MAKING MONEY IN WEDDING VIDEOGRAPHY, PAGE 54

VIDEO TOASTER® USER™

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

APRIL 1995

Mr. Bill Live!

An Exclusive Interview With Pioneer Filmmaker Walter Williams

Orrr Noo!

- **Picasso II** High-Resolution Graphics Board
- **Digital Backdrops** Tutorial

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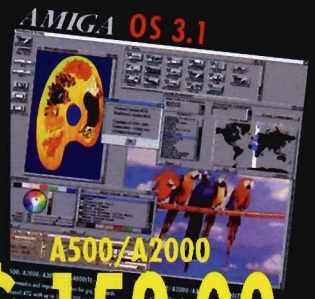

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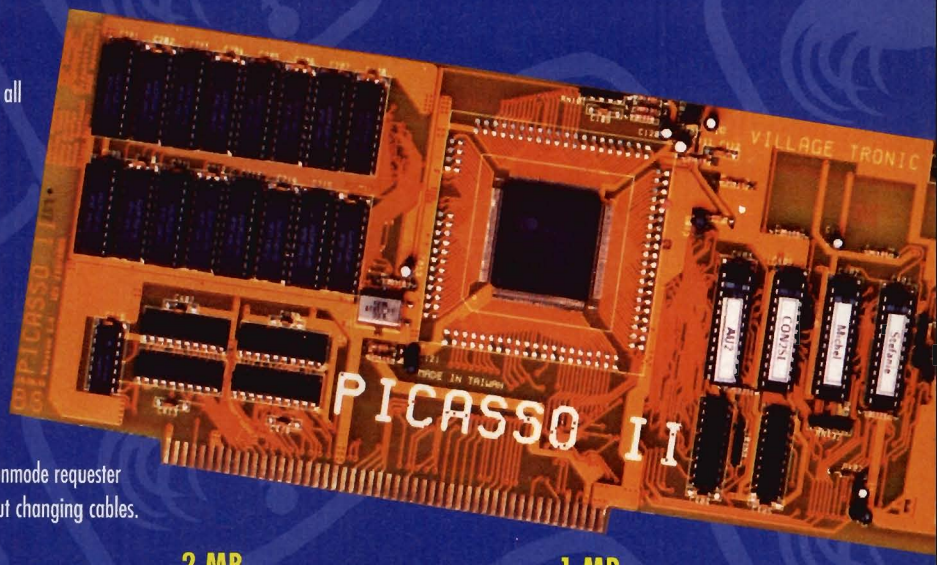

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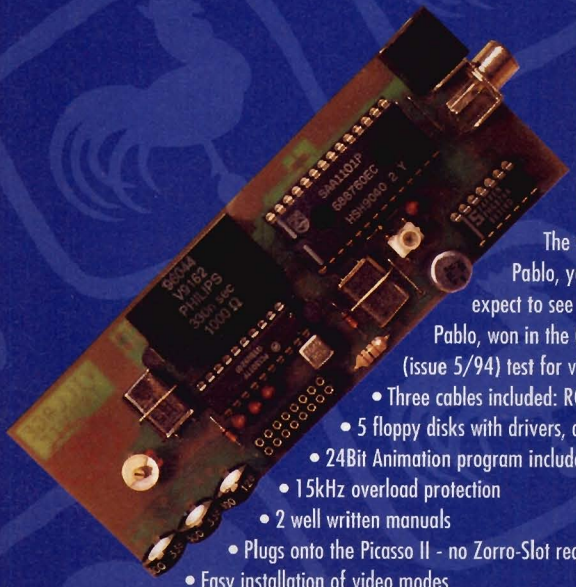

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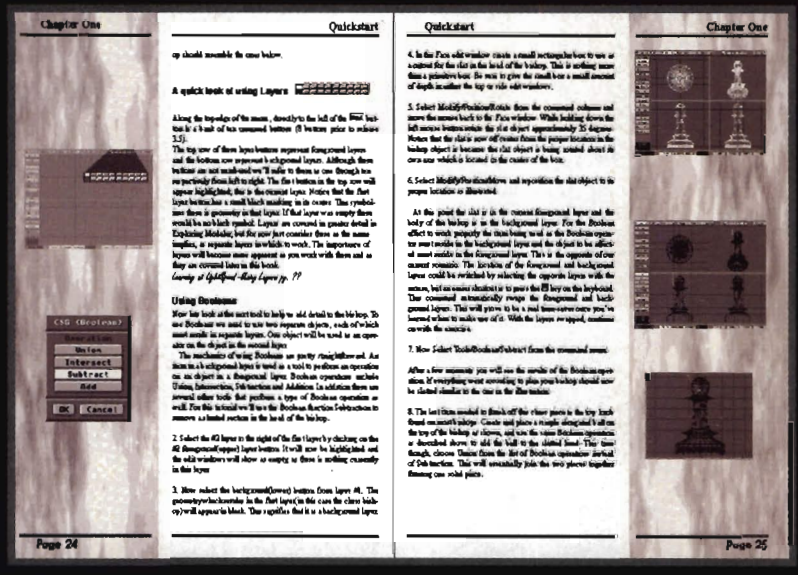
Chapter One

Quickstart

op should resemble the one below.

A quick look at using Layers

Along the top edge of the menu, directly to the left of the first button is a small set of two unnamed buttons (1 button prior to release 3.5).

The top row of three layer buttons represent foreground layers and the bottom row represent background layers. Although these buttons are not numbered we'll refer to them as one through ten respectively from left to right. The first button in the top row will appear highlighted, this is the current layer. Notice that the first layer button has a small black marking in its center. This symbolizes there is geometry in that layer. If that layer was empty there would be no black symbol. Layers are covered in greater detail in Exploring Modeler, but for now just consider them as the name implies, as separate layers in which to work. The importance of layers will become more apparent as you work with them and as they are covered later in this book.

Layers of Lightwave Modeler Layers pp. ??

Using Boolean

Now lets look at the next tool to help us add detail to the bit loop. To use Boolean we need to use two separate objects, each of which must reside in separate layers. One object will be used as an operator on the object in the second layer.

The mechanics of using Boolean are pretty straightforward. An item in a background layer is used as a tool to perform an operation on an object in a foreground layer. Boolean operators include Union, Intersection, Subtraction and Addition. In addition there are several other tools that perform a type of Boolean operation as well. For this tutorial we'll use the Boolean function Subtraction to remove a limited section in the head of the bit loop.

2. Select the #2 layer to the right of the first layer by clicking on the #2 foreground (upper) layer button. It will now be highlighted and the edit windows will show as empty as there is nothing currently in this layer.

3. Now select the background (lower) button from layer #1. The geometry which consists in the first layer (in this case the chest bit-up) will appear in black. This signifies that it is a background layer.

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Quickstart

4. In the Front edit window create a small rectangular box to use as a cutout for the slot in the head of the bolt. This is nothing more than a primitive box. Be sure to give the small box a small amount of depth in either the top or side edit windows.

5. Select Modify/Position/Rotate from the command subpanel and move the mouse back to the Front window. While holding down the left mouse button rotate the slot object approximately 35 degrees. Notice that the slot is now off center from the proper location in the bolting object as it became the slot object is being rotated about its own axis which is located in the center of the box.

6. Select Modify/Position/Move and reposition the slot object to its proper location as illustrated.

At this point the slot is in the current foreground layer and the body of the bolting is in the background layer. For the Boolean effect to work properly the item being used as the Boolean operator must reside in the background layer and the object to be affected must reside in the foreground layer. This is the opposite of our current scenario. The location of the foreground and background layers could be switched by selecting the opposite layers with the mouse, but an easier shortcut is to press the [F] key on the keyboard. This command automatically swaps the foreground and background layers. This will prove to be a real time-saver once you've learned when to make use of it. With the layers swapped, continue on with the exercise.

7. Now Select Tools/Boolean/Subtract from the command panel.

After a few moments you will see the results of the Boolean operation. If everything went according to plan your bolting should now be slotted similar to the one in the illustration.

8. The last item needed to finish off the chest piece is the key hole found on most padlocks. Create and place a simple elongated 3 sided cut (my 4) bolting or shown, and use the same Boolean operation as described above to add the hole to the slotted head. This time though, choose Union from the list of Boolean operations instead of Subtraction. This will essentially join the two pieces together forming one solid piece.

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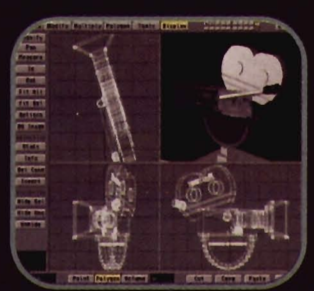

YOUR GUIDE TO VIDEO FX/3D ANIMATION/TV GRAPHICS

VIDEO TOASTER USER

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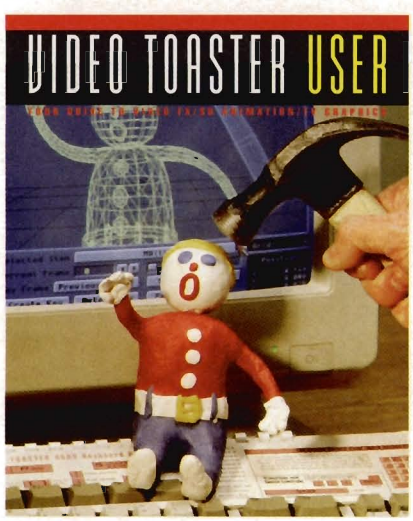

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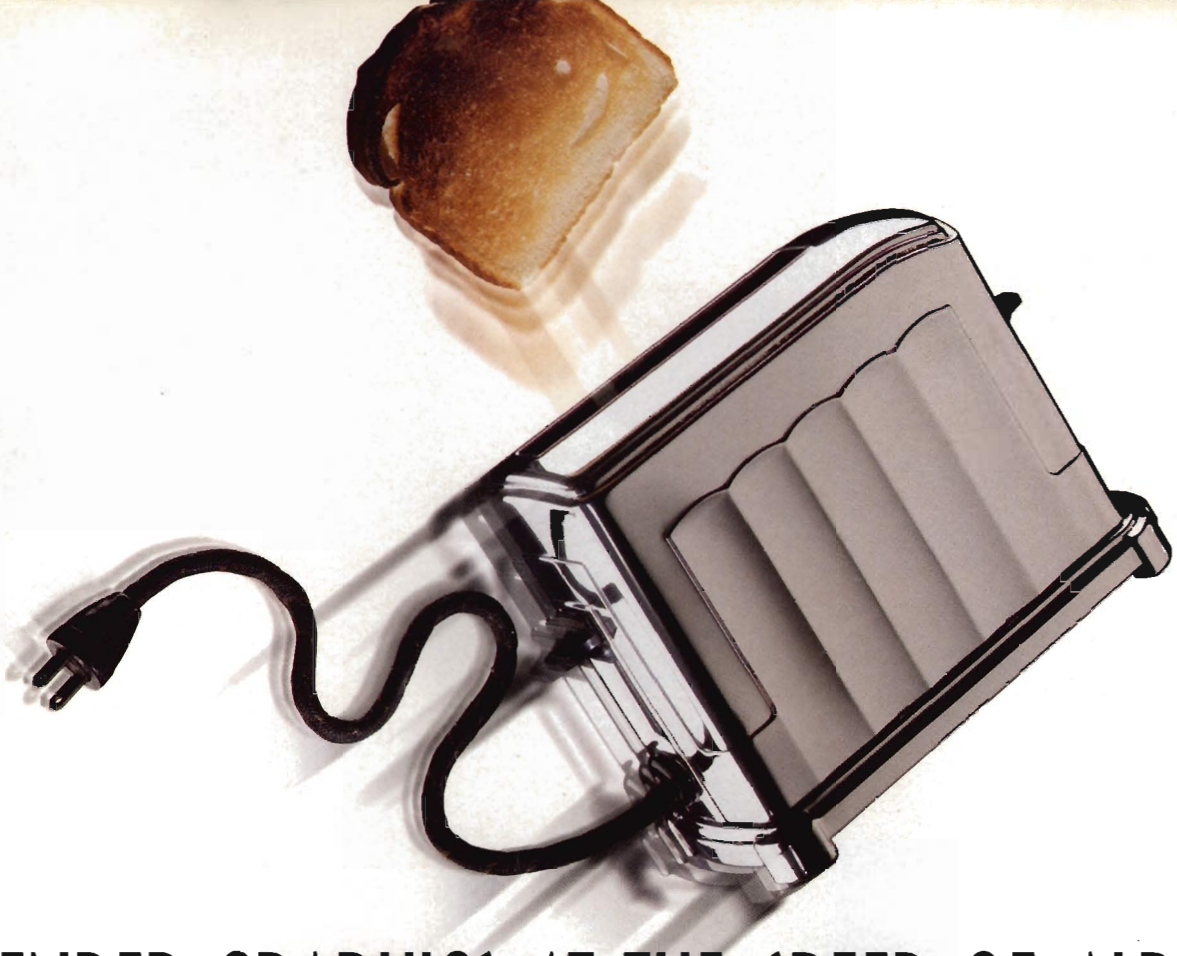

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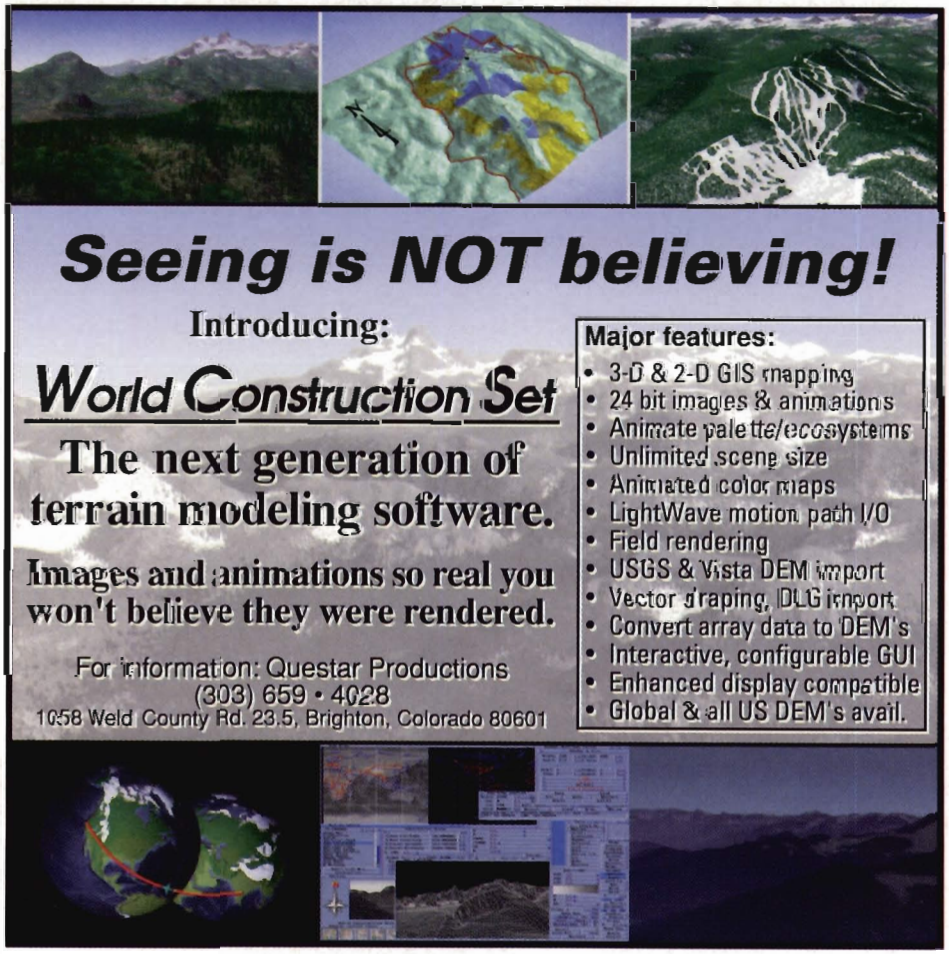

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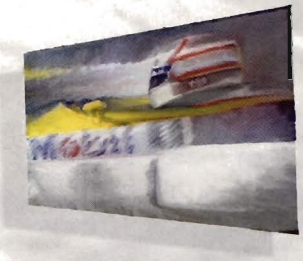

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Broadcast Quality Finally Discovered

by Robert Wallin

San Diego – With ever-increasing advances in computer technology and special software, desktop artists and producers can compete with expensive dedicated video production suites. In the early days of video editing, everything existed in the analog domain. Being linear in nature (in that you could only access the end by going through the middle), these editing suites suffered from several disadvantages. The redeeming advantage of analog systems was the quality of the video image.

Most of today's digital video desktop systems must use some form of compression on the video to allow the computer to use and move such large amounts of data. It is this compression that causes the degradation of the video quality. Anytime digital data is compressed there are losses, the greater the compression, the greater the losses.

To allow digital systems to approach the quality of video produced by an analog system, the compression must be kept as small as possible. There are digital systems that use no compression, but they are so cost-prohibitive that only those producers with the finances to afford them can use them.

So what can be expected from our desktop personal computer-based systems? I guess the first point would be to simply look at the numbers. Numbers tell the story.

You don't need to be a rocket scientist to know that 2 + 2 = 4. Starting with the basics, uncompressed video is approximately 1MB of data per frame, and we know video is 30 frames per second. That makes for a whopping total of 30MB of data per second that our desktop computer must process. Now I, for one, know of no hard drive or desktop computer that can move or process that much data per second, except maybe some of the super computers using large arrays of drives and million-dollar pieces of equipment. The fastest hard drives today can still only transfer about 5MB to 7MB per second. Then the computer itself must move this data from the drive to the special hardware used to process the data into video or video into data. Most desktop computers have throughput speeds from drive to hardware of approximately 3MB per second.

So what does this all mean? It really means that without compression to reduce the amount of data that must be processed, our desktop wonders don't have a chance in the digital video domain.

With the realization that we need some form of compression, the question might arise, "What form of compression will give me the best video?" All forms of compression will have different types of losses or artifacts. It is really a question of *how much* compression! The less the compression, the fewer losses or artifacts. That makes sense.

Most of the desktop systems use Motion JPEG as the compression engine. There are also other schemes of compression. However, it always seems that producers and editors like standards: certain uniformity and compatibility seem to accompany them. The best rule of thumb is "stick to the standards." JPEG is a standard and was not an attempt by one company to push a proprietary format on the video industry. Most of the desktop non-linear editing systems use Motion JPEG compression.

So what is the bottom line to all of this? Keep your compression as small as you are willing to compromise your video quality.

Just how can you tell how much video compression has been used? Look at the size of the data file after the video has been compressed. One megabyte of original video compressed to 60KB to 80KB is a ratio of approximately 12:1 or 15:1. At compression ratios of 5:1 or 6:1, JPEG losses and artifacts are so minimal that they are of no consequence. In order to achieve such compression ratios, a number of things must be in place. Hard drives must be capable of transferring at least 5.5MB to 6MB per second (remember, 30MB per second for video divided by 6 would give 5:1 compression). Data buses must be capable of transferring data at these speeds. Apple NuBUs and PC ISA bus are not capable of such speeds.

A new company, Applied Magic, has introduced a non-linear digital editing system, the Broadcaster Elite. The system is based on the Amiga computer, which can transfer 30MB per second across the bus. The video quality is the best I've seen. The Elite *truly* has broadcast quality. This new system also allows all video formats. It can work in Composite, S-Video and Betacam SP. There are three separate digitizers for Betacam. This is not some Beta add-on that transcodes into S-Video. In fact, there isn't anything you need to add on to get better video quality. Video quality was built in from the start, not added later, as in some systems. It is the first truly professional non-linear editing system for the Amiga. SMPTE time code, CMX EDL and more, are all standard, including the standard of Motion JPEG.

In an interview with Bill Hill of Reel Video Productions (Independence, Oregon), he states, "I have seen the competition's non-linear editing systems, and they claim "broadcast quality" and that they have reduced the artifacts to almost zero. Well, I produce an average of two 30-second TV commercials a week, plus full-length productions, and I have only seen this with the Broadcaster Elite. The video quality of the Elite is the best I've seen. I produce spots in four markets, and in every case the cable companies and my clients have remarked on the "incredible" quality of the video. I can produce a 30-second spot in one third the time it has taken on other systems. This is the only system I've seen that I can truly *master* from. The Broadcaster Elite is limited only by my imagination.

Call 1-800-619-ELITE now for more information on this incredible product.

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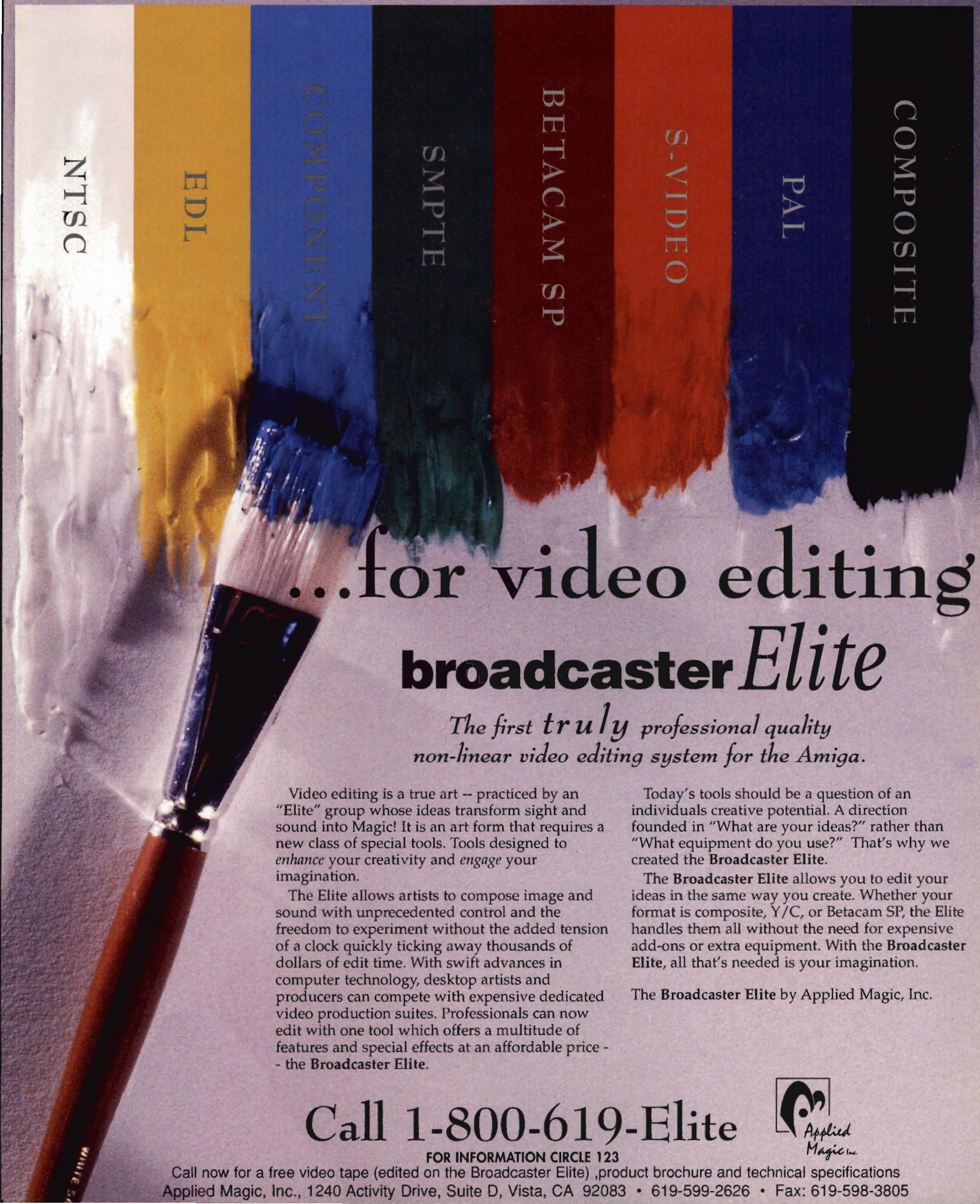

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Today's tools should be a question of an individuals creative potential. A direction founded in "What are your ideas?" rather than "What equipment do you use?" That's why we created the **Broadcaster Elite**.

The **Broadcaster Elite** allows you to edit your ideas in the same way you create. Whether your format is composite, Y/C, or Betacam SP, the Elite handles them all without the need for expensive add-ons or extra equipment. With the **Broadcaster Elite**, all that's needed is your imagination.

The **Broadcaster Elite** by Applied Magic, Inc.

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TOASTER TALK

Soaring to New Heights

NewTek Delivers with the Video Toaster Flyer

by Jim Plant

Hello, my name is Jim, and I'm a technoholic. I'm not going to ask for your help or support. In fact, I'm not doing anything to resist my addiction. I'm hooked and I'm loving every minute of it.

Though I have not been immune to cellular telephones, mini-satellite dishes, portable CD players and big-screen TVs, I've sated most of my technolust with personal computer and video technology. Over the last 15 years, I've purchased a mountain of computer/video-related equipment; almost a dozen different computers and their associated tape drives, disk drives, hard drives, CD-ROM drives, black and white monitors, color monitors, video monitors, dot-matrix printers, ink-jet printers, laser printers, video printers, video digitizers, audio digitizers, CPU accelerators, scanners, modems, light-pens, drawing tablets, edit controllers, video cameras, VTRs, camcorders, wireless microphones, etc., etc., etc.

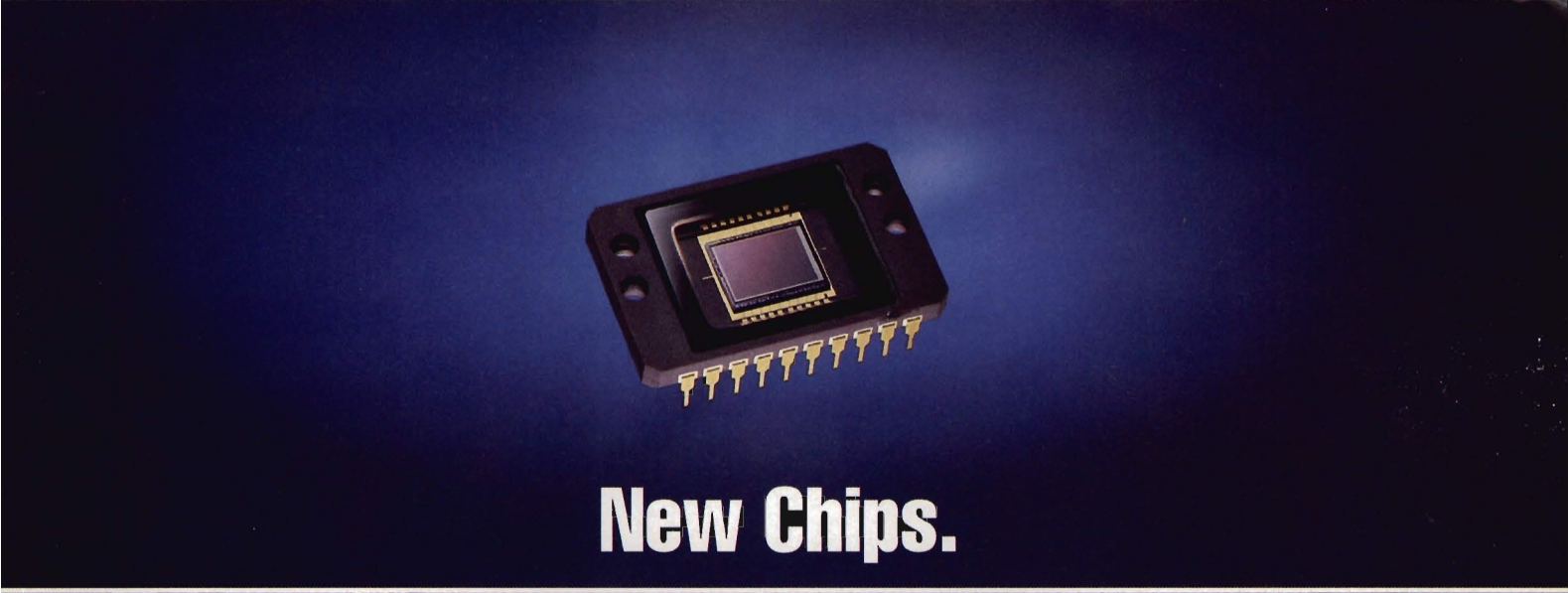
In the process of purchasing hundreds of thousands of dollars worth of computer, video and other electronic equipment for personal and business use, I've learned to recognize well-designed, well-made, valuable technology. (Unfortunately, I've gained some of this experience by purchasing my fair share of poorly designed, poorly made, useless junk.) I tell you all of this, of course, to establish my qualifications as an evaluator and purchaser of electronic technology. I tell you this to lend weight to the sweeping statement I'm about to make: NewTek's Video Toaster-Flyer non-linear editing (NLE) system is the coolest piece of personal electronic technology I've ever seen. (Note: Given the Flyer's system price of close to $15,000, I admit that I'm defining the word "personal" very loosely.)

I've been working with the VT Flyer system for several months now. During that time, the system has gone from pre-beta to beta to 3.9 pre-release to 3.94 pre-release, and by the time you read this it should be at 4.0 release. At each step, this non-linear editing system has made major bounds in reaching the potential that NewTek first promised almost a year ago at NAB '94. Even in its pre-release versions, the VT Flyer system is awesome. Every day I discover some new feature or capability that makes me want to tip my hat to Tim Jenison and his Alcatraz programming team. Here are some of the reasons why I think the VT Flyer system will be a great success:

1. THE QUALITY OF THE VIDEO SIGNAL: NewTek claims a D2-quality signal, and there seems to be a lot of highly technical discussions over exactly what this means. But, regardless of the nature of the argument, most people who have a VT Flyer system agree on at least one thing—that NewTek has delivered on its promise of superior video quality.
2. SEAMLESS INTEGRATION OF GRAPHICS, VIDEO AND AUDIO: A video production is a complex combination of video, graphic, animation, audio and transitional elements. The Video Toaster Flyer system comes with hundreds of transitional effects, a paint program, a character generator, a color effects processor and a powerful 3D animation program. Couple these graphic and animation elements with D2-quality video and four stereo pairs of CD-quality audio and you have the first truly complete video workstation.
3. A SIMPLE EDITING INTERFACE: While most NLE systems use a time-line editing interface to control the production environment, NewTek has opted for a storyboard metaphor. NewTek reasons that the storyboard interface is inherently more understandable—without necessarily sacrificing sophisticated production control—and will also attract a new group of video producers who place a high premium on ease of use.
4. THIRD-PARTY SUPPORT: The Toaster, Flyer and LightWave 3D market is a remarkable industry. There are more great video, graphic and animation-related hardware and software enhancements for this market than for any other video product on any platform. By mid-year NewTek will have more NLE systems in use than any other manufacturer, and the cycle of third-party development will begin anew.
5. PRICE: As stated earlier, a complete VT Flyer NLE can be assembled for less than $15,000. No other NLE (on any platform) comes close to offering this combination of stunning video quality, powerful graphic and animation tools, accessible user interface and third-party support at this price point.

If you already have an Amiga 2000, 3000 or 4000, this should be a slam-dunk decision. If you don't already own an Amiga, go buy one. Sure, they're a little more expensive and a little more difficult to find since Commodore bit the dust, but brand-new Amiga 4000s are available, and there are lots of used systems around as well. I love my Video Toaster Flyer system. It is by far the most sophisticated, powerful and useful electronic product I've ever purchased. For more Flyer discussion, see Burt Wilson's "Toaster Post" column on page 26.

P.S.—Don't forget to see the Video Toaster Flyer system, LightWave 4.0 and all the great third-party product providers at the *Video Toaster User* Pavilion (booth #117) at NAB MultiMedia World in Las Vegas, April 10-13.



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

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

FOR INFORMATION CIRCLE 135

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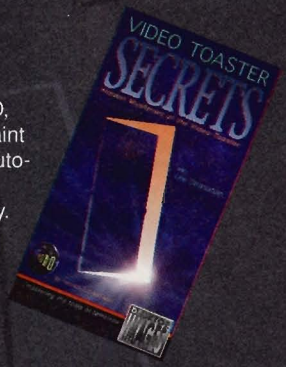
When You Need The Desktop Images

Lee Stranahan
Known as "The World's Smartest Toaster Guy", Lee has taught the power of the Toaster and LightWave 3D throughout the world at his training seminars. Lee's insight offers invaluable speed and efficiency with his timesaving tips and techniques.

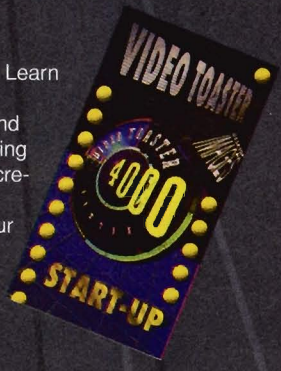
VIDEO TOASTER SECRETS



Travel deep within the Video Toaster as top instructor ***Lee Stranahan*** reveals little-known secrets inside LightWave 3D, ToasterPaint and the Amiga operating system! Create ToasterPaint graphic elements and effects automatically. Discover powerful automated functions in LightWave 3D. Customize ToasterPaint and Lightwave 3D preference files for increased speed and efficiency. Discover the power of *AREXX*. Plus, learn basic Amiga workbench functions to organize projects, change, move and maintain files. 115 min. **$49.95** + s/h

VIDEO TOASTER START-UP

with Lee Stranahan



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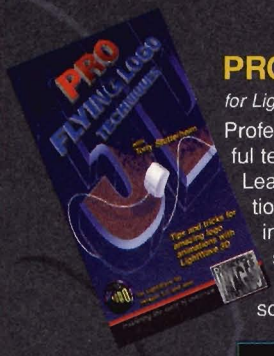

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Professional LightWave artist ***Tony Stutterheim*** shares the powerful techniques he uses in creating high end 3D logo animations. Learn layout tips that give you more control over your logo animation, camera techniques, the "light speed" streak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

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Complete instruction to the Video Toaster and LightWave 3D. Lee Stranahan explains and demonstrates the entire toaster system in a concise easy to follow format. Lee offers the tricks and tips that will increase your speed and enhance your profits. Lee's unique blend of knowledge and humor offer incredible insight to this powerful production system. A must for any serious Video Toaster and LightWave 3D user! **Order individually or in specially priced sets!**

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FOR INFORMATION CIRCLE 108

Stock Animations To The Rescue

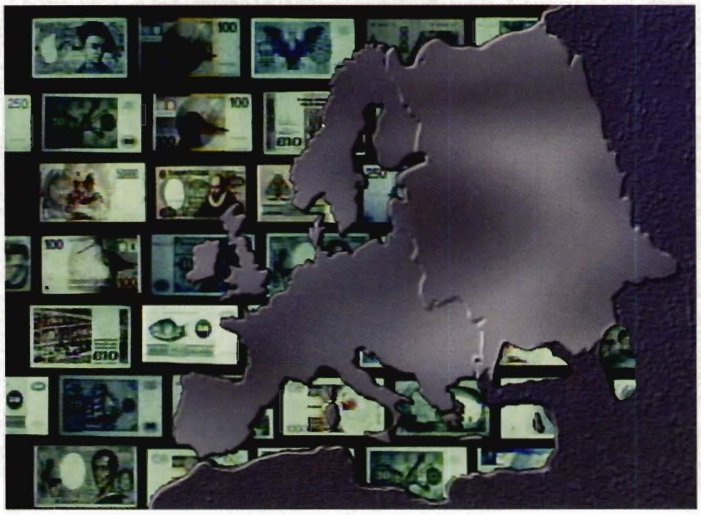
Joan Burke

Imagine this: You are a professional videographer who owns a Toaster but has very little time to master such programs as LightWave and ToasterPaint. You have a major corporate client who is willing to pay a large sum of money for LightWave graphics. Time is of the essence. What do you do?

Video producer and owner of Proteus Studios (510-522-7988) in Alameda, Calif., Shaun Daniels suggests the use of pre-made animations.

"If you're a producer with no time for Modeler or TPaint, you should look into animation houses such as DAC [Digital Animation Corporation] (800-572-0098)," says Daniels. "They give you broadcast-quality moving animations that you would see in any network or corporate video."

Animation houses sell royalty-free buyout animations and graphics packages that video producers and Toaster users can manipulate and use in videos for their clients. Daniels uses stock animations as resources in the videos he produces.



This graphic was used for the Hong Kong Bank of Canada informational tape. The map was keyed over a royalty-free background taken from a CD-ROM collection. The background is international currency.

After running the composite to tape, a framestore of it was used as a background and ToasterCG was used to add the graphics and text.

