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OCTOBER 1995

FROM DNA TO PSA

THE TOASTER IN MEDICINE

Video Monitors

A COMPLETE GUIDE

TPaint Graphics

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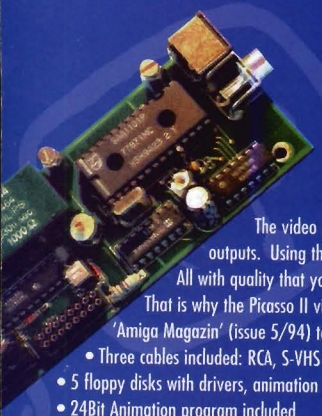
Liana

Are you in need of a fast and easy connection between two Amiga's? Liana, the low-cost network solution, is exactly what you want! Just plug it in, install the software, and it runs! Nothing could be easier than that. Liana is the network solution for those with a small budget and big needs. You can even share your hard drives and printers.

- For every (!) Amiga from WB 2.0 on with a free parallel port
- Includes cable
- Includes Commodore's Envoy networking software
- English manual
- automatically reconnection after (re-)booting without new startup
- Every machine usable as server and client

$ 99.00

Pablo



The video module, Pablo, expands your Picasso II with two new video outputs. Using the Pablo, you can view your Picasso output on any TV or VCR. All with quality that you would only expect to see from broadcast video encoders. That is why the Picasso II video encoder module, Pablo, won in the (German) magazine 'Amiga Magazin' (issue 5/94) test for video encoders.

- Three cables included: RCA, S-VHS and SCART
- 5 floppy disks with drivers, animation demos and more
- 24Bit Animation program included
- 15kHz overload protection
- 2 well written manuals
- Plugs onto the Picasso II - no Zorro-Slot required
- Easy installation of video modes

$ 199.00

Picasso II RTG

NEW PRICING

Picasso II RTG, the graphics board all others are measured against:

- Graphics board for all Amiga's with Zorro-Bus - Workbench driver to retarget all programs and WB to the Picasso
- Supports up to 256 colors with WB3.1, even on A2000 and A3000
- WB resolutions definable up to 1600 x 1280 pixels
- HiColor (16Bit) and TrueColor (24Bit) graphics: 16M colors!
- Drivers for most graphic programs such as AdPro, ImageFX, ImageMaster, Real3D
- Allows connection of any VGA or Multiscan monitor
- A1084 and A1081 are still usable with a special cable
- Black borders gone forever, takes full advantage of monitor's capabilities
- System-compliant implementation of monitorfile, resolution selec table using screen mode-requester
- Monitor-File compliant with System 2.x or higher, resolution selectable using screenmode requester
- View regular Amiga and special PicassoII-RTG screens on same Monitor without changing cables.
- Screen promoter to make older programs work on Picasso
- Draggable screens
- Available with 1MB or 2MB, upgradable from 1MB to 2MB at anytime

$ 429.00

Ariadne

Don't get overwhelmed with the complexity of setting up a network, use our Ariadne Ethernet card that is compatible with all Amigas that have an available Zorro Slot. This card is not only easy to network - it also equipped with 2 additional parallel ports offering multiple network solutions.

- 10Base-2 (Thin Ethernet, coax-cable) and 10Base-T (Twisted pair, western jacket)
- Socket for Boot-ROM
- SANA-II compatible driver for ethernet and parallel port
- Hook up to two additional Amigas to the parallel ports with Liana
- 32KByte cache to support CPU
- Includes Commodore's Envoy networking software
- English manual

$ 349.00

FOR INFORMATION CIRCLE 149

NEW!!!

MainActor Broadcast

MainActor Broadcast is a completely new Animation-Program. It works on all Amigas with at least 512kB RAM und Amiga OS2.04 or higher.

Features:

- More than 20 load- and save-modules for animations and pictures (AVI, BMP, DL, FLI, FLC, GIF, IFF, IFF-Anim3/5/7/8/J, JPEG, PCX, Quicktime,...)
- Complete AVI, Quicktime and JPEG Support up to 24 bit
- Index-file for quicker reloading of animations
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- Effect modules for generating effects directly into the animation (Text, Scroll, Scale, Rotate, ...)
- 19 sound modules for sound- and music playback incl. compressing (i.e. OctaMed, S3M, etc. with 8 and 16 voices)
- Allows joining, converting, splitting and creating animations
- Easy-to-use intuitive graphical user-interface
- Programmable AREXX-Port

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FOR INFORMATION CIRCLE 125

THE AMIGA IS ALIVE AND KICI

If you want to speed up your AMIGA 1200, the BLIZZARD 1230-IV TURBO BOARD is your accelerator of choice! Being the fourth generation of the award-winning BLIZZARD series for the A1200, this new accelerator integrates the most features and expandability for an even lower price than it's predecessors. It is up to you to compare the features that are a must for an A1200 accelerator that sets the standard:

BLIZZARD 1230-IV TURBO BOARD

Full 50 MHz 68030 CPU with MMU

Socket for optional 68882 math coprocessor with 50 MHz

Memory Expansion: option for up to 128 MB of autoconfiguring RAM using industry standard SIMMs

