output, a software-controlled superimposed video output and a full-time waveform/vectorscope video output with any video signal input.

Personal V-Scope Waveform Monitor:

- Displays video signal level
- Full 6 MHz bandwidth ± 0.5 dB
- Graticule calibrated in VCR in Volts
- Hardware rasterizer for real time display update
- 2H and 1H display modes
- Accuracy better than 1%

Personal V-Scope Vectorscope:

- Displays color component signals
- Graticule targets for Color Bar test signals
- Line 7 quadrature decoder
- Hardware rasterizer for real time display update
- Accuracy better than 1%



GREAT VALLEY PRODUCTS INC.

68030 POWER + 16MB RAM + SCSI CONTROLLER

GVP's 68030 CPU Power Solution is a must for power-hungry video, graphics, ray-tracing and animation applications. GVP's 68030 accelerator solution will turbocharge your A2000 by offering performance up to 25 times that of a standard Amiga 2000.

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- 68040 Based Processor:
- Provides incredible workstation performances of 25 MIPS (Million Instructions per Second)
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- Icon based software switchable 68000 fallback mode

32-Bit Wide Fast RAM:

- 16MB of high speed 60ns RAM provides access to more than enough RAM for almost any operation. (Expansion to 64MB will be possible as soon as the 16MB chips become available.)
- Directly addressable via DMA by the on-board SCSI interface
- Allows high-speed data transfer from SCSI devices connected to the QAD board

High Performance SCSI Interface (SCSI II Compatible):

- Allows quick and easy access to SCSI drives and peripherals
- Direct access to the on-board 32-bit wide RAM to improve data transfer performance even further
- Utilizes GVP's VLSI Technology and custom DPRC chips
- Connectors for both internal and external SCSI devices

Serial Port:

- Uses DB9 connector on the back of the card
- Separate 16 byte FIFO's for send and receive channels. (Provides hardware buffering for read and write operations, preventing data-loss - even at 9600 baud rates)

Parallel Port:

- Uses DB25 connector on the back of the board
- Configurable as either Amiga or PC compatible
- Amiga configuration provides the power output lines for use with video digitizers and sound samplers

VIDEO TOASTER SYSTEMS

BASIC SYSTEM

Includes:

- Amiga 2000 Computer with ROM 2.0 operating system
- GVP SCSI + RAM controller card
- 7MB of RAM
- Quantum 105 MB hard drive
- Newtek Video Toaster Board with 2.0 software
- Amiga 1084s RGB monitor
- We set up and test system

ACCELERATED SYSTEM

Includes:

- Amiga 2000 Computer with ROM 2.0 operating system
- GVP 68030 40MHz Accelerator card w/68882 math co-processor
- GVP 030 HDD mount kit - turns your 68030 into the ultimate hard card
- 8 MB 32-bit RAM
- Quantum 120 MB Hard Drive
- Newtek Video Toaster Board with 2.0 software
- Amiga 1084s RGB monitor
- We set up and test system

DREAM SYSTEM

Includes:

- Amiga 2000 Computer with ROM 2.0 operating system
- GVP 68040 40MHz Accelerator card w/68882 math co-processor
- GVP 030 HDD mounting kit - turns your 68030 into the ultimate hard card
- 8 MB 32-bit RAM
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- Newtek Video Toaster Board with 2.0 software
- Amiga 1084s RGB monitor
- We set up and test system

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BBS: 813-527-1722

MAVTUG

Bill Sharer
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BIX: bsharer
Compuserve: 76426,112

MicroWave User Group

Art Baldwin
3670 Delaware Avenue
Buffalo, NY 14217
716-873-1856
BBS: 716-873-9262

Toasterholics Anonymous

Amato's Pro Video
Tim Ryan
6716 Myrtle Avenue
Glendale, NY 11385
718-628-6800

Toast 'n Jam

Debby Willis
Computers Plus
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Daytona Beach, FL 32114
904-252-6442