Backgound Data

A longtime veteran of the video business, Daniels says he was making stop-action movies with a GI Joe figure at the age of 10. He received a degree in mass communications with an emphasis in broadcast. In 1991, Daniels started his own business. It wasn't until February 1994 that he began doing work with the Video Toaster.

Daniels recalls, "I heard from other video producers that, bang for your buck, it's the best thing out there, and that appealed to me."

He now owns a T4000 with 16MB of RAM and 700MB of memory. He uses ImageMaster with his Amiga and runs Photoshop on his Macintosh. Prior to buying a Toaster, Daniels used what he calls, "rudimentary technology"—a downstream keyer and a camera card. The current configuration of his system, which includes super-VHS and A/B-roll to Betacam SP, helps him to keep costs low for his clients.

The Toaster as a Creative Tool

One of his customers was the Hong Kong Bank of Canada. The bank was releasing four new mutual funds and needed an informational tape to show in its different facilities. Daniels was given parameters and a script and asked to produce the tape.

Using animations from DAC's Background package, Daniels took approximately one week to create the video, which featured 100 percent graphics and animations with no talking heads.

For certain jobs, Daniels employs different techniques. For example, he says, "I use the luminance keyer with backgrounds and three or four elements to make a collage of images." Another method involves grabbing a texture and importing it to TPaint, then using Rub Thru. According to Daniels, this is when the Toaster becomes the creative element.

Manipulating graphics supplied by animation houses is easier than having to do the initial designing and rendering of animations. The images are used as static backgrounds which the video producer can make various transitions with. It saves the videogra-

continued on page 16

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Alpha Paint brings revolutionary 36-bit paint box performance, quality and ease of use to all Toaster systems. Alpha Paint offers features that can't be found in any other Toaster paint program:

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Here's what the experts are saying about Alpha Paint:

"We use Alpha Paint to create graphics for the Miami Dolphins, Miami Marlins and Super Bowl XXIX. It has power and flexibility. Alpha Paint is truly awesome!"

Joel Tesler, Graphics Supervisor, Joe Robbie Stadium

"This product is a technical marvel! I highly recommend Alpha Paint as a tool that can easily pay for itself within a short amount of time."

Brent Malnack, A/V Video Magazine

"Seeing the weakness of Toaster Paint, InnoVision set out to create a full-fledged paint program for the Toaster environment. And it succeeded."

Shamms Mortier, Computer Graphics World

"Alpha Paint is the paint program Amiga/Toaster users have been waiting for. It's outstanding!"

Zoe Edgerton, CBS Television Productions

"Speed, ease of use and a professional interface makes Alpha Paint a must have. The most professional video paint system on the Amiga."

Ken Wilder, President, LA Toaster User Group

"With clients like Lincoln Mercury and Nissan we need powerful tools. Alpha Paint is really a new type of painting package that delivers "Network" quality with levels and levels of painting power. It's like having a Quantel PaintBox® in the Toaster. An Eleven on a scale of One to Ten."

Paul Tyson, President, Virtual Media Inc.

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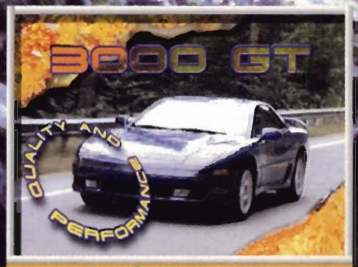

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Stock Animations

continued from page 14

pher time and the client money. "When you are an editor, time is money."

Saving Time

That adage went without saying when Daniels completed a job for Crowley Maritime Corporation. Daniels was hired on Friday and finished the project by Sunday.

The company had footage of a rescue from a helicopter and the deck of the ship that was to be included in the aerial videotape.

Before even receiving the footage, Daniels made a graphic representation. Since the rescue took place on the coast of Alaska, he used the "Globes, Maps and Flags" package from DAC.

"I used an extruded map of Alaska and North America as backgrounds in the Toaster." Upon receiving the footage, Daniels designed a series of "over-the-shoulder" graphics.

One was a fire image combined with a ship in a storm animation. They were used as backgrounds in the Toaster for a crawl at the beginning of the tape explaining what happened.

Satisfying Results

The Crowley Maritime Corporation was pleased with the end product. The company's vice president of public relations Dick Simpson said, "He [Daniels] did an excellent job with a price we were very happy with. He did it in such a way that it got high-profile praise from people in the company."

Daniels says, "I was able to provide them with broadcast-quality animations that were customized to exactly what they needed in four to five hours."

Using animation houses seems to be a viable option in the video business.

"When people come in for a corporate job, you show them a tape rather than having to sit down, create an animation and render. These [stock animations] are like raw materials." Daniels explains, "If you have talent and ability, the Toaster's going to let you fly."

VTU

The Way I See It

Hits and Misses

Mike Danger

It's time for more Toaster-cooked tidbits than the Hamburger Helper hand could whip up on any given occasion. And as your chef, let me remind you to put on your oven mitts so as not to burn yourself on this month's hot gossip and news. Bon appétit and read on.

With the new year in hand (and in whose hand, you might ask), it's time for my first annual pick of the hits and misses of the 1994 Video Toaster year. Judges, may I have the envelopes please? Here are the recipients:

Quotation of the Year—Bob Hoffman of NewTek's customer relations asked, "I work here, why do I need to buy anything" in response to questions about what Toaster equipment he uses.

Best New Third-Party Product—CD Solutions' new resolution monitor.

Disaster of the Year—Can you say Commodore? When Commodore went under, it brought a whole new meaning to the saying "only the strong survive."

Best New and Unusual Use of the Toaster—A process called stereo lithography created by Alliant Techsystems. It allows you to actually take any 3D rendered object from LightWave, run it through a device that sends a light source through a bucket of surfboard resin, and presto-chango, you have a resin-cast copy of your original LightWave object. This process would be great for developing everything from movie props to top-secret government projects.

Best How-To Book or Video—While it is not available everywhere, Dale Larson has scored a Toasty best-seller with his "How to Connect Your Amiga" instruction manual. Tired of all those high-priced phone calls to tech support numbers? Try this one on for size.

Unrelated-to-the-Toaster Byproduct—This dubious award goes to the Unitec case company of Indiana. These guys build custom cases for your valuable equipment. Their cases are durable and reasonably priced, and your order is usually processed and shipped within 48 hours. These are the kings of cases.

Personality of the Year—With all the adversity of the economy, the death of Commodore and revamping of NewTek's staff, founder and president of NewTek Tim Jenison definitely has his act together.

Framestore of the Month goes to TS Computers.

Social Event of the Year—So many cool people and toys made the Video Toaster Expo the place to be.

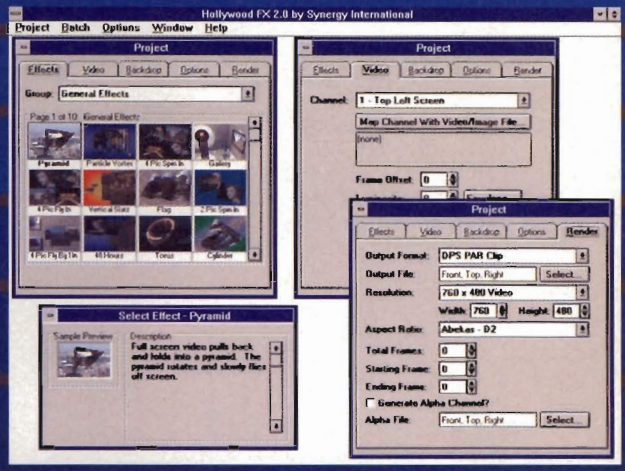
Best Toasterized TV Show/Video/Movie—Because of my inability to actually see any of them, my vote goes to the FOX-TV show *The X-Files* for audience appeal.

Best Rumor of the Year—Commodore's been bought.

The Often-Imitated-But-Never-Duplicated Award—The company Play announced that their Snappy would put a photograph in your PC.

continued on page 19

HOLLYWOOD FX



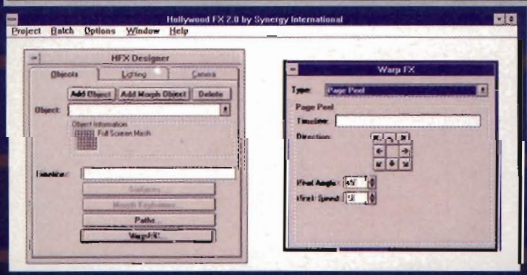
HOLLYWOOD FX creates amazing 3D effects for videos and interactive productions. Effects include: multiple video windows, 3D morphing objects and particle effects.

Select effects directly from your non-linear interface, or use recorded video from any capture system.

Use plug-in filters for unique rotoscoped effects like oilpaint, fresco or embossed video.

Bid "good-bye" to expensive non-expandable ADO hardware, and say "hello" to the future of 3D transition software . . . Hollywood FX !

SUBSCRIPTION FX is a quarterly interactive catalog of new effects. Purchase only the transitions you want from pages of animated samples.



HFX DESIGNER gives Hollywood FX owners the ability to combine objects and paths to create unique effects, or modify any existing transitions.

Powerful Warp FX plug-ins provide controllable morphing of 3D objects. These plug-ins include: page peels, waves, twists and particle warps. You have complete control over the direction, speed, and parameters of each warp.

No hardware available can give you the power and flexibility of Hollywood FX, HFX Designer, and Subcription FX !

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VIDEO TOASTER USER PAVILION

NAB MultiMedia World '95
Booth #117

FOR INFORMATION CIRCLE 122

The Way I See It continued from page 16

Gee, haven't I heard of that somewhere before?

The Most-Asked Question About the Toaster—"Will that work in my Mac?"

Best Blind Guy Columnist—I just wanted to see if they would print this one!

Most Deserving Behind-the-Scenes Award—This deserving award goes to Joan Burke of *VTU* and Michelle Kabriel of NewTek. No matter what I want or ask to get done, they always smile no matter what and get the job done.

Anticipated Event of the Year—Although many things have happened in the last 12 months, it is evident that the Flyer's having been introduced and shipped solidifies the fact that NewTek reigns King (no relation to Elvis), and surpasses the field as leader in desktop video production.

All in all, this year has had more ups and downs than Erica Kanes' love life on *All My Children*. As of this moment, there are no definite claims to Amiga ownership, but hoarded A4000 machines are sprouting up across the United States. From our bits and pieces department (not to be confused with Kibbles and Bits), the ABC show *Mike and Mattie* has fallen prey to lousy Nielsen ratings. Even though I don't know who this Nielsen bunch is, *M and M* will be replaced by the heavily Toaster-injected show Sisters that I talked about in an earlier column.

I'm sure you have heard by this time that the Flyer is now shipping in a .94 version. What this means is that the Flyer card you receive is in its final production stage of completion. As more software and components get updated you will automatically receive new programs. Hopefully you have secured your order to avoid the long waiting list.

This month's personality profile and framegrab comes to us from my friends at TS Computers. TS Computers is the only all-Amiga-plus-NewTek-partners-plus dealer in Los Angeles, if not all of Southern California. They are firmly committed (some probably have been committed at one time or another) to the Amiga platform and believe it to be the only true video solution on a PC. TSC has a full working showroom complete with all the cool tools that most people only read about. In their showroom you can see everything from a Raptor rendering station to functional Ethernet networks to Toasters and Toaster Flyers. They even have an Aspen Systems DEC Alpha system running at a lovely 25MHz on the floor. TSC has a great support system as far as manpower, with the lovely Deanne in the front office running the show (check out that framegrab, guys). TS has its own 3D graphics guru and networking whiz named Nolan, who does most of the company's on-site training and technical support. Le (pronounced Lee), who fellow employees call "Crazy Lee," is their resident hack and techno-knucklehead. As far as computers go you can hardly find anyone who knows more about their inner workings than he does. TS Computers is a full-service technical support facility and Le is a big reason for that. They also have Kim in a supporting role as all-around sales support and technical role. And no one should ever forget big cheese , everloving boss and owner Martin Geisler. Geisler, who's been into computers for a long time—a very long time—makes everything happen by providing TSC with all the great hardware and software. And let's not forget the fabulous James Woods, Amiga video specialist, who heads up this schizo crew.

As we come to the close of this column, let me thank all the people at *VTU*, my friends at NewTek, and the people that have given me a chance to survive in this sight-filled video world. It is gratifying that a person who is totally blind can be a part of this fascinating industry. Till next month, keep your feet on the ground and keep reaching for this column.

To contact me or submit material, send to:

Mike Danger
Rockasaurus Productions
6706 N. 9th Ave., Ste. B-5
Pensacola, FL 32504
(904) 479-9305

VTU

News & Notes

The Dice Can Wait

Those interested in the latest developments in radio, TV and multimedia technologies will want to check out the 73rd annual NAB Convention & International Exhibition, sponsored by the National Association of Broadcasters and held April 9-13 in Las Vegas, Nev. Expected to draw more than 70,000 attendees, the event will feature more than 250 seminars and workshops, 10 standalone conferences and more than 900 exhibitors spread over an area exceeding 10 football fields.

Year after year, the NAB show remains the focal point for communications leaders and industry decision-makers looking for insights on converging TV, audio, phone and computer technologies. NAB '95 will also examine timely and important public policy issues such as digital radio, advanced television, interactivity and intensifying competition.

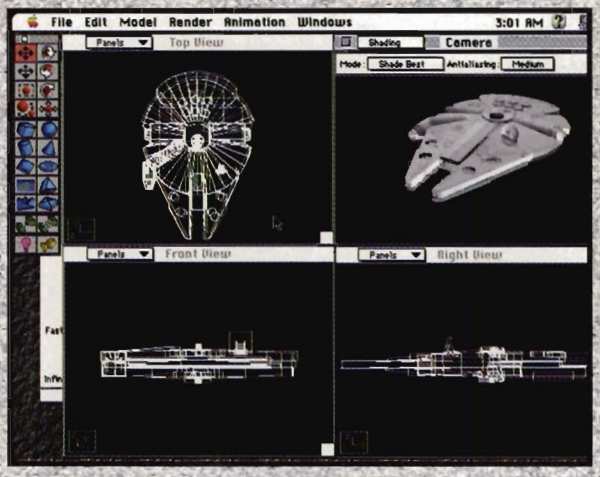
Avid Media Group's Video Toaster User Pavilion (Booth 117), a 2,500-square-foot area, will showcase dozens of third-party developers and their Toaster-related hardware, software and peripherals. Companies scheduled at press time to appear in the pavilion include AirWorks Media, Anti Gravity Products, Aspen Systems Inc., Carrera Computers, CD Solutions, Desktop Images, NewTek, PreVue Technologies and VillageTronic. NewTek will be showing the Video Toaster Flyer; standalone LightWave 3D on Windows, SGI and the Amiga; and 4.0 software including updated ToasterCG, LightWave 3D and an all-new ToasterPaint.

In addition to giving away copies of *LIGHTWAVEPRO* and a special NAB issue of *Video Toaster User* , Avid Media Group will unveil *Zoom*, a new publication directed at readers interested in pre-production and prosumer video. The company will also sponsor a special track of training seminars dedicated to the Video Toaster and LightWave 3D.

For the most up-to-date information on NAB Multimedia World 1995, contact the free NAB '95 fax-on-demand service at (310) 216-1847, or call NAB Public Affairs at (202) 429-5350.

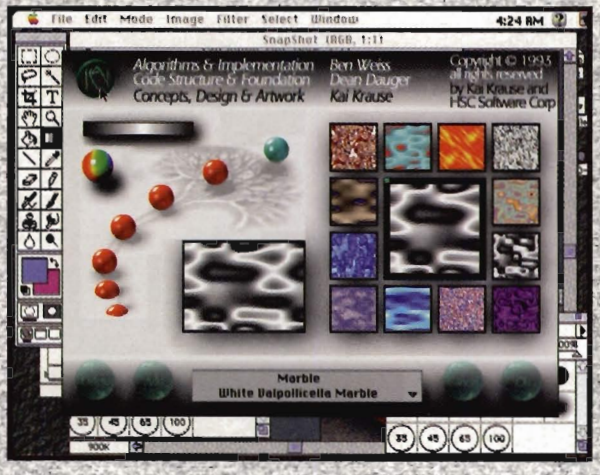
VTU

Use this software on your Amiga...

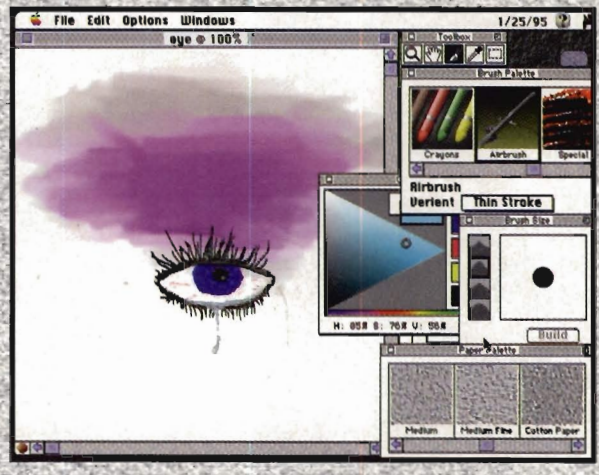


Infini-D rendering software!

Flat-bed scanner software!



PhotoShop® with KPT!



Fractal Design Painter!

...and get SERIOUS about your work!

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FOR INFORMATION CIRCLE 152

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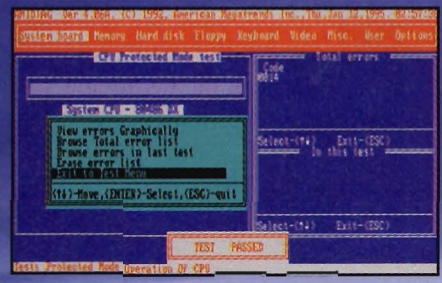
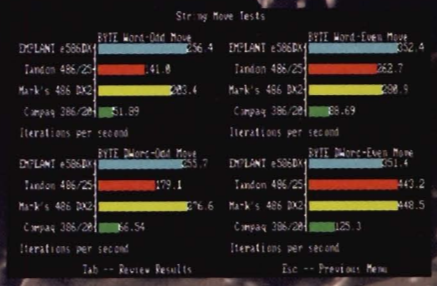
MicroSoft's System Diagnostic

Support for 586DX technology!

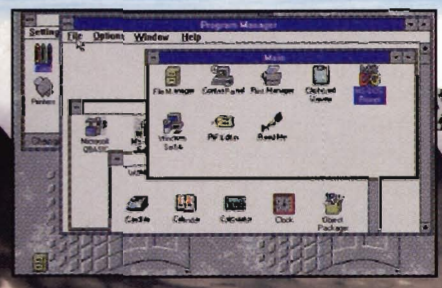


Protected & Virtual Mode support!



PC Emulation can be *FAST*!

Played any good games lately?



MicroSoft Windows on your Amiga!

Image Rendered with EMPLANT running KPT Bryce! ©1994 by Jim Drew

ε586DX℠ Emulation Module

We have added the next generation CPU instruction set! The ε586DX emulation module offers a high speed 586DX (FPU, MMU, and new instruction set) emulation with complete low-level architecture support, giving you the ability to run virtually all PC compatible software! Support for MDA, CGA, EGA, VGA, SVGA video modes, sound, hard drives, CD-ROM drives, SCSI devices, joysticks, floppy drives, and more!

Macintosh® Emulation Module

FOR INFORMATION CIRCLE 152

The Macintosh emulation module is a 'generic' Macintosh with the speed of the emulation depending on the processor your Amiga is using. An A3000 is equivalent to a MAC IIci. An A4000 is equivalent to a Quadra 900. Support for up to 16 colors is provided for non-AGA machines. A4000 owners can use a full 256 colors! Up to 24 bit (16 million+) colors is supported using 3rd party video boards such as: Picasso II, EGS-Spectrum, Vivid-24, Rainbow II, Rainbow III, Visiona Paint, Merlin, Retina, Retina Z3, Piccolo, EGS110/24, and OpalVision! Built in multiple file transfer allows for quick, easy transfers between the Amiga and MAC emulation.

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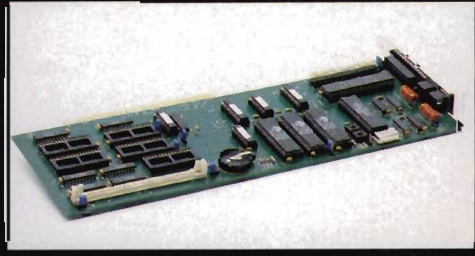
790 N. Lake Havasu Avenue #16
Lake Havasu City, AZ 86403 U.S.A.
(602) 680-9004 24hr order line
(602) 453-6407 24hr Fax line
(602) 680-9234 Technical support dept.
(602) 453-9767 24hr BBS (2400-14.4K)
(602) 453-3909 24hr BBS (14.4K-28.8K)

Four different versions of EMPLANT are available, ranging in price from $279.95 to $399.95

ε586DX module - $99.95 (Requires base EMPLANT system.)

All emulation modules require an Amiga with Zorro II slots, and a 68020 (or later) CPU.

DEALER INQUIRES WELCOME!



NEW PRODUCTS

Compiled by Joan Burke and Corey Cohen

AV Drives

Maximum Speed

Product: AV Gold Series
Description: Digital audio/video disk drives
Price: Starting at $1,810
Micropolis Corporation
21211 Nordhoff St.
Chatsworth, CA 91311
(818) 709-3300
Fax (818) 709-3497

Micropolis Corp. has announced the release of its *AV Gold Series* disk drives, offering an unprecedented minimum sustained transfer rate of 4MB/sec., a greater than 35 percent improvement over the industry's current AV drives. The new Gold Series drives have been optimized for continuous, sustained delivery of data, eliminating the possibility of delays in the data stream that cause frame dropouts and jerkiness in digital audio/video playback or recording. The drives are performance-tuned for continuous throughput and maximum bandwidth, offering the high, uninterrupted data rates required for enhanced digital and audio performance in applications such as multimedia, digital video editing and video servers. Specific drives include the Scorpio 9 Model 1991AV, featuring 9.1GB of formatted capacity and an internal data rate of 47-77 Mbits per second; the Capricorn 4 Model 3243AV, with 4.3GB of formatted capacity and an industry-fast 7,200-rpm spindle speed; and the Taurus 2 Model 422AV, which offers 2.1GB of formatted capacity in a one-inch-high form factor and a 7,200-rpm spindle speed.

FOR INFORMATION CIRCLE 1

Develop Your Skills

Product: Exploring Alpha Paint
Description: Alpha Paint instructional video
Price: $45 (free shipping)
Living Picture Productions
1060 Solano Ave. #123
Albany, CA 94706
(510) 528-8452

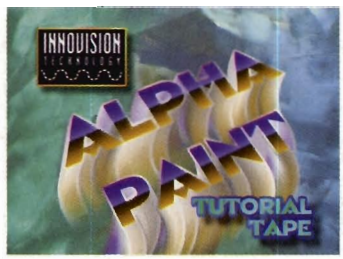
Living Picture Productions has announced the release of *Exploring Alpha Paint*, an instructional video that provides insider tricks, techniques and practical information for InnoVision's new paint program. Featuring Alpha Paint developer Damien Margo and beta tester Dan Kosmal, this video uncovers several special painting modes and stunning logo enhancement methods, and is packed with useful information for all levels of Alpha Paint users.

FOR INFORMATION CIRCLE 2

More Painting

Product: Alpha Paint Tutorial Tape
Description: Alpha Paint instructional video
Price: $49.95
InnoVision Technology
1933 Davis St., Ste. 238
San Leandro, CA 94577
(510) 638-0800
Fax (510) 638-6453

InnoVision Technology has announced the release of the *Alpha Paint Tutorial Tape*, which promises to teach users how to thoroughly utilize the basic features of the program to create outstanding results. Some of the special effects achievable within Alpha Paint are covered as well.

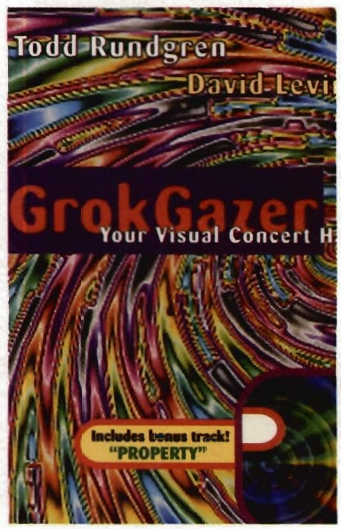


FOR INFORMATION CIRCLE 3

Now Playing

Product: GrokGazer
Description: Collection of CG art
Price: $14.98
Miramar
200 Second Ave. West
Seattle, WA 98119
(206) 284-4700

Miramar has announced the release of *GrokGazer—Your Visual Concert Hall*, a collection of CG art reminiscent of pop/psychedelic art forms of the 1960s. Scored with original sounds by Todd Rundgren, GrokGazer presents a 45-minute video kaleidoscope—tie-dye for the TV—of intricately evolving forms, colors and shapes. Excerpts from GrokGazer were used as a visual background for the Beavis and Butthead/Cher video *I Got You Babe*, as seen on MTV. Perfect for dance clubs and rave venues or those seeking inspiration, this "music for the eye" also includes a bonus music video from the multimedia album "No World Order."



FOR INFORMATION CIRCLE 4

It's a Trap!

Product: The Sync Trap
Description: T4000 auxiliary sync input
Price: $29.95
PreVue Technologies
P.O. Box 2617
Grass Valley, CA 95945
(916) 477-2905
Fax (916) 272-1528

PreVue Technologies has announced the release of the *Sync Trap*. The Sync Trap gives the Video Toaster a separate reference video

continued on page 24

MORE JUICE, DEAR?

To Render This:

It Took This:

Less Than 24 Minutes

For the price of some accelerator upgrade boards, NekoTech offers the Mach series Personal Power Station. Starting at just **$4,495** you can harness the power of the Alpha AXP running at a "mere" 166 MHz. Or, if you're thirsty for even more power, try our 275 MHz version, prices ranging from $8,995.

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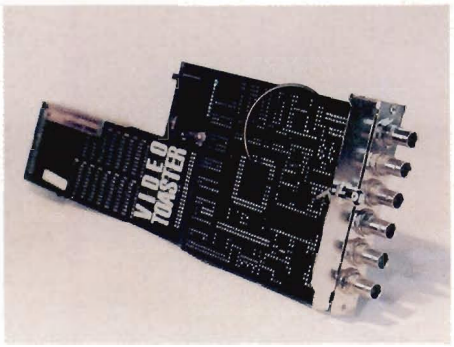

input, thus freeing up input 1 from having to be a dedicated sync input. It adds an auxiliary BNC on a separate connector plate that can then be cabled over to a Toaster header connector. A house reference signal (usually just black burst) can then be supplied to the Toaster without tying up Input 1. With the Sync Trap, all four Toaster inputs can be used for active video signals without any concern for the Toaster's sync reference signal.

FOR INFORMATION CIRCLE 5

Motion Master

TAKE CONTROL!
with these animation utilities for LightWave 3D

Volume I

TimeMachine	*morph management with audio support*
ExtractAudio	*sound driven animation effects*
Pathflock	*behavioral flocking along a path*
MouseRecorder	*realtime capture thru the mouse port*

Volume II

Child2World	*coordinate translation*
Wobbler	*springs & mass*
PointAt	*target an object*
VolumeCube	*particle swarms*

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625 Newton Dr. Lake Orion , MI 48362
dealer inquiries invited

METRO Graphics Animation and Software

LightWave 3D is a trademark of NewTek inc.

FOR INFORMATION CIRCLE 104

NEW UPDATE

Making Waves

Product: WaveMaker 2.0
Description: Flying-logo animation scene builder for LightWave
Price: $249
Radiosity
3970 N. Victoria St.
Shoreview, MN 55126
(612) 787-0855

WaveMaker 2.0 allows users to quickly and easily set up complex-looking flying-logo scenes with just the click of a few buttons. Utilizing LightWave-format logo objects, users can set up how they move on and off screen, gradient backgrounds, any of 72 "elements" flying around in the background, and rendering options. Even experienced LightWave users can benefit from features like Build Sequence, which allows batch ren-

dering of up to 15 LightWave scenes and automatic conversion to PAR, and a Storyboard option that can generate nine- or 16-panel storyboards of any LightWave animation. Updates to version 2.0 include compatibility with LightWave version 3.5; a new feature called "Image Factory," which is useful for automatically generating generic still backgrounds for use with character generators or 3D animations; and the ability to use image sequences to composite multiple layers of elements and objects.

FOR INFORMATION CIRCLE 6

Product Announcements

Send your company's new product announcements and information to *Video Toaster User*, Attn.: New Products, 273 N. Mathilda Ave., Sunnyvale, CA 94086, or call us at (408) 774-6770, Fax (408) 774-6783.

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Raptor 3™

Raptor 3 is unlike any other Windows NT workstation you've encountered. It's a processor-independent modular computer with blazing RISC processing and head-turning features. The motherboard delivers unparalleled I/O capability with 4 PCI slots, 4 ISA slots and 8 SIMM sockets--for up to 1 gigabyte of main memory and twin SCSI ports, making it simple to use Windows NT's disk striping feature that can double hard disk performance. Raptor 3 is available with the best-of-class RISC microprocessors like MIPS R4600 and R4700 as well as Digital Equipment's 275 Mhz 21064A and the soon-to-be-released 300Mhz 21164 BIP (billions of instructions per second) microprocessor.

DESKSTATION TECHNOLOGY

FOR INFORMATION CIRCLE 111

For an eyewitness' account of Raptor 3 exploits, call **(800) 793-3375**

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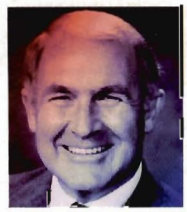
TOASTER POST

To Fly or Not To Fly

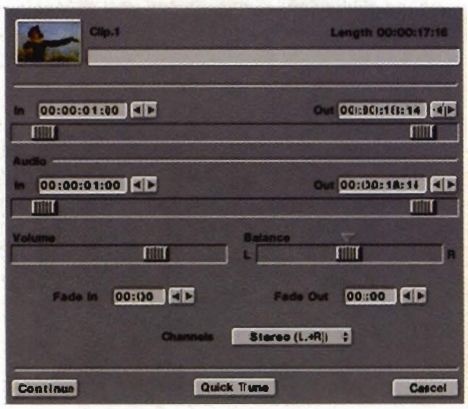
NewTek's Non-linear Editor is Better For Some Formats

by Burt Wilson



Actual Case #1—So there you sit with your brand-new Betacam SP A/B-roll edit system dominating your editing suite and your mouth is drooling over the prospect of non-linear editing with NewTek's Video Flyer. Should you run out and get one?

Actual Case #2—So there you sit with your old regular 3/4-inch cuts-only edit system on a spare table in your second bedroom and your mouth is drooling over the prospect of non-linear editing with NewTek's Video Flyer. Should you run out and get one?



The Flyer's Video Panel

The MainEdit View

To fly or not to fly—that is the question being asked in post-production houses and home editing suites throughout the country. Whether 'tis nobler in the mind to suffer the slings and arrows of outrageous linear editing, or take arms against this sea of troubles, and by purchasing a Flyer, end them. To sleep... perchance to dream...

By the time you read this, Toaster 4.0—with the Flyer—should be available. (I say this tentatively, not knowing how persnickety NewTek will be with its new dream machine.) With that in mind, I write this column under the assumption that we all want one. I know I do.

But I would be less than just if I did not point out the parameters of the Flyer. Then you will at least have an intelligent perspective you can use to either support or negate that hard-charging emotional urge to buy one.

Take Actual Case #1, for example: Betacam SP is a component system—the signal is split into chrominance (color saturation) and luminance (black and white intensity) sections from acquisition of video to the edited master. The result is a fantastic picture with color definition that is out of this world.

The Video Toaster Flyer, on the other hand, outputs through the Toaster, which is a composite system, meaning the chrominance and luminance signals are mixed together. Therefore, if you feed a component Betacam video signal into the Toaster and Flyer, the output is going to be composite. The end result, although the picture would still be of high quality, is that you will lose the chief benefit of having a Betacam system: having separate control over the chrominance and luminance of the output.

So, should you rush out and buy a Flyer? I would think about it strongly.

Now let's take Actual Case #2: A regular 3/4-inch edit system is a composite affair, just like the Flyer. Thus, when you feed your acquired video into the Flyer, it will output the edited result at nearly the same quality as what went in. There is only minimal degradation of the signal.

Furthermore, if you are planning to upgrade in the near future to a 3/4-inch A/B-roll system or a 3/4-inch SP A/B-roll system with even higher resolution, you can (yippee!) skip buying the whole system! That's right, the Flyer will—except in a few instances—take the place of an A/B-roll system upgrade. Forget buying that extra source deck, new edit controller and other necessary A/B-roll peripherals, and spend the money instead on a better camera. The Flyer and the Toaster will take care of everything else!

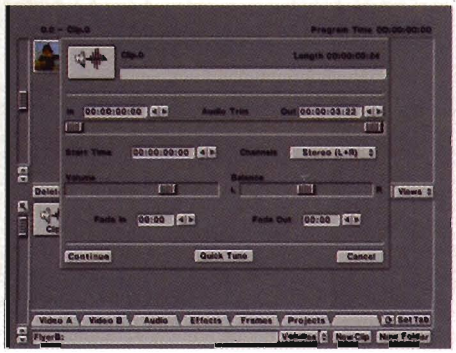
So, should you rush out and buy a Flyer? Oh my god, yes!

If you have a cuts-only desktop Hi8 system or an S-VHS system or whatever-other-formats-there-are-out-there system, should you also rush out and buy a Flyer? Oh my god, yes! If you can afford it.

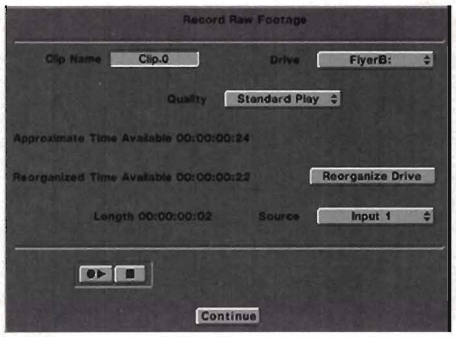
Remember, the Flyer will retail for about $5,000 (lower on the street) and you will need a minimum of about 2GB of hard drive space to use it. You'll need another dedicated hard drive for audio not recorded on videotape and you'll probably need a CD-ROM drive, as that is what we expect the Toaster 4.0 software to be issued on. A DAT drive of some sort is also necessary in order to save your productions in digital.

The eventual cost of integrating a Flyer into a commercial post-production system is estimated to be approximately $12,000. I think it's worth it, but obviously each person is going to have to make his own decision.

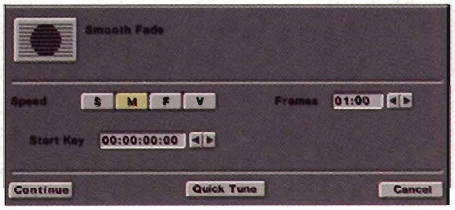
You have to be concerned about money here, because along with creating the most sought-after



The Flyer's Audio Panel



The Flyer's Record Panel



The Flyer's Effects Panel

piece of technology in the TV/video production field, NewTek has also created a cash cow for the computer peripheral industry. In the next year you will see so many add-ons for the Flyer that you'll think the computer industry has changed its name to Toys "R" Us!

Let's take a look at other factors that may figure into your decision to buy a Flyer. First, it's important to know that the output of the Flyer is D-2 quality. That's roughly equal to that of Betacam SP. What it doesn't mean is that you can go out and shoot in Hi8 and expect the Flyer to output in D-2. What the D-2 means is that you get out what you put in. If it's high-quality in, it's remarkably high-quality out, with very little generational loss.

Remember, picture quality is determined by the horizontal resolution of the camera first and the tape format second. If you have a camera that's 600 lines or more, you're in the broadcast-quality range. Obviously, 700 or 750 is better.

If you acquire your video on one-inch, Betacam or D-2, you're in the high-end range. A 3/4-inch SP and 3/4-inch come next. Then it's Hi8 and S-VHS, neck and neck. Anything lower and you probably don't need the Flyer!

The size of the bandwidth and the speed the tape travels determine the quality and depth of the color. Generally, the wider the bandwidth, the better it records and holds the color information encoded on it. As good as the Flyer is, it won't make a silk purse out of a sow's ear. It won't turn S-VHS into broadcast quality, and no buying decision should be made on that expectation.

The next important factor to remember is that the Flyer will do everything the Toaster does. That also

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FOR INFORMATION CIRCLE 110

means that it will not, with a couple of exceptions, do what the Toaster can't. The most important major exception, of course, is that it can do A/B-roll dissolves. The other major exception is that you can use the Flyer to work around some things the Toaster can't do.