Ultrafast memory interface for highest performance - 2 times faster than a stock A4000/030

Battery backed, self recharging clock and calendar

68030 may be disabled with a simple keystroke on boot up to enable A1200 to revert to 68020 allowing full game compatibility - even with badly programmed software (e.g. old games)

High performance Direct Memory Access (DMA) expansion port with full 32-Bit wide DMA

Fits easily into trapdoor expansion slot

Highest quality of manufacturing incorporating latest SMD technology

BLIZZARD 1230-IV Turbo Board ***$ 269***
with 50 MHz 68030 CPU

The BLIZZARD 1230-IV SCSI Kit is a high-performance SCSI Controller for the BLIZZARD 1230-IV TURBO BOARD featuring:

Fast SCSI-II DMA Controller - up to 10 MB/s transfer rate at maximum possible free CPU time

Additional SIMM socket allowing additional memory expansion up to 256 MB, using industry standard SIMMs

External SCSI connector, fully autobooting

Supplied with a comprehensive software bundle including a CD ROM filesystem and DynamiCache

BLIZZARD 1230-IV SCSI Kit ***$ 129***
with Dynamicache and CD-ROM filesystem

Want to make a speed demon out of your AMIGA 1200? Wait no longer! For a sensational price you now can join that group of AMIGA users who own one of the fastest AMIGAs on the planet! With phase 5's brand new BLIZZARD 1260 TURBO BOARD you can add the latest technology of the world's leading accelerator manufacturer to your A1200. Experience the performance of the 68060 CPU that will make your AMIGA fly:

BLIZZARD 1260 TURBO BOARD

Full 50 MHz 68060 CPU with FPU and MMU

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Battery backed, self recharging clock and calendar

68060 may be disabled with a simple keystroke on boot up to enable A1200 to revert to 68020 allowing full game compatibility - even with badly programmed software (e.g. old games)

High performance Direct Memory Access (DMA) expansion port with full 32-Bit wide DMA

Fits easily into trapdoor expansion slot

Highest quality of manufacturing incorporating latest SMD technology

BLIZZARD 1260 Turbo Board ***$ 949***
with 50 MHz 68060 CPU

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Additional SIMM socket allowing additional memory expansion up to 192 MB, using industry standard SIMMs

External SCSI connector, fully autobooting

Supplied with a comprehensive software bundle including a CD ROM filesystem and DynamiCache

BLIZZARD 1260 SCSI Kit ***$ 169***
with Dynamicache and CD-ROM filesystem

If you own an AMIGA 2000, don't think it has become obsolete. Turn it into one of the fastest AMIGAs on the planet with the new BLIZZARD 2060 Turbo Board! This brand-new and powerful accelerator brings the technology from the world's first and shipping 68060 accelerator - the Cyberstorm 060/50 - to the AMIGA 2000. Incorporating a powerful 68060 CPU, a memory expansion and a SCSI controller, the BLIZZARD 2060 is the accelerator of choice for all A2000 users:

BLIZZARD 2060 TURBO BOARD

Full 50 MHz 68060 CPU with FPU and MMU

Memory expansion for up to 128 MB of autoconfiguring RAM using industry standard SIMMs

Ultrafast memory interface for highest performance - up to 4-5 times faster than a stock A4000/040 with a peak rate of more than 80 MIPS

68060 may be disabled with a keystroke on boot up to enable A2000 to revert to 68020 allowing full software compatibility

On-board Fast SCSI-II DMA Controller - up to 10 MB/s transfer rate at maximum possible free CPU time, with internal and external SCSI ports, active SCSI termination, and a comprehensive software bundle including a CD ROM filesystem and DynamiCache

Highest quality of manufacturing incorporating latest SMD technology

BLIZZARD 2060 Turbo Board ***$ 999***
with 50 MHz 68060 CPU

FOR INFORMATION CIRCLE 148

KING. AND THE FUTURE IS NOW:

Available for all A4000, A4000T, as well as A3000 and A3000T models, the world's leading 68060 accelerator design takes another step forward into the future. With the brand-new Cyberstorm Mk. II you can now expand your creativity to new horizons for a price that is a real bargain! Based on the development knowledge of more than 18 months of 68060 experience, our engeneering team has realized a new generation of accelerators for the AMIGA. These advanced accelerators bring the incredible 68060 power to you for a price that nobody dared to dream of in the past! Check out the features of this successor of the award-winning Cyberstorm accelerator:

Available in a 50 MHz 68060 version, ready for 66 or 80 MHz versions (upgrades to faster versions will be possible when faster CPUs are shiping by Motorola)

Up to 5 times and more faster than a stock A4000/040, with peak rates of more than 80 MIPS @50 MHz

Integrated memory upgrade option for to 128 MByte with industry-standard SIMMs. This ultra-fast burst-mode memory provides high-performance operation for all memory-hungry applications

A fully-featured expansion slot allows the use of existing Cyberstorm expansion modules, such as the Fast SCSI-II DMA controller and other upcoming high-performance expansions