Toast Posties

Raleigh Area VTU Group
Corey Petree
3012 Highwoods Blvd.
Raleigh, NC 27604
919-872-2854

VLS Graphics Users

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Jacksonville, FL 32207
BBS 904-396-0746
9600 V.42.bis
6p-9a M-TH, 6p-F-9a,M

Midwest

A-TUG Border States Amiga Group

Micro-Tronix
Fort Smith, AR
501-782-4048

Arkansas Toaster Users Group

David Settlemoir
AG&FC Video Productions
2 Natural Resources Drive
Little Rock, AR 72205
501-223-6352
BBS: 501-223-2516

Arkansas

Cliff Briggs
1614 Towson Avenue
Fort Smith, Arkansas
(501) 782-4048

Discover-Ring Video Toaster

Will Beeth
Ring Software
726 East State Street
Geneva, IL 60124
708-232-0009

T.O.O.L.

Toaster Owners & Operators of Louisville
Michael Meshew
4556 South Third Street
Louisville, KY 40214
502-363-2986

TUGSM

Toaster Users Group of Southeastern Michigan
Michael A. Greer
26752 East Carnegie Park Drive
Southfield, MI 48034
313-355-5916

Mid-West ToastMeisters

Great Plains Motion Picture Company
Brent Malnack
11011 Q Street Studio 105 C
Omaha, NE 68137
401-339-1001

Amiga Video Association

Forrest McKinney
PO Box 550248
Dallas, TX 75355-0248
214-458-0501

Dallas Toaster Society

Brett Hester
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Richardson, TX 75083-6013
214-233-5493

West

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Sun Valley, CA 91352
213-259-9033

Orange County Toaster Group

Bruce Gleason
P.O. Box 2008
Westminster, CA 92684
714-894-1777

SanDiego Video Toaster Users Group

Mike Camron
2334 Garland Road
San Diego, CA 92123
619-277-5699

Silicon Valley VTU Group

HT Electronics
Andrew Timmons
2427 Hart Avenue
Santa Clara, CA 95050
408-243-9233

Amiga LightWave User Group

MG Software & Video
Victor Gallego
6660 Reservoir Lane
San Diego, CA 92115
619-463-0545

N.A.G. Desktop Video SIG

Scott Wehba
Infinite Solutions
14780 SW Osprey Drive Suite 240
Beaverton, OR 97007
503-641-2734

Professional Video Toaster Forum

Omni International Trading
Monte Stohl
316 Westlake Avenue North
Seattle, WA 98109
206-628-2923

T.U.G. 98XXX

Larry Simpson
Amiga Northwest Studio
6335 NE 159th
Bothell, WA 98011
206-488-1129

Washington Area User Group

Spectral Multi-Media
3717 128th Avenue SE
Bellevue, WA 98006
206-644-4038

Canada

T.U.G. Toaster User Group

Filmclips Entertainment, Inc.
508 Queen Street West 3rd Floor
Toronto, Ontario M5V 2B3 Canada
416-369-9819

If you would like to have your Video Toaster User Group included in this listing send the appropriate information to:

*Video Toaster User
ATTN: User Group Listings
21611 Stevens Creek Blvd.
Cupertino, CA 95014*

Remember...you can list
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VIDEO TOASTER USER

Dealer Showcase

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For information about advertising in the Dealer Showcase, call Duncan at 408-366-8220



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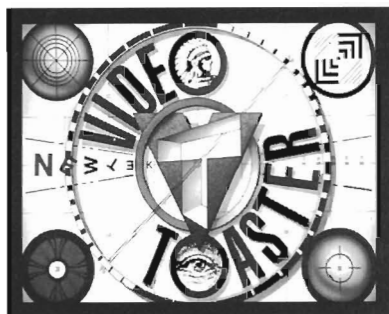
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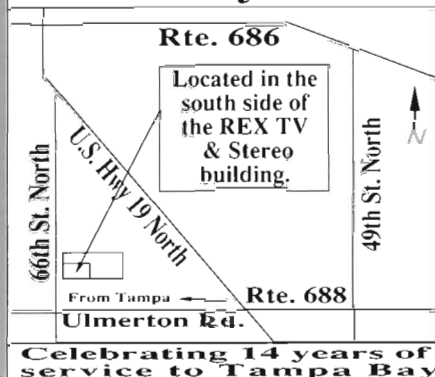