For example, if you have a Toaster in a cuts-only edit system, you cannot fade in source video along with the fade-in of a super. The best you can do is to jump-key the super in after the fade-in or, good grief, wait for the Preview Buffer to load in the super after you've completed the fade-in, a wait that always seems interminable.

The Flyer cannot do any of these things either, but it can help you out by being able to record from the Toaster output. For linear post people, this means that the Flyer is able to build its own B-roll.

Here's the situation and the solution. Frequently, in linear post, we always come to a situation where a scene shot on the A-roll tape should have been shot on the B-roll tape. Ordinarily, one would plan ahead and make sure all the B-roll scenes are on a different tape than the A-roll scenes; then the edit will go smoothly. However, as any editor will tell you, something always comes up where a B-roll scene is on the A-roll or vice versa. Then you have to dub the scene off onto another tape and use that as the B-roll. Editors usually hate to do this because it's extra work and they have to go down a generation.

The Flyer allows you to create your own B-roll without any perceptible generational loss. Take the example we just talked about, where you want to fade in a source scene or a graphic along with a super. Either way, you have to use two buffers at the same time, which the Toaster cannot do.

"In a short time you'll be going out to shoot with a read/write CD-ROM in place of that Betacam cassette. You'll come back to the studio and run it off by segments directly into your Flyer."

If you plan ahead, you can work around this by recording a few seconds of video—something you would normally do anyway—before the actual start of the scene. Then, in post, feed this video source scene into the Toaster Input 1 and take that signal from the Toaster output to the Flyer input. As you feed the video in, have the super already keyed and then fade it out where you normally would according to your script. What you have, then, is the scene recorded in the Flyer with the super burned into it from the beginning. Now all you have to do is use this segment as your source video, and the super will fade in with the scene as a single unit. Neato. Veddy cool.

Another thing: When you look at the Flyer's record modes, you'll find both Standard Play and Extended Play, simulating what we are all used to in our home VCRs. Sooner or later you will ask yourself, "Can I input my video into the Flyer in Extended Play and output it in Standard Play?" Not if you want to preserve the highest quality. You'll end up with a level of quality just like you see at home—as if your video has been run through the Toaster's Light Poster mode.

Is the emergence of the Flyer the beginning of a new video revolution? Well, yes. But let's use some common sense here. The format of choice of the cable TV systems in the U.S. is still 3/4-inch, and that is not going to change on account of the Flyer. Betacam and D-2 will always be Betacam and D-2, and they will suffice for quite some time.

However, the future is digital. In a short time you'll be going out to a shoot with a read/write CD-ROM in place of that Betacam cassette. You'll come back to the studio and run it off by segments directly into your Flyer. You'll edit it on your Toaster Flyer and output it to another CD-ROM for delivery to the broadcast station or the dub house. I think we should all be thinking in this direction while we continue working in our present formats—even with the Flyer—so we won't be left behind when the future arrives.

As I write this, the Library of Congress is lamenting the fact that all their older videotapes are decomposing, just like our own bodies. This erosion will not happen with digital. Hey, maybe God is digital? Or is digital God? Oh well, stay tuned.

VTU

FOR INFORMATION CIRCLE 153

EDITORIAL EVALUATION
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FOR INFORMATION CIRCLE 127

DEAR JOHN

Time to Exterminate

Modeler's Patches Stop Bugs Dead!

by John Gross

To start things off, here's some welcome reader feedback:

Q: I am writing out of intense frustration! I have recently made the decision to couple my artistic talent with my huge interest in computers and change careers from my present vocation to the 3D animation field.

Coming from a place where I knew very little about animation, I did a considerable amount of research, which led me to what I thought was the solution to my problem: the Amiga/Toaster. I soon found out that it was the beginning of a somewhat larger problem: the Commodore liquidation.

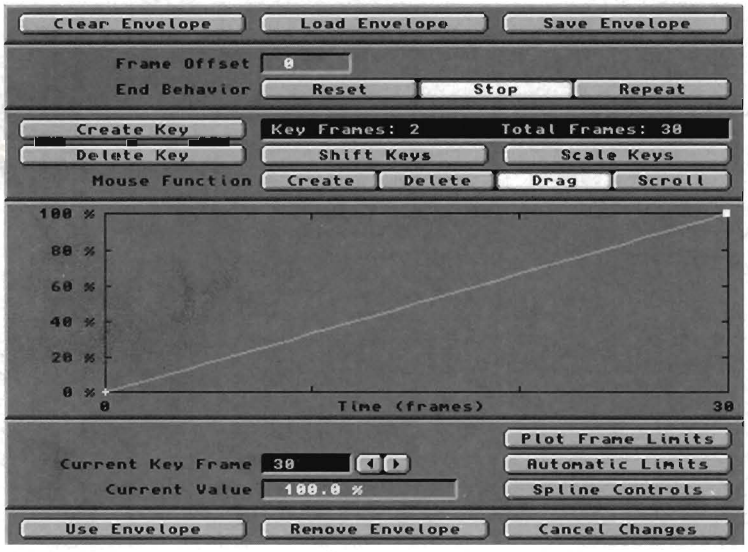

Figure 1

Since the announcement, I have sat by, anxiously awaiting every Amiga magazine that has come out, pestering the local support group guys and calling the *AmigaWorld* hotline enough times to make them thoroughly wish they had never published the number.

The light at the end of the tunnel, I am hoping, is NewTek's plan to release LightWave for the PC. After recently perusing *Computer Shopper* and finding complete 60MHz Pentium systems for under $1,600, I have to admit that I was tempted.

So, my question to you is basically this: What are the advantages of running LightWave on the Amiga 4000 as opposed to a Pentium system?

Bradley Bowling
Chicago, IL

A: Since it sounds as if you do not have a system yet, I would have to say that there are not a lot of advantages to buying an Amiga 4000 over a Pentium-based system. As a matter of fact, there are a number of disadvantages. Like it or not, the Amiga is basically a dying machine. The speed, resolution and graphic capabilities of PCs caught up to, and surpassed, the Amiga graphic capabilities quite some time ago. Don't get me wrong—I still think the Amiga is a great machine. Unfortunately, Commodore never knew how to market it and let a great piece of hardware slip through the cracks. As the Amiga slowly dies out, it becomes increasingly hard to find software/hardware manufacturers who can still afford to support it.

The PC, on the other hand, though it may not be the most user-friendly machine, has a huge amount of support behind it and will not vanish from the face of the earth anytime soon. The ever-decreasing prices of hardware and software in the PC world make it advantageous to own a PC running LightWave because you can do so much more with it.

The power of a PC is also helpful, as we will be able to see a lot of great new features in LightWave that can now be implemented because the hardware can support it (multiple colors and faster redraws are but a few).

There is one main advantage that a 4000 has over a PC: you can run a Toaster and a Flyer with a 4000. If you are doing LightWave work only, you can get by without these, but even so, they can be a big advantage to those doing this work. Using a Flyer will allow you to get your LightWave footage to tape and out into the world. On a PC, you will have to use a device such as the PC PAR or single-frame to tape.

Do these benefits outweigh those of a PC? It's hard to say. It really depends a lot on your needs. I will say this, though: I believe that with the newfound power of LightWave running on a PC, it most likely will be more and more difficult to be able to create Amiga versions that will be able to perform equally.

Q: I've been having problems making Booleans and merge operations with Modeler. Sometimes I receive a message that says "Internal Buffers Too Small for Requested Operation." It happens even with objects that are not complicated. I own an Amiga 4000/40 with 16MB of RAM and a 500MB hard drive. I have Toaster 3.5 and a 500MB hard drive-based PAR.

Daniel Griffin
Lima, Peru

A: You are experiencing a bug that was introduced with the 3.5 version of Modeler. There is a patch available that will patch your version into a newer version, fixing this and some other bugs. Your dealer should have the patch, or you should be able to locate it on many on-line systems or on the NewTek BBS (913-271-9299).

Those unsure if they have the patched version or not can run the version command on Modeler and check the date. To do this, open a shell, CD to the directory where Modeler is located and type "Version Modeler.FP full." If you get a date of July 4, 1994, you have the old version. If you receive a date of August 30, 1994, you have the new, patched version. The old version is 406,112K in size while the new version is 406,168K. By the way, if you are running an unaccelerated version of LightWave (ugh!), type "Version Modeler full" instead.

Q: I am a devout Amiga owner/user and have two systems packed with lots of RAM and hard drives, and, of course, the Video Toaster. My first Toaster is loaded into my A2000 and is running with 18MB of RAM, a 68040/28MHz accelerator and a 200MB hard drive.

My newer Toaster 4000 is in my A4000, which has a meager 115MB of RAM and a 1.2GB hard drive. It also is equipped with a Fastlane SCSI controller and a DKB 3128 card with all of the expansive RAM. Both the Toaster systems are running version 3.1.

What I am writing to you about is the 4000. It is hooked up with an NEC MultiSync II monitor and uses the Sync Strainer by PreVue Technologies. In my Devs directory, the Monitor drawer is set up with only the NTSC driver, following instructions from a technician at NewTek. Everything runs just fine when dealing with the Toaster and all of its software. Well, almost.

After shutting down the Toaster and going back to Workbench, everything is normal. But when I click on the Genlock icon, everything on the screen disappears, including the cursor arrow. At first, I had to reboot the computer to get back to a normal screen. And, if I tried to run the Genlock, the same thing would happen again. I even tried a 1960 monitor and got the exact same result—a blank screen.

I talked with NewTek and they suggested a different monitor. I tried a 1084 monitor and the Genlock worked fine! I then called the fine folks at PreVue Technologies, but they had no comforting answer. Everything I described to them fit the picture, but the Genlock would not work with any of the multisync monitors.

Then one day I tried to run the Genlock again. When the screen went black, I moved the mouse upward until I saw part of the cursor in the black border area above the blank screen. I held the left mouse button down and dragged the top of the screen down two lines. Wham! The Workbench screen and all of the icons and the cursor appeared just as if I had clicked on the front/back gadget. The Genlock window was there. I then activated the Genlock with the caps lock key and it worked perfectly.

Just to be sure of what happened, I held the left mouse button down again and dragged the screen back up to its highest position and all went black again! I swapped to the other multisync monitor and repeated the entire operation. The same results occurred.

I called a friend who also has an Amiga 4000 and the 1960 monitor and a Toaster 4000. He tried what I described and got exactly the same results. I don't have any idea as to why this happens, and neither does my friend. Since it repeats for each of us, I am wondering how many other Toaster owners have experienced this problem?

I don't use the Genlock very often, but on occasion it is really handy for some fairly simple and quick video editing. I don't have to wait for all of the Toaster goodies to boot up, because I don't need anything else at the moment.

If you would be so kind as to publish my letter, perhaps there is someone out there who may be able to explain what is happening.

Jim Boydston, Owner
Video Edit 'Cetera
Renton, WA

A: Since I don't own an A4000, I have not experienced this behavior before. Perhaps some of our readers have and can comment on it. In the meantime, have you tried using the (Left Amiga + n) key combination to jump to the Workbench when you encounter this black screen?

Q: I am having trouble with displacement mapping using the Fractal Bump texture. I can't figure out how to make this repeat properly without skipping frames. I know how to properly repeat a planar displacement map using a vertical black-to-white-to-black spread map, but when it involves the Z axis, I can't make it repeat properly.

Jeff Kasunic
via fax

A: The whole idea behind a fractal pattern is its randomness, and because of this, it cannot be repeated. If you definitely need to have a repeating fractal pattern, you could use LightWave to generate a repeating pattern in a different way:

- Generate a series of frames (whatever frame count you wish to loop) of a moving fractal pattern on a flat rectangle that fills the camera view.
- Copy this sequence of images and renumber them so the last frame becomes the first and the first becomes the last.
- Load both sequences into LightWave and place one of them in the Background Image and one in the Foreground Image (Effects panel).
- Set up a Foreground Dissolve envelope to fade from 0% at frame 0 to 100% dissolved (or vice versa) at the end of the sequence. For example, if you are using a sequence of 30 frames, set up your dissolve envelope so it looks like Figure 1.
- Render out the same number of frames that are in each sequence. The result will be an animation that dissolves between two sequences where the first frame and the last frame will be the same. Since we start dissolving at frame 0, but begin rendering at frame 1, there will only be one frame (the last) where the sequence starts the loop over again. Of course, for a better-looping texture, you should render out as many frames as you can in the original sequence.

VTU

EDITORIAL EVALUATION

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Circle 014	Circle 015	Circle 016

SOUND REASONING

Sound Check

Understanding Common Audio Problems

by Cliff Roth

Whether you're recording live sound or doing an audio mix, the importance of monitoring the audio signal(s) cannot be overstated. In a column a few months back I typographically wagged my finger and urged readers to wear headphones or use monitor speakers. Now let's take a more detailed look at exactly what to listen for.

For this discussion, "good audio" will be defined as sound that is free of obvious problems, such as hum, distortion or hiss. Of course, realistically, there are plenty of other factors that, subjectively speaking, are just as important for making good recordings: music should be on-key and on-tempo; people speaking should be saying interesting things; etc. But for now, I'll confine myself to the most common technical problems that are generally under the control of the recording engineer or camcorder/VCR operator.

ILLUSTRATION BY DAVID SMITH

Hum

Hum is probably the No. 1 audio gremlin. As discussed here previously, hum is created by electromagnetic leakage from AC power lines. Consequently, its sound is based on the standard 60-cycle-per-second power line frequency (or 50-cycles in most parts of the world outside of North America).

The 60Hz pitch of pure hum is quite low—in fact, it's so low that many inexpensive headphones have a tough time reproducing it. Fortunately, the same is true for the small, low-quality speakers commonly found on television sets. If you accidentally record small amounts of pure AC hum, your TV's speakers are likely to filter it out.

But hum becomes much more audible at multiples of the 60Hz fundamental frequency, such as 120Hz and 180Hz. These harmonics commonly occur in fluorescent lights, multi-phase motors and many electrical appliances. Instead of sounding like a pure low tone, hum sounds more like a buzz when these harmonics are present.

Depending on the severity of the problem, the hum may be so powerful that it completely overwhelms the audio signal you're listening for, rendering the desired audio unintelligible. More commonly, the hum is heard in the background, and often its level is so low that it only becomes noticeable during very quiet parts of the recording. (Rock concerts and recording sessions demonstrate this. Practically every electric guitar and bass has a small amount of hum coming from its amplifier, heard mostly when it's not being played.)

Generally speaking, the level of the hum will stay the same throughout the recording, unless the hum pickup is related to someone stepping near or away from a piece of equipment. In such cases, the human body acts as an antenna that picks up and relays the noise into the audio chain. In this respect, hum sounds noticeably different from distortion, which tends to fluctuate in correlation with the desired audio signal.

Distortion

The most common form of distortion is called clipping, because of the way the distorted waveform pattern appears when viewed on an oscilloscope (the standard test equipment for looking at electronic waveforms). It looks as if the tops and bottoms of otherwise round-looking waveforms (sine waves) have been clipped off.

Clipping occurs whenever the audio signal exceeds some maximum limit in the audio chain. In the microphone, clipping can occur when the sensitive diaphragm is thrashed back and forth with changes in air pressure so extreme that they go beyond the range of allowable diaphragm movement. In an audio amplifier circuit, clipping occurs when the gain is set so high that amplifying the incoming signal by the specified amount (such as 10x or 100x) would require more electricity than the amplifier and its power supply are capable of providing.

In a battery-powered device, such as a portable radio or tape player, the threshold where clipping begins to occur gets lower and lower as the battery is depleted. That's why a portable radio starts sounding more distorted as the battery goes dead.

This distortion sounds like a buzzy static that occurs only at the loudest moments in a recording. At the very beginning of camcorder recordings there's a tendency to hear distortion, assuming that things have been quiet for a

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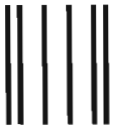

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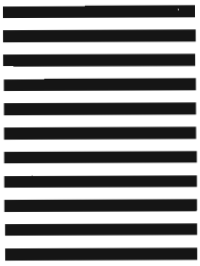

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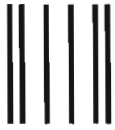

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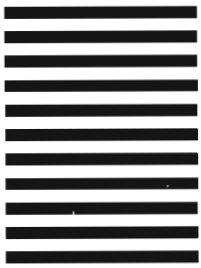

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while when someone starts speaking. This is due to the AGC (automatic gain control) circuitry, which sets itself to very high gain during the quiet time, and then takes about a second to re-adjust its level to less amplification when the person begins speaking.

Whenever you have manual control over audio signal levels, your goal is usually to set the levels at the highest possible point that doesn't cause clipping. This will provide the maximum signal-to-noise ratio (explained here last month). Clipping is the most common and most severe form of distortion, but there are plenty of others. Though arguably less annoying than overload distortion (clipping), tonal distortion can make recordings sound muddy and mediocre. The ideal recording faithfully reproduces the entire audio range, from 20Hz to 20,000Hz, with levels for the various recorded pitches that are in true proportion to the original sound. But realistically speaking, most recordings chop off the very lowest and highest pitches. Television broadcasts are commonly filtered with a skew that emphasizes speech intelligibility.

Digital computer recording makes selecting the amount of tonal distortion easy. Using the low sampling rate of 11kHz results in cutting off all frequencies above approximately 5kHz. This gives most sounds a distinctly muddy texture lacking crispness. (Try listening to the sound of a snare drum as a test of how crisp your recording quality is. The snare is very rich in high-frequency content when properly reproduced, but sounds more dull in low-fi.) To reproduce the full audio tonal range, digital audio must be sampled at a rate of 44kHz or higher, the rate CDs use.

With digital recording, distortion also occurs when small sample sizes are used. An 8-bit audio recording has a slightly buzzy sound, compared to a 16-bit recording, due to this form of distortion, which is technically called quantizing error. One major difference between most expensive CD players and the cheaper models is in the D-to-A (digital to analog) converters. The better D-to-A circuits minimize quantizing error on the playback side of the recording process.

Hiss

Hiss is a problem that occurs in all analog tape recording systems,

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FOR INFORMATION CIRCLE 117

including standard VHS, Hi8, 3/4-inch, Betacam and MII video, as well as standard audio cassette recordings. But the amount of hiss varies tremendously, depending on the specific track format and noise-reduction technology used. For the most part, hiss constitutes the "noise" element in signal-to-noise measurements. VHS hi-fi tracks, with an S/N ratio of about 75dB, thus have considerably less hiss than the standard VHS linear track, with an S/N ratio of 45dB.

Hiss sounds like static, the noise you hear between FM radio stations when the muting is turned off, or on a TV channel that isn't being used. Technically speaking, it's a variation of white or pink noise, which is the sound of every frequency in the audio spectrum mixed together. (Getting even more technical, pink noise represents equal audio energy per octave, while white noise is equal energy per frequency. White thus has more high-frequency content, while pink noise sounds duller.) The sound of a shower running full-blast, or a waterfall, is very similar to hiss.

A recording that sounds very hissy is probably due to low recording levels. If you record someone's voice at only half the maximum possible level (without causing distortion), the hiss level will be twice as loud.

Dolby noise-reduction systems (and other brands, such as dBx) are designed to minimize tape hiss. But note that for most effective use, these systems require a compatible playback decoder for whatever encoding (recording) system was used. Tapes recorded with Dolby B or C sound more bright (trebly) and hissy when played without a decoder.

Background Noise

When recording in an office, house or apartment, one of the first things you should do is locate any air conditioners, vent fans or refrigerators, and turn them off. These appliances almost always create background noise. Sometimes this noise isn't that noticeable in headphones, until you turn it off.

Other background noises to listen for are those that are distinctly urban (such as traffic or sirens) and those distinctly suburban (children playing, dogs barking). In busy offices, the ambient sounds—keyboards clicking, phones ringing, background chatter, etc.—provide a very rich acoustic texture. However, in big-budget professional Hollywood productions, these sounds are generally mixed in after the initial shooting, during post-production, in order to provide more precise control over the mix. If you attempt to record such ambiance not as a separate track, but as part of the original recording, very careful attention must be paid to the relative levels (proportions) of main sound (dialog) compared to the ambiance. Run some tests, with the microphone at different distances from people's mouths, and listen to them carefully before recording this way.

Get into a conversation with a true audio tweaker—a connoisseur of high fidelity—and you'll hear about all sorts of more subtle forms of distortion. One of these is harmonic distortion, the artificial creation of multiples of the original frequencies being recorded. And then there's phase and arrival-time distortion, in which minor discrepancies in the timing of signals from woofers and tweeters are blamed for making music sound slightly unrefined. But most of these more subtle problems are endemic to the equipment being used for recording and playback—you don't have a lot of control over them.

Regardless of what equipment you use, the lion's share of potential problems can be completely eliminated just by following the basic rules of audio recording: get the microphone(s) close to the sound, set levels as high as possible without causing distortion, use the fastest tape speed or sampling rate available, and monitor the sound while you record, transfer and mix.

Remember that problems can occur anywhere in the audio chain—you must pay careful attention to optimizing the signal not only during initial recording, but throughout all subsequent processing of the audio signal. If you carelessly set the signal level too low or high when you copy it, you'll get excessive hiss or distortion, respectively. The audio chain is only as strong as its weakest dub. VIU

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TIPS & TECHNIQUES

Preparing For LightWave PC

Cheaper Hardware, Faster Rendering are Here

by Brent Malnack

In the near future, NewTek will be releasing LightWave for the PC. This is great news to current LightWave users, and those new to LightWave. Why? First off, PCs are much faster than Amigas these days, and much cheaper. Plus, you can still buy one. An entire PC system could be purchased for less than the cost of an Amiga accelerator upgrade, and delivers more performance.

At the moment, it is possible to purchase a 486 66MHz PC-compatible for around $1,200, including monitor, hard drive, CD-ROM drive and RAM. This would be faster system than any of the existing Amiga systems, and could be used for a lot more than just LightWave. Unlike the Amiga market, graphics software for the PC market is booming. There are so many options for excellent paint and image-processing software that you'll have a tough time making a choice.

LightWave will soon be compatible with Windows and Windows NT.

The PC version of LightWave is slated to be both Windows- and Windows NT-compatible. (As of this writing, LightWave is only compatible with Windows NT.) NewTek will probably include the Win32s patch file, which enables Windows NT applications to run under regular Windows. While this will allow LightWave to be run, it won't be as fast as running it under NT because Windows NT is a true 32-bit environment allowing programs to execute in 32-bit mode. In contrast, Windows is a 16-bit application. So, running LightWave under Windows will not take advantage of the 32-bit instruction set.

The downside to Windows NT is that its RAM and hard drive requirements are much more demanding than those of Windows. While Windows will run on a 4MB system, NT requires 12MB of RAM minimum. With LightWave installed, you would want at least 16MB. LightWave could probably run comfortably on an 8MB Windows system.

Other Benefits of NT

Windows NT has a lot more to offer than its predecessor, Windows. Most notable to the Amiga crowd would be its ability to multitask. Unlike Windows, which essentially stops one task when you switch to another, NT can run multiple programs simultaneously. More on this later.

Another big attraction of NT is a handful of built-in networking protocols. Those would allow files to be sent to and from the PC, even to the Amiga and back. Users of a Personal Animation Recorder (PAR) on the Amiga would still be able to send files to it from the PC, so nothing is lost in the PAR investment.

Because the PAR can now read Targa files (and LightWave can write them), it's possible to further process the rendered images and send them across the network to the PAR. With a more sophisticated network setup, LightWave could even read frames from the Amiga-based PAR to be used as texture maps or background sequences, then record the rendered frames directly to the PAR.

Having the network capabilities of NT, it would also be easy to send entire LightWave projects over to the PC for the rendering process. While the PC is rendering, more scenes could be set up on the Amiga side. LightWave for the PC is fully compatible with the Amiga version, all the way down to IFF image support, and even support for Flyer video clips.

Drive Space

Perhaps the greatest benefit of going to a PC system is that with optional software utilities, it's possible to double the size of a hard drive. If you have one large drive in your system to render it to, it could be doubled when put in the PC. The most popular utility for this

procedure is called Stacker, but Microsoft included its own version of drive compression beginning with MS-DOS 6.0. Initially, Microsoft's Doubler was shaky, but it has become much more stable over the last few upgrades.

Like the Amiga 4000, most PCs come with IDE-type hard drive controllers. However, unlike the Amiga, a SCSI controller can be added for about $50. Similar pricing discrepancies can be found all over. An Ethernet card (for networking) on the Amiga can be in the $300 range, while the same cards for the PC are near $50. Adding more serial ports, parallel ports or other devices is similarly inexpensive. The 16-bit and 24-bit display adapters for the PC are usually between $100 and $300.

Why is everything so cheap on the PC? The answer is the volume. There are so many PCs out there that the fierce competition for market share has pushed the prices down for just about everything. Software tends to be more expensive on the PC than it was on the Amiga, but not enough to make up for the hardware discounts. The Amiga was a terribly expensive product when compared to PCs, but the PCs lacked any video solution as elegant as the Video Toaster.

Looks Familiar

Amiga users of LightWave will be surprised to notice just how similar the PC version is to the Amiga one. Button for button, icon for icon, they're identical. The only real difference is that when a file is loaded or saved, a typical Windows-type file requester appears. The similarity between the systems means that there is nothing more to learn outside of LightWave's new features.

Paint Galore!

A great reason to go with LightWave on the PC is the rich selection of paint and image-processing tools available. Among the best are Adobe's Photoshop, Fractal Design's Painter and Corel Systems' Corel Draw. Depending on your needs, any of these programs will be a delight to own. Photoshop has the edge in photo-retouching, Painter is supreme in creative, free-form painting, and Corel Draw is a great package for structured drawing.

Faster, Faster, Faster

Although the aforementioned 486 66MHz systems are speedy in comparison to Amigas, the Pentium-based systems are even faster. Currently, a Pentium-based PC runs about $2,500, and depending on the processor, speed can be faster than four or five Amiga 4000s.

Dual Pentium-based machines are also available now and have added benefit when configured with NT. Because NT can multitask, one processor could be rendering a LightWave animation while the other is left free for modeling and scene creation. This was always a dangerous task on the Amiga, because the rendering could slow down, you could run out of RAM, or you could crash.

Even more impressive than the dual Pentium-based machines are those that are based around the DEC Alpha. This 275MHz RISC processor is faster than nearly 15 Amiga 4000s. While an Alpha-based system is somewhat expensive in comparison with common PCs, it is the closest thing yet to NewTek's original Screamer announcement. Alpha workstations are typically about $10,000 (including RAM, hard drive, CD-ROM drive and monitor).

Reasonable Upgrade

Although not officially announced at press time, the upgrade path for Amiga LightWave users to the PC version is reportedly going to be incredibly reasonable. The best price would be offered to those that have upgraded to the most recent version of LightWave for the Amiga—3.5. And, you'll still be able to use your Amiga for LightWave, the Toaster, and any other applications you may have. The PC can be the powerhouse system to crunch out animations when time is of the essence. (And when isn't it?)

Brent's Shopping List

Given all of this, what would I recommend? Certainly, if you are a LightWave power user, a Pentium or better makes sense. The added speed will increase productivity and enable you to model and create scenes on the Amiga while the PC is rendering.

For most casual users of LightWave, a 486 66MHz system is an incredible bargain. It will have enough horsepower to speed day-to-day renderings, and also provide access to two stations. A 486 66MHz with 16MB or RAM, 500 MB hard drive, CD-ROM drive, .28 dot pitch monitor, 16-bit VGA card and Windows NT would be a nice system.

Power users may want to consider 32MB of RAM, a gigabyte hard drive, true color display card and a drawing tablet. With a couple of good paint programs and LightWave, you'll have a system that would rival UNIX workstations of only a few years ago at about one-tenth of the cost.

For Dummies?

Another strong recommendation for those new to the PC would be some books from IDG Publishing: "DOS For Dummies" and "Windows For Dummies." Although the titles are somewhat insulting, and it could be an embarrassing trip to the bookstore, you'll learn a lot in a short amount of time.

Networks?

To get the most from your new PC and Amiga, it would be wise to network the machines. On the Amiga side, you'll need an Ethernet card and software. In the public domain is a fine TCP/IP protocol program called AmiTCP. It can be found on the Internet, or in CompuServe's Amiga User Forum. With Windows NT, you'll be quickly connected.

For the best connection, an NFS network between the machines is suggested. For the Amiga, you'll need the soon-to-be-released NFS software from Interworks, and something like PC-NFS or Chameleon NFS on the PC. This enables the systems to share hard drives for seamless file transfer.

Setting up a network is likely to be the most difficult task of all, and should be left to a professional. Hiring a network specialist for the connection will be money well-spent.

Summary

LightWave and Modeler for the PC could be the best news for Toaster owners in a long time. The future promises more features, lower hardware prices and more productivity for your business.

VTU

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SLICES

Toaster Potpourri

Tips, Tricks, Oddities and Side Shows

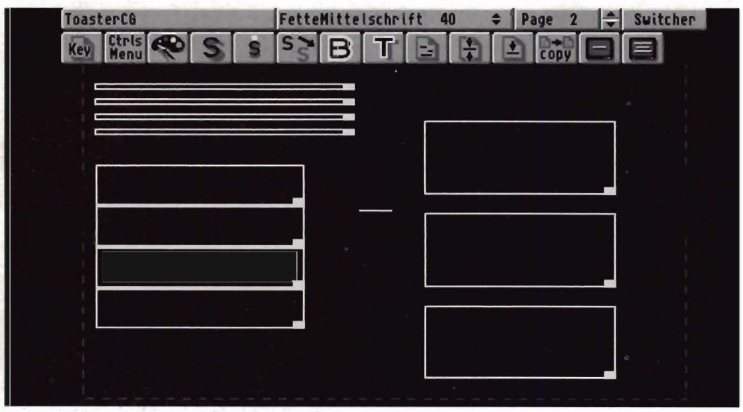
by James Hebert

My work necessitates an understanding of the Amiga that baffles my wife and friends. Crowded parties grow suddenly less attended when I encounter a co-worker and begin discussing such heartwarming topics as chip speeds, sustained throughput and hard drive cache values.

My son, who is 1-1/2 now, provides me with solace, however. He doesn't bat an eye when I speak computerese to him, handling "boo-boo" as unflappingly as "SCSI termination." In fact, both make him laugh.

Bright boy.

This month "Slices" contains an assortment of tidbits you may find useful in your work with the Toaster and the Amiga.



Three examples of box spacing. The first, a series of thin lines, was a single thin box duplicated with the default shadow settings. The second is a larger box with no shadow/border settings. The third is yet a larger box with maximum shadow/border settings.

Tabs

ToasterCG does not contain a tab function, making it difficult to line up items appropriately. Here are two useful tips for handling the situation.

First, ToasterCG's justification button has a setting that is not properly documented in the manual. The button cycles through four different settings as you click on it: center, left, right and what I call "current." You've probably experimented with the first three, and shaken your head a bit at the fourth. At first, it doesn't work the way you'd expect.

This last setting makes life simpler. With it selected, enter several lines of text, pressing Return after each line. You should notice right away that each new line is perfectly justified with the line above it. They line up. This makes the creation of "bullet point" pages, where you might list three or four items of importance to the viewer. Simple.

Although it's a good practice, it's not critical for you to start entering text with the cursor at the desired point on screen, since you can always select everything that you've just entered and drag it to the right location.

A second method for lining up critical text in a gridlike fashion is to create the grid you need in ToasterPaint, then use that image as a background in ToasterCG. Whether you need to see the background grid in the final page doesn't matter, because once the page is aligned correctly you can either change the background type, select a different background image, or change the page type to a key page. Any of these options presents you with the "final look" of the page you wanted, with the grid background acting as a useful tool along the way.

ToasterCG's Invisible Grid

(With a subhead like this, even LightWave 3D users will notice ToasterCG!) Actually, there is a way you can make use of a gridlike function in ToasterCG. It's most effective when lining up graphic elements like boxes and brushes. However, if you spend a lot of time with ToasterCG, sooner or later you'll probably want to line up text elements closely in one manner or another. At that point, this tip will help.

When you select Box from the pop-up menu in ToasterCG, a small box is placed on screen. At this point, you can position and resize the box pretty freely. (Graphics like this can bleed to the left, the right, and off the bottom of the page, but not off the top.)

But suppose you use this box in a small size as a background for some text, and you wish to make several boxes to form background bars so that the text stands out effectively?

Press Return to make an exact duplicate of the box just below the original, lined up with its predecessor. Now how do you determine the spacing between the top box and the box below it? And the next, and so on?

Here's the trick. ToasterCG looks at the Shadow and Border settings to determine the distance between one graphic and the next (this is true of text as well, which we'll cover next). If a box has no shadow turned on, and no border, its duplicate will be placed immediately below it. They will appear to be one box when rendered. If the color scheme of one of them is altered, it appears to be two boxes touching perfectly at their

edges when rendered. And, if you make a series of touching boxes in this manner, then give them gradient blends where the bottom color of one box is the top color of the box below it. This creates a rainbow of smoothly blended lines running down the page.

Think of the possibilities.

You can even go back, select each box in turn, and assign it a shadow or border setting to give it more definition or provide the page with the appearance of greater depth (where shadows fall onto a background, perhaps). By default, each outline and shadow will also fall on the box below (default shadow settings cause shadows to fall to the lower right), but you can use the Front Layer and Back Layer buttons to arrange each box "in front" of the one above it so that each overlaps the next.

The result is that the shadows that would appear in front of a lower box will now be behind it. It's a workaround.

There are three sizes of border (this is sometimes called outline) and five sizes of shadow in ToasterCG. Increasing each setting by one increment adds a little distance to the spacing between items. This means that you have eight different spacing settings that can be used when duplicating and manipulating boxes and other graphics.

Aligning Text

The tip above, on how the shadow settings affect the spacing between graphic elements, also applies to text. When you select a line of text and drag it around the screen, a bounding box attaches itself to the pointer and moves with you. This bounding box surrounds the entire graphic element represented by that text line. This includes the additional size added by shadow and border settings.

The bounding box surrounding a word entered with a font that is 40 lines high, but without shadow or border settings, will be larger than the bounding box surrounding a word entered with the same size font that does have some shadow and border settings. Lining up these two disparate items would be a pain if you couldn't control the settings.

When lining up different text elements (say, larger letters, or drop caps), keep this in mind. Often, when I know I'll be creating intricate graphics, I will turn off all shadow and border settings as soon as I start ToasterCG. These can always be tweaked later.

A Quick Thank You

I'd like to add an aside here to applaud the Video Toaster users who attended the Killer CG class that I taught at the Video Toaster Expo last year. Not only were you a terrific group, you taught me something new! (When I pointed out that text spacing and bounding boxes were affected by shadow/border settings, someone asked if that affected boxes as well. Lo and behold, we discovered the trick discussed above.) In addition, we went about two hours, 45 minutes (45 minutes over schedule, and without a break). You were one intent group! Thank you.

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Up and Coming

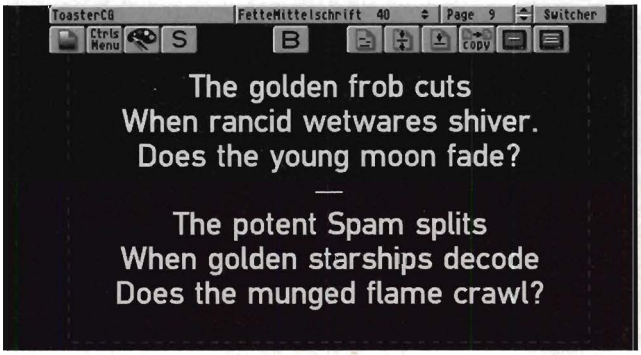
By now the Flyer is out (Are your fingers crossed?). If you haven't looked into the ARexx macros that were added to ToasterCG, do so now! You'll find shortcuts and tools that make ToasterCG far more flexible than ever before.

For example, you'll discover a useful spell-checker with a huge dictionary file that you can add words to.

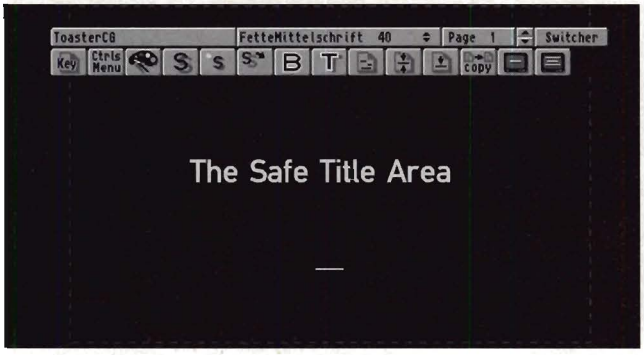
You'll see that through ARexx we've added the ability to cut and paste character attributes like the font color and shadow settings. So, if you create a terrific-looking color scheme, you can save those settings to a file on disk and call them up at any future date to apply them to the currently selected text.