Go for true 68060 power today! This real break-through in AMIGA Accelerator design will cost you significantly less than you expect and offers an incredible value:

CYBERSTORM Mk.II 060/50 — **$ 999**
with 50 MHz 68060 CPU

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CYBERSTORM I/O Module — **$ 549**
including Fast SCSI-II DMA controller, Ethernet Interface and Fast serial port

Just released and already considered to be the best graphics card that was ever built for the AMIGA by many leading developers, magazine editors and other AMIGA experts all over the world! Multiple times faster than any common graphics board it redefines the meaning of the word performance - for a price that's more than attractive. Just check the main features:

High Performance 24-Bit Graphics Board with Zorro-3-Interface for AMIGA 3000, AMIGA 4000/030 and AMIGA 4000/040 (Kickstart Version 3.0 or higher required)

High resolution graphics display with up to 800x600 pixels (non-interlaced) in 16,7 million colours and up to 1280x1024 pixels (non-interlaced) in 256 colours with extremely fast drawing and display speed by the use of a 64-Bit graphics processor and Blitter

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An additional expansion connector is provided for an optional FBAS/ SVHS module to allow video recording of the CyberVision64 signal

A complete Software package includes the CyberGraphics driver software, several utilities and Photogenics Lite - a 24-Bit image manipulation and paint package with many advanced features

The CyberGraphics driver software offers highly compatible emulation of the AMIGA Workbench and all standard AMIGA display modes, while its High Colour and True Colour modes are supported by the leading AMIGA graphics software packages

CyberVision64 — **$ 469**
with 2 MB display memory

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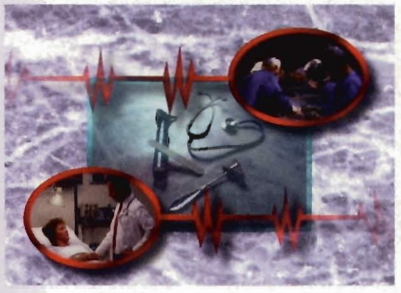
VIDEO TOASTER USER

OCTOBER 1995 VOLUME 5 NUMBER 10

FEATURES

48 **FROM DNA TO PSA— THE TOASTER IN MEDICINE**
by Matt Drabick
"Hello, Mr. Smith. I'm Dr. Toaster." Sound far-fetched? Well, with an increasing number of scientists and medical facilities profiting from the Toaster, you're physician may not be one, but there's a good chance he could use one.



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Toaster and LightWave users lacking the skill or the time to whip out dazzling LightWave objects can find a growing number of them on Internet ftp and World Wide sites. We'll show you where to find these exciting new tools.

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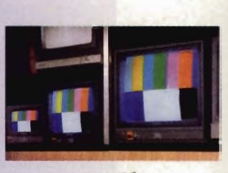
by Wayne M. Cole
If you've always ranked the thrill of monitor shopping somewhere near major surgery, your worries are over. Our expert product analyst shows you exactly what to look for in your new screen savior.



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by Chris Fenwick
Stress your point, not yourself, with this TPaint graphic separator lesson.

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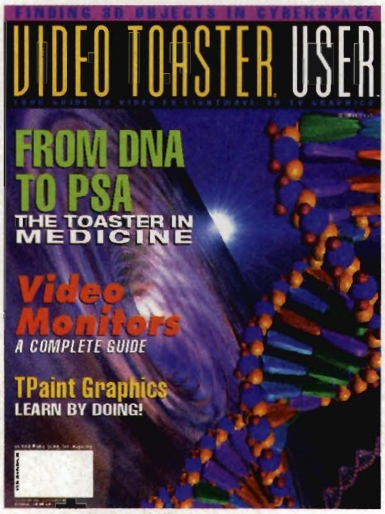

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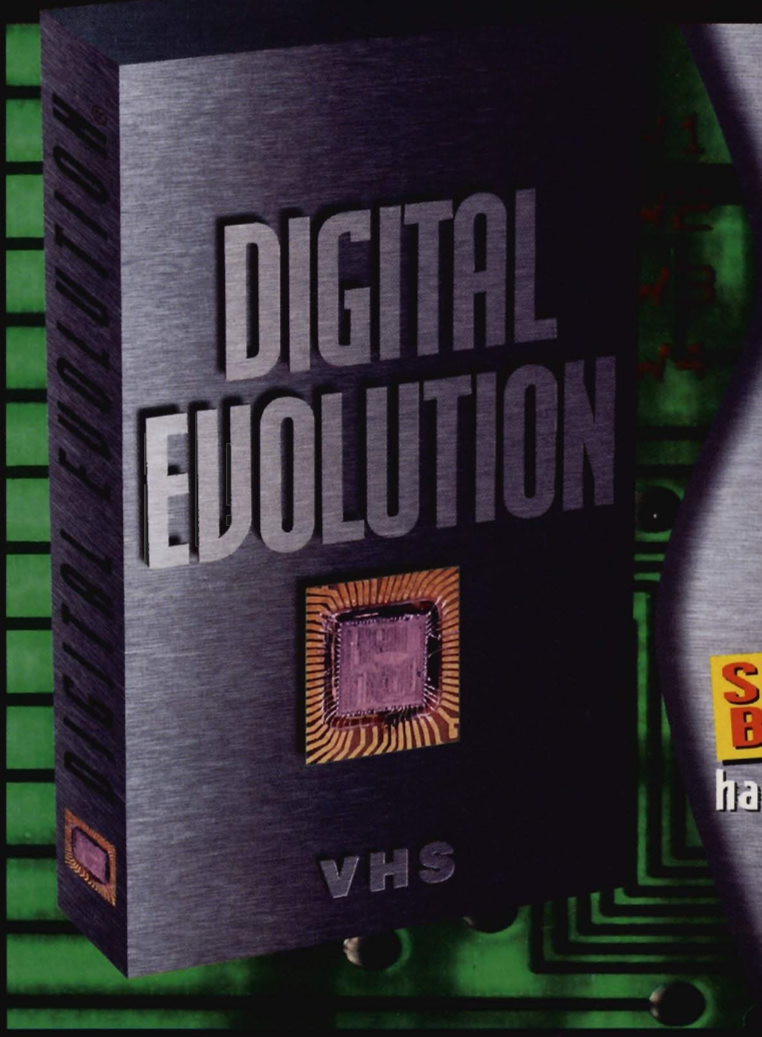
THIS TAPE'S A SOLID 10"