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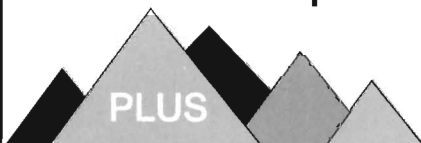
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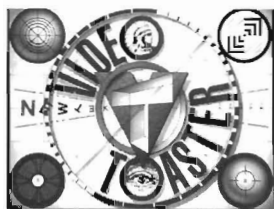
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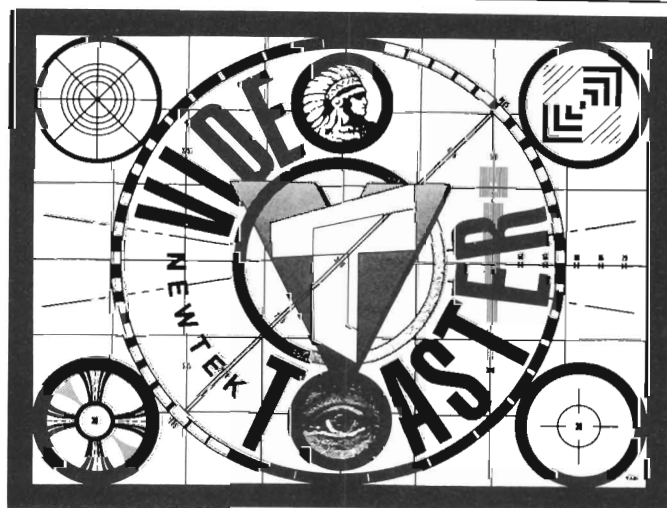
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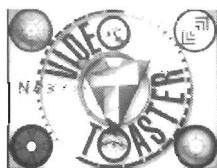
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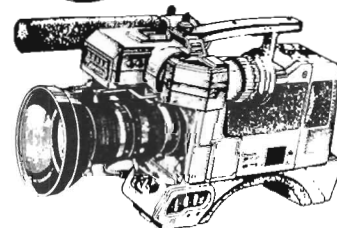
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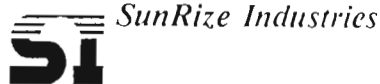


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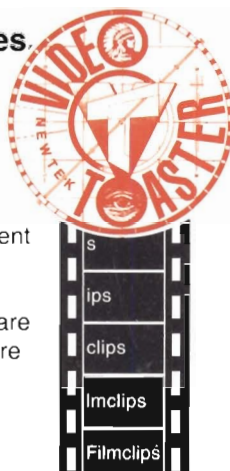
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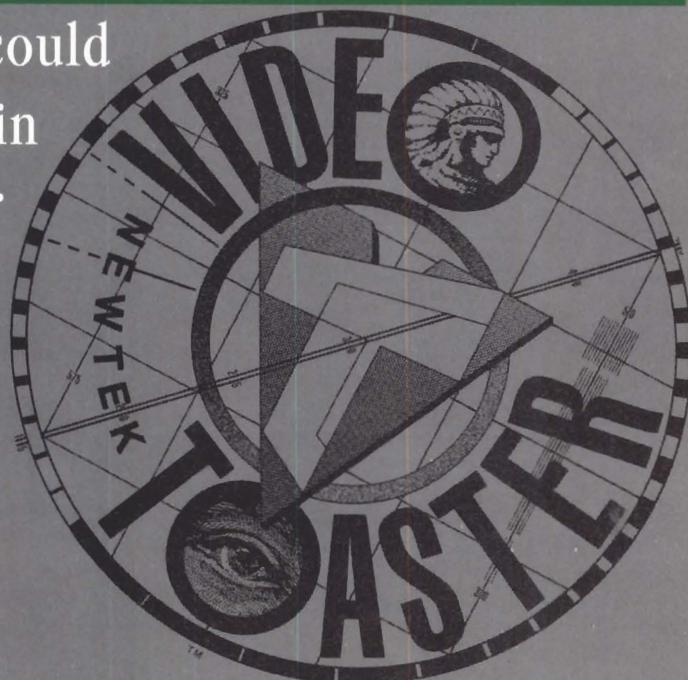
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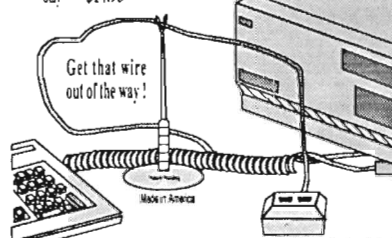
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This is a still from a LightWave animation by CW Television Productions of Massachusetts. CW's Jim Capillo writes:

The animation was created as a station ID for a new Boston UHF station. The background image of Boston was acquired with a Sony DXC-3000 three-chip camera, grabbed from tape via a Hotronic TBC freeze frame, and sent to ToasterPaint. After clean-up of the image, Modeler was used to manipulate and position the Broadcast 3D fonts correctly. After the first attempt turned out to be slightly off center, a disk was loaded into the second buffer of Modeler, sized correctly, and that was used as a template for the logo. The Chancery font front has color highlights on with a marble texture, while the side has a Rippling Chrome attribute. The Future Shock font front has a silver map, while the side has Rippling Chrome.

Jim Capillo
CW Television Productions
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Gloucester, MA 01930
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Hallway

This image is a new rendering by LightWave author Allen Hastings of the hallway scene he first created in 1990. The lighting and coloring have been improved, a new parquet floor with ray-traced reflection has been added, and the architectural modeling is more detailed than in the original image. Radiosity effects (such as the indirect lighting of the upper parts of the walls and columns by the bright ceiling) were simulated by adding a row of appropriately colored point lights down the middle of the hallway. Allen rendered the image in high resolution, using a new antialiasing method that he developed for the next release of LightWave. By the way, this scene is based on a real hallway in a Pound Ridge, New York residence.



Eye Candy

Richard Jackson is Creative Art Director at Create-Tech, a Michigan-based video production company. This is a frame from a 20-second ray-traced LightWave animation created by Mr. Jackson. In this desert scene, point lights were used to create the feel of cars driving by just outside the frame. The clouds were created by applying Fractal Noise as a Transparency texture to a large flat polygon, allowing the gradient background to show through. The mud puddle uses Fractal Bumps and an 80% Reflection Map.