You'll find the "box maker" macro, which saves the current box(es) on screen to a file. Once again, the press of a button will reload those boxes, placed and colored exactly as they were when you saved them.

There is also the random color scheme macro. This was added just for fun, but it can create some fantastic combinations of colors. Play with it for a bit and you'll find things you like.



A screen shot of the CGHaiku macro. Two examples are shown above. When you live in Topeka for a length of time, you begin to find these funny.



The Safe Title Area display (dotted grey rectangle)

CGHaiku is a variation on the Haiku macro from Modeler, updated so that its content is more current than Modeler's.

The Bumplines macro will space all lines on the page equally, using a spacing value that you enter. This one is especially helpful for long scroll pages, whose spacing is easy to confuse when you enter text.

While I can claim to have contributed to these macros (I tested them, and a couple of them were even my idea!), I want to point out that NewTek programmers Arnie Cachelin and Bob Caron have made them all possible. Thanks, guys.

Arnie also added a Safe Title display to ToasterCG. From television to television across the world, the actual area of the video signal that is seen on screen is somewhat less than the full video image sent by the broadcaster. Typically, there's a bezel around the frame of your picture tube that limits just how far out to the edges of the actual picture area you can see. Every manufacturer is different, so every television tube and set differs. From the cameraman's tiny monitor to the control room's larger monitors to the barroom's large-screen monitor, the visible picture area varies.

The Safe Title area is a section of the screen that is considered "safe" for any text to appear on anyone's screen within the broadcast area. If you place text within the box, everyone will be able to read it. This is as important for 800 numbers at the end of a commercial as it is for the star's name at the beginning of the show. Of course, you have probably seen text that was stylistically designed to run off the screen's edges, and this can be used with great impact. But for day-to-day operations, it's a beneficial tool.

ToasterCG displays its Safe Title Area in a dark gray box that surrounds the center portion of the screen area. Occasionally, as you manipulate text on the screen, it will break up. However, it redraws itself after most operations, so you'll always be exactly where your text lines up. (Besides, it acts as yet another useful tool for lining up text.)

VTU

James Hebert has written, edited, designed and produced documentation for NewTek since Video Toaster system 2.0. In addition to writing "Slices" for VTU, *he researches products and designs interfaces for NewTek. Send questions and correspondence care of NewTek, Inc. or post them to NewTek's CompuServe account, 76004,3350.*

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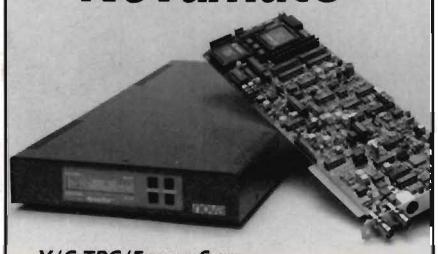

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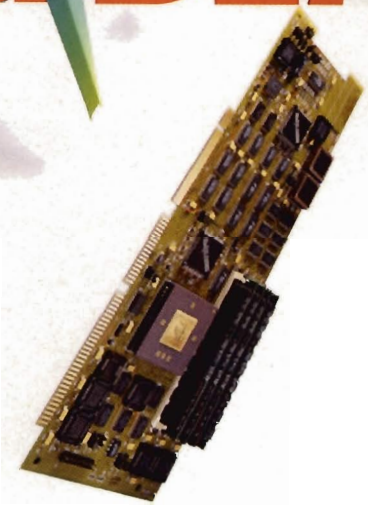

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CYBERSPACE

Soaring Through a Digital World

A Cornucopia of Lightwave Utilities on the Nets

by Geoffrey Williams

The last time I wrote an article on LightWave utilities, which was not all that long ago, it took me months to collect enough information to fill a column. This time I seemed to find tons of stuff in just one night of cruising the nets. It is like a scavenger hunt, and you never know what you are going to find.

Jim Steele wrote Starfield Creator to simplify the process of making starfields for 3D programs. It allows users to set the number of stars that they want within a given radius. You can either have a spherical volume of stars or restrict the stars to the surface of the sphere. You can also set the number of colors you want the stars to be. The interface is simple to use and was created in CanDo. The file that it produces is in the old Geo (Videoscape) format, but it can be easily loaded into LightWave.

"It is a good idea to have several boards in different geographic areas to call if you want access to the widest variety of material."

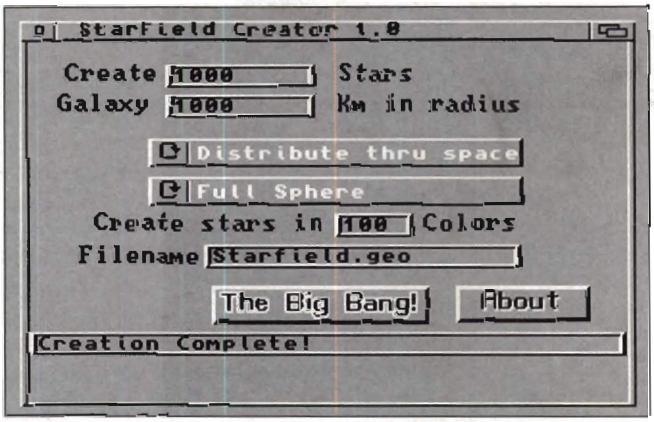
We all appreciate the many updates to LightWave, but these upgrades can sometimes cause backward compatibility problems. A case in point is that objects and scene files are not always compatible between version 3.1 and version 3.5 of LightWave.

NewTek recommends the following procedure: When you load any scene created in a different version of LightWave than the one you are running, save the scene immediately, then quit and restart LightWave. This should convert the scene to the version of the software you are currently using. The "quit and restart" is necessary because LightWave will generally crash after such a load and save if anything other than quitting is attempted.

Chuck Baker of NewTek technical support wrote LWSwapKit to help make the transition between the two versions a little easier. One of the big shocks people had when switching is that LightWave now handles memory a little differently: scenes that had enough memory to render before now come up with a "not enough memory" warning. This is primarily a problem for those who do high-resolution or print work. LWSwapKit consists of four scripts and icons to run them from. The two main scripts are Go3.1 and Go3.5, which change the names of the LightWave and Modeler programs stored in the Toaster drawer so that the desired revision will load when the Toaster software is run. This way you can use the version that you want. The other two scripts are Prep3.1, which prepares a 3.1 Toaster system to preserve the old LightWave and Modeler files prior to a 3.5 install, and SwapSetup, which is run after the 3.5 install and puts the 3.1 files back into the Toaster directory so that they can still be used.

James G. Jones wrote LWObjectFixer to fix 3.5 objects so that they load properly into 3.1 with all of the surface attributes retained. Otherwise, some of the surface settings are lost, such as the tiling settings in cylindrical and spherical image maps, and most of the number settings (like contrast and frequency) for Fractal Noise, Wood, Marble and Underwater. The program is easy to use. Simply run LWObjectFixer from the icon and it brings up a file requester to let you select an object, then fixes it for you.

Those animated wireframe previews are certainly helpful in proofing an animation, but wouldn't it be neat if you could actually use them for something? Ernie Wright thought so also, so he wrote lww2Anim. It's a LightWave wireframe converter that turns those files into standard Anim-5 animations. You can then load them into any paint or image processing program for further manipulation. Wright's program runs from the Workbench and brings up a requester to let you select the wireframe previews you want to convert. It can even do batch conversion. It lets you select the foreground and background color as well.



Easily make a variety of starfields with Jim Steele's Starfield Creator.

For a long time, Imagine was the pre-eminent 3D program on the Amiga. It was a little kludgy (I can hear Imagine fans grumbling at me already) but could turn out very impressive results. When LightWave appeared, many people jumped from Imagine to LightWave, which was and still is a superior program. Most of us still have Imagine objects in our collections, and there are a lot of them on the various bulletin boards.

For simple objects, there is an Imagine-to-LightWave converter available called I2LW, by Peter Verswyvelen. This version is a demo in that it is limited to converting a single object at a time and is limited to objects with 500 points (the upgraded shareware version does not have these limitations). The demo comes in both PC and Amiga versions.

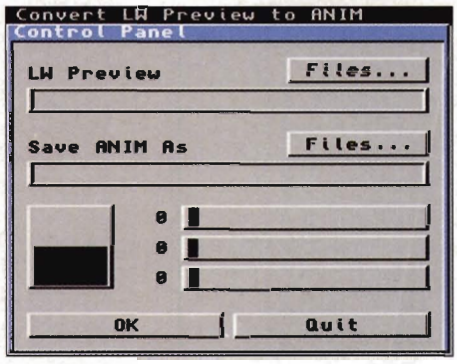
It does do a couple of important things when it does the conversion. All triangles (faces) are reoriented so that their normal vectors point outside the object. This eliminates potential gaps in objects and increases their rendering speed. Also, each pair of co-planar faces is merged into a quadrangle, a polygon with four points. This also produces better objects that use less memory and render faster.

Metaform is one of the major additions to LightWave, and it is quite powerful, but I have heard more than one person complain that it could have been a little better documented in the manual. I have found a couple of tutorials that may help alleviate some of that frustration.

The tutorial by Monte Ohrt is called Metatut on the boards and is a general tutorial on Metaform functions. It teaches how to create an organic-looking object from something very simple, and has lots of illustrations.

A longer and more detailed tutorial found on the boards, by James Hastings-Trew, is called MetaForm. It gives step-by-step instructions on how to make a telephone handset, and also has a lot of illustrations.

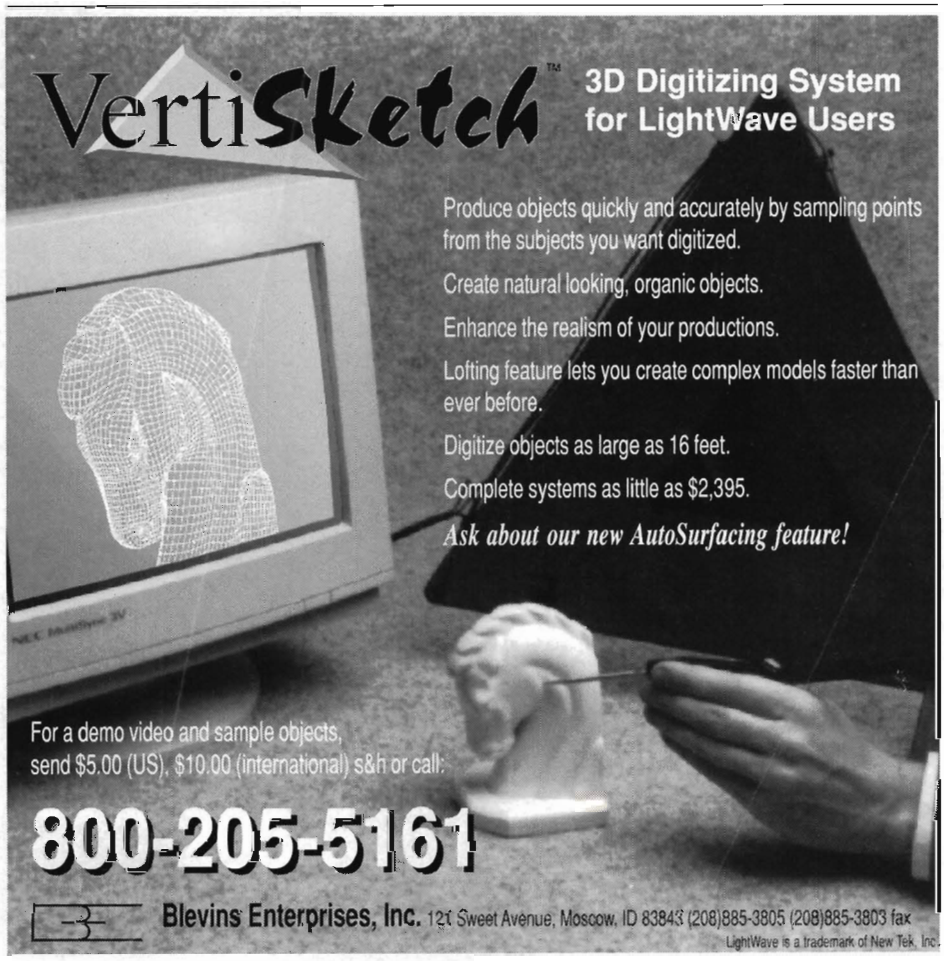
Both of these tutorials are worth having if you want to gain a better understanding of the capabilities of Metaform. My small contribution to them was to turn them both into hypertext documents and add a couple of icons so that they could be read from the Workbench as AmigaGuide files. They included a lot of pictures and are very space-consuming. I used PowerPacker to compress them and included PPShow 4.0 in the archive. I uploaded this to Mike's Video House (see below) as MetaFormGuideTUT.lha.



Convert LightWave wireframes to standard Anims with LWW2 Anim.

Tons of Tips

There have been tons of tips made available through the LightWave mailing list and other sources. As opposed to tutorials like the two above, these tips are usually pretty short, but often offer useful advice on a particular subject. I think they are quite useful to peruse. I have been collecting them for quite awhile, and finally got around to putting them all together in a single file in the AmigaGuide format. There have been a number of other similar collections on the boards, but I think mine is the most extensive of any I have seen. I included tips on a variety of subjects, and uploaded it to Mike's Video House as LWTips-Guide. To keep the size reasonable, I Powerpacked the entire text file and included an AmigaGuide reader that can display Powerpacked Guides. (I wrote about Powerpacker in my November 1994 column on ClipArt). This saved a whole lot of room. I wrote about LW.guide last month, but there is actually very little overlap between that and what I was able to find. This just goes to show that there is an awful lot of information out there if you are just willing to look for it.



FOR INFORMATION CIRCLE 124

Magic Macros

I also collect LightWave macros, and have come across a few more that will be new to readers of this column. For dealing with LightWave objects, Earl C. Terwilliger has put together a useful set of ARexx scripts. His archive CheckLW includes a text file from Allen Hastings describing the LightWave Object file format, along with several scripts. One of the scripts sifts through a LightWave object file and reports some basic information about the object itself. CopyScene.rexx will copy a LightWave scene file and all associated files from the source to the destination drive or directory. As it copies the files over to the destination it changes the references to the destination so you won't get the requester "Can not find Object or image. Choose an Alternative?" in LightWave layout. The script changes the destination names of the copied files in the scene file and objects files. There is also a similar script that does the same thing, but will search an entire drive or directory and copy all scene files it finds, plus all files referenced by those scenes. File reference names are also updated in the copied files to point to the proper destination. ChkScene.rexx will check a LightWave scene file and all files referenced by it to make sure they are found where the reference to them points. There is also a version that does the same thing to all the scene files it finds in a specified directory or drive.

While the Flyer may be the choice for editors, I suspect a number of LightWave animators will be holding onto their PAR boards, and there have been a lot of useful scripts made available. One interesting one I came across is called DemoReel. It lets you sequence a series of LightWave animations and stills using Toaster transitions, making for a complete ready-to-record demo reel, hence the name. If this is something you want to do, find this script. Once you learn how to do it, it is easy to modify the script to meet your own needs.

Finally, if you have a PAR and ADPro and want to use PAR as your display device, there is a script called PAR_Display. One of the nice things about the savers in ADPro is that you can use ARexx scripts, which can be placed in the ADPro Savers2 directory, and they will act just like a regular saver. By putting this script there, you now have a seamlessly integrated saver in ADPro.

Getting in Touch

On-Line is the new affiliated name of the LightWaved BBS, which still exists as a subsection of Software On-Line. The number changed for awhile, then went back to the old one. You can now reach them at (510) 228-1437. This board is one of the easiest to use. (The method of flagging files for batch downloads is terrific and very easy. You use the space bar to go down the screen highlighting files, and press the Enter key to select the ones you want.) The section of LightWave tips is worth getting on the board for just by itself, but you'll also find tons of objects, image maps and utilities.

I get frequent e-mail from people asking where a particular utility can be found, and unless I can quickly bring up my list of Aminet files and find it, I am at a loss as to where a specific file comes from. A lot of LightWave stuff never winds up on the Internet. To help you in your search, though, here are the BBS numbers I use the most. Chances are you will find anything I write about either on the Internet or on one of these numbers: Mike's Video House, (818) 240-1593; LightWaved; or Studio Amiga, (817) 557-2111. I do browse a number of other systems, and it amazes me that I can find a great file that does not seem to appear anywhere else. It is a good idea to have several boards in different geographic areas to call if you want access to the widest variety of material.

As usual, if you don't have time to hunt down all of the programs featured in this month's column, I have put them all on a disk you can have by sending $5 to Geoffrey Williams, LightWave 3 Disk Offer, 1833 Verdugo Vista Drive, Glendale, CA 91208. VTV

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FOR INFORMATION CIRCLE 143

TAMING THE WAVE

Speedy Rendering

Experimenting with Beams

by David Hopkins

Just when you thought it was safe to go out and buy a fast computer, out comes another machine with even more speed. This is a fact that we're all going to have to face. A glimpse of reality in the computer business these days—almost everything is obsolete the moment it is released. A few issues back I talked about the Raptor Plus, a blindingly fast rendering engine from DeskStation Technology. Now, just a few months later, I've got a piece of news about another fast rendering engine. It's from ShaBLAMM! and it's pretty darn impressive.

Figure 1

The ShaBLAMM! system actually consists of a really fast accelerator card for the IBM-PC family of computers (or, of course, compatibles). What you get is a 100 or 133 MHz MIPS 4600 processor (the same chip found in the Raptor Plus) and up to 32MB of RAM on one handy card that plugs right into your PC. You connect the PC to your Amiga using EtherNet (just like the Raptor and Raptor Plus), run ScreamerNet, and away you go. Really fast.

At the time of this writing I am working on a large-scale job for a major financial company using my Raptor. The image shown in Figure 1 (a modified frame from one of the animations) took 24 minutes and 50 seconds on a single Raptor CPU. Using both Raptor CPUs produced the same frame in 17 minutes, 43 seconds. The ShaBLAMM! system pulled it off in 15 minutes, 27 seconds. As you can see, the single ShaBLAMM! outperformed the entire Raptor in this example, but on average they work out to be about the same. Also, remember that my tests were against an original Raptor, not the Raptor Plus. I would give you the time for rendering this image on a standard Amiga, but when the whole scene is loaded (more than 162,000 polygons), I don't have enough RAM to render it local.

Is the ShaBLAMM! as fast as a Raptor Plus? No. The Raptor Plus has two of these processors. Is the ShaBLAMM! as expensive as the Raptor Plus? Nowhere near it! You can put together a complete ShaBLAMM!-based PC workstation for about $5,000. And, unlike the Raptor and Raptor Plus, it is truly a workstation. You can use the PC as before, running programs written to support the MIPS processor, such as Elastic Reality (for morphing), Real 3D (if you're a physics major who wants to do 3D) and Adobe Photoshop, among others. You could even just go ahead and run LightWave and Modeler on the PC and forget the Amiga.

One thing to keep in mind, however, is that the ShaBLAMM! comes with 32MB of RAM. A Raptor/Raptor Plus comes with 128MB, or 64 for each processor. For your average day-to-day rendering job, this may not be a problem, but when scenes start getting intense or need to be rendered in high resolutions, you're likely to run into problems.

It comes down to the type of work you do and what you want. If most of your scenes are of an average, logo-type nature and/or you want to run PC programs really fast, the ShaBLAMM! card is a great thing. If, on the other hand, you put very high demands on your rendering system, you may want to keep looking.

Let's dig into the magical bag of LightWave tips and tricks, shall we? We'll start this time with another interesting ScreamerNet tidbit: I have a nasty habit of setting up scenes that eat up the vast majority of my Amiga's RAM. The problem arises when the scene is sent over to the ScreamerNet CPUs, rendered, and sent back to the local Amiga.

There's simply no memory to hold the images in RAM when they come back. Here's a solution: send the files over to the ScreamerNet device(s) as normal, load the scene into the CPUs, but don't hit Render yet. Instead, go to the Objects panel and click Clear All Objects. Once the scene and all of its associated parts are loaded into the remote CPUs, the local versions are no longer relevant. You can even clear the images to release as much RAM as possible. Just make sure that you don't clear the scene and your rendering should proceed just fine.

Lately, I've been spending a lot of time working on animations that need to have events occur on certain hits in a musical track. One technique that I've found

to be helpful in this situation is to render a low-res test of the animation with the Data Overlay option turned on. This handy feature found in the Record panel will place a frame number and optional piece of text in the bottom corners of each frame. I just leave the optional text out, because it serves only to cover a portion of the frame for the most part, and let it

By following the tutorial, your results should be similar to the above images.

place frame numbers. Once these frames are placed on the PAR and recorded to videotape, the animation can be inserted on the correct piece of audio. Finding out the exact frame for a hit is as simple as listening to the music and noting the corresponding frame number.

Here's a useful tip for working with complex objects. The bulls in Figure 1 (created for my client by ViewPoint) each have 22 separate parts. Since I'm using three of them in that particular shot, the polygon count rapidly reaches the point where Layout refreshes take quite a while, let alone creating test animations. A good solution I found for this problem is as follows: All of the object files for the bull are located in one directory. I simply created another directory called "BullBoxes," took each object into Modeler and used the Bounding Box macro to turn each one into a box that encloses the part. I then saved them with the same name into the new directory. Now, when I'm centering my attention on things in the scene other than the bulls, I just swap the directory names. When LightWave loads the scene it looks in the regular Bull drawer, but since I traded the directory names, it actually loads the boxes instead. This gives me a reasonable "stand-in" for the bulls while greatly reducing the drawing time. The one thing you've got to be careful of is making sure that the real bull parts are back in the right directory when you are ready to render the scene for real.

Now, here's a real nice formula for beams as seen in this image. Let's make a very simple monitor in Modeler to use for our example.

In Modeler, clear all of the layers by clicking the New button. Use the Box tool Numeric Entry to create a box that is as follows: Low X = -1, Low Y = -.75, Low Z = 0, High X = 1, High Y = .75, High Z = .5, all Segments at 1. This will give us a 4-3 aspect ratio to conform with an NTSC frame. Once you have made the box, name the surfaces "MonitorBody," then select only the face of the monitor (the polygon facing down in the view labeled "TOP") and name it "MonitorOuterBevel."

With the MonitorFace polygon still selected, press the (b) key on your keyboard to bring up the Bevel options. Set both Inset and Shift to 100 and Units to "mm," and click OK. Notice that the bevel is created and there is still only one polygon selected. Name this polygon "MonitorFace" using the Surface control and press (b) again. This time set the Inset to 100 and the Shift to 0. There is still

continued on page 81

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FOR INFORMATION CIRCLE 102

Walter The Creator of

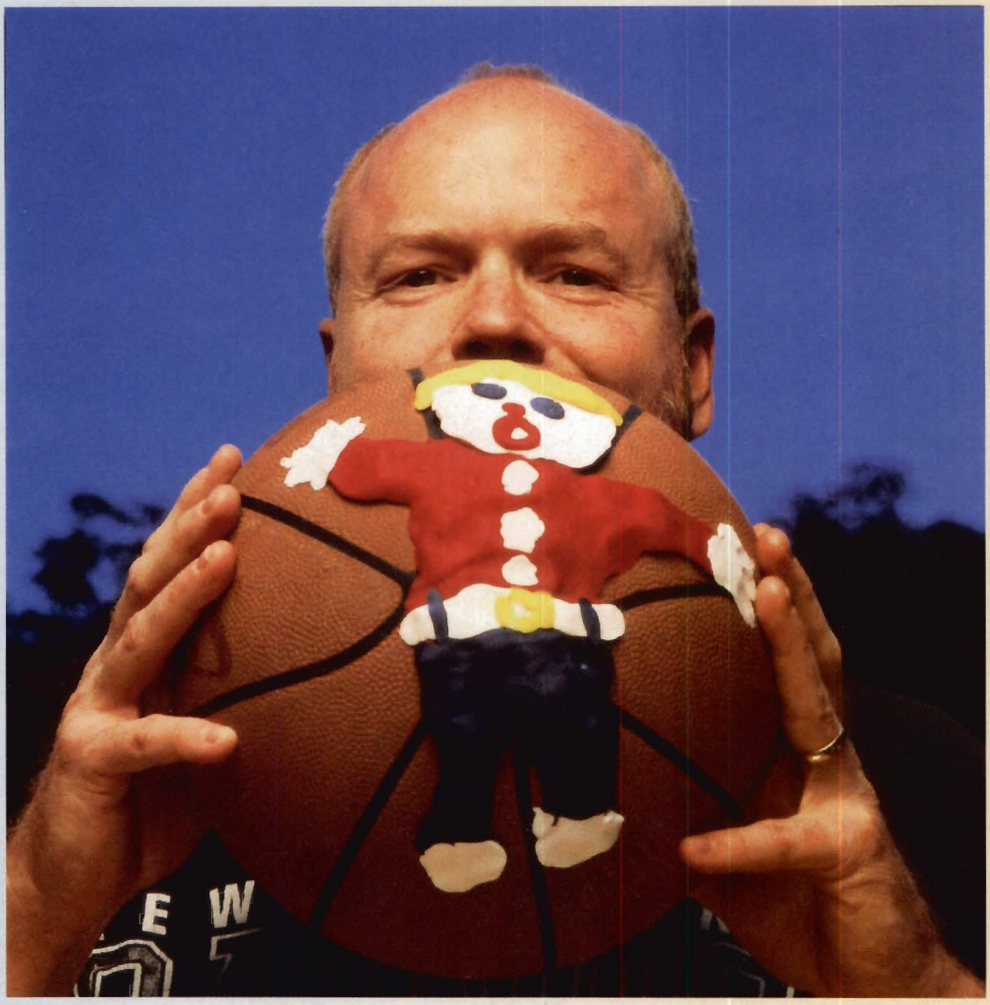


PHOTO: PEOPLE WEEKLY© STEVE LABADESSA

It's been nearly 20 years since the immortal words "Ohh Nooo!!!" first echoed off the walls of living rooms and bedrooms across this great nation, forever engraved in the minds of countless individuals. Repeat those words with the proper pitch and phrasing, and anyone thirtysomething or older will quickly respond, "Mr. Bill!" Yes, believe it or not, Mr. Bill is no longer a teenager. To celebrate the beginning of his post-adolescent life and to remind you of what put him on top, the *Mr. Bill's 20th Anniversary Special* should be coming to a television set near you very soon.

Battling a tight deadline, the elements, and even a dead car battery, I finally sat down with Mr. Bill's creator, heavy Toaster user Walter Williams, at his home/studio in Hollywood, Calif.

Williams Mr. Bill

by Douglas J. Nakakihara

Doctor or Filmmaker?

Walter Williams started making comedy films after getting out of high school. "It was either Mr. Bill or med school. I figured I'd be better off mutilating little Play-Doh characters rather than real people." Williams says he was "hooked on the smell [of Play-Doh] at a very early age."

The opportunity arose to work on a low-budget feature film in New Orleans, his hometown, where he found being a part of the crew and doing sound exciting. The whole concept of filming a story out of sequence and then putting it back together to create a finished product fascinated him.

Mr. Bill is Born

It wasn't too long before he was making his own short films using a Super8 movie camera. One of these was titled "Mr. Bill."

Williams explains: "It was a takeoff on bad animation and it fit into my budget at the time, which was about $10. It wasn't even stop-action. He has never moved. I have to admit it—I don't deny it anymore, I cheated. But that was the whole point of the joke. Mr. Bill is kind of a victim of his animator, the hands. He can't really do anything.

"He's got to sit there and complain. He either gets moved by Mr. Hands or a Mack truck." (Williams had to buy a lot of Play-Doh, too, as a figure never lasted longer than one film.)

While trying to decide whether to go to Los Angeles or New York to start a professional filmmaking career, Williams sent a reel of his films to NBC's late-night TV show *Saturday Night Live* (*SNL*), which was in its first season. To his surprise, the staff liked the Mr. Bill film and told him they were going to air it.

Williams told everyone. Unfortunately, that episode of *SNL* was pre-empted in his area by coverage of the Mardi Gras parade. Luckily, he was able to go down to the network affiliate and see the show, but, Williams (half-seriously) laments, "No one believed [it was on]." Needless to say, the filmmaker decided to go to New York.

A Rising Star

Williams made several more Mr. Bill episodes for *SNL*, while also doing stand-up comedy at the Improv and other clubs. Eventually, Mr. Bill became so popular that *SNL*'s producer, Lorne Michaels, gave Williams a permanent position on the *SNL* staff. By the fourth season, he was making about a dozen Mr. Bill films per season.

The filmmaker also got to write some material for the show, including "The Concert for Elvis Presley's Coat," which he also directed. Those were the glory days of *SNL*, and Williams got to write jokes and sketches for the likes of John Belushi and Dan Akyroyd. At the end of the 1980 season, at the height of Mr. Bill's popularity, Michaels left the show, as did most of the staff, including Williams.

This neighborhood scene created in LightWave is the opening for the Mr. Bill videotape.

The Post-SNL Years

Since 1980, Mr. Bill has shown up on a Bob Hope special, *Late Night with David Letterman*, and many other shows. Mr. Bill was also seen in a short film accompanying the nationally distributed movie *Ernest Rides Again*. Williams' first book featured Mr. Bill and became a No. 1 best-seller. Released in 1993, the *Mr. Bill Collection* from the *Best of SNL* videotapes has sold more than 100,000 copies, far more than any other volume in that series, according to Williams.

Walter Williams

In recent years, people have started associating Mr. Bill with President Bill Clinton, causing somewhat of a resurgence in the character's popularity. Williams also created the very Mr. Bill-like Pizza Head commercials for Pizza Hut.

The 20th anniversary show's burning fuse opening was built in LightWave.

First Network TV Toaster Appearance

Williams has kept busy doing other things as well. In 1990, he was responsible for getting the Video Toaster its first network TV exposure on *Into the Night Starring Rick Dees*. He used SuperVHS cameras and put together an off-line editing system at home to avoid the pressures of an hourly rate at a post house.

Initially, Williams was hired to produce some short films for the show, and was also a writer on staff. However, he was able to fill a void where there was no budget and give the program a more interesting look using Amiga graphics and the Toaster. "If they had a budget of anything," says Williams, "then everyone would have questioned [using the Amiga]. But they saw the results and liked it. So they had no reason to." Unfortunately, the show didn't last very long, but it's doubtful anyone can blame that on the Toaster.

It Ain't Professional

Interestingly, although Super8 is not considered a "professional" format, Williams stayed with it for four *SNL* seasons before moving on to 16mm. Before his *SNL* success, arguably confirming the acceptance of the format, people warned him that he'd never get Super8 on television. However, Williams felt that if he couldn't use it, he wasn't going to be able to afford to make any films. If he had tried to just pitch the Mr. Bill concept to any of the networks, it would probably have never made it.

Creative Control

Using this easier film format on *SNL* gave Williams more creative control than he would have had otherwise. "I didn't really have to go sell or talk someone into it. I could just make the film. So that's what [was] appealing about the Amiga. You just take a video cable, plug it into the back, stick it into your VCR or TV, and you get computer videos. That kind of stuff was really attractive to me because I try to approach this stuff on somewhat of an artistic level. Especially in comedy, where timing is so important. You have to set up a gag and then pay it off, and it has got to happen in the right amount of time to get someone to laugh."

Williams feels very strongly that effective comedy requires a single point of view, whether it comes from an individual or a group. He says, "It has to be a point of view that's carried through the whole process of making a film, which is very long and tedious. From the moment you get an idea to the time of building the props, or casting, and shooting... By the time you're in the editing room, it's very stale and it's boring. You hate it and it's not funny. But you just have to plow ahead at that point and realize that if it was initially funny and [you've] done all the steps in between and put it together again, it should be funny. The audience will not have seen it before."

"When I got hired for *SNL*, Lorne Michaels just said, 'Go do it....He basically just let me go off and make [the films]," recalls Williams.

Walter Gets An Amiga

Williams talked his wife into letting him get an Amiga 1000 by telling her he was going to design a new character on it. Well, that 1000 is long gone, but the character, Hokie the Shobot, will make its first official appearance on the 20th anniversary show. He's a little robot that is running the satellite network backstage while everything keeps breaking down.

Created in DPaint, Hokie the Shobot is a new character who will appear in the Mr. Bill show.

Small Budget, Big Results

Nowadays, using his Amiga 3000 and 4000, and SuperVHS editing equipment, Williams often does low-budget projects. Taking advantage of the Amiga's multitasking capabilities, he literally uses all of his equipment in concert. To score the video, he begins with SuperJam controlling a One Stop Music card (Blue Ribbon Soundworks). SuperJam creates a song based on a particular style you select. The melody can be altered on the fly, which Williams does as he watches the video.

Once he gets something he likes, the SuperJam song is recorded into Bars and Pipes (Blue Ribbon Soundworks), where it can be further refined. Of course, Bars and Pipes is also remembering the SMPTE timecode from the video, so when the video is played back again, the music will be perfectly synchronized.

SunRize's AD516 with Studio 16 software is also part of the audio picture and is used for multitrack 16-bit sound bites, like music, voices, sound effects, narration, etc. These are all cued based on SMPTE timecode as well.

The AD516 is installed in William's 3000. You shouldn't

be too surprised to learn that he also runs AmiLink on the 3000 to control the Toaster in both his 4000 and his videotape decks. Williams likes the total video production package the Amiga provides because it allows him to also work on personal, family-type projects, which would never even be attempted if he had to go outside to do any part of the production.

Advantage Amiga

Although he plans to add a Windows NT machine for LightWave rendering in the future, Williams openly admits that he could not do the video work he has done without the Amiga. It is not only a question of cost. "Having all these multitasking programs running simultaneously. You can't do that on a Mac, [though] you can do parts of it on certain machines. I've got eight tracks of audio. Even on a Macintosh with ProTools, you only get four tracks, with a high-end $20,000 software package."

Composited with Emplant and Photoshop, this image shows Mr. Bill lava rafting in Hawaii.

Williams does use some Mac software, like Photoshop, Illustrator and QuarkXPress, but he runs it on an Emplant board in his 4000. The initial 20th anniversary show announcement was created using his Mac software and sent to the printer on a Mac-formatted SyQuest, with no actual Macintosh involved. The printer never knew the difference.

Flying to a Screen Near You

Williams is excited that he will be creating the entire 20th anniversary show on the Flyer. The 30-minute special is going to include some clips from the *SNL* Mr. Bill episodes, plus some new material. LightWave 3D was used on some of the new stuff and looks pretty cool. One effect involves using 2D images and clipmaps mapped on a flat plane. This allows the objects to cast a shadow, giving them a 3D look. Keeping the camera at a certain angle with respect to the objects helps to avoid betraying their 2D form. Williams has also incorporated many actual photographs mapped onto wall objects and other things, giving his LightWave scenes a very rich look.

The Sluggo Broadcasting System

Furthermore, Williams has created his own "network," called the Sluggo Broadcasting System. He plans to upload the show to a satellite and allow anyone to record and preview it before committing to it—sort of like network TV shareware. Stations will have exclusive rights for their particular market on a first-come, first-served basis.

"You need a face like this [pointing to Mr. Bill on a postcard], at this point in history, to get the attention of a station manager," Williams said. "Everyone who is a general manager or station manager of a TV station right now is basically my age [and] grew up watching *SNL*. They're going to notice it. Then they can decide if they want to join in on the *SNL* celebration."

Williams has been wanting to do this for awhile. Now, with the availability of the Flyer and *SNL*'s own 20-year anniversary promotion, he feels the time is right.

Delivering the Goods

He is going to physically deliver a pair of 9GB Flyer hard drives to a satellite uplink site. There, they also have a Flyer, and he'll simply connect the drives to its SCSI bus. The Flyer output will be laid off to D2 machines, which will then be used as the broadcast source. Although, in theory, you could go straight from the Flyer, using the D2 machines eliminates any Flyer-related playback problems that might crop up unexpectedly.

"I look at it as the same as word processing versus typing on a piece of paper," Williams says, comparing the Flyer to normal videotape editing. "I can't imagine having to retype if you wanted to change just one word, or insert, or anything. And that's even more amplified in filmmaking: the option of being able to insert something between two shots or take it out, or just to see what it looks like in reverse. Being able to drag things in a general order and then go back and continue to refine and tweak them...The advantage is I could theoretically be editing right up to the satellite feed. I'm just really excited about the whole [thing]."

In addition to *Mr. Bill's 20th Anniversary Special*, Williams is also putting the finishing touches on a feature film idea, likely for a comedy.

In this "Spring Cleaning" animation created in LightWave, Mr. Bill is about to be sucked into a vacuum.

Still Excited After All These Years

If you thought the creator of Mr. Bill was going to be a one-dimensional kind of guy who got lucky, you should be convinced otherwise. Just getting Mr. Bill off the ground took a lot of guts, hard work and talent. Williams' pioneering efforts should continue to pave the way for artists with limited resources to more directly express themselves to a larger audience.