-Ken Wilder, President LA Video Toaster Group.



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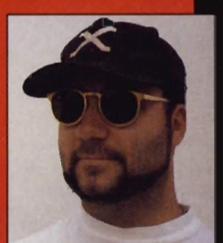

Mojo, Senior Technical Director at Foundation Imaging. Animators of the TV series "Babylon 5".

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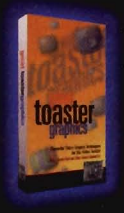

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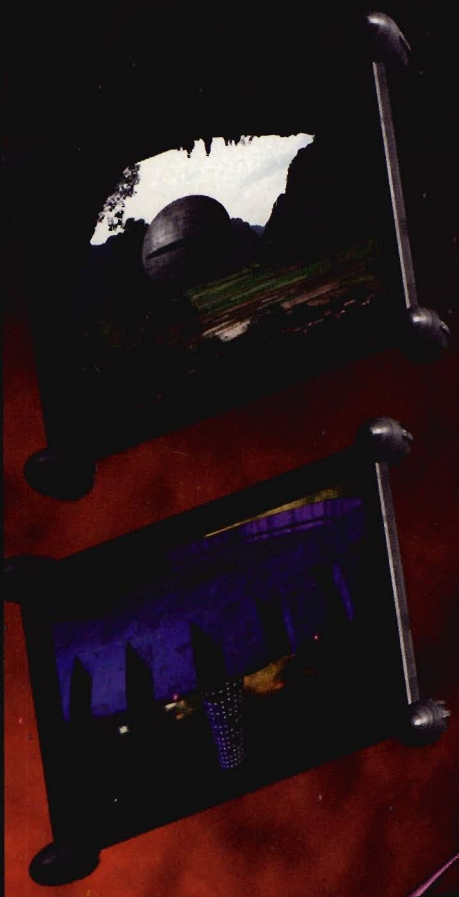

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FOR INFORMATION CIRCLE 122

TOASTER TALK

The House on the Hill

A Trip to the Land of Oz

by Tom Patrick McAuliffe

As the plane descended from 40,000 feet the Captain came on and said we'd be in for some turbulence. So what else is new, I thought to myself, the Amiga/Toaster community has been in rough air for some time now. As the plane and flight attendants flew about we came out of the storm clouds and into a small circular pattern of LightWaveish clouds lit by sunshine—we were headed into *The Topeka Zone*. You see, there seems to be a warp phenomenon whereby anyone headed into NewTek's headquarters is suddenly overtaken by an aura of positive vibes. And with good reason. I've never met as many positive, fun and dedicated individuals in my life as I did during my recent trip. For a die-hard Toasterite like me, this is hallowed ground. Afterward I felt like saying, "I have been to the mountain and seen the light!" With new headquarters on top of a large hill, NewTek, symbolically at least, has a clear line-of-sight into the future. Anyone who doubts their determination, professionalism or ingenuity would have any fears quickly alleviated by a scheduled visit to the land of Oz. I've always said, and have now confirmed—Midwest people are some of the nicest, most persistent people in the world. Moreover, this is a story straight from the pages of Americana. An unknown guy in the middle of nowhere has a better idea and through blood, sweat and tears makes it a reality. Overall, pretty heady stuff.

Getting Together

NewTek recently held the 1995 Summer Dealer and Developer's conference in Kansas City. The dealer portion of the two-day summit saw the top 12 dealers from around the U.S. give frank and informed feedback. They also received valuable information on new products, marketing and philosophy. Things were not all gloom and doom as some might expect. One dealer, Dan Sorensen of Clackamas Computers in Oregon, said that users are active. "I made more money in the last six months than all of last year, and I sure like that for a change!" he said. The dealers also came up with a list of products they'd like to see created. Providing accurate information, better service and competitive prices for the end-user is what this summer's dealer meeting was all about.