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A.C.S. Inc.	97	Digital Processing Systems	C3	Omni International	123
Action Graphics	127	Dimension Technologies	126	On-Target Software	127
Adita Video, Inc.	28	DKB Software	C2	Overscan Images	127
Advanced Image	127	E S E	87	Oxxi Inc.	72
Adwar Video	119	EasyScript!	126	Peter Utz	103
Alpha Video	20,71,130	Filmclips, Inc.	124	Positron Publishing, Inc.	33
Ambient Environments	128	FrostByte Systems	125	Premier Software	125
Ami-Ware Multimedia	91	GrafX Computing	127	Pro Footage Library	128
Amigo Business Computers	120	Graphic Impressions	128	Pro Video Production	114
Anti-Gravity Products	102	Hammond Photographic Svcs.	125	Rave Video	99
Anti-Gravity Workshop	93	Heifner Communications	25	RGB Computer & Video	29
Apple's Animation	127	Hotronic, Inc.	63	Ring Software	117
Armato's Pro Video	120	HT Electronics	101	Russell Hunter Group	121
AROCK Software	112	Industrial Color Labs	126	Safe Harbor Computers	123
ASA Publishing Company	69	Infinite Solutions	121	Slipped Disk	118
ASDG, Incorporated	27	INOVAtronicS	31,75	Smith Audio Visual	59
AVID Publications	107	Integrated Graphic Media	09	Spectrum	126
Axiom Software	16	Interworks	81	Stranahan Seminars	83
B & H Photo-Video	108	Island Bleu Productions	125	Studio Spectrum	114
Black Creek Computer Assoc.	76	JEK Graphics	98	SunRize Industries	07
Blackrock Computer PLUS	116	KARA Computer Graphics	49	Sweet Pea Productions	96
Blue Ribbon Soundworks, Ltd.	01	Kingsway Productions	128	Syndesis Corporation	89
Byrd's Eye Software	79	Knowledge Media	97	T. S. Computers	114
Byte Factory	77	L&N Productions	128	TechMedia Publishing, Inc.	45
Cardinal Video Products	98	Left Hemisphere	126	The Computer Room	82
Cinema Products	61	Mannikin Septre Graphics	92	Toaster Crustaceans	86
Circuits & Software	125	Media Services	96	Unili Graphics	11,126
Computer Room	116	Mega Bytes, Inc.	121	United Pixels & Lines	127
Computer Showcase	114	MegageM	125	US Computer Corp.	115
Computer System Associates	67	Micro Mouse Desk	107	Ventura Video Productions	114
Computer Video Associates	115	Micro R & D	125	Video InfoCom	80
CP Productions	89	Microsearch	122	Video Law Services	128
Creative Computers	104	MicroTech Solutions, Inc.	117	Videoframe Systems	103
Creative Equipment	116	Monolith Studios	126	Videographix	128
CTL Electronics, Inc.	118	Motion-Media Design Group	127	Videomedia	24
Custom Supply	113	New Horizons	05	VIZ Technologies	126
Dark Horse Productions	82	A New Light Video	128		
DevWare Video	85	New York Camera & Video	121		
Digital Animation Corporation	12	NewTek, Inc.	43,53,129,C4		
Digital Creations	23,95	NOVA Systems, Inc.	10		
Digital Design Solutions	119	Nucleus Electronics	92		

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Okay, enough small talk. Let's get to the list.

I want some video equipment. Now, you may not completely understand the video market, so let me explain a couple of things to you.

In the world of video, there are about 15 different formats to choose from. You've got VHS, Super VHS, Hi-8, Betacam, U-Matic, ad nauseam. So which one should you get?

That's a good question. Too bad the standard answer is another question—"How much money do you have?" If that sounds like the kind of question that is usually asked right before someone mugs you, then you understand the video industry.

The best format is the most expensive one. The experts say you should buy the best format that you can afford. The advance of technology has helped a little bit. There are new formats that are cheaper than ever. It's also hurt, because the next best format is only a few thousand dollars away.

Want an example, Kringlemeister? Okay, let's say you're looking at Super VHS. The quality is okay—almost barely good enough for broadcast as a master format, but the image really starts to lose it after a few generations. A record deck with time code will run you around \$6000.

Then the video devil appears on your shoulder. "You know, for only \$6000 more, you could get one of the new Betacam SP decks, with industry standard quality and it stills looks great after four or five generations. Or

for a little less, you could get one of the new MII decks—same quality, a bunch of cool features. But it's not used by as many people as Betacam SP. MII...Betacam...they're only a few grand more." It's that *only* a few grand more that makes you think about selling the family for medical research.

Here's another problem. Let's say you decide you can't really afford anything beyond S-VHS. Well, the camera technology for Super VHS has really lagged behind. The way to go for acquisition seems to be Hi-8, which is roughly comparable in quality and the tapes are smaller. There are some great, state-of-the-art Hi-8 camcorders out there right now. Nothing in S-VHS seems to compare in size, features or price and if you acquire on Hi-8 and edit on S-VHS, you have to lose one big generation dubbing the tape.