ILLUSTRATION BY DAVID SMITH

Wedding Video and The Toaster

How To Marry New Technology With Old-Fashioned Romance

by Kevin Campbell

Using a Toaster for wedding video production doesn't have all the glamour of posting *seaQuest* or *The X-Files*. But the Toaster is an ideal tool for creating videos that look impressive enough to command professional-level prices and profits.

When it comes to wedding videos and the Toaster, simplicity works best. Wedding videographers may barely scratch the surface of the Toaster's potential, but that doesn't matter; entrepreneurs are making money with their Amigas, often using nothing more complicated than still frames and ToasterPaint. In fact, the "plug and play" aspect of the Toaster is the main reason these video producers choose it for their edit suites. Few wedding videographers are technophiles, and they won't waste time on equipment that doesn't quickly pay for itself.

Wedding videography might be simplistic, but when it comes to Toaster use, it's certainly elegant. From attractive fonts to artsy still frames, Toaster-equipped videomakers have learned to make their clients very happy. Pleased with the results, customers eagerly write checks.

To see how these video producers are using the Toaster and how much they're earning, let's look at several wedding video businesses around the country. We'll cover small, medium and large-sized operators, and find out their secrets for using the Toaster to make their daily bread.

Solo Toaster Wedding Entrepreneurs

Wedding videographers have long understood the value of the Toaster for creating a high-quality image in an industry that hasn't always had the highest professional standards. Solo wedding video entrepreneurs acknowledge that the Toaster gives them a production and artistic edge that helps them overcome any shortcomings of being a one-person operation, while allowing them to make a living.

"The Toaster allows me to create video that's unique," said Barry Peterson of United Video Productions in Shorewood, Minn. "The Toaster allows me a level of creativity that my non-Toaster competitors don't have." Peterson shoots 30 weddings a year for an average price of $800 per wedding. He operates from his house with an edit studio in the basement.

"I get the most use from the still store and CG functions," said Peterson. "At the beginning of each video, I create a photo montage with CG titles of the ceremony. Of course, I dissolve between photos. My clients notice the difference between my montage and my competitors, who just cut between photos."

Peterson creates add-on packages that he can use to up-sell his clients. The videographer offers a more comprehensive photo montage called the "Video Love Story," which

uses photos of the bride and groom from when they were infants, up through their courtship. "I use ToasterPaint to combine the bride and groom's baby pictures, CG their names and the title of the piece, and then dissolve between photos. I vary the speed of the dissolves to match the tempo of the music. And occasionally I'll use a switcher wipe, like the weightlifter, between photos of the groom in a gym." Peterson's price for the "Video Love Story" is $300. "I'd say 95 percent of my clients want the photo montage."

Barry Peterson of United Video Productions mostly uses still store and CG functions on the Toaster to create videos that capture the memories of "the big day."

The Toaster also helps him edit a more expensive "United Love Story." In this video, Peterson takes the couple to their favorite courtship locations, such as a park, the bride's sorority house, or a lake with a sunset over the water. He shoots additional footage, and edits this together with music for an additional $695. "For wedding videographers, the still store and CG functions of the Toaster alone are worth the price. To be able to finally afford still store is phenomenal." And how about the money-making capability of the Toaster? "If I lost my Toaster," Peterson said, "it would severely limit my ability to stay in business."

Small Town Videographer Makes Good

The farm town of Hays, Kansas boasts a population of 25,000 and sits three hours from the nearest large city. Hays is the home of Darrell Goheen's Total Video, which shoots 30 weddings a year for an average price of $600. "Before I had the Toaster, I used a Panasonic AVE-5 for editing and charged about $300 for each wedding," Goheen said. "With the Toaster, I felt I could charge more while the customer got a better video. And this is in a small town with a poor economy."

Goheen begins his wedding videos with a seven-minute montage opening that uses still store, ToasterPaint, character generation, and switcher wipes and dissolves. His montage is a collection of highlights from the wedding—a mixture of still frames with live video.

"I start each wedding with a still frame of the bride's bouquet. I fly in the bride and groom's names, the date of the ceremony, then I dissolve to a still of the wedding invitation. I often use a framestore of the bouquet as a background for titles." His favorite font is Sebastian Italic. "Then I use the 'soft flower' wipe to an exterior shot of the church. I scroll up the name of the church, the town, and the date, then I dissolve to a montage of ceremony highlights."

To close the montage, he uses the digital "globe wrap" effect to fly off the final shot before fading in to the start of the ceremony: "My customers really like that." Goheen makes heavy use of the framestore capability of the Toaster. He'll capture a still frame of the bride and groom, then combine them with ToasterPaint into a romantic split-screen. "I'll use a still of the couple's wedding license for a frame, then put another still of the bride and groom in that frame. Or I'll framestore the ring/hand close-up and use that for a background or transition shot."

Goheen feels that these professional touches help keep his prices high in a small market. "If you want to succeed in any market with video weddings, learn to use ToasterPaint and don't overuse the Switcher effects. Use the Toaster to create video weddings the most professional way you can. The Toaster helps you do it right, and if you don't do it right, don't do it at all."

Medium-Market Weddings and the Toaster

Just as the Toaster can help solo videographers stay profitable, it's also a valued assistant to event shooters in larger markets. Jerry Jadovitz owns JVC Video Productions in El Cajon, Calif., near San Diego. He tapes 50 weddings a year for prices ranging from $625 to $1,595. Jadovitz uses the creative power of the Toaster to up-sell his basic packages.

"The Toaster lets me earn an extra $200 per wedding by selling a picture montage at the beginning of the video," he explained. "I like to create a montage called "The Growing Years" that shows photos of the bride and groom from infants to adults. If the groom has a photo of him golfing, I'll use the golf-swing switcher wipe. My clients really enjoy it."

Though dissolves are used during the ceremony, Jadovitz likes to use digital wipes during fast song montages, as well as third-party Toaster software to create custom effects that amaze his

clients. For example, Wave Rider allows him to wrap titles in a U-shape around a close-up of the bride and groom figures on top of the wedding cake. And Toaster Vision has an animation package that features a fairy flying on-screen, which Jadovitz uses as a transition between baby pictures and more adult photos.

"I used the WJMX-10 switcher before I got the Toaster," Jadovitz said. "No switcher out there can do the dissolves and effects for photo montages like the Toaster." Which means he can continue to up-sell his montages and pocket more profit.

Balancing Toaster Use

"The Toaster is the heart of my editing system," said Steve Wernick of Videoccasion, Inc., in Bensalem, Pa. "I don't make a move without it."

Using eight subcontractors, Wernick shoots up to 50 events per year with prices ranging from $1,295 to $1,495. He shoots weddings as well as bar and bat mitzvahs.

"Since I only do 50 events per year, I have to do something distinctive to individualize my tapes. ToasterPaint is simple to use, so I use it in the openings of my weddings to create something unique." For example, Wernick took a still frame of a synagogue sign, then used TPaint to fill in random stripes of bright colors around the sign for a hand-painted look.

Wernick likes to save different wedding ceremony images as still frames for loading into TPaint. Using footage of reception table numbers held by a heart-shaped frame, he loaded the still into Paint; it then became a heart-shaped frame to go around stills of the bride and groom. A still of a wedding sign-in book was used as a frame for bride and groom photos; a shot of a beautiful blue sky was used as a title background. Still, Wernick doesn't like to overdo his effects. "I don't like my tapes to look like I'm using a Toaster," he said. "I wouldn't use the 'falling sheep' wipe—you can spot those Toaster effects a mile away. I stay away from any digital switcher wipes. I want my weddings to have the feel of a network broadcast, not a cable TV commercial." For wipes, he recommends wedding videographers use the diagonal blinds, the soft circle and simple fades. For additional software, Wernick uses ImageMaster R/T, a paint program that allows him to create stills with an oil-painted look. He'll use ImageMaster R/T to create a still for a CG background or a transition shot. He also likes to use Toaster Toolkit 4000, which allows him to create his own customized switcher screens.

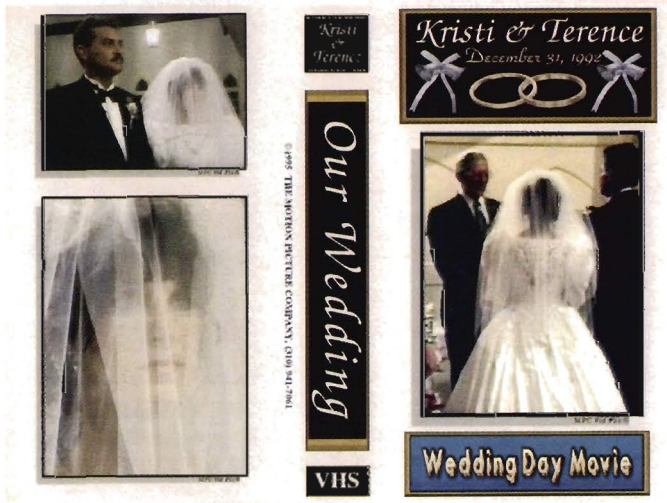
"The Toaster has definitely helped me make money," Wernick said. "When I compare my prices now to my pre-Toaster days, I've increased them 50 percent. The clean signal of Toaster software 3.1 is a huge improvement in my final product, which is reflected in my higher prices."

Add-on Profits

Third-party software helps Storyteller Video Productions' Ross Bunting sell add-on packages to his wedding video clients. Bunting shoots 50 weddings a year in his Los Alamitos, Calif. market. His wedding prices range from $199 to $3,500, with the average wedding client paying $900.

Bunting uses Toaster Toolkit to create photo montages he calls "Love Story" and "Life Story." "Toaster Toolkit lets you select a sequence rate to play back framestores. I often store up to 200 still frames and have Toaster Toolkit call up the image, play it with a different switcher wipe, then call up the next image. This way, I do one edit instead of 200, which saves a lot of wear and tear on my decks." The prices for his custom story montages range from $50 to $300, depending on length.

"I offer different photo montages, such as the 'Honeymoon montage,' 'Childhood montage,' and a highlight recap at the end of the reception coverage," Bunting said. "Each package costs an additional $50."



Sandy Brooke and Joe Micalizzi of the Motion Picture Co. in Southern California is producing photorealistic covers.

Bunting's profits are much healthier because of the Toaster. "We have a different degree of sophistication with the Toaster. It distances us from the amateur wedding videographers out there.

"We've been able to land a lot more accounts because of the Toaster. We made our money back in the first few weeks we had it," Bunting said.

High-End Toaster Entrepreneurs

The Toaster may help firm up the bottom line for smaller operators, but it's also an essential tool for large-scale wedding production companies.

"I actually downplay my Toaster," said David

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Picasso II

A High-Performance Graphics Display Card

by Matt Drabick

The Picasso II is a high-resolution, true-color graphics display card for the Amiga, useful for photo retouching, film and animation recorders, multimedia, desktop publishing and other applications. Designed and manufactured by Village Tronic of Germany, the Picasso II is distributed in the United States by Expert Services. Unlike the similar Retina Z3 by NoahJi's, which is strictly a Zorro-III card and only works with the Amiga 3000 and 4000, the Picasso II is a Zorro-II card and works with the Amiga 2000, 3000 and 4000. Similar to the Retina Z3, the Picasso II has a built-in blitter (Block Image Transfer) function that greatly speeds up painting operations and provides fast screen scrolling. While the Zorro-II 16-bit bus found on the Amiga 2000 is substantially slower than the Zorro-III 32-bit bus found on the Amiga 3000 and 4000 (about 3.5MB/second transfer rate versus about 12MB/second), the Picasso II's built-in blitter more than makes up for the Zorro-II's slower performance.

The Picasso II uses a Cirrus-Logic graphics chip commonly found in high-resolution SVGA IBM-PC graphics display cards, but improves upon their performance by using the integrated blitter chip for reducing the workload on the CPU. It also contains additional VRAM for achieving even higher-resolution displays. (Note that GVP's EGS 28/24 Spectrum high-resolution graphics display card uses a similar chip.) The Picasso II is available in a 1MB VRAM version and a 2MB VRAM version. The 2MB version allows more colors to be displayed at higher resolutions and is capable of displaying 24-bit images up to 800x600 pixels, 16-bit images up to 1152x832 pixels and 8-bit images up to 1600x1200 pixels. Like other graphics display cards, there is an inverse relationship between the number of colors displayed and the maximum resolution allowed.

System requirements for the Picasso II are a Workbench 2.04 or higher, a free Zorro slot, a hard drive and at least 2MB of RAM (you'll need more RAM for the bundled paint program TVPaint Junior). Using the right RGB monitor is also important. While it's possible to use a smaller multisync monitor capable of working with the Picasso II's VGA output, like a Commodore 1950 or 1960, to fully take advantage of the card's high-resolution display modes (1280x1024 pixels, etc.), you'll want to work with a 17-inch or larger RGB monitor, such as an NEC 5FGp. When working with higher resolutions, everything will appear very tiny and potentially unreadable on a smaller screen, making it very difficult to see what you're doing. With an adapter, even a low-scan Commodore 1084 monitor can be used for anyone interested in working at 640x480 pixels resolution with 24-bit color. The Picasso provides user-selectable vertical frequencies of 15.75, 31.5, 35.5, 38, 48, 57 and 64 kHz and their associated screen resolutions and resulting color depth.

The Picasso II can be configured as a one- or two-monitor solution. By connecting the Amiga's RGB output to one of two 15-pin VGA connectors on the Picasso II using the supplied cable and connecting your RGB monitor to the Picasso II's second 15-pin VGA connector, the Amiga's Workbench screen and the Picasso's output are combined and displayed on the same monitor. Alternatively, the Amiga's Workbench can be displayed on one monitor and the Picasso's output on a second monitor.

Because the Picasso II doesn't use the video slot, an IV-24, Video Toaster or OpalVision can be used in the same Amiga. This leads to some interesting possibilities for Toaster users. While the new ToasterPaint included with

the 4.0 system software will finally provide a true-color image (HAM-8 or 256,000 colors) and a full-screen display when using the Amiga 4000 and a Toaster 4000 card, only a HAM or 4,096 colors display will reportedly be available when using an Amiga 2000 or 3000 or an older Toaster card. Installing a Picasso into a Toaster system won't provide a true-color display with ToasterPaint 4.0. The excellent 24-bit paint program TVPaint Junior included with the Picasso card can be used instead. As an added bonus, higher screen resolutions are also available.

According to NewTek, LightWave 4.0 still won't work with the Picasso at resolutions higher than 640x480 pixels for modeling and scene design. Third-party developers are reportedly working to provide the necessary software fixes to allow LightWave to work at 1024x768 or 1280x1024 pixels, etc., when using the Picasso. This will allow higher resolutions and better detail for modeling and scene design.

Compatible Software

Because the Picasso can retarget and display the Amiga's Workbench screen and Amiga software using its own RGB output, most—but not all—Amiga software will work with the card. This allows users to work with higher resolution and more colors than the Amiga's chipset is capable of generating and still use most of their favorite Amiga software. Two notable exceptions are Brilliance and Deluxe Paint, though reportedly the upcoming DPaint 5 may work correctly with the card. Software such as ADPro, ImageFX, ImageMaster and Real 3D, plus Emplant the Mac and PC emulation card, have their own display drivers and write directly to the Picasso's hardware.

As the Picasso is strictly an RGB device, an encoder must be used to take out a video signal for recording purposes. An optional encoder called the Pablo by Village Tronic for the European PAL version of the Picasso exists. The Pablo plugs directly into the Picasso, not another Zorro slot, and provides composite and Y/C video output. An NTSC version for North America may become available. Presumably a scan converter must be added when using non-NTSC-compatible resolutions such as 1024x768 pixels while converting RGB into a video signal.

Bonus Utilities

Several utility programs are included with the Picasso for defining and selecting the screen resolution, color depth, and the vertical and horizontal frequencies for your monitor. The various viewer utilities allow GIF, IFF and JPEG files to be loaded and displayed. The PicassoPhoto utility allows images to be grabbed and saved from the Picasso's display. Finally, the IntuiSpeed utility determines the Picasso's performance for writing pixels, drawing lines or circles, and more, depending on your computer's configuration.

More than a utility, MainActor is an animation compiler for the Picasso that allows frames to be played back in real-time with sound from a hard drive. Both 8- and 24-bit frames and animations can be loaded and converted. Animation file formats that can be loaded include AVI, FLI, FLC, ANIM3, ANIM5, ANIM7 and ANIM8, plus Real3D. Animation savers include FLI, FLC, ANIM5, ANIM7 and ANIM8. Still-image file formats that can be loaded include GIF, IFF and PCX. They can all be saved as IFF images.

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FOR INFORMATION CIRCLE 105

Mackie Micro Series 1202

Feature-Packed Audio Mixer

by Bob Anderson

The Mackie Micro Series 1202 12-channel Mic/Line Mixer, more commonly referred to as simply the Mackie 1202, is one of the finest audio mixers for video applications on the market today. It's compact design, silent operation, high-end feature set and ease of use combine to make it an outstanding piece of equipment. Designed with professional live mixing situations in mind, the Mackie 1202 finds itself equally at home in a professional or semi-professional video editing environment.

The Mackie 1202 measures a mere 11-1/2 inches across by 10 inches deep, and stands 2-1/8 inches tall. The mixer's small size allows it to fit in the most cramped of edit suites. For its size, the 1202 packs a big punch. Many of its features are found on only the most high-end mixers.

This mixer has high-end features like sealed potentiometers, which prevent them from becoming "scratchy" as a result of dust contamination. The main circuit board is made of fiberglass, and can easily withstand the rigors of constant road use. The case is made of steel. As you can probably figure out, this board will last a lifetime in a tame environment like an edit suite.

Mixer Features

One of the first things you'll notice about this board is that it has four XLR-type inputs. You usually only find RCA or line inputs on boards this size and in this price range. These four inputs feature switchable 48-volt phantom power and superb microphone preamps. The four Mic channels feature adjustable-gain preamp stages for easy mic-level balancing. These inputs can be used as either mic-preamped inputs or line inputs. The board also has four more stereo line level channels that feature panable stereo inputs. They are perfect for mixing stereo audio inputs such as CD or taped sources.

Each of the 1202's channels features two effect sends. These can be used for several different purposes, which I'll get to in a moment (see sidebar for more on audio effects). All channels also have a two-band E.Q. section. Mackie has chosen unusual frequencies for their E.Q. bands: 80Hz for the low frequency and 12.5kHz for the high. These frequencies fall wonderfully within the vocal range and the E.Q. sounds very musical. Most mixers with a two-channel E.Q. tend to be lower in the lows and higher in the highs, rendering them a little more harsh on the ears. This E.Q. sounds good, and is quite useful. Each input is panable within the stereo field, and has adjustable gain up to +20dB.

The 1202 has a 12-segment LED peak meter that can be used in a couple of different ways. In its normal operating mode, the meter shows the output level, to prevent clipping or distortion.

Mackie has added another useful feature that allows users to monitor the mic preamp levels and line input levels with the flip of a switch. This dual functionality allows you to monitor input as well as output levels, and thus prevent any distortion at any point.

This board also has a volume-adjustable headphone jack, and apparently, it's designed for high-volume environments. Twisting the volume pot to about 3 yields a comfortable level, and after that it gets kicking. You probably won't ever need to go much beyond 7 or so, but even at the pain threshold, the signal is distortion-free. The mixer has tape ins and outs, as well as balanced and unbalanced outputs.

The most notable feature of this board has to be how quiet it is. I've never seen a compact unit that comes close to the 1202 in this respect. I've used it in video, live music and recording applications, and it is nearly silent, even with the input gains cranked up. The Mackie specs out at an S/N ratio of 90dB and distortion below .025 percent throughout the audio spectrum. These would be impressive numbers for a big studio console, and are unheard of in a mini mixer.

Great Big Features in a Tiny Board

In addition to the studio-quality mic preamps and phantom power this board also has some complex signal-routing capabilities. I mentioned before that the 1202 has two effect send buses. These can be used to route the signal to effect units, such as reverbs or delays.

The four mic inputs also have channel inserts, which can be used in several different ways. They can be used as a direct channel output, without affecting the board's output. (This is similar to running a video source into a monitor, and then from the monitor's video out to somewhere else in your system.) These inserts can also reroute the signal, while removing the input from the overall mix. Finally, they can be used as individual effect sends for each input. This would be useful if you wanted to use different effects on each input, such as a reverb on the overall mix, a delay on only one input, and a flanger on another. This routing flexibility is unheard of in such a compact and inexpensive mixer.

The 1202 has an interesting main output section. There are two 1/4-inch output jacks that can be used in two different ways. If your record deck accepts unbalanced or line level inputs, you can run a 1/4-inch to RCA cable to the deck. If you need balanced or XLR-type outputs, you can use a stereo 1/4-inch jack to XLR cable.

Video Applications

OK, enough with the technical jargon. Let's talk about how you might use the 1202. The four XLR-type inputs allow this mixer to accept inputs from high-end video decks. Of course, these channels can also accept line level audio inputs from any deck. The four additional stereo inputs make mixing in background music quite easy, because all that is required to adjust the volume of both sides of the pair is the twisting of one knob. You can easily mix the audio from both decks as well as four additional stereo audio sources. This is probably more mixer than most people will ever need for an A/B-roll video post-production environment.

What about the Flyer?

The Video Toaster Flyer can handle up to eight tracks (four stereo pair) of CD-quality audio. These are divided up as one stereo pair for each video source, and two additional pairs for background music, voice-overs, folley effects, or

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Audio Effects For Video

You have heard them a thousand times before, but were probably unaware of them. They're audio effects, and they can be used subtly, to create the feeling of atmosphere, or obnoxiously, to create those annoying Mud Bog Racing/ Racing/Racing commercials. Whatever your application, there are literally hundreds of these effect units on the market, and in every price range. Your best bet to audition audio effects devices is at your local music store. Devices from "stomp boxes" to sophisticated rack mount units can easily be integrated into any edit suite.

Be sure to look at digital devices, as they are considerably quieter than their analog counterparts. Also, look for devices designed for sound reinforcement, as opposed to guitar or instrument devices. Most guitar boxes are going to have several distortion settings, which, while important to the sound of a guitar, are virtually useless for video applications. There are several basic types of effects, so let's discuss each for a moment.

Reverb

Reverb effects are the most useful for video production. This type of effect helps remove the "dry" quality associated with most close-miked audio tracks, such as voice-overs. Reverb can be used subtly to add just a little ambiance or room sound. You can also use reverb to create a sound suggestive of recording in a huge warehouse, or even an empty stadium. This effect is particularly important in folley events (sound effects) where you have to make your effects sound like they were recorded in the same acoustic environment as the audio tracks of the video.

Echo

Echo effects differ from reverb in that you can hear the original audio event repeater over and over, as opposed to the way a reverb simply adds that ambiance. An obvious example of echo would be yelling across a valley and hearing the repeated sound. Echo effects are much stronger than reverbs, and should be used only when appropriate.

Delay

Delay is similar to echo, although you don't necessarily always hear the first iteration of the sound. In other words, you can simply delay when an audio event is heard. Both delay and echo effects have adjustable durations. On good-quality digital effect units, these effects can repeat indefinitely, with no degradation of audio quality. Full-featured effect units allow you to custom-tailor the intensity of the effects over time, and can get pretty complex.

Phase Shifter/ Chorus/ Flange

These effects are more musical in nature, and will yield unusual results when used on simple audio tracks. Each of these effects is cyclical in nature, and you can usually hear a slight sweeping sound when you activate them. Phase shifting and flanging effects were pioneered by the Beatles when someone accidentally bumped into a spinning tape reel during a playback. Chorusing effects sound like you are doubling a track, and slightly detuning one of them. The voice of Darth Vader was processed with these types of effects.

Audition these effects with a mic, so you can get a good feel for what they will sound like on something other than music. Look for units by manufacturers such as Yamaha, ADA, Peavy, DOD, Sony and Roland.

One of my personal favorites is the Yamaha SPX-990. It has plenty of good-sounding digital reverbs, as well as several unusual, yet useful effects, like pitch shifting. Whatever you choose, an audio effects unit can go a long way toward livening up an otherwise dull sound track.

VTU

Building a Better Image

Add Life to Graphics with 3D Brushes

by David Hibsher

We live in a time where pictures are rapidly becoming a necessary part of communication. This is particularly true in video, where things move quickly and we often need a few seconds of air time to speak a thousand words.

Whatever type of video you do, there is likely to be some object or image that represents the content of your piece: a company logo for a corporate audience, a product for a commercial, an icon for a sports or educational film. These objects, when used as 3D CG brushes, make excellent symbols to convey an idea, topic or mood instantly.

This tutorial goes through the process of making and rendering objects in LightWave, loading and saving them as brushes in ToasterPaint, and positioning and keying them with ToasterCG. I'll be making the baseball graphic in Figure 1, but you can use any LightWave object or TPaint image as you follow along.

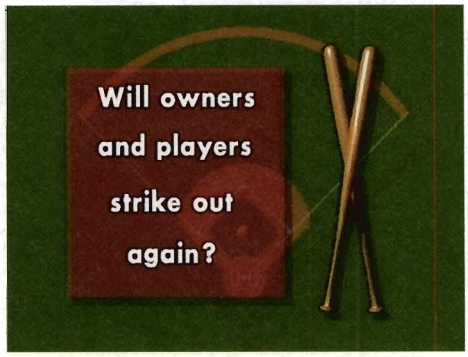


Figure 1: The CG brush "baseball bats" with text and transparent box keyed over a diamond.

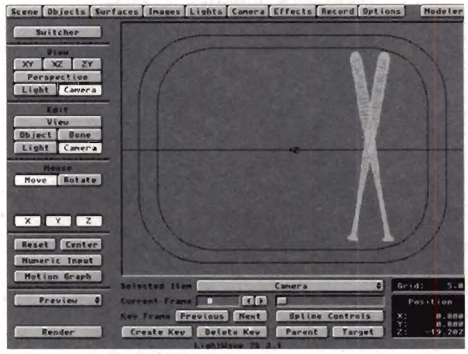


Figure 2: Place objects where they'll appear in the final graphic.

Begin in LightWave

The first thing to do is make your objects in Modeler if you don't have them already. LightWave comes with dozens of objects, from sunglasses to sailing ships. It's a good idea to go through the Objects directory sometime and check them out. Otherwise, you might end up building something you already have. The baseball bats were easy to make. I drew out half a cross-section of one bat and used Lathe. I applied the surface name "wood" and saved it.

Next, set up your scene in Layout. I loaded the bat, applied the wood surface and made a clone. I used the surface "lightwood," which comes with LightWave (in the Wood directory in the Images drawer). I crossed the bats and set the lighting to make the shadow visible on the lower bat. It's important to give the scene enough light; you may want to pick up the brushes using TPaint's "no background" option. If the shadows are too dark, they won't be picked up with the rest of the brush. It is often helpful to keep the ambient light up. I used the default 25% for the bats.

Move the camera and position the objects so they're as close as possible to the size and position they'll have in the final graphic. Using Layout's "Show Safe Areas" button on the Options panel is helpful for this setup (Figure 2). Save the scene and objects so you can easily change things later if necessary.

Because render time isn't much of an issue for one frame, use high resolution and low or medium antialiasing for the render settings. You can save the rendered image as an RGB image if you want, but it's just as easy to grab it from DV1 into TPaint. This will save you some hard drive space and a few mouse clicks.

Move to ToasterPaint

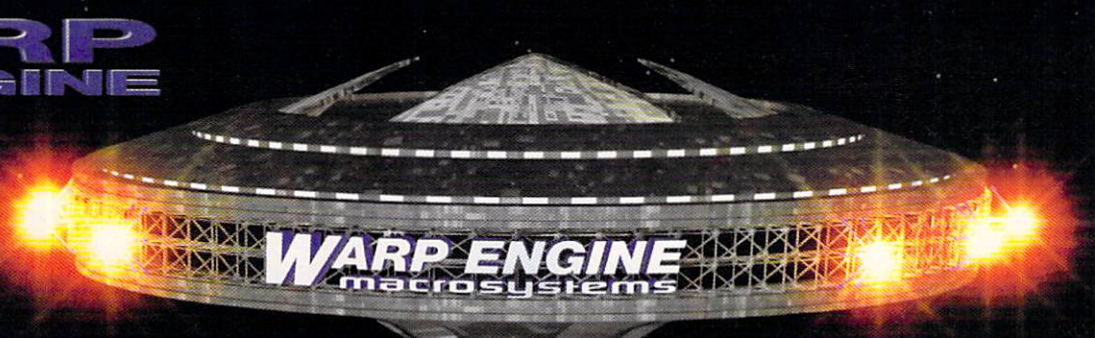
Either way, when you have a 3D object and rendered image you're satisfied with, go into TPaint and load the RGB file or do a four-field grab from DV1 (Figure 3). Pass through TPaint on the way to CG, because it's here where we pick up and save images as brushes. You have two ways to pick up the image as a brush: the easy, sloppy way and the hard, exact way.

The easy, sloppy way is to select "No Background" on the Brush menu, click the scissors, and draw a big rectangle around the object. The black background is left behind and your object is picked up. The sloppiness only comes in if the object has areas that are too dark. If it does, these areas will be left behind with the background and the brush will have holes in it.

However, many times this won't happen, and this method is far easier than the hard, exact way (below). There are no points for extra work in this business, so use the easy way whenever it works; much of the time it's perfectly adequate.

The hard, exact way to pick up the brush is to click the scissors and draw around its outline with the single-pixel drawing tip using the filled polygon tool. Everything inside the

WARP ENGINE



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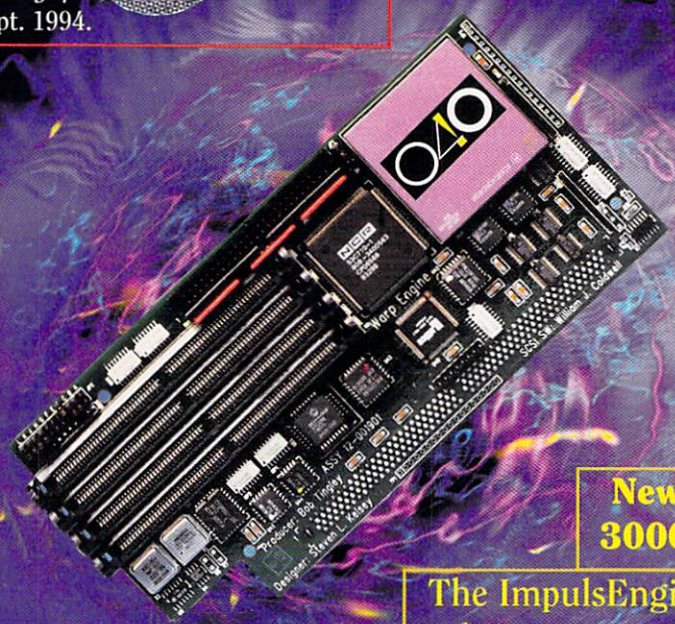

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drawn area is picked up as a brush, no matter how dark it is. If you forget to select the scissors before drawing, don't redraw it; just hit the "u" key (undo), select the scissors, then hit the "a" key (redo).

Sometimes you'll have to use this method if the shadows on your object are too dark or if you want a brush with black areas on it. These brushes will key fine in a CG key page, but using "No Background" to pick up these images gives undesirable results. If you know in advance you'll have dark areas in the image, try to keep the outline as simple as possible when making it in LightWave. For example, a rectangle, a circle, or anything with straight edges will be easy to pick up by tracing.

Depending on the outline of the object, tracing it can be very tedious and time-consuming, so be careful when setting the lighting in Layout to avoid this problem. If you do need to pick up a brush with dark areas in it, don't select "No Background" before clicking the scissors.

For my bats I wanted to use the easy method, but when I did, there were a couple of pixels in the shadow that didn't come up. My solution was not to give up and use the hard method. Instead, I used blur mode and a fine-tip brush on the uncooperative pixels. This lightened them enough so they came up with the rest of the brush.

The last step is to save the brush. Choose Save from the Brush menu, select the Brushes directory, and give the brush a meaningful name, like "baseball bats." You can load brushes from this directory into TPaint as well as save them. Select Load RGB and you'll see the Brushes directory in the file requester. Open it and all your brushes will be there. This is useful if you want to modify or resize a brush.

Now we're ready to go into CG, line things up and add the text.

Finish in CG

In CG, load your brush by going to the Book Operations menu—that's the button with the letter "F" and the pages on it next to the Palette button. Here, click on the button with the plus sign and paintbrush and open the Brushes directory, then select the brush's name from the file requester. This puts the brush on the Font Selection menu. To put a copy of the brush at the cursor location, click where you want the brush to go and select the brush from the menu. To move the brushes, drag them around just like a block of text.

Position the bats on the right side of the screen, then click on the left to load the "box." It is also placed by selecting it from the Font Selection menu. The box is a handy tool to mask but not eliminate a background image so text stands out on the graphic. To resize it, drag the handle on the lower right corner. Set its transparency and color on the Palette menu, just as you would with text. Next, put the

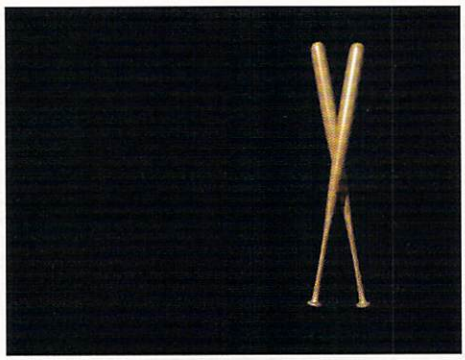

Figure 3: The objects in ToasterPaint to be picked up as a brush.

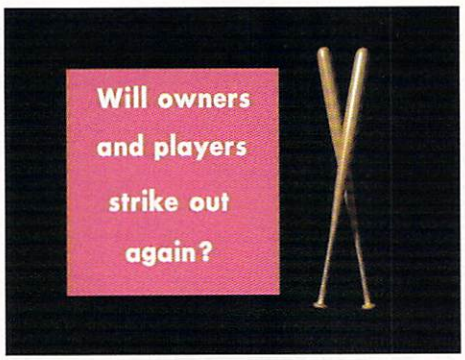

Figure 4: All the graphic elements of the key page in place.

text over the box, then add the color, shadow and transparency options for the text. The text is fully opaque, but the box, its shadow and its border are 33 percent opaque.

It may look as if you have complete control of the transparency, but a key page only has four possible levels: 100, 66, 33 and 0 percent. These levels are indicated by the divisions under the slider. The shadow and border transparency must be set equal to or lower than the text transparency or it won't work. If the box's color transparency is less than that of its shadow or border, these elements become visible through the box, thus diminishing the effect of the transparency. In Figure 1 it is possible to see the drop shadow through the box, but the diamond is also visible. If the shadow was opaque, the diamond would be obscured no matter what transparency setting we gave to the box itself.

Dropping the transparency allows the diamond to show through the box. This is an effective option that adds visual interest to the graphic. You don't have to use transparency when keying, though, particularly for a small image that doesn't cover up much of the background, like the bats. Frequently you'll see opaque little icons, like a big bullet at the left side of the text in lower-third graphics.

Finally, we'll set the options for the brush. Select the brush and give it a drop shadow (the one where the shadow doesn't touch the "s"). This will make the shadow look like it's falling on the diamond. Select the maximum length for the shadow and set the border to its thinnest value.

Now render the page to check how it all lines up (Figure 4). I used the baseball diamond that comes with LightWave to make a framestore and have it in DV1 while keying the bats, box and text over it. They could just as easily have been keyed over live video, though. When you've gotten everything the way you want, you have made a more interesting graphic using a 3D brush.

Lively Graphics

You can pick up any image you want for use as a CG brush, as long as you can get it into TPaint to save it as a brush. You don't even have to use LightWave to generate it; I could have framegrabbed a couple of bats or scanned a photo of them.

The CG's keyer gives a nice, clean, semi-transparent key, but it's not just for keying text. Any object you can make or load into LightWave can be rendered, loaded into TPaint, and picked up and saved as a brush. This brush can be loaded into CG and keyed, even semitransparently if desired, with a drop shadow and border. These 3D brushes complement a graphic and give more visual interest than just plain text.

VTU

David Hibsher spent much of 1994 working with Lee Stranahan in Toaster training seminars across the country. He can be reached on America Online at davhibsher or at P.O. Box 720134, San Jose, CA 95172.