On the other side of the hotel, third-party software and hardware developers exchanged ideas and got updated technical information. One example is the redesigned Toaster for Windows, box which has been enlarged slightly to include extra expansion and Zorro slots. Additionally, the transition effects were rendered in near real-time and were as good or better than anything else that available (read: no pixelization). Once rendered they reside in an effects folder for repeated use. I saw live video jump up, grow legs, walk to the center of the screen and pop into place. Manufacturers and even some users who counted NewTek down and out are in for a rude awakening, the company has been "making hay while the sun shines", as the saying goes.

The re-written Flyer software was also shown, and one of the neat things I saw was the new "Cut to Music" function. Development team member Chris Richardson loaded a music clip and by quickly hitting the spacebar in rapid succession, he cut (3-5 frames?) from one video clip to the next. Very cool! This feature will be popular with Toaster music video producers or anyone looking for that fast-cut, MTV look. "We are 110 percent committed to making the Toaster Flyer the best NLE available," said NewTek President Tim Jenison. "This is really the first time in history that computers and hard drives are fast enough to do software-based video and effects." Other positive developments include Dan Wolf, a long-time computer developer, who has been retained by NewTek to help provide third-party developers with timely, accurate information; and the gaining of Jim Parsons, new product manager for the Flyer from Word Perfect and Novell Corp. where he shipped several major products on time!

Another interesting happening while I was in Topeka was that a crew from the TV network F/X was there getting ready to do a piece on the Toaster and Flyer. Watch for it soon! All in all, it was a great trip, and I look forward to returning to NewTek on a regular basis, to bring you the latest in Toaster/Flyer information.

As We Go to Press...

This month we take a look inside the medical profession and how the Video Toaster/Flyer is being used to inform, educate and entertain healthcare providers and recipients. From patient pre-operation info tapes to post-production of actual surgeries to training pieces for hospital staff and doctors, the cost-effective Toaster is being utilized more and more. Also check out the articles on LightWave Objects and Video Monitors, both of which will give you info you can act upon. Next month we'll take an in-depth look at the new Fox TV show *SPACE: Above and Beyond*, which makes extensive use of LightWave. The animation business and how you can either break into this lucrative business or expand your current Animation offerings will also be explored.

As I've stated before, *VTU* is your magazine. We need and encourage your ideas, feedback and support. I look forward to meeting you this November at the 1995 Video Toaster User Expo in Los Angeles, Nov. 1–4, at the Universal City Hilton. See you there! VTU

TOASTER TIMES

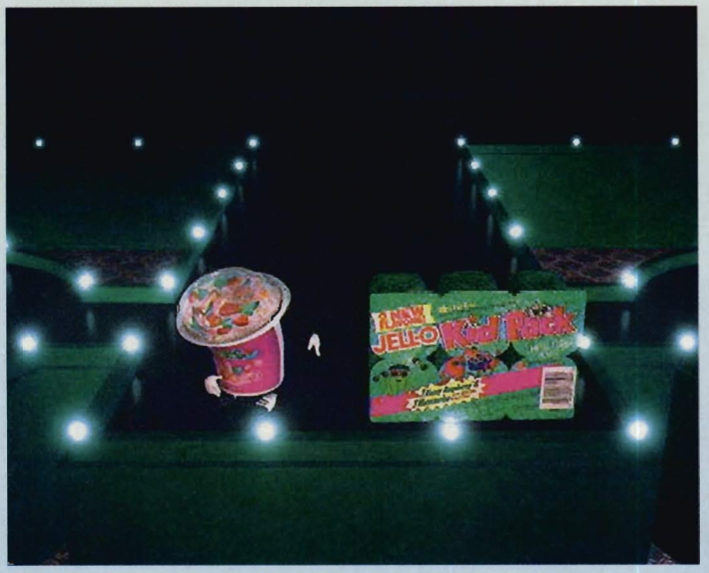
LIGHTWAVE Jell-O

Joan Burke

Many television viewers are quite familiar with the smiling faces of kids eating a popular gelatin dessert, Bill Cosby as the main endorsing icon and the catchy phrase "Watch it wiggle; see it jiggle." What many people do not know is that LightWave has had an indirect connection with Jell-O.

How? "Is Bill Cosby a closet LightWave user?" you might ask. Were there LightWave-animated objects in the famous commercials? Is Kraft Foods forming an alliance with NewTek? Can get a free copy of PC LightWave if I eat 20 servings of Jell-O?

No, no, no. LightWave was used in a Kraft Foods corporate video produced to announce Kraft's two new products: Jell-O Jigglers Bits and Yogurt and the Jell-O Fun Pack Yogurts.



A complex character animation for Kraft Foods utilized LightWave's Bones feature.

LightWave and Jell-O?

Earlier this year 3D animator and owner of AGA Digital Studios Dan Ablan was asked to do an animation and video graphics project for Kraft Foods Corporation. Ablan and Arnie Boedecker of ImagiNation Enterprises had been doing several logos and other projects for a suburban Chicago video production company.