So just buy a Hi-8 edit system then, right? Wrong-o, Santanator. Hi-8 edit systems are as expensive as S-VHS, but have their own weird time code which is compatible with nothing else in the world. This makes them useless as an off-line system—you can't create a useful edit decision list.

Are you beginning to see the problem here, big guy?

I haven't even gotten to the best part yet. All of these incompatible choices—Super VHS, Hi-8, MII, Betacam—no matter what format you pick, there's one other format you need to consider...The Cheap Digital Format Right Around The Corner.

There have been persistent rumors about a cheap digital format coming any time now. Every company in the world is said to be working on this...and the rumors range from \$1000 digital Hi-8 to broadcast quality video-on-a-hard-disk. They aren't out now, however—and pretenders to the throne like QuickTime on the Macintosh just confuse things. When will these miracle technologies come out? Probably right after you plunk \$50,000 down on an analog system.

Video and computer people are supposed to be used to this. The products are supposed to be obsolete as soon as you buy them. There's a phrase that people in the industry use to get you to buy stuff—"You've got to jump in the river at some point." Just remember that people who jump in rivers often drown.

The scary part is that you do actually have to buy stuff at some point. You try to make a good decision, you do the research, then close your eyes and jump. You do all this knowing that whatever you buy will probably be outdated in two months.

By the way, Santa, this is one of the reasons people like the Video Toaster. I'm sure you've heard of the Toaster—a lot of people are probably asking for one

By Lee Stranahan



this year. The great thing about the Toaster is that new software can make it seem like a whole new machine. The Toaster hardware has a number of untapped capabilities, which future releases of the software will open up. So if you own a Toaster, you don't need to worry about obsolescence for a long time.

If only the rest of the video world were that easy. I'd love a software upgrade that would turn my S-VHS deck into an MII deck.

Now you see the big picture. I don't want to spend a fortune. If you'd just give me some video stuff for Xmas, my problems are solved. Since I'm not worrying about price, I'm looking for digital—D-1, D-2, D-3—you pick whichever one you want, I'm easy. I'll also take an edit controller and maybe a few extra '040 Toaster systems. A new pair of sneakers wouldn't hurt either. Have a nice holiday. Don't work too hard.

Yours,
Lee Stranahan

P.S. Just one other favor—please drop everything off on January 1, not the usual December 25 delivery date: tax reasons.

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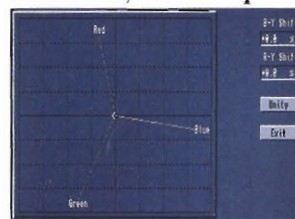
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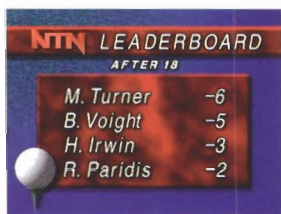
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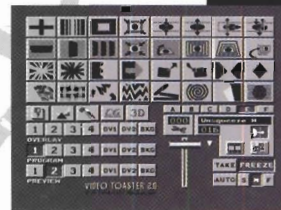


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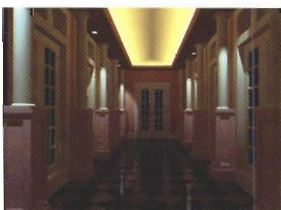
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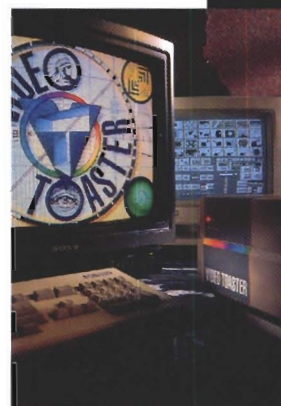
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