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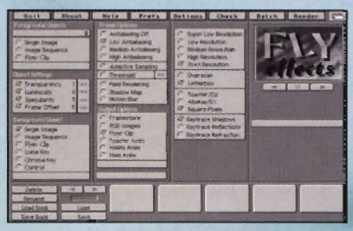

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Digital Backdrops and Flats

Simplifying Scenes

by George Avgerakis

If you've ever attended a play in your community theater or even on Broadway, you've no doubt appreciated the artistic application of simple two-dimensional scenery. A vast panorama of rolling hills, a castle in the distance, a bubbling brook in the foreground, can all be invoked in the audience's eye by the skillful painter working on a simple sheet of cloth hung behind the actors. This is called a backdrop. Closer to the audience, the scenic artist may evoke a tree, a house, a canoe, using smaller surfaces cut into appropriate shapes and held vertically with some wooden supports. These are called flats.

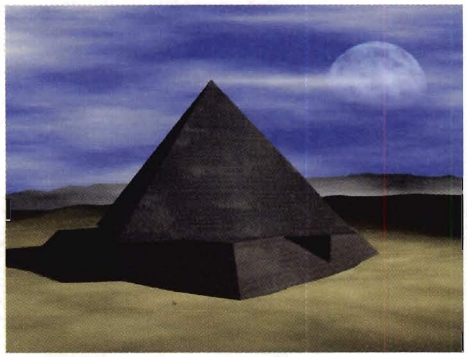
In the digital domain, LightWave allows us a vast range of possibilities that can drastically reduce scene complexity and rendering time through the application of backdrop and flat methodology.

Some Examples

For instance, if you wanted to create a photorealistic scene incorporating a moving, 3D-modeled image doing its thing in front of a complex but otherwise static background, you needn't create the background out of 3D elements. You could create a backdrop and repetitively "print" that complex background image on the flat, 2D backdrop.

Take, for instance, a scene created in our shop by Senior Animator Anthony Caviello, incorporating a photorealistic Cheops pyramid that emulates some *Stargate*-style conversions. Caviello first created the pyramid and then fit a flat "ground" plane under the structure. The ground plane was displacement- and texture-mapped with fractal noise to create the rolling desert hills, but the background was a flat backdrop.

Originally, the background, incorporating 3D clouds and a spherical moon, took over 40 minutes per frame to render (using an Amiga 2000 with an '040 warp engine accelerator). Using a backdrop, as I will describe later, lowered the render time to about 15 minutes per frame.



Pyramid: Anthony Coviello's pyromid with a 2D backdrop containing clouds and moon. The sand dunes were created from a 2D plane that is displacement- and texture-mapped. The displacement map featured a texture falloff to lower the dunes in the foreground.
Copyright 1994 Avekta Productions Inc.

Amazon: The complexity of a rainforest can be created with relatively few polygons, as Matt Ipcar demonstrates using flats for the trees and a backdrop for the sky, clouds and sun. The platform and wooden bridge is the only 3D object in the scene.
Copyright 1994 Avekta Productions Inc.

Another example is the Amazon Jungle scene, which employs extensive use of flats. When I read Dale K. Myers's article on modeling the JFK assassination scene (*VTU*, November 1994), in which Myers described the way he compromised the complexity of his scene with regard to rendering realistic trees, I thought to myself, "Those trees could have been done as *single*-polygon objects using flats."

The Amazon Jungle scene created by Matt Ipcar allowed us to create the density of a full rainforest using only four basic 2D, one-polygon objects, which were repeated at various distances from the camera. The wooden walkway, of course, was a 3D object. Take note that although the trees look like simple painted images, they could have been photorealistic had we been designing the scene for an adult audience instead of preschoolers.

The final example is from a fairly complex animation created by Melka Pastorelli for an Equal spot. Pastorelli wanted the dancing box to be in a New York City aerobics studio. Obviously, modeling a New York skyline would have been a mega-polygon effort, so he employed two backdrops: one for the windows behind the box character and one for the windows to the character's right.

Getting Started

Let's jump into Modeler now and see how you can create backdrops and flats to answer your specific polygon-reducing strategies. We'll begin by creating a simple backdrop, continue by putting a window in front of the backdrop, and then move even further forward by putting a flat in front of the window. In each step you'll experience further issues of complexity that will no doubt appear in any real-world application of these techniques.

In Modeler's Face View, use Objects/Box/Make to create a

2D, one-surface square measuring at least four square reference squares (any unit of measure will do). Be sure that your surface normal faces toward the camera. Now go to the Polygons menu and click Surface to assign a name to the surface. Delete the word "Default" and type "Backdrop." Then press "Apply." Save As the object under the same name.

Now you have a choice about whether you want to get fancy or not. If you want a simple demonstration of how the backdrop will work, you can stay in Modeler and skip down a few paragraphs to where I bring the class back from Paint. (Look for the ☛ symbol.)

The Deluxe Version

For those of you who want to get fancy, let's obtain a photorealistic image that we'll "print" on the backdrop. If you have a video camera or videotape source, go to the Switcher and freeze frame any appropriate shot. A city skyline or a shot of rolling hills would be great.

If you have no source that is photorealistic, stick around, because we're now going into Paint, where you can paint your own background image using the ToasterPaint tools. If you've frozen an image, go into Prefs and see which DV bus has the asterisk (*) beside it. Bring that DV bus's image into TPaint (two fields will do, but for quality use four-field capture). Save the full-screen image under a convenient name, like Backdrop, taking note of which drive and subdirectory is storing the image. Do not quit TPaint, but return to the Switcher and then go into LightWave.

The Easy Route ☛

In Layout, click Load Object and load the object Backdrop. Click on camera view. You should see a square. Move the Object forward on the Z axis until the square fills the screen. Create a keyframe (zero) for the object (Backdrop).

Go to Images and click Load Image. You may need to click on Parent, or even type the drive and subdirectory into the pop-up window, in order to find your image. If you chose the simple route offered above, simply load in any full-screen graphic image, such as the Toaster Logo. A small window in the left half of the Load Image window allows you to see a thumbnail print of the image you are loading (Figure 1).

Click Continue and then go to the Surfaces menu. At the top of the Surfaces menu is a thin horizontal window that features the name of the current surface. "Default" is usually the name you'll find. All attributes assigned below in the surfaces menu apply to the surface whose name appears in the name window. If, for instance, you had a scene with 10 surfaces, you could click in the name window and scroll through all of the names in the scene. The names originate, of course, in Modeler, where you assigned names to the object's polygons. You should see "Backdrop" in the name window. Clicking in the name window will bring up a scroll list, but there should not be any other names for you to select (except Default, which allows you to select, all at once, any surfaces that have not been named).

Having selected Backdrop, you want to assign the Surface Color to a Texture Map. Just to the right of the Surface Color number window is a small button with a "T" on it. Click on it and the Texture Map window appears. This window allows you to select a Texture Image to be mapped onto the surface in any one of several ways. Since you've only loaded one image, you will only have two choices when you click and scroll through the names in the name window: None and Backdrop (or Toaster Logo) if you chose the simple route. Select the name of the image you loaded.

Then scroll through the list of Texture Types in the top selector bar. You might wish to return to this window after you've rendered to see what other effects these methods of image projection will yield, but for now we want a Planar Image Map, which is the default selection. You must also specify the axis upon which the image should be projected. Click Z axis, since we created the backdrop object in the Face window. Next, click Automatic Sizing so that the entire image is mapped onto the entire object surface (Figure 2).

Sizing also allows you to stretch or compress the image in X and/or Y dimensions, or to shift it in an X and/or Y direction. Click "Use Texture," which returns you to the Surfaces menu.

Execute a one-frame manual render in a resolution of your choice, making sure not to exceed medium resolution with low antialiasing. Resolution, of course, may be selected in the Camera menu.

Your program monitor should now be looking at a full-screen image of the framestore you selected in Load Image.

Equal: Melka Pastorelli's Equal box leads an aerobic workout of little Equal packages with a New York City backdrop seen through the windows.
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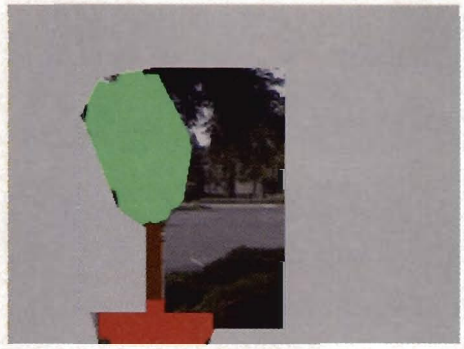

Backflat: This is what your final rendering of the Backdrop, Wall and Plant may look like. The beauty, however, is that this scene is composed of only three polygons. Using a photo of a wall, you can add detail to the gray surface. Some careful cropping of the Plant object can give realistic shape to the leaves.
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Figure 1

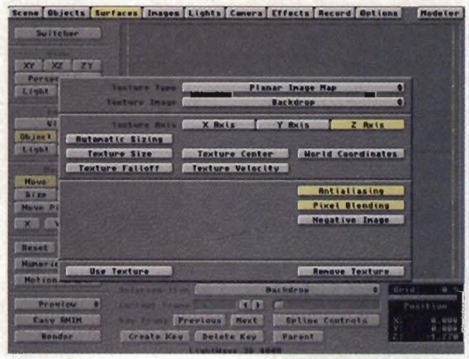

Figure 2

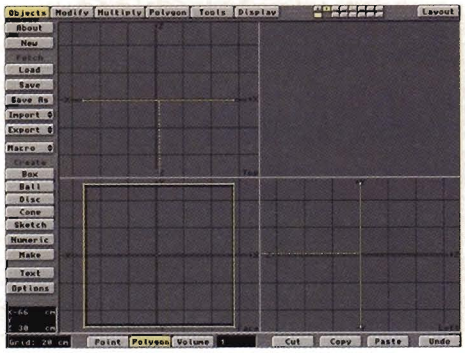

Figure 3

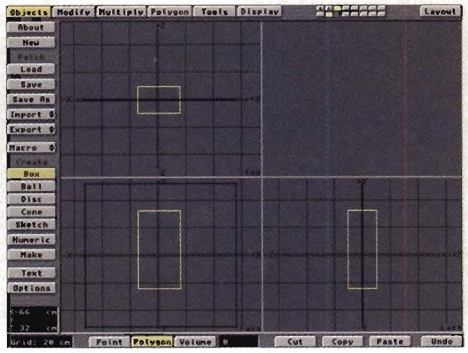

Figure 4

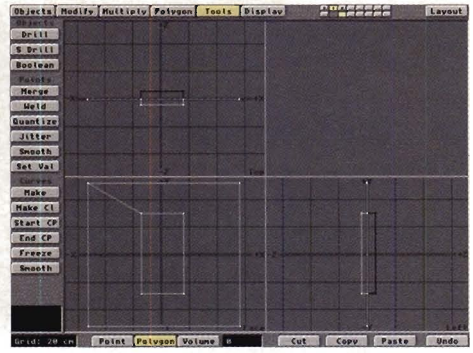

Figure 5

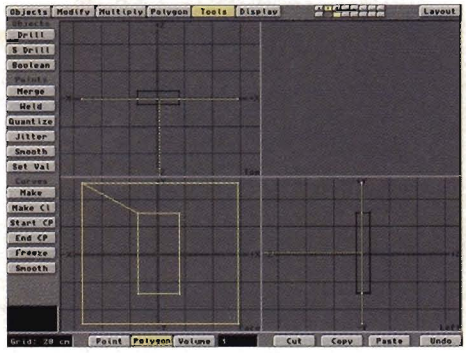

Figure 6

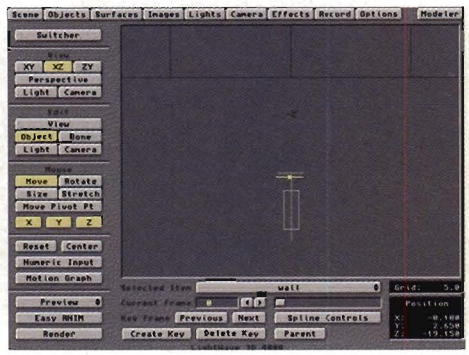

Figure 7

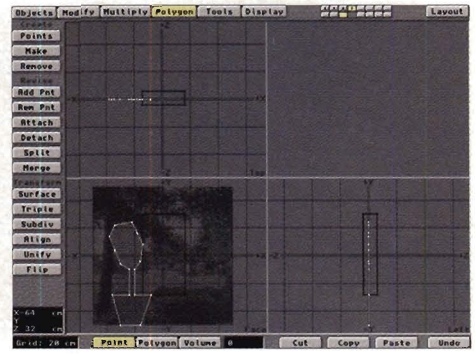

Figure 8

You may need to return to the layout and adjust the positioning or Z-value of the backdrop image so that it fills the monitor just right. Presto. You've made your first backdrop.

Short, Short Rendering Time

Notice the time it took to render your image. This time will be roughly the same for any image, regardless of the amount of polygons used in the original image creation. Consider a vast space panorama with planets, nebulae and stars. Such an image might serve as a static background for a space battle scene. Rather than render all of the background objects for each frame of the battle, consider the savings of rendering just one background frame (without the battle), saving it as an image and then assigning it to a 2D backdrop surface. The resulting scene will look exactly the same as if the complex background had been rendered using 3D objects, but the render time will be drastically reduced.

Building a Window

Now let's build a simple wall with a window, through which we'll see your backdrop as if it was an exterior scene.

Go to Modeler, where you should still have your original backdrop image. In the Display menu, use the Fit All button to adjust the view so that the square object almost fills the Face screen.

In the upper right corner of the Modeler screen, locate the double row of seven and eight layer buttons and select the foreground layer (top row) or next button to the right. Then click the left-most bottom button to display the contents of the first layer as a black reference image. In the second layer, create a similar one-sided polygon that covers all of the dimensions of the Backdrop object. Make sure the surface normal of this object faces forward (Figure 3). Assign the surface name "Wall" to this object, but don't save it yet.

Now click on the next foreground layer button to the right, and click the second background button. You will see a black line reference drawing of your "wall" object (Figure 4). In this buffer, create a 3D box that will represent the size, shape and position of a window in the center of the wall. Using the Left and Top views, make sure that the box intersects the plane of the Wall object. (It can also intersect the plane of the Backdrop object, but this is not important.) Be sure to click the Make button to actually create the box (Figure 5).

Now reverse the selection of your layers, picking the second button from the left as the foreground (top) and the third button as the background (bottom).

Go to the Tools menu, select S Drill, and select Tunnel and OK. This operation will use the box object as a cutter, to create a window-sized hole in the wall (Figure 6).

Repetitive use of drill and Boolean functions allows you to create elaborate windows with glass panes, molding and metal hardware. But for now, we'll use this simple wall object to demonstrate how a room with windows can reveal a simple backdrop with a complex, projected image.

Save only the Wall object and return to Layout. Load Wall into Layout and position the wall so that it appears in front of Backdrop and fills the Camera's view. Create a keyframe for the wall at frame 0 (Figure 7 shows the Top XZ view).

Go to Surfaces and select Wall as the current surface name. Under the Surface Color, select a color that appeals to you—I left mine gray because I'm lazy. This will assign a neutral gray color to the wall when it is rendered. Render the frame and you should now see a monitor filled with a gray surface with a window, through which you can see the backdrop's projected imagery. If you wish, save the scene for safety.

Now let's create a flat to put into

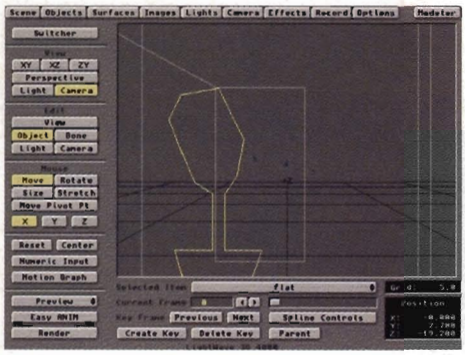

Figure 9

this scene. Return to TPaint and, if you need to, reload the Backdrop image. Keep an eye on your program monitor to see what portion of the background appears in the hole you cut. In the area that represents the lower left quadrant of that hole, paint a potted plant, reaching up about halfway into the hole. Save this image as "Flat" and return to Layout.

Now we're ready to create a flat with the potted plant painted on its surface. First, we have to load the image of the potted plant, so go to Images and load "Flat." Press "Continue" and enter Modeler.

Select the fourth foreground button and the third background button so that you can see your window shape as a reference. In Display, select BG Image, and in the pop-up window, select Flat as the image. Select Z as the axis and OK to bring the reference image of Flat into your Modeler layer. The BG image window allows you to adjust the lighting of the image so that you can see it easily.

Carefully create a series of points that outline the drawing of the potted plant you created in TPaint. Then click Make and create a 2D polygon with the same shape. Verify that the polygon has one surface normal facing the camera, then use Surface to name the polygon's surface, Flat. Apply the surface and save the object as Flat (Figure 8).

Return to Layout and load the object, Flat. Position Flat in front of the Wall object, before the camera, so that it looks like a plant is in front of the window. Create a keyframe for Flat at frame 0 (Figure 9).

In the Surfaces window, make sure Flat is the current surface, then click on the (T) button to the right of Surface Color. Use a Planar Image Map, set the Texture Image to read "Flat," and set the axis to Z. Click Use Texture and then execute a render.

View From Afar

If you did everything right, your picture won't look like a *Babylon 5* star battle, but you will have learned the basics of a very useful technique. Notice that the flat closest to the camera blocks the objects behind it, just as if it were a 3D object. The flat can be moved, morphed, dissolved and substitute-animated, just like any other object. The backdrop can also be panned to create the effect of a moving scene—what one sees through a train compartment's window, for instance.

As Obi-Wan Kenobi might have said to Luke Skywalker, "This is a lightsaber, young Luke. Keep the batteries charged and it will serve you well." VTU

George Avgerakis is VP creative director of Avetka Productions in New York City. His ambition is to hire Mojo, get him drunk on generic beer and find out what his real name is.

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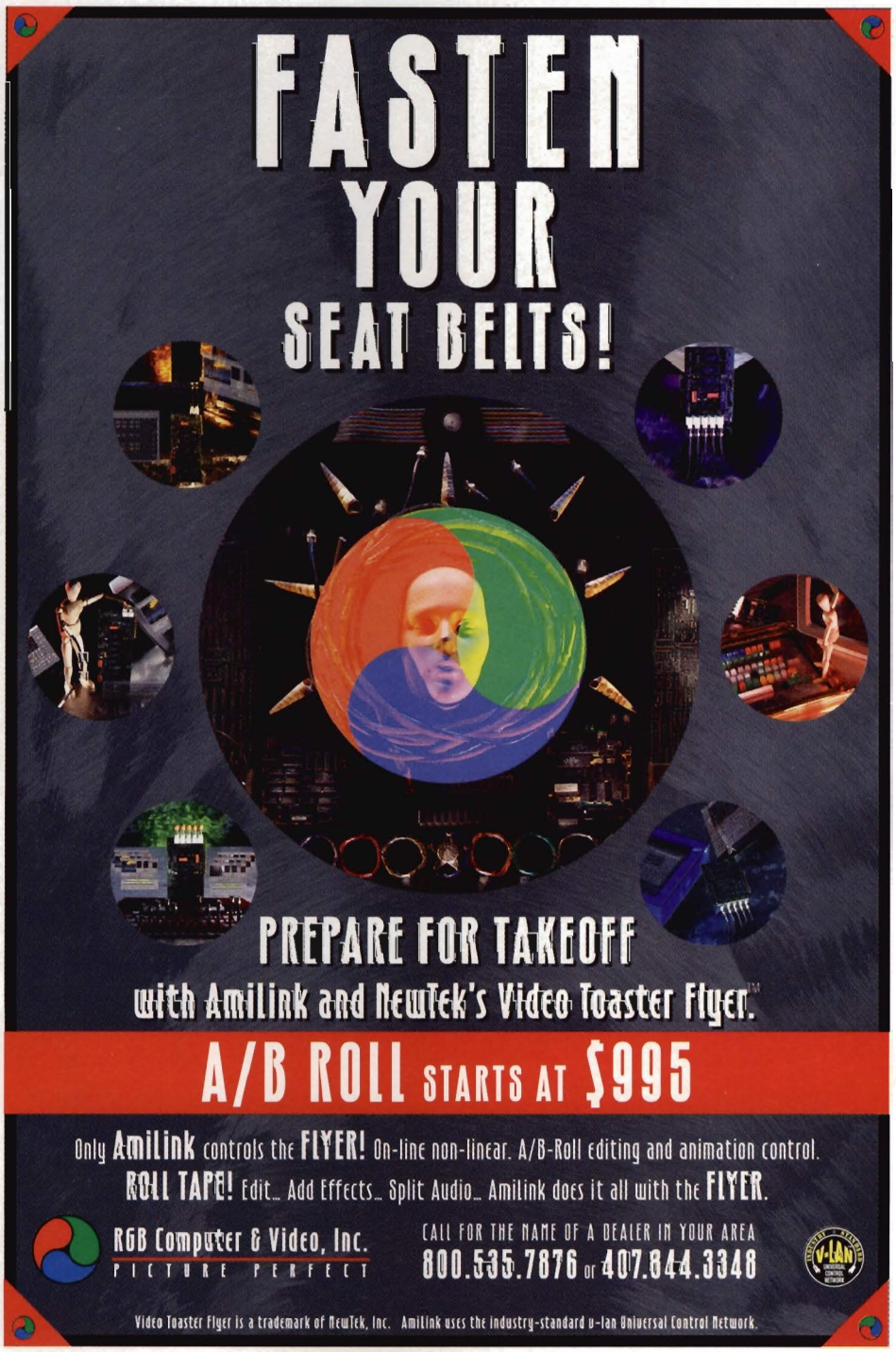

FOR INFORMATION CIRCLE 150

The Boolean Toolbox

Learn How to Use Time-Saving Operators

by Kyle A. Thatch

Many times when you are modeling an object the need will arise to drill a hole, cut in half, or add two objects together. How can you do this without raising your blood pressure? Simple: you can use one of the best features of LightWave's Modeler, Boolean operators. Union, Intersect, Subtract and Add are four operators you should know extremely well. Let's cover these four functions one at a time so you can see how you can't live without them in your day-to-day modeling repertoire.

Begin by entering Modeler. Once inside Modeler select (Options) under the Objects Menu. Set the Polygons to (One Side and Automatic), adjust the Curve Division to (Course) and hit OK (Enter). Next, go to the Display Menu (d) and set Units to (Metric). Then hit OK.

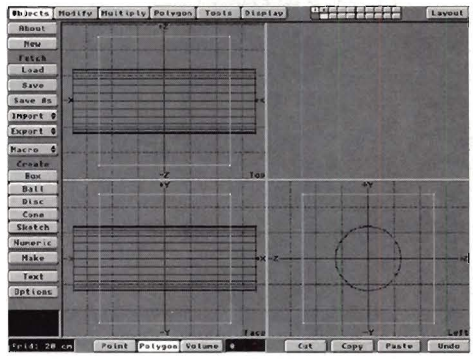

Figure 1

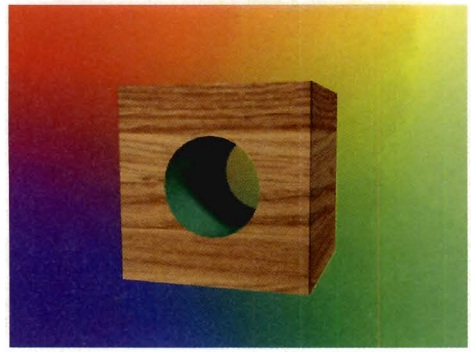

Figure 2

Subtract

Think of the Subtract Tool as a drill bit that you shape as needed. Select Box from the Object Menu, followed by numeric (n). Hit the reset button, then OK. Press (q) to bring up the Surface Requester and type "Cube-Flat," then OK. Next, hit (2) to go to layer 2, select Disk from the Object Menu, then numeric (n). Press the reset button and enter the following:

Sides= 24	Center X, Y, Z= 0
Segments= 1	Radii X, Y, Z= .25
Bottom= -.7	Units=M
Top= .7	Axis= X

After entering the above entries hit OK, then select the two ends of the cylinder. Press (q) and name the ends "Cube-Flat" as before. Next, press (Shift ") to invert your selection. Hit (q) and name these polygons "Cube-Smooth," then press OK.

All right, here's how the tool works. You must always have your tool (in this example it is the cylinder) in the Background Layer, and the Object to be operated on (the cube) in the Foreground Layer.

To do this, press (1) to return to layer 1, then hit (Alt 2) to place layer 2 in the Background (Figure 1). The cube should be white and the cylinder will appear black. Next, press (Shift B) to bring up the Boolean Menu. Select Subtract and hit OK. When the progress window goes away you should have a cube with a hole in it (Figure 2). Hit (1) to show layer 1 only, then use the space bar to toggle to Polygon Mode at the bottom of the screen. Press (w) to bring up the polygon statistics menu. Press and hold down the left mouse button where it says default, scroll with the mouse to the word Cube-Smooth, and release. Directly above and to the left is a plus-sign button—press it. Notice how only the smooth areas of the cube are selected. Remember to always name both the Objects and the Tools Surfaces before you perform a Boolean operation; it will save you many a headache.

Did you notice how the cylinder sticks out on either side of the cube? You should always let the tool protrude a small amount past the surface you are cutting through. Modeler sometimes has a problem with distinguishing between the two surfaces that intersect, so to be safe, always leave yourself some room on either end. Sometimes, after performing a Subtract operation, part of the tool is left behind.

Don't panic! Simply erase the points that are left behind. After performing a Boolean operation, always merge points by going to the Tools Menu and selecting merge under Points. Using Automatic for the merge usually works just fine.

Union

You can use the same Object and Tool for Union as you did for Subtract. Press (u) to undo the last operation, press (2) to go to layer 2. Next we need to rename the cylinder's polygons. Select the cylinder's ends, hit (q), and name them "Pegs-Flat." Once again, use (Shift ") to invert the

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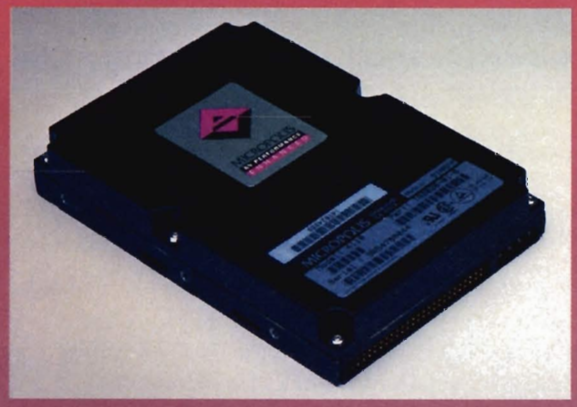

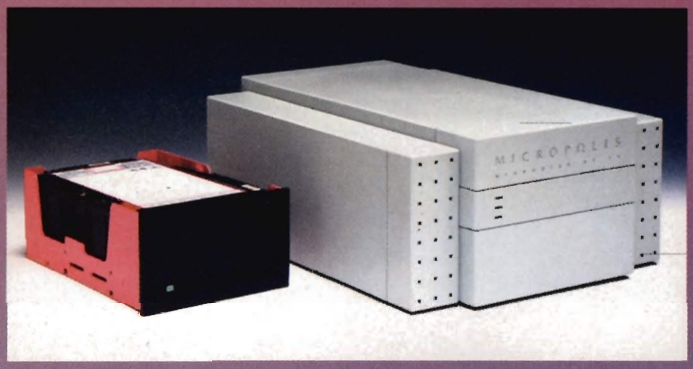

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FOR INFORMATION CIRCLE 141

polygons that are selected. Press (q) and type "Pegs-Smooth." Before you press OK use your mouse to select Cube-Smooth in the upper window. Instead of hitting apply, press rename. Then press (q) again and select "Pegs-Smooth" in the lower window. Press Apply (Enter).

Hit (1) to go to layer 1, then (Alt 2) to place layer 2 into the Background Layer. Select (Shift B) to bring up the Booleans Menu and pick Union from the list, then push OK. After the progress window disappears you should have a cube with two pegs joined to it (Figure 3).

Using the Union Operator is a lot easier than making two separate pegs and placing them. It also deletes all unnecessary polygons from the object for you. Don't forget to merge points.

Add

Before we begin, hit (Shift N) to reset the Modeler, then press (1) to go to layer 1. Select box from the Object Menu, then numeric (n). Hit reset and press OK. Now go to layer 2 by pressing (2). Select ball from the Object Menu, then numeric (n). Hit reset, enter 24 in the sides window and 12 in the segments window, then press OK. Next, press (t), then numeric (n). Enter -.5 in the X window and make sure units are set to (M), and end by hitting OK. Put layer 1 (Alt 1) in the background, then hit (Shift B) and select Subtract. End by pressing OK.

Once the progress window disappears you should have half of a sphere. Select the flat part of the hemisphere and delete (z) it (see Figure 4). Name (q) this polygon "Cone-Smooth" and hit Apply. Finally, go to layer 3 (3) and select cone from the Objects Menu. After hitting numeric (n), hit reset, then enter 24 in the sides window. End by pressing OK. Once again, select and delete (z) the flat part of the cone and name (q) the polygons "Cone-Smooth." Put layer 2 in the background (Alt 2), then press (Shift B) and select Add from the Booleans Menu. After the Progress window disappears you should have a object similar to Figure 5. Don't forget to Merge points before you save.

Intersect

Finally, we come to Intersect. A good use for Intersect would be something like a lens for a camera or magnifying glass. Start by going to layer 4 (4) and select Ball from the Objects Menu. Press numeric (n) and reset, and enter 24 in the sides window and 12 in the segments window. End by pressing OK. Now, press (c), then (5), then (v) to copy the Sphere to layer 5. Select (t) numeric (n) to bring up the move requester and enter X= -.45. Making sure units is set to (M), hit OK. Go to layer 4 (4), press numeric (n) and enter X = .45, checking again that units is set to (M). Hit OK.

Now put layer 5 in the background (Alt 5) and select (Shift B). Hit Intersect OK. After the progress window disappears, name (q) the polygons in layer 4 "Lens-Smooth" and hit Apply. Remember to merge points, then save the object. If you have done everything correctly you should have an object like Figure 6.

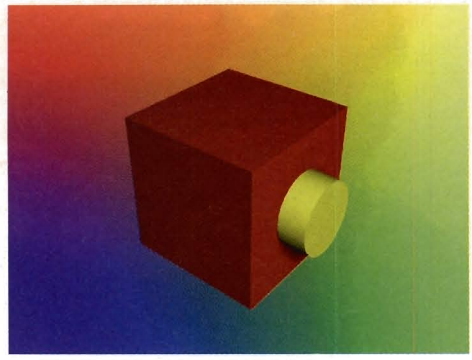

Figure 3

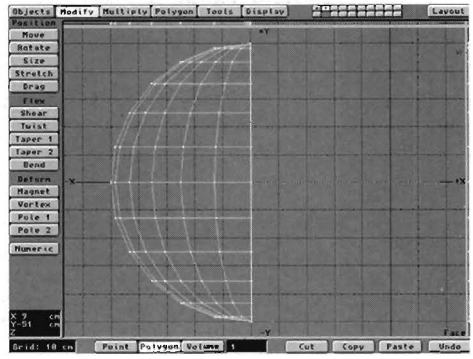

Figure 4

Figure 5

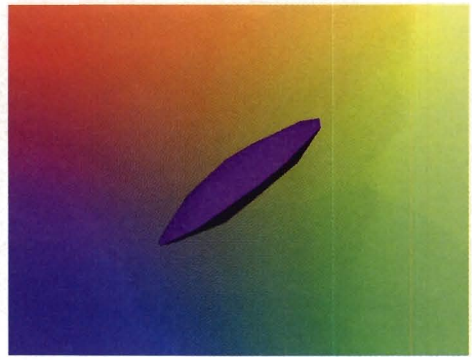

Figure 6

Wrapping Up

Notice that the lens that you created is fairly simple, but you could make it smoother by increasing the segments and sides to a higher value. Remember, experimentation is the best way to learn, especially with Boolean operators. They are extremely powerful if used correctly. The more you try using them, the more you will see how much time they can save you.

Just imagine if you had to create some of these examples by hand. Yes, some would be easy, such as the Lens and Cube with Pegs, but what about the Cube with a hole in it? I hope this has cleared up some of the problems or reservations you may have had about using Boolean operators. I decided it would be easier to show you how to use these tools instead of building a finished object, as in previous articles.

I would like to thank all of you who have called myself or *VTU* with the many comments and kind words. Special thanks also to all the wonderful people at *VTU* for allowing me to share some of my knowledge with you, the reader. Remember, I am only a phone call away if you need help or catch me in error.

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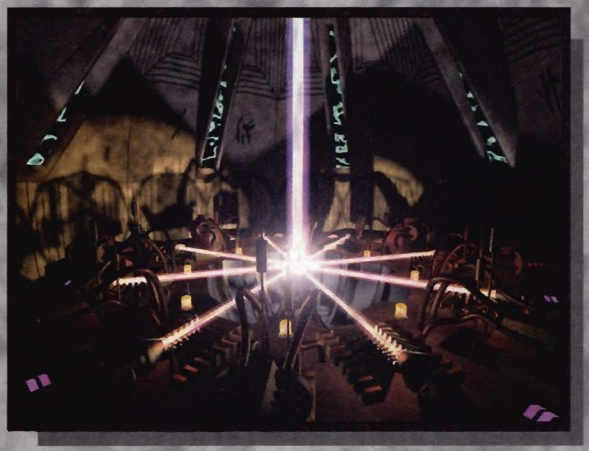

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only one polygon selected, so name it "MonitorInnerBevel." Press (b) one more time and set the Inset to 50 and Shift to -50.

Finally, name the still-selected polygon "MonitorScreen," and save the object as "SimpleMonitor.lwob."

Now that we have our monitor, it's time to make beams. Make sure that you still have the "MonitorScreen" polygon selected and copy it to another layer. Place the monitor itself in the background so you can see them both. In this new layer, select the polygon and change the name to "MonitorBeamStraight." Now, Extrude this polygon along the Z axis, with Segments at 1 and Extent at -1.45, with Units at M (in the Numeric window, of course). When clicking on any of these polygons, note that they all point into the center of the "box" created by the Extrusion. De-select any polygons you may have selected, click Copy, press the (F) key to flip the polygons and then Paste. Now, Merge Points. If you click on any of the polygons in the box now, you should see normals pointing in both directions, meaning they are now double-sided.

In the top view, click on the polygons that face up and those that face down. This should give you only four selected polygons since each of those two is double-sided, right?

Cut these four out so that we have a box-shaped tunnel. Save this object as "MonitorBeamStraight.lwob."

Now, in the left view, select the points on the left end of the box. This should give you four points. Use the Stretch function (with Numeric Entry) to Stretch the X and Y axes to 2, leave the Z at 1, and all Centers at 0.

This will double the width and height of the "front" of our beam while leaving the depth the same. De-select the points, make sure that no polygons are selected (so that we affect the whole thing) and change the surface name to "MonitorBeamAngled," then save the object as "MonitorBeamAngled.lwob."

OK, we've got the construction out of the way, so now we need to work on the effect itself. Go back into LightWave and load the objects if they weren't exported directly into LightWave from Modeler. In the Objects panel set the MonitorBeamAngled.lwob to be 100 percent dissolved. We're going to morph into that shape, but we don't need to see it beforehand.

Go into the Layout window and parent both the MonitorBeamStraight.lwob and MonitorBeamAngled.lwob to the SimpleMonitor.lwob.

Select the MonitorBeamStraight.lwob as your item to edit and create a key, changing the keyframe number to 10 when it pops up. Now, stretch that MonitorBeamStraight.lwob to 0 on the Z axis (lock X and Y by turning them off) and create a key for frame 0. This will cause our beams to be hiding just inside the monitor at the beginning of the animation, and then do a 10-frame

"If most of your scenes are of an average logo-type nature and/or you want to run PC programs really fast, the ShaBLAMM! card is a great thing."

expand to full size, creating the effect of the beams shooting out from the monitor.

Go back to the Objects panel and find the "MonitorBeamStraight.lwob." Next to the Metamorph Level field is an Envelope button (marked with "E"). Click it to set up an envelope for the morph. Create a keyframe at 1 with a 0 percent level and a keyframe at 10 with a 100 percent level. This will make the beam expand out into a wider area as it morphs from the Straight to the Angled, matching the timing of the stretch we applied to the Straight. Got that? Click "Use Envelope" and we'll go on.

Now, click the Envelope button next to the Object Dissolve. Create a keyframe at 0 with the level at 100 percent and a key at 5 with a level of 0 percent. This will make the beams do a five-frame dissolve while all of this morphing and stretching is going on. Are we having fun yet?

All that remains now are the surfaces. Set the MonitorBeamStraight surface as follows:

Color = 0, 180, 255
Color Texture Type = Fractal Noise
Color Texture Size = .15, .15, .15
Color Texture Color = 0, 0, 0
Luminosity = 85%
Transparency = 30%
Transparency Texture Type = Grid
Transparency Texture Size = .15, .15, 1000
Transparency Texture Value = 100%
Transparency Line Thickness = .2
Edge Transparency = Transparent

Set the other surfaces to whatever you desire (make sure to load an image and map it into the MonitorScreen), and return to the Layout screen. Edit the Camera and move it along Z to -4.57. Create the key for the Camera and you're ready to render.