"Basically, the owner of the production company said: 'Hey Dan, I have this idea that maybe you and Arnie can help me with. It's doing character animation for Kraft!'" said Ablan.

"Dan and I met through the a local users group (and later started a LightWave users group)," added

Built for the FUTURE:

Architectural Animation

Corey Cohen

Fabien Bourdon began animating the way many artists do—with the basic building blocks. The young man's "for fun" purchase of an Amiga 500 back in the mid-'80s sparked a quest for new, improving equipment: a 1500, a 2000, a 3000, LightWave .9, and much, much more. Most of the pieces were bought for pleasure; each was a testing ground for developing his skills. It wasn't long before accident re-creations and flying logo work fed a desire for more. The blueprint for a promising career was underway.

Combining 3D simulations and footage is effective

Now, as virtual reality and virtual set construction stand on the edge of the unimaginable, Bourdon is literally building his future. The full-time civil engineer has taken the lessons of his day job and turned them into the profitable, multi-platform business of architectural animation. So can you.

Work Inspection

Bourdon's company, Coral Gables, Fla.-based Spatial Reality, specializes in what he calls "computerized architectural walk-throughs." These animations let viewers see firsthand, as if they actually there, what the exterior/interior of a facility will look like after it has been built or redesigned. Spatial Reality's "tours" replace or supplement the hand-drawn painted perspectives or physical models that many architects and developers currently depend on. The flaws of many of these standard methods—a limited sensation of conventional space, the time and difficulty of representing a

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Boedecker. "Right from the start there was a certain synergy involved. It was exciting to be [offered the Kraft project] and I knew we could do the job if given the chance." Needless to say, Ablan and Boedecker accepted the offer.

Get to Work!

The animators knew two things about the project —the basic premise and the deadline. Their challenge was to produce a one-minute character animation announcing two new Kraft products and complete it in a tight three-week time-frame. The first task was to develop a storyboard. After hours of brainstorming, the story concept had an elaborate unveiling.

"We decided on a runway-type fashion show," Ablan said. "We thought it would be really cute to have the products walking down a fashion runway because that's much more grand than just a curtain rising up." With that in mind, the storyboard was completed almost overnight.

The animation starts in a hotel lobby in front of a conference room door. Inside the doors are current Jell-O products walking down a runway. The last product to walk down is the cheesecake. Then the camera swoops down and shows someone peeking from behind a curtain. Later, the curtain opens and the silhouettes of the two new yogurt products begin walking out. They simultaneously jump to pedestals and reveal the labels identifying what they are. The camera then cuts to a close-up of the Jell-O fun pack product. It jumps, forms a cheerleading pyramid, then flips and spins back into the six-pack container. The Jiggler bits and yogurt character takes off his lid and the Jell-O Jiggler bits fly out. The Jiggler character then holds the lid out so the jiggler bits can fall back into it. The finale shows the character putting the lid back on and the products jumping out and taking a bow.

"We used LightWave's Bones feature extensively, and that gave the character animation a real high-end look," Boedecker explained. "We also utilized morphing and composting quite a bit.

"I think the most difficult part of the entire animation process was render-

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The Way I See It

Escom Excitement

Mike Danger

The word from overseas informs me that Escom is now going to build the 4000 Amiga in the good old USA. I was informed that it was the absolute final decision, and that some 040 and 060 machines should be ready for consumption by the time you read this. They'll sell very quickly I'm sure!

The word from the street also is that the QVC Shopping Channel is buying the old Commodore facility and turning it into some kind of TV museum or something usual. My guess is that this might be a warehouse for all the Joan Rivers jewelry and accessorized junk left over from previous shows. Meanwhile, I have heard allegations that some former

TPaint, LightWave and Modeler were used to create this striking image from Delta College.

Amigaish big wigs are facing court charges over their handling of a certain ex-company's dealings. Anyone out there care to guess the company and individuals in question?

The framegrab of the month was submitted by James Vergara, the media production coordinator at Delta College in Stockton, Calif. In my opinion, the subject of his work has thrilled me to no end. One look at it and you can tell why it was chosen above all others this month. "The image was created entirely using LightWave 3.0 and Modeler. ToasterPaint was used for texture map image and abit of touch up," Vegara says. He also relates to us that these days, most colleges don't need to go to expensive production houses for their professional video work. "Video professionals are moving into the educational production environment because (see September *VTU*) they're needed! An explosion is at hand because of desktop video capabilities," he said. Keep up the good work!

With hard drive prices dropping almost hourly, most serious, hardcore users are opting for the Big Culp-sized 1GB IDE drives. The problem here is that when linking this up to your system sometimes the max transfer rate has to be set accordingly. Sound confusing to you? Well, it's not a big deal to change. Boot up your system and click on the toolbox icon. Select partition drive gadget. Choose the advanced option button for the next screen. Choose the "Change" button and check the value in the Max Transfer section. Change the value to 0X1FE00 and then "OK" yourself back to the screen where you save changes to drive. Do this for each drive on your system and your problems should be over. Please proceed with care.

Since all things must come to an end so must this column before leaving. It seems that a column in a couple of issues ago I talked about working on a personal project with an animation artist employed by the same firm that does the Barney TV show. My music video project is about a Playboy magazine personality. Some of you may have misconstrued that the firm involved in the project was doing the work instead of an employee there helping me with the work on his own time. No readers, the purple dinosaur has not gone blue and my project is not involved with that company. If anyone thought otherwise, I am sorry. Until next time, keep the submissions coming in to;

VTU

Mike Danger, c/o *VTU*, 273 N. Mathilda Ave., Sunnyvale, CA 94086

EDITORIAL EVALUATION

Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
Circle 029	Circle 030	Circle 031

Built for the Future

continued from page 12

variety of viewpoints, alternate colors, lights and materials—have given way to a quick, realistic graphic representation.

"I provide a client with their vision of reality, without having to go through the expense," Bourdon said. "Being a civil engineer, I like things exact. I'm not really into watercolor renderings, playing with perspective and colors and nonsense, and at the end it's not at all what you get. Impressionistic painting is great, but not when you're spending $30 million."

Constructing Spatial Reality's animation walkthroughs is truly a team effort—a team of diverse equipment, that is. Bourdon's networking setup involves scanning objects into IBM, then using CrossDOS to port info into his Amiga 3000, where he models in LightWave 3.5. Once models are built, he ports over to his SGI Indy with UNIX. He renders out using SGI Lightscape software, which combines both ray tracing and radiosity. When Bourdon needs to submit material to a print house, he uses a Macintosh-formatted SyQuest drive hooked to his Amiga. To avoid the cost of going non-linear on his SGI, he transports

3D simulation of a building before construction begins

frames to a PAR hooked to his Amiga. Bourdon also uses IBM Photoshop and a DAT drive for backup.

A Strong Foundation

Bourdon's civil engineering experience means he's used to site work: roads, signage, paving, grading, drainage, utilities, and other functional concerns. So when the animator is asked not just to redesign an already-exisiting facility, but to construct a building from the ground up, it's no problem. "Because I'm an engineer, I understand plans perfectly," said Bourdon. "I'm very familiar with AutoCAD, so [clients] will give me a DXF file. I'll put it into LightWave and start building from there, as opposed to building a 3D model in AutoCAD, which isn't meant to do 3D. LightWave's so intuitive, so easy."

"Basically, civil engineering hasn't changed in 2,000 years. [Stuff] flows downhill. But with what I'm doing now, you're in total control of everything. You get to play director."

With Lightscape's ability to specify an exact type of light supplementing LightWave's modeling power, Bourdon can accurately depict a finished project.

"LightWave is particularly useful—it's flexible, easy to use, and has fairly good support service.

continued on page 16

ESSENTIAL TOOLS FOR LIGHTWAVE 3D...

WaveMaker 2.0™

Create eye-catching, professional-looking flying logo scenes in just a few minutes with WaveMaker! WaveMaker has quickly become the "must have" utility for LightWave 3D animators. And its easy-to-use interface makes it perfect for people who have little or no LightWave experience. With the click of a few buttons, you can set up smooth logo motion paths, backgrounds, and cool background elements.

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FOR INFORMATION CIRCLE 150

LIGHTWAVE Jell-O continued from page 13

ing time. We had 64 lights in some of the scenes and the products were highly detailed, and the stage itself had several polygons." said Ablan.

While working on the project, neither Ablan nor Boedecker had LightWave PC, which would have helped with the speed of rendering. The name of the game was maximize and sacrifice. "To maximize our time we transferred images, scene files and objects via the Internet," Ablan said. "Rendering was done on four machines, as well as a high-speed RISC-based Raptor rendering engine at Image Dynamics in Chicago." Some of their creativity was sacrificed because of rendering time concerns. "We wanted a lot more cameras but we had to keep some of the shots static using a background image rather than re-rendering the entire stage." The animators were pleased with the overall results of the animation. "In the final production, voice-overs were added, which really helped the viewer make sense of everything that was going on."

Business Advice

What does an animator need to know in order to do a job like this Jell-O project? How does an animator go about capturing a high-profile client like Kraft Foods? Ablan said: "To do a job like that, know how to use the Bones feature in LightWave to get precise character animation. Timing is also really important." Added Boedecker: "While some of it is just getting lucky, animators who aspire to this level really need to have a complete mastery of LightWave's basic features."

One of the opening frames from Kraft's animation.

For Ablan, getting customers is a matter of repeat clients and referrals. He suggests that all animators make a demo. "In my demo I did a Blisterine bottle so they [potential clients] know that I can do character animation." Realistic character animation is often difficult. "The Jell-O project is a perfect example of lots of hard work and a short amount of time," he said. Apparently, it was worth it. According to Ablan, "It's a great feather in our cap."

Ablan and Boedecker are now pursuing other projects. They are currently working on a short story for video that will be approximately eight minutes in length. It will take place in modern-day time and feature real people with image-mapped human skin in a real-world house. Hopefully, that project will also be a "feather in the cap" of both Ablan and Boedecker.

"The opportunities are there—you just have to go out and get them once you have the skills to compete," concluded Ablan.