Experiment with the surfaces for the MonitorBeamStraight and you'll see that there are hundreds of really interesting things you could do with this. Try adding velocity along the Z axis to the Color Texture and you can get a really nice "lasers through smoke" sort of look. Hopefully, this will trigger all sorts of ideas in your head, and we'd like to see them! If you create something really cool, send it to me on a floppy along with a description of how you made it and it may show up in this very column with your name in lights...err...ink. Anyway, best of luck and I'll catch you all next month! Address all correspondence to: Mach Universe, Attn.: David Hopkins, 8102 Dabny Lane, La Palma, CA 90623.

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Robin of Boulevard Video Productions in Sherman Oaks, Calif. "We sell on emotion. If a bride-to-be looks at our demo tape and doesn't cry, we've failed."

Robin's company has been in business for 10 years, uses five subcontractors and two Toasters, and shoots 150 weddings a year for prices ranging from $995 to $1,895.

Robin's favorite effect is the dissolve. "With Toaster Toolkit, I've customized a whole screen of different dissolves with durations from one to eight seconds." The other effects he likes to use for weddings are the page turn, to transition from a wedding invitation to an establishing shot of the church; the "Van Gogh paint sweep" to reveal the bride; and the "camera aperture" wipe for video sequences of the still-photo shoot.

Sandy Brooke, owner of Brooke Video designs Toaster-edited photo montages for her clients.

For aftermarket software Robin uses Producer Series Platinum Animation. The fonts he recommends are Brussels and Biorst, with titles scrolling over a still of the wedding invitation.

"While we stay low-key with the effects during weddings, bar mitzvahs scream for effects," Robin said. "For those ceremonies, the clients like to see all the switcher effects and CG."

Beverly Hills Wedding Video Madame

One of the highest-regarded and successful wedding videographers in California is Sandy Brooke. Her all-woman company, Brooke Video, shoots 300 weddings a year out of two offices in Van Nuys and Beverly Hills. With her 10 employees and four Toasters, Brooke's charges range from $525 to $3,500 for recording nuptials.

"I love soft switcher effects, and I use lots of dissolves," Brooke said. Her favorite switcher wipes are the page turn, from an establishing shot of the church to the ceremony, and the "heart" wipe over the cake cutting. "We even use the 'Kiki legs' wipe over a close-up of the bride removing her garter." For more advanced wipes, Brooke uses Pro Wipe software. "We can bring a ring close-up out of the 'O' in the title 'Our Wedding.'"

Toaster-edited photo montages are a great way to increase profits, says Brooke. "With the Toaster, we can charge $3 for each photo the clients wants to use in a montage. We just finished a scrapbook for $2.000, and the customer was happy to pay for it."

Brooke is pioneering the use of technology to better her product and her profits. With a Fargo video still printer and the Toaster, she can create a custom color video cover for clients who pay for the option. "I'm able to charge about a third more using the Toaster than before I had one," Brooke said. "It gives us a much more professional look, and clients compare their video to what they see on TV"—an important point to consider when one recent Brooke Video client was a producer for *Beverly Hills, 90210.*

The Bottom Line

While these successful entrepreneurs are profiting from their Toasters, their daily use is decidedly low-tech. A clean video signal, still stores, dissolves and a professional-looking CG are the main reasons wedding videographers use it. Most important of all, the Toaster learning curve is relatively flat and the software user-friendly. In business, time is more important than money, and the Toaster lets producers get right to work making paying clients happy.

Before deciding that big money is waiting for you in the coupling of wedding videography and the Toaster, remember that capturing weddings is a serious business. While the Toaster and other professional video equipment have helped weed out the quick-buck artists by raising standards, there's a lot more to making money with weddings than the ToasterCG and dissolves.

Brooke is a prime example of using the Toaster as a part of a successful wedding video business, where knowing your market is more important than your equipment. "Any of us with a Toaster have a definite advantage over our competition, but don't overuse it, " she said. "The bride and groom should be the stars, not the effects. The Toaster should complement, not become, the wedding video."

VTU

Kevin Campbell is the author of "Make Money With Your Camcorder" *and* "Basic Video Editing." *He owns ControlTrack Productions in Wichita, Kan.*

Mackie continued from page 61

whatever. The Flyer can play back a maximum of eight tracks at a time. For most folks this is plenty of tracks, but what is slightly lacking at this time is audio mixing capabilities. For instance, there is no easy way to start playing a background music track and have its volume lower at one point, say during a voice-over, and then rise back up again. There are ways of achieving this, but it involves doing audio match frames, and using the Flyer's audio fade-up and fade-down functions. In several events like this, I think using this workaround would get old fast.

Note that NewTek has just scratched the surface of the audio capabilities of the Flyer, and in forthcoming upgrades you will be able to mix audio much more easily. However, in the meantime, if you require more complex audio editing capabilities, an audio mixer remains an important part of your suite.

And you probably need a mixer for video shoots. The Mackie was really designed with live applications in mind, and this unit is, once again, likely much more mixer than you'll ever need for this use. The inclusion of a 48-volt phantom power supply solves the ever-present problem of dead mic batteries, and allows the use of truly professional microphones.

Cash

What everyone wants to know is, "What's it gonna cost me?" The Mackie 1202 mixer was the result of years of dedicated design work and it is packed with several "four-digit price range" features, while bringing it in at a remarkable $399 retail (the street price is about $350).

On a scale of 1 to 10, I'd give the Mackie 1202 Line/Mic Mixer a resounding 10 (or more). I would definitely recommend this board to anyone needing an affordable, portable, silent mixing board for any application, and especially to those doing audio for video. At $399, it is an outstanding value. VTU

Company mentioned:

Mackie
(Mackie 1202 Line/Mic mixer—$399)
20205 144th Ave. NE
Woodinville, WA 98072
(800) 898-3211
FOR INFORMATION CIRCLE 10

EDITORIAL EVALUATION		
Circle number on Reader Service Card		
I found this article:		
Very Useful	Useful	Not Useful
Circle 038	Circle 039	Circle 040

FOR INFORMATION CIRCLE 103

"The Macintosh/Amiga file transfer solution... an indispensable tool..."

Video Toaster User Magazine, Nov '94

Wow...and that was the old version of MaxDOS. Here's what they're talking about: pop a Mac floppy into your Amiga drive (high-density, of course), and you can use it just like a normal Amiga format floppy. Or, plug a Mac format SCSI drive (hard, optical, floptical, Bernoulli, SyQuest, CD-ROM) into your Amiga SCSI port, and the same amazing thing happens—the disk is available to all programs for reading and writing. Use it just like a normal disk—get your Mac files to your Amiga and your Amiga files to your Mac. MaxDOS is software, but it's not just a transfer utility—it's a full-blown filesystem, which means you can use your Mac format disk from any Amiga software. You can load a Photoshop PICT directly into ADPro... you can render your Lightwave frames out directly to a Mac format SyQuest cartridge... you can do anything you'd like, and then move the Mac format disk back to the Mac. And as if all this isn't enough, you can see Mac icons on Workbench, make and split MacBinary files, control setting of creator and type parameters, and more. MaxDOS is available now from your favorite software dealer.

media4 productions

MaxDOS 2.5

All other brand/company/product names are trademarks of their respective companies.
MaxDOS 2.5 requires Workbench 2.04 and SCSI interface for use with Macformat SCSI drives.
mfm device (standard in Workbench 2.1 and above) and high-density floppy drive are required for floppy use.

Media4 Productions
2800 university avenue
suite hlb-101
west des moines, ia 50266
voice 515.225.7409
fax 515.225.6370

FOR INFORMATION CIRCLE 115

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FLYer DAYS

Anti Gravity is the leader in Desktop Video and 3D Animation!

IDEK

TOASTER READY MONITORS

CD Solutions CD-1401 14" 15KHz w/SyncStrainer $ 495
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IDEK 17" 8617 1280x1024 23.5-86KHz $ 795
IDEK 21" 8621 1280x1024 23.5-86KHz $2395

LightWave 3D 4.0 $995

The effects on every TV or film you see are computer 3D graphics. Now, with LightWave 3D from NewTek, you have the same Emmy winning graphics tools used on prime-time TV shows such as seaQuest, Babylon 5, Robocop, and Star Trek: TNG. No other 3D system combines this power and flexibility with such ease of use. From flying logos to broadcast special effects, LightWave 3D is Hollywood's choice.

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IN STOCK!!! WorkStations

A4000 + TOASTER OVEN = 4000 TOWER!

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with: 40MHz 040, SCSI-2, 2GB Barracuda HD, 2MB ChipRam, 32MB 60ns FastRAM — $11,275

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Anti Gravity Hangers are external exspansion cases for the FLYer! They Feature High Wattage Power Supplies, Cooling Fans, Individual SCSI-ID selects, FLYer SCSI-2 Ports, plus...

Hanger Model	# BAYS	# Watts	# Fans	# IDs	FLYer Ports	Pass Through	Total Price
AGH-4	4	200	3	4	2	No	$275
AGH-7	7	250	3	7	3	Yes	$395
AGH-9	9	300	3	9	3	Yes	$475

FLYer SYSTEMS

Base FLYer System $19,995
A4000/25MHzLC040/18MB Ram/500MB IDE HD/ FLYer/Toaster/TBC IV/ AntiGravity 9Bay Hanger with Two 2GB Flyer HD's and 2X CDRom/ASIM

Base TO Tower System $21,995
ToasterOven4000 Tower System/ 40MHz040Warp/18MB Ram/1GB SCSI-2 HD/ FLYer/Toaster/TBC IV/ Two 2GB Flyer HD's and 2X CDRom/ASIM

TO-GT Tower System $28,495
ToasterOven GT-4400 Tower System/ 40MHz040Warp/32MB Ram/ 2GB Barrcuda SCSI-2 HD/ FLYer/Toaster/TBC IV/ Two 9GB Flyer HD's and a 1GB AudioHD/ 4X CDRom/ASIM

FLYer DISKS and Drives

Minimum 2 Video Drives
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9GB $4400
QuadSpeed CD-Rom $395
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5-10GB 2.5GB/Hour $1295
7-14GB 1.6GB/Hour $2095
10-20GB 5.4GB/Hour $3995

FLYer Cards

Video FLYer 4000	$4995
Video Toaster 4000	$2200
TBC IV	$ 850
Sunrize AD516	$1250
Picasso II 2MB	$ 550
EtherNet Card	$ 300
Emplant Deluxe	$ 375

Renders LightWave! scean files with ScreamerNet

The RENDERSAURUS comes with either a MIPS R4600 or an Alpha AXP 21064 CPU!

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Prepare for the Future! Don't be left behind with a standard PC-clone!

MIPS & Alpha Rendersaurus systems are many times faster than Pentium systems. With WindowsNT as the unifying operating system you can run your normal windows programs on your Rendersaurus, and use the greater capabilities of WindowsNT with NT-specific programs.

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RENDERSAUR-BC100M™ $5995
100MHz R4600 RISC CPU / 32MB of TrueCache Memory

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MacroSystem Development

HARDWARE FEATURES

Very High Speed Local 040 Memory Bus with full 040 burst access.
- NCR 53C710 40MHz SCSI-2 Fast Controller connected directly to the 040.
- 32Bit SCSI host bus DMA interface supporting burst to and from the RAM
- Supports 10MB/s SCSI transfers.
- Full DMA allows the CPU to still have 90% Processing Power while doing Transfers.
- No Zorro III DMA Problems.
- Fully Autoconfigurable with optional Autoboot capability for SCSI.
- 32Bit Ram Expansion Up To 128MB.
- Uses Standard 72Pin SIMM Modules.
- Allows Mixing of Ram Module Sizes.
- Supports 4, 8, 16, 32 MB SIMM Modules.
- Uses the Memory that is installed on the Amiga 4000 MotherBoard.
- Supports DMA access from Zorro III Devices to onboard Memory.
- A3000 Version Supports up to 64MB of 32Bit Memory.
- A3000 Engine will clock 16MHz MotherBoards at 25MHz.

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

The WARP ENGINE Is an 040 Accelerator with a High-Speed SCSI-2 controller & up to 128MB of ram expansion, All-In-One!

How Fast Is The Warp Engine?

Rendering Lw3D Texture Example
- A4000/040-25MHz: 160 sec.
- A4000 Warp 28MHz: 82 sec.- aprox. 2x faster
- A4000 Warp40MHz: 56 sec.- aprox. 3x faster

Warp SCSI-2 Speed:
Using Diskspeed the 2.1 GB BarracudaDrive Read 9MB/sec with 94% of the CPU still availible.

40 MHz 68040 Accelerator for the VideoToaster/4000

The Warp Engine Series of Accelerators is a break-through in Amiga Expansion design. The Warp Engine comes in three versions for the Amiga/ Toaster 4000 and three for the Amiga 3000.

All Warp Engines are fully upgradable to 40MHz by just changing the CPU and the Clock Oscillator!

The Warp Engine uses standard 72 Pin SIMMs (NO CUSTOM SIMMS)and allows the use of up to four different sizes of SIMMs (4, 8, 16 and 32MB) at the same time.

Unlike other companare only available from them, and/or they only allow the same size SIMMs to be installed making it necessary to remove your old SIMMs before you can add larger SIMMs.

The NCR53C710-1 SCSI-II Fast 32Bit DMA Bus Master Processor makes it the Fastest available with its direct connection to the 040 chip—this provides up to 10MB/s Transfers and allows the 040 to retain 90% to 98% of its processing power! Zorro III Memory boards cannot even reach 70% of the speed of the Motherboard Memory while Warp Engines Local 040 Burst Memory is many times faster than the Motherboard Memory!

WARP ENGINE

A3000 WARPS NOW AVAILIBLE

WARP-3000: 28MHZ	
with 040 CPU	$ 935
WARP-3000: 33MHZ	
0 MB Ram	$1185
with a 4MB 60ns	$ Call
WARP-3000: 40MHZ	
0MB Ram	$1415
with a 16MB 60ns	$ Call
with a 32MB 60ns	$ Call

A4000 WARPS Still Going Fast!

WARP-4000: 28MHZ	
with NO CPU	$ 795
with an 040 CPU	$ 935
WARP-4000: 33MHZ	
0 MB Ram	$1185
with a 4MB 60ns	$ Call
WARP-4000: 40MHZ	
0MB Ram	$1415
with a 16MB 60ns	$ Call
with a 32MB 60ns	$ Call

FARGO ELECTRONICS, INCORPORATED

NEW 600 DPI Primera PRO

Thermal Transfer color printer. Dye Sublimation kit available!

Primera's bright, sharp color knocks the socks off any other color printer on the market today!

Primera	$ 895
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PRO Postscript	$ Call

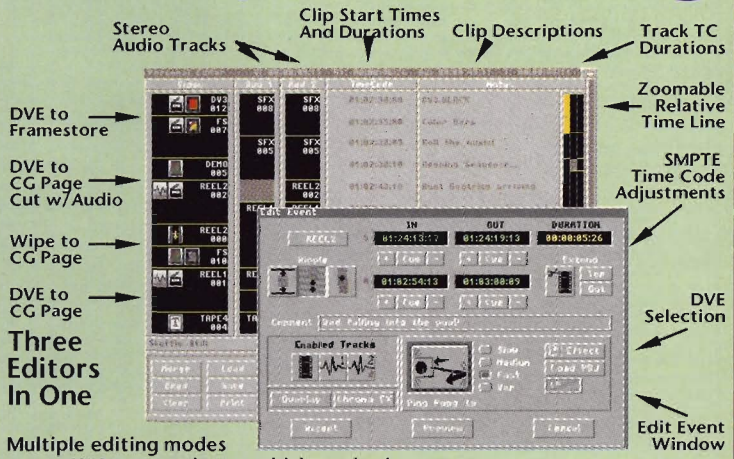
NUCLEUS ELECTRONICS, INC.

No Slot, No Bother, No Worry....

The Personal Editor™

$545

It's Not Just Cuts Editing!



Multiple editing modes means YOU get to choose which method works for the current task at hand.

B Mode auto assemble allows you to log your sourse tapes and assembly them as you like in an EDL window, adding DVEs, CGs, & image stills.

A Mode assembly provides a fast "mark and record" method for rough cuts.

Our new *Open-Edit Mode* provides quick & easy Source and Recorder control for accurate cuts editing and can ! uild an EDL on the fly for future addition of effects or stills.

PERSONAL EDITOR FEATURES

- NEW! *Now records four individual animation frames in a single recording pass using a Video Toaster at 3.2 sec/Frame to record!*
- CMX List: Import & Export
- SMPTE time coded clip logging.
- A & B Mode auto-assembly.
- Pseudo A/B roll (A/X roll) w/ Toaster.
- DVE transistions/CG page functions.
- Still images: FrameStore, IFF, JPEG, in EDL.
- Split audio & match frame edits.
- 100% accurate single frame controller.

PowerMacros $95 for LightWave 3D

A New Level of Lightwave Mastery

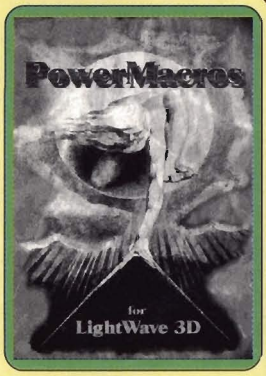
IMPLEMENT NEW FEATURES AND STREAMLINE FUNCTIONS TO SAVE MODELING, SCENE CREATION, AND RENDERING TIME.

ENERGY:
- Shatter
- BlowUp
- Swarm

LAYOUT:
- Snake
- Render Batch
- Move Scene
- Smooth Velocity
- Focal Distance

MODELER:
- Attach to Polygon
- Clone Object & Surface
- Flip Around Polygon
- Load From Scene
- Mirror Using Polygon
- Save Pivot Point

BUSINESS:
- Chart1
- Chart2



Seventeen new and powerful macros for LightWave 3D and Modeler

NOTE: Background Image Made with Snap Maps!

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Interior Construction: $95

Create rooms and interiors with over 100 Objects: doors, windows, stairs, fixtures, mold ings, walls, floors, ceilings and rooms.

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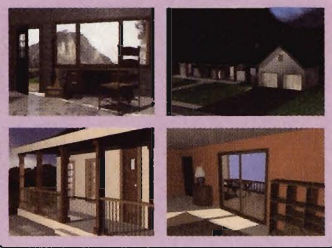
Four complete, scaled homes for Lightwave. Exteriors, Interior rooms. Doors and windows ani- mated. Over 120 surfaces per home.



Interior Design 1: $45

Over 50 Real-World Scaled Furniture Objects: beds, tables, chairs, cabinets, and more. Doors and drawers can be animated!

Interior Design 2: $45

Over 50 Kitchen and Bathroom Objects: Lighting Objects, appliances, cabinetry, sinks, vanities, bathtubs, toilets and toiletry, and more. Doors and drawers can be animated!

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$70

ProWipes is a six disk set of 75 Toaster Transitions and Effects that can be added to ANY Video Toaster 3.0, 3.1, or 4000.

ProWipes are not animations, they are real Video Toaster format transitions that work just like original toaster wipes.

ProWipes Volume 1 includes 33 Live (Actor) Action Wipes & 42 assorted 3D Style Wipes, Matte Wipes, Soft Edge Wipes, 16 level Alpha Effects, and our own 24bit Effects that work on ANY Toaster System.

ProWipes cover such categories as: Weddings, Sports, Dance, Money, and Music, not to mention a large variety of general purpose wipes that can be used in a multitude of video applications.

ProWipes Volume 1 comes with easy to use, one step, point and click installation, Workbench 2.04 or greater required.

CROSS MAC

Another Barrier Smashed by Consultron, who brought to your Amiga CrossDos. Now brings you **CrossMac** to allow you to Read & Write Mac floppies and HardDisks directly from your Amiga!

CrossMac $85

NOTE: Background Image Made with Snap Maps!

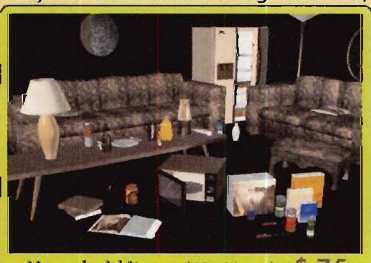
DEDICATED DIGITAL IMAGERY

Create a 3D Virtual City with **Citybuilder $120**

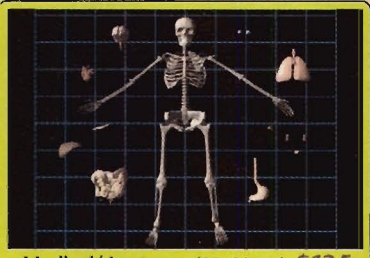
CITYBUILDER contains over 75 detailed 3D objects featuring high and low Resolution versions of recognizable buildings from major U.S. cities.

SUPER BUNDLE ALL 5 SETS $455

Objects are available in Lightwave3D, Imagine, DXF, and Wavefront formats.

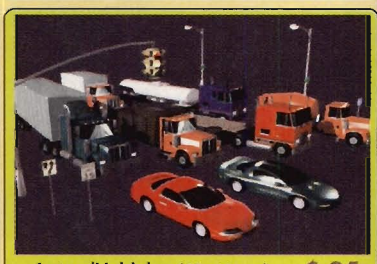


Household Items *(50 objects)* $ 75



Medical/Anatomy *(25 objects)* $135

Space Essentials *(50 objects)* $ 95



Autos/Vehicles *(65 objects)* $ 95

MOVING TEXTURES 100 $235

Royalty free Stock Footage for Computer ANIMATORS!

Moving Textures 100 contains 22 texture sequences for use in computer animations. Two types of image sequences are included on the CD ROM.

Tru Maps:

2 versions of a *Time Lapse* cloud animation, cackling fire , smooth burning flames, bubbling steam, ocean water, and slow moving smoke.

FX Maps:

Boiling, Burst, Calm, Disturb, Jiggle, Liquid, Pour, Rough, Spots, Swift, Tide, Water A, Water B, Waves A, & Waves B

INCLUDES VIDEOTAPE

Each sequence contains 300 to 900 ready to use IFF frames. Tru_Maps are stored as 8 & 24-bit color, or 8 bit greyscale images. FX_Maps are 8-bit grey.

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Formats: Lightwave 3D Studio Imagine

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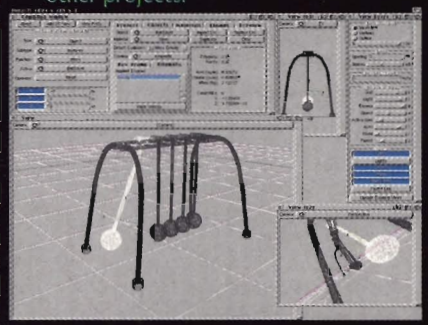
IMPACT! Is The Only Real Choice For A Physics Simulation Package For Lightwave3D!

Phisics Features:

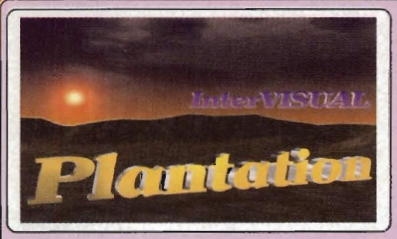
- Automatically computes phisics properties of objects including mass, centroid, and inertia.
- Accurate and friendly collision detection ensures your objects do not penetrate.
- Objects don't get the 'jetters' when resting.
- Make your objects out of a variety of predefined Materials or create your own by modifying the density, elasticity, and roughness.
- Create 'Engines' and apply them to objects to make them move realistically. Choose among Gravity, Motor, Thruster, Spring, Force Field, And More.
- Materials & Engines can be saved separately and selectively loaded into other projects.



User Interface:

- Can run on any Workbench supported screenmode and size.
- Load, Move, Rotate, & Stretch objects all from IMPACT!'s interface.
- Open multiple resizeable wireframe view windows simultaneously.
- Make a wireframe preview for any open view.
- Extensive online help.

Dynamic Realities



Plantation Node License:

# of Machines	Price
2	$100
5	$150
10	$200
20	$300

Scalable Distributed Rendering for Lightwave3D!

Plantation orchestrates the rendering of Lightwave scenes by using multiple Lightwave-equipped Amigas on a network. Working in tandem, the networked computers spread the work of rendering across the entire network, decreasing rendering time and increasing productivity.

Features:

- Any Number of scenes
- Any number of machines
- Supports DPS-PAR
- Attractive Intuition Interface
- Upgradable Node license
- Scene Manager
- Supported Networks: ENLAN, Envoy, Parnet, & AmiTCP (with NFS)

Visual Inspirations

BATCH FACTORY $45

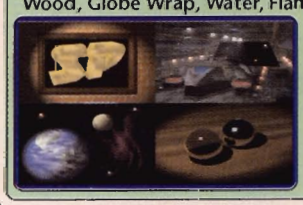
The most powerful and easy to use Batch Processing Utility on the Amiga. It comes with over 350 ARexx scripts that range from creating animations to compositing images to making custom video wipes.

DIGITAL SOUND TRACK $85

Add audio to your videos and animations with ease. Simply create an EDL to tell where you want the sounds to play and Digital Sound Track does the rest. It gives you complete control of your VCR. With over 5 Mb of special effect samples and MOD files.

SURFACE PRO FOR LIGHTWAVE 3D $85

Finally, a collection of useful, ready to use, low memory, seamless surfaces for the LightWave professional. Surface Pro offers a wide varietiy of seamless image-based LightWave surfaces. Surface Pro gives you over 60 newsurfaces that are instantly available through LightWav: Liquid Metal, CIrcuit Board, Nebula, Wood, Globe Wrap, Water, Flame,



Marble, Chrome, and more.

ROAD SIGNS FOR LIGHTWAVE 3D

$45 Road Signs is a collection of over 50 hand-crafted Lightwave objects, consisting of all major U.S. traffic signs. Ideal for accident reconstruction or any out door scene. Simply add text to the Road Signs Construction Kit to create unlimited signs, and tailor them to fit your scene. Requires LightWave 3.0 or higher and about 1 Mb of HD space.

Apex

Essence Textures are algorithms used to color the surface of an object, and take very little RAM (about 1–15K each), and have no pixel artifacts. An "algorithmic texture" is a surface that can be characterized with a mathe matical algorithm as opposed to just "painting on" with a brushmap.

Essence VOLUME I $75

Essence I is sixty-six algorithmic textures compatible with the Forge texture design program, ranging from Hex, a simple tiling of hexagons, to a complex surface called Fractal Noise; turbulent, detail-rich for objects like clouds, fire,...

Essence VOLUME II $75

Essence 2 hasover forty other textures. Organic surfaces: Natural skins and colorings—turtle shells to crusty alien hides.· Space textures: Hull plates, gas giants and planetary rings. Animated plasmas.· Altitude textures: Burnished metal, crumpled paper, chipped ice, obsidian, cauliflower and fungus.

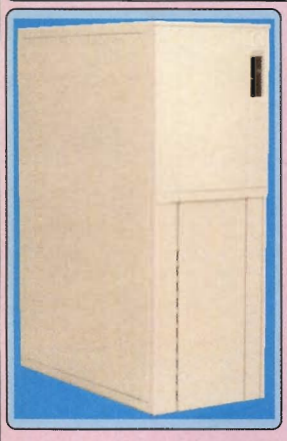
FORGE Included with Essence

Load/display any Essence texture or attributes, preview in real-time. Interactive edit and preview in color. In Forge the design process is reduced to simply sliding a gadget and watching the change take place!

Ambitious Technologies

ToasterOven GT

The Most Powerful DeskTop Video System In The World! JustGot More Powerful!!!



The ToasterOven GT has been Completely Redesigned. Its bigger and has a new slotboard called the BigEthyl Sisterboard* that greatly expands the versatility of the your system.

NEW

The new ToasterOven GT has:
- BigEthyl Sisterboard
- More room for Full-Height drive bays.
- More System Cooling Power.
- SCSI-2 wiring harness for upto 6 internal drives and an external port.
- 3 External Flyer SCSI-2 Ports
- All Metal RF Enclosure
- Switches Monitor On/Off

* BigEthyl is availible as an option for the ToasterOven 4000.
** Other configurations available.

Options

ToasterOven SixPac 6 FullHeight DriveBays with a 250Watt PowerSupply	$Call
ToasterOven Thermoneter	$Call
ToasterOven Zorro Adapter	$100
SCSI-2 External/Internal Kit	$120
HighDensity SCSI-2 Terminator	$ 25

BigEthyl Sisterboard

11 slots positions:
- 2 video slots
- 7 Zorro slots (4 standard 3 power slots)
- 6 PC slots (5 Full Function 3 power slots)

ToasterOven 4000 $ 995

300watt Switchable Power Supply
11 Bays (2- 3½; 5- 5¼; & 4 LPS Bays**)

ToasterOven GT-4300 $1295

BigEthyl Sisterboard
300watt Switchable Power Supply
11 Bays (2- 3½; 5- 5¼; & 4 LPS Bays**)

ToasterOven GT-4400 $1495

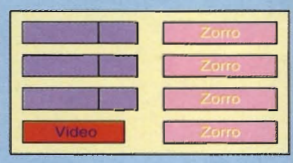
BigEthyl Sisterboard
400watt Switchable Power Supply
19 Bays (2- 3½; 17- 5¼ Bays**)
Greater Cooling capacity

Why do you need a Toaster Oven for your Flyer system?

A big problem with the A4000 is its deficient expansion capability in adding cards or peripheral drives. Its power supply is equally weak.

Peripheral Cards

A4000 LIMITATIONS → Although you have a video slot, four Zorro and three PC slots, you can add only four cards: e.g., the Video Toaster (which is a double-width card) occupies two card positions (two Zorros and one PC), leaving two card positions available; adding the Flyer (a Zorro card) takes up another position, leaving one remaining card position (PC/Zorro); and since your Flyer system requires a TBC, *that* takes your last card position. You need more expansion than that for pro video production!



TOASTER OVEN ADVANTAGES →
Other cards you'd most likely want to add to your system—display cards like the Picasso II or Retina, the SunRize 16 for better audio than the Flyer supplies, or an Ethernet card—can be added to the Toaster Oven. Because the Toaster Oven gives back three Zorro positions.
In the Toaster Oven the Video slot is separate from the Zorro slots, so when adding the Toaster card the Zorros are left free. This gives you back two of your Zorro slots. The Toaster Oven also has six power-only PC slots, one of which can take your TBC. This now frees up one more Zorro!
So your ultimate Flyer system now has: Toaster, Flyer, Sunrize AD516, Picasso II or Retina, Ethernet card, TBC, plus five more slot positions for power-only cards; five PC and two optional Zorro cards.

Peripheral Drives

A4000 LIMITATIONS →
Another limitation of the A4000 is how few bays for hard disks, CD-ROMs, tape drives, removables, etc. are available. It has one 5.25 inch bay and one extra 3.5 inch bay, and a 3.5 inch internal mounting bracket. And definitely no room for full height drives.

TOASTER OVEN ADVANTAGES →
The Toaster Oven has 11 drive bays. There is one 3.5 inch floppy bay, plus another suitable for a Syquest 270Mb removable. There are five 5.25 inch half-height bays to accommodate NEC triple-speed CD-ROM drives, Exabyte 8505 8mm tape drives and other storage devices, or two full-height 9Gb Elite drives for the Flyer with one bay remaining for another device. There are four internal 3.5 inch Low Profile (LPC) bays.

Power Supply

A4000 LIMITATIONS →
Weak, barely adequate to power a minimum system.

TOASTER OVEN ADVANTAGES → 300 Watts and a big fan. Powerful enough to accommodate any load. Say no more!

NOTE: Backgroung Image Made with Snap Maps!

media 4 productions

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MAXDOS v2.5 $85

MaxDOS is everything you need to share data between the Amiga and the Macintosh. You can use Mac formated high-density floppy in your Amiga high-density floppy drive. Or, you can use a Mac formated SCSI devices on your Amiga SCSI port; such as HardDisks, Opticals, Flopticals, CD-Roms, and Removeables like SyQuest and Bernoulli.

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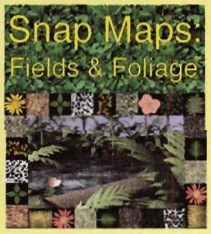
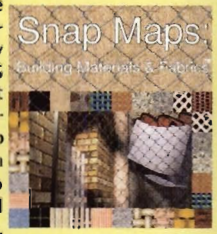
Also you will be able to see Mac Icons on Workbench, Make and split MacBinary files, control setting of creator and type parameters, and more.....



SNAP MAPS:

Fields & Foliage
Building Materials & Fabrics



SNAP MAPs is the first texture library to support advanced mapping techniques renderers are now capable of. SNAP MAPS TEXTURES give you a powerful means to put useful, real-world surfaces and structures into your renderings. In addition to adding photorealistic textures, Snap Maps can cut your 3D objects into new shapes, saving a great deal of time in modeling complex objects. Each Snap Maps directory includes many texture maps, pixel-aligned to work together, to create detailed surfaces or structures. Also included are pre-textured tutorial scenes in LightWave, Imagine, and Real 3D format, and 24-bit previews. Comes with complete instructions.

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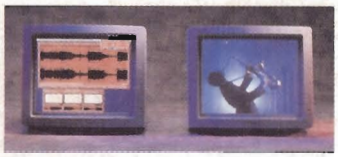
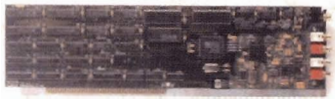


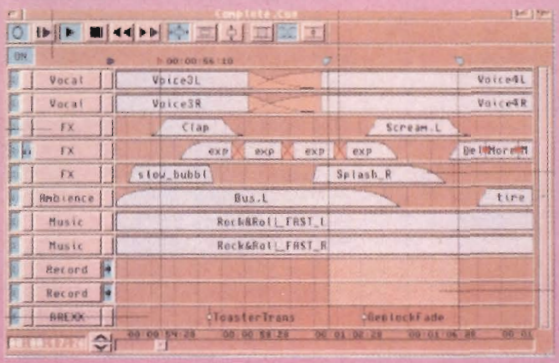
AD516 Features:
stereo in/out, SMPTE-in, records direct to harddisk, 16-bit CD quality at rate up to 48,000 samples/sec., and 8 track playback direct from harddisk.



AD515 Card

Digital Non-Linear Audio Editing

Time-Line Based Cue List



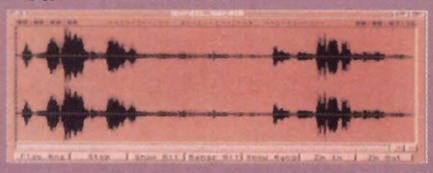
Time-Line Based Cue List lets you coordinate and synchronize hundreds of sounds to either internal or external SMPTE time code simply by using your mouse to activate any editing function.

You can assign volume levels, generate time code, create simultaneous fades and cross fades and generate anynumber of digital sounds, all triggered with frame-by-frame accuracy. You can even record the output to a new track for perfectdigital mixdown (ping-ponging).

Plus you can use the built-in ARexx Track to cotroll all types of ARexx compatible software, including the VideoToaster, from the Cue List, usingSMPTE time code triggers.

With the Cue List you can see exactly how a production is shaping up. You can capture time codes just by hitting a key, drag and drop sound samples and then actually watch them work together. And since Cue List can trigger from both internal and external time code, you can easily set up mixes for applications that don't usually use SMPTE, such as radio or music production.

Waveform Editor



Waveform Editor lets you edit multiple waveforms simultaneously and cut and paste one digital sound into another. Display the entire sound, or zoom in on just a few micro-seconds. "Draw" on waveforms... fade in, fade out, invert and reverse sounds... or perform echoes, loops FFTs, and resamples. You can define regions within samples, then trigger them in the Cue List and other Modules. All standard audio files can be savedand loaded, including16-bit formatssuch as AIFF, Raw, and Studio 16. Waveform Editor is "non-destructive". So edits you regret are easily undone in seconds.

Mixer Module

Using Mixer, you can adjust the volume and pan of each channel in real time. It can interface with external MIDI controllers. And the Automated Mixing Facility memerizes the adjustments you made while recording, and re-enact them during subsequent playbacks, & records.

SMPTE Monitor

Built in SMPTE Time Code Monitor displays time code on your screen. Using a genlock, you can dub this onto a tape to make a dub window.

Meters Module

Studio 16's meters display sound levels for each Audio Track on traditional VU &bar graph meters with paekhold. Or you can view a real time scroll of the digital waveform.

NOTE: Backgroung Image Made with Snap Maps!

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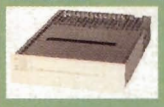

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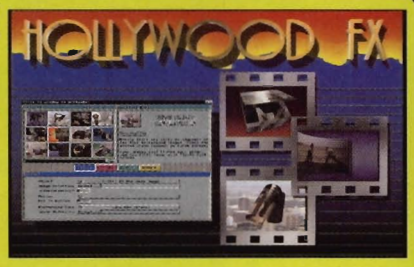

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NOTE: Backgroung Image Made with Snap Maps!

Picasso II continued from page 59

TVPaint Junior is a slightly scaled-down version of the superb 32-bit paint program TVPaint Professional by Tecsoft of France. Both TVPaint Professional and TVPaint Junior are available for various Amiga graphics display cards, including the IV-24 by GVP, the A2410 from Commodore, the Resolver and Vivid-24 from DMI, the Retina from NoahJi's and, of course, the Picasso II. For a long time both versions of TVPaint were considered the best paint programs available for the Amiga. The arrival of Centaur Development's OpalPaint, and more recently InnoVision Technology's AlphaPaint, may have knocked TVPaint down a notch or two, but it's still an excellent paint program for creating original images or doing touch-up work.

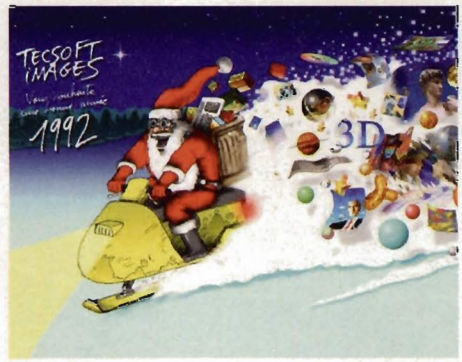
Extremely fast and stable, TVPaint Junior offers a wide selection of advanced drawing and painting tools for creating and manipulating images. In addition to its full complement of standard drawing tools, TVPaint Junior includes real-time antialiasing of both objects and images, a magnify tool, text support, color stencils, an undo button for reverting to the previous action taken, and an excellent color palette window using either RGB or CMY sliders for creating different shades of colors and color spreads. Supported file formats include ILBM (both 12-bit and 24-bit), JPEG and DEEP (a 32-bit format with Alpha Channel information). TVPaint also supports multitasking, allowing users to run other applications on their Amiga at the same time.

Unlike TVPaint Professional, the Picasso version doesn't use a dongle as copy-protection. About 8 to 10MB of RAM are recommended for working with multiple screens and having the undo buffer available. Because of the Picasso's built-in blitter, TVPaint Junior will even work on an unaccelerated Amiga 2000.

Numerous Features

Some of the program's advanced features include an easy-to-use color ranges function for creating color spreads to be used with filled objects. After the dimensions of the shape (rectangular, circular, elliptical or freehand) have been defined, a straight line or vector appears from the center of the shape for defining the orientation of the color spread using either a radial or linear pattern. When using the dotted freehand or continuous freehand drawing tools, the color ranges function can be used to cycle through a selection of colors while painting on the screen. The density function is another powerful feature that defines the intensity or transparency of the color spread being used with a filled shape. The X and Y curves are used to define the degree of transparency, with ready-made patterns available to use with or without user modification. With the density function, the center of a filled shape can be totally transparent to the background image while the edges have a hint of color. Or the center of the filled shape can be opaque while the edges are semi-transparent relative to the background. The color ranges and density functions can be used interactively for creating some very professional results.

You can create reflections using an ARexx script.



TVPaint Junior has real-time antialiasing of images.

TVPaint Junior was used with this *Casablanca* scene.

The airbrush tool can be used to soften an image and apply color with varying degrees of transparency when using the straight and curved line tools. Variable tip sizes, patterns and flow rates are available, along with a special test window for creating user-defined spray patterns. The airbrush tool can be adjusted to spray more "paint" at the edges than at the center, or even spray a pattern using concentric circles. The flow rate can be adjusted to apply a semi-transparent layer of color or a solid, thick line.

Also included is 8-bit alpha channel support for blending 24-bit images together and creating masks. Special drawing modes with TVPaint Junior include smear, grain, smooth, colorize, darken and lighten for manipulating user-defined areas of the screen. TVPaint Junior also offers image processing using its LUT (Look-Up Table) function to lighten or darken an entire image, increase or decrease its contrast, or turn the image into a negative of itself.

I have one minor complaint about the Picasso II: the software and the manual don't quite match. While I was able to easily install the card and software and get everything up and running right away, some notable gaps and omissions existed between the software and documentation. No mention of MainActor is made anywhere. (Fortunately, a read-me file was included with the software.) The directions given in the manual for finding the screen mode function don't work. And some of the screen shots in the manual simply don't match the program's actual screens. Obviously, the software has been upgraded, changed or even added since the manual was written. This is annoying, but definitely not crippling.

The Picasso II is well-made and does just about everything that a high-resolution graphics display card should do. If you're looking for more colors and higher resolutions with your Amiga or Video Toaster system, the Picasso II, with its built-in blitter and Workbench emulation, is an excellent choice.

VTU

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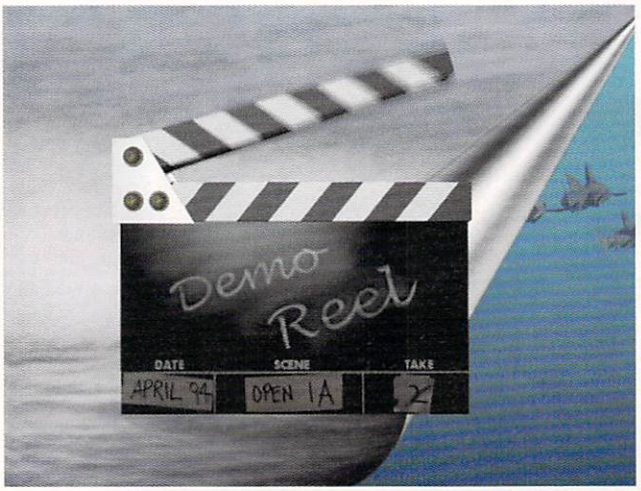
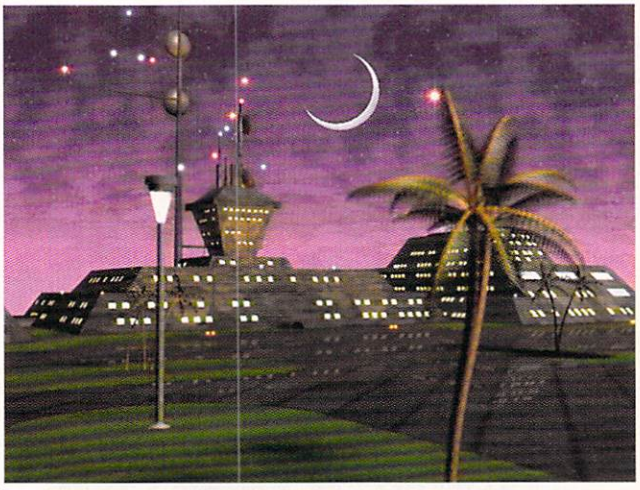
▲ *Inside Out* by James D. Gibson

The artist's wife, Maddy, was digitized for *Inside Out* using a Sony Hi8 camera, a Toaster 4000 with an '040 accelerator, an Amiga 1200 and TPaint. Gibson, whose animation work includes industrial videos, training tapes and spot advertising, can be reached at (303) 449-7522.

▼ *Demo Reel* by David Swoboda

Demo Reel, part of a six-second animation, is a multicomposite image created on an accelerated Toaster 4000 with LightWave 3D. The waves from Lake Michigan were filmed on an S-VHS camcorder and fed into PAR, while Photoshop was used for the page curl effect. Swoboda's company, Digital Renaissance, can be reached at (414) 963-1273.



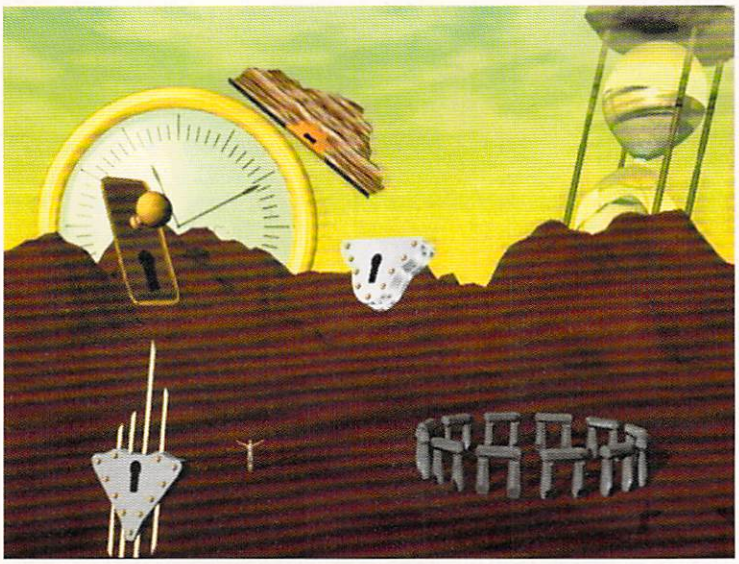


▲ *Clocks and Locks* by Sergio Parada

Constructed with an accelerated T2000 with 16MB of RAM, *Clocks and Locks* took 26 minutes to render and consists of 50,000 polygons and two lights. VistaPro was used to build the image's landscape; the remainder was modeled in LightWave 3.5.

▼ *Tyglath* by Sergio Parada

Tyglath, created with an accelerated T2000 and LightWave 3.5, took 43 minutes to render and contains 20,000 polygons. Parada, who is studying computer graphics at Columbia College and animates as a hobby, can be reached at (312) 327-0178.



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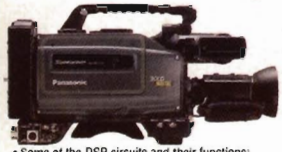

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  - HIGHLIGHT COMPRESSION - Expands the dynamic range of the highlighted areas and prevents halation. The highlight compression circuit allows a wide dynamic range producing detailed images even against bright backlight or daylight.
  - FLARE CORRECTION CIRCUIT - Compensates for unsteady black caused by light or by a subject's movements.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/61 seconds to 1/253 of a second.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code
- Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
- Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

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Digital Signal Processing 3-CCD Dockable Camera

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

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

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

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

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

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

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

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

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

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

ADVANCED REMOTE CONTROL CAPABILITIES
The WV-F565 has four (4) different types of remote systems: The WV-RC790A is a full function studio remote that offers either 26-pin multicore or multiplex control. Multiplex control lets you control most of the camera's functions via a single coaxial cable. With the WV-RC550, you can operate the camera in the multicore mode only, but it is much more cost effective. With the WV-CB700, all of the camera's control functions are now in a hand held remote control box. Finally, the WJ-PC500 allows for control via RS-232C or RS-422 computer control.

Canon L2 Hi-8 Camcorder

- 1/2" CCD with 410,000 pixels delivers over 450 lines of horizontal resolution
- VL Mount System allows use of a full range of interchangeable lenses from extra-wide angle to super telephoto plus, optional EOS-VL adapter allows mounting of over 65 Canon EOS 35mm Autofocus lenses.
- Records RC Time Code while shooting and can also "stripe" RC Time Code to tapes already recorded on other equipment. With RC Time Code the L2 can connect to an edit controller with RC Time Code capability for frame accurate editing.
- Advanced encoding functions mean the L2 can record much more than audio and video. It will mark tapes for speedy identification, and even find recordings by their date.
- Provides stunning AFM stereo with the choice of auto or manual level control. To match the audio with video the L2 has a high performance stereo/zoom microphone.
- High speed Piezo autofocus allows focusing through glass or water. Also provides focus lock and manual focusing.
- Provides two different grips with independent start/stop and zoom controls. Built-in sports finder lets you view the viewfinder from arm's length away.
- Built-in character generator lets you superimpose two lines of up to 16 characters on your recordings. There is also a choice of three date and time displays.
- Variable high-speed shutter from 1/100 to 1/10,000 of a sec.
- Includes a wireless controller which to make it a highly sophisticated edit deck.
- Automatic exposure plus manual control lets you lock the aperture at any setting from fully stopped down to fully open.
- The L2 has a variety of special effects. Add an extra dimension to your video productions with digital image manipulation and striking scene transitions:
  Close-up – instantly doubles the magnification of the lens
  Slow shutter – 4 slow shutter speeds allow recording in light as low as 0.5 lux or adds artistic after-images to selected scenes.
  Overlap – (dissolve) Slowly dissolve from the last frame of the preceding scene to the action being recorded.
  Freeze – freezes the picture while sound recording continues uninterrupted.
  Art Freeze – records your scenes as colorful paint-like images.
  Strobe and Art playback modes – six-speed strobe playback can be combined with three levels of solarization effects.

SONY

EVW-300 3-CCD Hi-8 Camcorder

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

EVW-300 with Canon 13:1 Servo Zoom Lens, VCT-12 Tripod Mounting Plate and Thermodyne LC-422TH Shipping/Carrying Case $5495.00

TOSHIBA

TSC-200
3 CCD Hi-8 Camcorder

- Three ½" CCD chips mounted with spatial offset technology deliver resolution of 700 horizontal lines
- Low noise design provides extreme sensitivity of F8.0 at 2000 lux. Min. illumination 7.5 lux with excellent color reproduction
- New LNA (low noise amplifier) delivers a S/N (signal-to-noise) ratio of 62dB - the highest achieved for this type of camera
- 26-pin connector outputs Y/C or component video signal allowing hook up to a portable S-VHS, MII or Betacam recorder and simultaneously record with Hi-8.
- Quick-start 1.5" viewfinder needs no warm up time. Zebra pattern in the viewfinder alerts operator to excessive video levels.
- Genlock capability allows synchronization with other cameras. Full calibration functions are built-in as well as color bar generator.
- Variable high speed shutter from 1/60 to 1/2000 second
- Built-in 8mm time code generator records an absolute address to every frame.
- High-performance back electret condenser mic records to all three audio tracks. Low cut filter eliminates wind noise.
- Very low power consumption. Draws only 16 watts per hour allowing 190 minutes of recording time with 1 NP-1B battery.
- Body made of magnesium alloy previously found only on broadcast cameras. Still only 13 lbs. in standard configuration.

NEW! TSC-100G 3-CCD Hi-8 Camcorder
• Same features as TSC-200 except no 26-pin connector

JVC

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

- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution and superb signal-to-noise ratio of 62db
- New micro-lens technology provides exceptional sensitivity of F7.0 at 2000 lux and LOCUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 3 lux
- Variable Scan View allows flicker-free shooting of a computer monitor.
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel.
- Genlock input allow synchronization with other cameras.
- Dual output system allows camera output to be connected directly to an external recorder

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SANYO

GVR-S950 S-VHS Single Frame Recording VCR

- Built-in single-Frame Animation Controller eliminates the need for separate or computer plug-in animation controllers. Industry-standard protocols, make it compatible with most popular graphic and animation software packages.
- SMPTE Time Code Generator and Reader with Built-in Drop and Non-Drop Frame Read/Write is fully programmable from an external computer and resettable from the front panel.
- Video and Audio Switcher with Two independent Video and Audio Channels. Each video channel contains both composite and S-Video inputs. Each audio channel contains two linear and two Hi-Fi inputs Switching can be performed either manually, or under RS232 or RS422 control. Video and audio channels are switched independently letting you perform break-away edits.
- Auto-Sensing Single RS422/RS232 Input eliminates the need for optional external interfaces. Interface requirements are automatically sensed and adjusted within the recorder.
- Input and Playback Video Processing allows adjustments to the video level of the incoming signal. Signal levels and hue can be adjusted during playback.

NEW! GVR-S955

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

JVC

S-VHS EDIT-DESK SYSTEM

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

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

OPEN ARCHITECTURE

Two plug-in extension slots on the rear panels (for both VCRs) accept a variety of optional expansion boards. To build a PC-based editing system, add the SA-K27UA RS-232C interface board. To use with more sophisticated editing controllers, plug in the SA-K26U RS-422 board. Other boards include the SA-K28UA 45-pin board for connection to older JVC editing systems, the SA-N50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code generator/reader.

CONTROL TRACK TIME CODE SYSTEM

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

SUPERB VIDEO PERFORMANCE

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

32X VARIABLE-SPEED SEARCH

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

FOUR-TRACK AUDIO

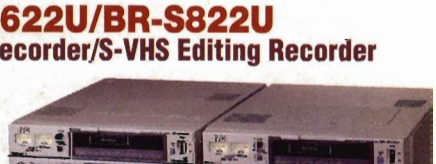
Each features two *Hi-Fi stereo* channels with a wide frequency response and a dynamic range of over 80 dB and two linear tracks. The linear tracks of the BR-S800U can be dubbed independent of each other and of the video. This is ideal for adding background music or sound effects to an existing audio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

RM-G800U EDIT CONTROLLER

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

BR-S622U/BR-S822U

S-VHS Feeder Recorder/S-VHS Editing Recorder



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

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

Panasonic

AG-1290 VHS Video Cassette Recorder

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

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

The AG-5700 is an easy to use S-VHS Hi-Fi Editing VCR flexible enough to be used in a wide range of applications from video production to educational, medical and business. It delivers exceptional recording and playback images, plus high quality audio sound. With its platform independent RS-232 interface you can choose from a myriad of software package to suit your applications.

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

AG-1970 S-VHS Hi-Fi Editing VCR

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

AG-DS840/AG-DS850

S-VHS DIGITAL Slow-Motion Editing System

- They provide clear, noise-free, high quality slow playback. Playback speed, including Digital Still is selectable in 10 steps (-⅞, -⅞, -⅝, -½, -⅜, +⅛, +⅓, +½, +⅔, +⅞).
- 3-dimensional digital TBC with a correction range of one field. With the VCRs continuously retaining one field in memory, the data is used for 3-D type processing thereby providing excellent dropout compensation.
- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. A Chrome Aperture Compensation (CAC) circuit eliminates color blurring and expands chroma bandwidth. Other digital processing circuits include:
  - Digi. Noise Reduct. (DNR): Processes Y & C signals separately to boost S/N Ratio by minimizing noise during playback.
  - Digital Comb Filter: Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring.
  - Switching Noise Mask Circuit: Eliminates noise caused by head switching during slo-mo playback.
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VITC (Longitudinal/Vertical interval) time code reader/generators for absolute frame accurate editing.
- Equipped with component outputs allowing easy connection to other component video equipment. This allows high quality transfer of *S-VHS* source material to Betacam or MII.
- iQ (Intelligent Quest) mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 4 channel audio – 2 hi-fi stereo channels with dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-DS850 only) and output with individual channel-level setting capability and uses XLR connectors.
- Provide 16:9 wide aspect compatibility, so they are fully equipped for the next generation of televisions.
- 3 rack units high, they are unbelievably compact for easy space saving installation. 19" rack-mountable with optional AG-M730.

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

For years, Panasonic's MII VCRs have consistently brought professionals the superior broadcast quality of component recording. Now the "W-Series" brings the power of component recording to an ever wider range of users. They are equipped with 3-D type TBC for exceptional playback stability and excellent dropout compensation and they each feature color framing - essential for animation and editing.

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

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SONY

CVD-1000 Vdeck Hi-8 Computer VCR

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

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

EVO-9720

Hi8 Dual Desktop Editing Machine

BUILT-IN EDITING CAPABILITIES

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

SUPERIOR PICTURE QUALITY

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

A/B ROLL EXPANSION CAPABILITY

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

ADDITIONAL FEATURES

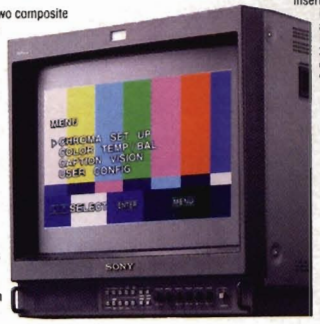
- To provide for smoother transitions from scene to scene, the EVO-9720 has a video fader. Black or white fading can be selected as well as a duration time of 0.5 or 2 seconds.
- There is a GPI (General Purpose Interface) output with timing adjustment for controlling external devices. External devices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

COLOR MONITORS

PVM-1350

13" Presentation Monitor

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



PVM-1351Q

13" Production Monitor

Has all the features of the PVM-1350 *PLUS* -

- Is also a multisystem monitor. It accepts NTSC, PAL and NTSC video signals. NTSC 4.43 can also be reproduced.
- Equipped with a SMPTE 259M Serial Digital Interface. By inserting the optional serial digital interface kit BKM-101C for video and the BKM-102 for audio the PVM-1351Q can accept SMPTE 259M component serial digital signals.
- Equipped with RS-422 serial interface. With optional BKM-103 serial remote control kit all of the monitor's functions can be remotely controlled with greater confidence and precision.
- Equipped with input terminals such as component (Y/R-Y/B-Y), analog RGB, S-video, 2 composite video (BNC) and 4 audio terminals for complete flexibility.
- Aspect ratio is switchable between 4:3 and 16:9 simply by pressing a button.
- Underscan and H/V delay capability. With underscan, entire active picture area is displayed. Allows you to view entire image and check the picture edges. H/V delay allows viewing of the blanking area and sync/burst timing by displaying the horizontal and vertical intervals in the center of the screen.
- Color temperature switchable between 6500K/9300K/User preset. 6500K is factory preset. 9300K is for a more pleasing picture. User preset is 3200K to 10,000K

PVM-1354Q/PVM-1954Q

13" and 19" Production Monitors

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

- SMPTE C standard phosphor CRT is incorporated in the PVM-1354Q/1954Q. SMPTE C phosphors permit the most critical evaluation of any color subject. Provides over 600 lines of horizontal resolution.
- The PVM-1354Q mounts into a 19-inch EIA standard rack with the optional MB-502B rack mount bracket and SLR-102 slide rail kit same as PVM-1351Q. The PVM-1954Q mounts into a 19-inch EIA rack with the optional SLR-103 slide rail kit.

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SONY

NEW! SVP-5600 and SVO-5800

S-VHS Player/ S-VHS Editing Recorder

SVP-5600 and SVO-5800 features:

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

ADVANCED EDITING FUNCTIONS

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

FOUR CHANNEL AUDIO SYSTEM

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

MULTIPLE INPUTS AND OUTPUTS

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

USER FRIENDLY OPERATION

- They have a built-in character generator which superimposes characters on the "video monitor output" signal. This allows time code data, control track, menu setup and VCR function status to be shown on a monitor.
- For more efficient operation they have an on-screen setup menu which allows a variety of customized VCR mode operations. Programmed in the form of a layer structure, you simply go through the menu and initialize VCR operation.
- All parameters of the TBC, such as luminance level, chroma level, setup, hue, Y/C delay, sync phase and SC phase are easily controlled from the front panel, and can be remotely controlled from the optional UVR-60 TBC Remote Control. The UVR-60 also accesses field freeze function in the still mode and allows on/off control of the chroma and luminance noise reducer.
- Quick and smooth picture search can be performed by either using an RS-422 equipped edit controller or the optional SVRM-100 Remote Control Unit. Recognizable color pictures are provided at up to10x normal speed in forward or reverse.

REBATES: Buy an SVP-5600 or SVO-5800 Professional S-VHS VCR or UVW-1600, UVW-1800 Betacam SP VCR with:

- **Sony PVE-500 A/B Roll Edit Controller and receive $500 instant rebate!**
- **Sony FXE-100 A/B Roll Edit Controller/SEG and receive $1000 instant rebate!**

EVO-9650 Hi-8 Single Frame Recording VCR

- Facilitates fast and accurate single frame recording which is indispensable for animation creation. With a short 3-second pre-roll the EVO-9650 is twice as fast as any other machine.
- Built-in RS-232 interface directly connects the EVO-9650 to an external computer, allowing all of the VCR operation commands to be directly communicated to the computer. The RS-232 baud rate can be selected from 9600/4800/ 2400/1200 bps.
- There is separate DNR circuitry for both the Y (luminance) and C (chrominance) signals providing playback of superior images.
- Fully compatible with the Video Toaster 4000, no single frame controller required. Most animation programs work directly without a controller. They include Autodesk 3-D Studio, Crystal Graphics Topaz, BYTE-by-BYTE Sculpt 4-D etc.
- Provides a variety of digital effects like 3x3 matrix display, 2x zoom and 1/30, 1/10, 1/5, 1/3 times normal speed in a noiseless slow motion playback
- Incorporates a memory device for frame/field storage to provide an accurate frame image in recording and playback. This memory can be used in either the BUFFER or the DNR mode.
  - **–DNR** (Digital Noise Reducer) A clear and stable picture is played back with no guard band noise and no picture movement. Field or frame can be selected. DNR mode is great for image analysis and medical applications.
  - **–BUFFER** for fast recording of sequential frames. Stores a frame in its buffer thus freeing up the computer to proceed immediately to the next frame. During this time the EVO-9650 performs its pre-roll and edit functions. This effectively cuts in half the time needed for single frame recording
- Built-in 8mm time code generator records an absolute address on every frame allowing absolute frame accuracy.
- Additional audio, such as music or commentary, can be dubbed to existing video. Audio is recorded on the PCM sound track.
- Optional EVBK-65 RGB encoder board allows the EVO-9650 to accept RGB signals, ensuring optimum picture quality recording.
- Optional EVBK-66 VISCA interface board allows communication with VISCA control signals. The EVBK-66 translates VISCA control signals into the Sony standard RS-232C protocol
- Supplied RM-9650 Remote Control covers not only basic functions, but also provides digital special effects, assemble/ insert editing and jog/shuttle picture search up to 19x normal speeds.

EVO-9850 Hi8 Editing Recorder

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

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INNOVISION
Alpha Paint
The New Paint Standard for the Video Toaster

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

- Realtime free-form painting in 16.8 million colors directly on the Toaster's full-color program output.
- Full-screen WYSIWYG operation with multiple Undo/Redo - no more waiting, redering or HAM artifacts.
- Complete utilization of the Toaster's Hardware Video Mixing Alpha Channel for unique Soft Edge Feathering and Transparency Effects played back over any Live Video source.
- Advanced set of Image Enhancement, Painting and Drawing tools such as Sharpening and Contrast Filters, Oil Painting, Airbrushing, Image Resizing & Unlimited Compositing, Automatic Edging Effects, 3-D Perspective Rotation and more.
- Sophisticated Text Tool with full support for Toaster, Chroma and Postscript fonts including XYZ Text Rotation, Postscript Circular Text Wrap, Texture Mapping, Glow and Neon Effects.
- Pressure Sensitive Drawing Tablet supported.
- Compatible with Video Toaster 2.0, 3.0, 3.1 and Toaster 4000.

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

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

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

The Kitchen Sync
Dual Channel TBC

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

HOTRONIC AP41
STAND ALONE TBC/ FRAME SYNCHRONIZER

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

AP41-SF

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

AP41-SP

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

NEWTEK
LIGHTWAVE 3D 4.0
The Ultimate 3D Rendering and Animation System for Broadcast Graphics

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

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

Toaster FLYER TAPELESS EDITOR

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

AFFORDABLE ONLINE EDITING

- For under $5,000, the Video Toaster Flyer provides the same D2 quality image you expect from a $50,000 digital video deck. The Flyer integrates so seamlessly with the Video Toaster that you'll be able to experiment with effects, try out different titles, or add animations with ease.
- NewTek's exciting new video compression standard, VTASC, gives you the quality you want without the artifacts associated with JPEG, MPEG, Wavelet and other compression techniques. Your final productions look better with the Flyer since there's no tape generation loss.
- Add a Video Toaster Flyer and a couple of hard drives to the Video Toaster 4000 to form a complete audio and video production suite that fits on your desk.

SEAMLESS INTEGRATION WITH THE VIDEO TOASTER

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

EDITS AUDIO

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

SIMPLE, FAST EDITING

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

RGB COMPUTER AMILINK

Amilink CIP

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

Machine Control

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

Edit List Management

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

Editing Control

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

Edit Modes

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

CIP w/VT-4000 Software **1499.00**

Amilink AL-3Ni Professional

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

Machine Control

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

Edit List

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

Editing Control

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

Edit Modes

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

AL-3Ni w/VT-4000 Software **2295.00**

VT-4000 Software (Toaster Control)

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

SUNRIZE INDUSTRIES
AD 516 and Studio 16
The Complete Digital Audio Solution

The AD 516 is a professional quality 16-bit high fidelity sound board and hard disk recording system for the Amiga. It includes the feature packed Studio 16 software that allows you to perform all traditional audio post-production tasks. You can create sound effects, edit and replace dialog, and build multi-channel soundtracks in the digital domain.

- Record, edit and playback directly off hard disk
- Play up to 8 simultaneous tracks off one or multiple hard disks in real time.
- Use a mouse to slice up and rearrange sound quickly
- Mix tracks with no generation loss
- Synchronize background music with your productions
- Fade, cross fade, or eliminate sections of audio
- Create unlimited variations of echoes, flanges, and choruses
- Optional Video Toaster Handler expansion module lets you play audio during many of the Toaster's digital video effects.

DIGITAL
PROCESSING SYSTEMS
DC-2350
Personal Component Adapter

The DC-2350 Personal Component Adapter is a combination 3-Line Adaptive Digital Comb Filter Decoder and Y/C encoder designed for use with the Video Toaster.

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

DC-2350 ..... **$299.95**

VT-2600 Personal TBC IV

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

DR-2150
Personal Animation Recorder

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

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

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SAMSON

MR-1 Wireless System

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

Lavalier (clip mic) Systems

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

Hand-Held Systems

- SH-2/PR4 Audio Technica Dynamic mic element & MR-1 Receiver **369.95**
- SH-2/58 Shure SM58 Dynamic mic element & MR-1 Receiver **434.95**
- SH-2/85 Shure SM-85 condenser mic element & MR-1 Receiver **592.95**

SUPER TD SERIES TRANSMITTERS

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

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

Sony ECM-144 ..... **507.95** Sony ECM-44 ..... **544.95**
Sony ECM-55 ..... **653.95** Sony ECM-77 ..... **724.95**
Senheiser MKE-2 ..... **747.95**

SENNHEISER

MKE-300 Short Shotgun

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

K6 MODULAR ELECTRET MULTIMIKE SYSTEM

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

K6

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

ME 66

Short shotgun capsule. All sound coming from the rear and sides of the ME66 is greatly attenuated, thus allowing this microphone to pick out specific sounds in noisy environments. Great for interviews in crowded situations, as a camera microphone for electronic news gathering (ENG), for unobtrusive theater sound reinforcement and as a podium mic. Frequency response: 50-20KHz ± 2.5 dB. **204.95**
ME66 with K6 Powering Module **397.95**

ME64

Cardioid capsule. Feedback resistant due to its well defined directional polar pattern. This feature, as well as its extended frequency response, make this microphone capsule ideal for use in sound reinforcement or recording in noisy environments. Frequency response: 50-20KHz ± 2.5 dB. **144.95**
ME64 with K6 Powering Module **334.95**

ME62

Omnidirectional capsule. Very broad and smooth frequency response, without proximity effect. Its low handling noise and integrated pop screen make it ideal for interviews and live recording. Frequency response: 20-20KHz ± 2.5 dB **119.95**
ME62 with K6 Powering Module **309.95**

MACKIE

MicroSeries 1202

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

CR-1604

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

TASCAM

688 Midistudio

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

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

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

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880 Power-Pro +

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

970 Power-MAX

Same features as 880 Power-Pro + Belt ***Plus–***

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

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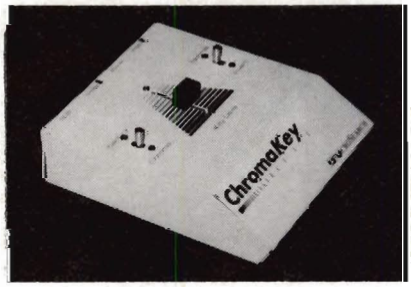

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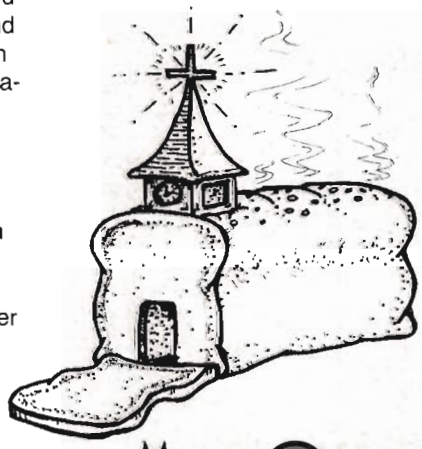

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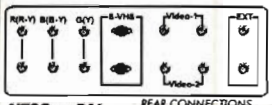

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LAST WORD

I'm Glad I Got Fired

Learning to Love the End of the World

by Mojo

I have spent a lot of time during the last year telling people how to get a job—where to look, what to say, how to dress, and even how to put themselves in the right frame of mind. But what happens *after* you land that dream gig?

In the real world, if you work hard you probably get to keep that job for as long as you want it. If you screw up and get lazy, you get fired.

Unfortunately, Hollywood isn't anything like the real world, and these laws of cause and effect are regularly ignored in favor of incomprehensible greed and sadism. The only difference between the cheats and liars in Los Angeles and Washington, D.C., is that at least politicians have term limits; producers can potentially ruin people's lives for an eternity (and often do).

All the lies that get told in this town mean that nobody ever knows exactly what's going on, so half the time people honestly believe what they are saying, only to find out that *they* have been lied to. The result is always the same.

An unsuspecting person gets a job, makes a lot of plans, maybe even moves and spends a lot of money settling down, and gets fired almost immediately because of (a) miscommunication (technical term for a lie) or (b) budget cuts (technical term for a screw-up—please see above). Often both are involved.

Despite the many horror stories that have resulted from producers' hijinks, most people do recover and go on to success anyway. Thanks to the lessons they learned while vacationing at rock bottom, smart people figure out how to stay clear of the bullshit and home in on the truly good opportunities. Sometimes, they even end up happy they got fired. Don't believe me? Then let me tell you a tale...

It's All True, I Swear

In October 1992, the job I moved to Hollywood for was about to come to an end. Foundation Imaging was just about finished with the visual effects for the *Babylon 5* pilot and there weren't any new projects coming in, so I was let go until (hopefully) the series went into production. This wasn't the bad part.

For a few months I lived with some friends and looked high and low for a new job, but pickings were few. A couple of projects were 99.9 percent sure things, but at the time I hadn't yet learned that this fact meant they would *never* happen. I was almost destitute and considering moving back to New York.

This wasn't the bad part, either.

I heard that *seaQuest* was looking for animators. It was still very early in pre-production, but Joe Conti (then visual effects supervisor) was having a hard time finding good LightWave people. I had met Joe a few times, so I gave him a call and set up an interview. Within a week, he asked me to start immediately at a salary much higher than what I was making while working on *Babylon 5*. I was saved! Of course, I took the job.

This is the bad part.

I took a few weeks before actually starting work and borrowed some money to find an apartment and get some decent transportation. Of course, I'm no fool, and every few days I called Joe to make sure that everything was still on. He consistently assured me that there were no problems, and even had me come in once or twice to fill out paperwork. Everything was as solid as it could be.

On Monday, Dec. 1, I started. On Wednesday, Dec. 3, I was fired. I didn't even have time to do anything wrong.

They said I was "let go" because of a budgetary error they had overlooked, but the result was the same: I was in deep shit. I owed money, had no place to live and no job.

And it was the best thing that could have happened to me!

As a result, lots of fun things took place. NewTek hired me to write tutorials for a new manual. I became friends with Mike Okuda, scenic art director for *Star Trek: The Next Generation* and *Star Trek: Deep Space Nine* at the time. He's had a lot of good advice for me over the months, and even let me fulfill every red-blooded American's dream—to sit in the captain's chair of the *U.S.S. Enterprise*.

A month later I wound up going to Kansas to work full-time with NewTek. I helped them out with Toaster 4000, went to trade shows around the country and made lots of new friends. I had a great time and was given an open invitation to stay as long as I liked. Soon after I met a terrific girl and, two weeks later, while evangelizing the Toaster at CES in Las Vegas, we got married in a ceremony that exactly re-created the ending of the movie *Honeymoon In Vegas* (yes, I dressed up like Elvis). I had enough free time to learn how to drive (something we New Yorkers do late in life) and bought a car. I got to go to Chicago. I had fun.

Five months later, *Babylon 5* became a series and I moved back to Los Angeles with my freewheeling chick. Everything has been uphill from there.

What if I *hadn't* been fired? I guess I'd still be working on *seaQuest*.

Which scenario is more appealing?

Well, certainly the management problems have been solved at *seaQuest*. Joe Conti is long gone and they've formed Amblin Imaging, a whole new entity that seems like a cool place to work.

But still...*seaQuest*?

All I'll say is that I'm glad I got fired.

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