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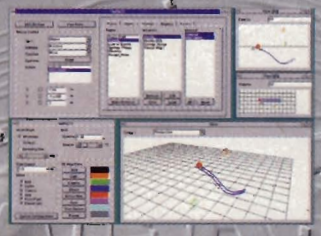

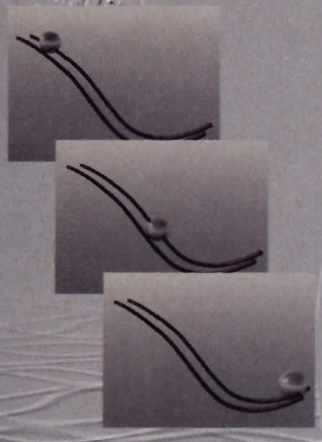

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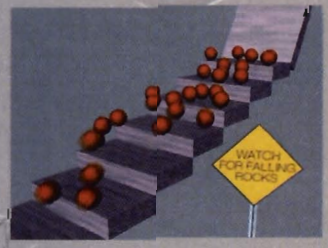

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FOR INFORMATION CIRCLE 116

Built for the Future continued from page 12

I've played on dozens of 3D programs, and though LightWave doesn't have all the best features of all the programs, overall, it's very capable." Bourdon expressed hope that upcoming features would embrace those working in his kind of realm.

Bourdon is currently operating Spatial Reality as a side project, though increasing demand for his animation prowess means long, long hours. When interviewed he was starting work on a project in Aruba—a five-story hotel /casino complex being redecorated by a team of interior designers.

Bourdon also recently finished an animation for *Curdled*, an upcoming film produced by Quentin Tarentino. He was given four days to do the 30-second animation—storyboard and audio included—imitating Dow Chemical's "scrubbing bubbles" commericals. Using LightWave and a Toaster/Amiga 4000 borrowed from friends, he delivered the project on time.

Will what he's doing continue to become more popular? "Oh definitely. The next step is VR. I want to duplicate the moment in the movie *Brainstorm* where everyone's sitting around a table, wearing goggles that take them through a virtual scene. With the software that I'm using and the speed of these machines, I don't think it's that far into the future."

How do you get into this business? "Look at some 3D tutorial books. Make sure you understand what you're getting into; a lot of it does have to do with math, and you've got to know all your coordinate systems. To show off your work with a good demo tape, you'll need to know a variety of things besides animation: editing, video, sound. There's so much software around—you have to know what's out there, and which product you need to pull a project off. And you need to learn how to market yourself. It's a very big undertaking if you want to do it right. But if you're interested, go for it."

News & Notes

Training Opportunities

It's not too late to take advantage of the training offered by the NewTek Universty "Tour Across America". Hundreds of Toaster users have already benifited from these courses. Taught by leading experts in the fields of Video Procution, Editing, Animation and Video Graphics the tour will end in Philadelphia in mid-October. Call 1-800-322-2843 for more information.

Video Toaster User Expo 1995

See what the future holds for Computer Video, 3D animation and the Video Toaster at the 1995 expo. Enjoy four days of training seminars, discussions, product demos and bargains from today's top developers. The dates are November 1-4 at the Universal City Hilton & Towers, North Hollywood, Calif. For more information contact 1-800-643-EXPO or see the ad in this issue.

The professional standard in 3D Graphics for Windows, Windows NT, Silicon Graphics Inc., DEC Alpha, MIPS and Amiga Platforms.

LightWave 3D™ is an all-in-one photo-realistic animation system. As part of the Emmy award-winning Video Toaster, LightWave 3D has been used on television shows such as seaQuest DSV, Babylon 5, Hercules and Star Trek: The Next Generation and Voyager. LightWave is also used by tens of thousands of people to create graphics for corporate videos, commercials, video games, print graphics and much more.

LightWave 3D provides a comfortable, intuitive working environment that draws a real-world metaphor between an actual soundstage and your personal computer. Within LightWave Layout, create dramatic lighting effects, photo-realistic surface materials and intricate camera movements. Render still images or entire animations in 24-bit color.

Create new props with the powerful tools in LightWave Modeler. From technical geometric forms to free-flowing organic shapes this model shop does it all.

LightWave 3D's new plug-in architecture is supported by a growing number of independent developers. This allows you to customize LightWave with additional features such as gravity, particle systems, image processors and more surface materials.

No other 3D package offers this much power and flexibility at such an affordable price. From flying logos to broadcast quality special effects, find out why LightWave 3D is the choice of professional 3D artists...and everyone else who needs professional looking results.

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FAX 1-913-228-8099
INTERNET: WEB PAGE HTTP://WWW.NEWTEK.COM
ANONYMOUS FTP SITE FTP.NEWTEK.COM

LIGHTWAVE 3D™

FOR INFORMATION CIRCLE 123

Configurations vary with platform. Consult your dealer to configure a system suited to your needs. Specifications subject to change without notice. Video Toaster is a registered trademark of NewTek, Inc. LightWave 3D is a trademark of NewTek, Inc. Amiga is a trademark of Commodore. DEC Alpha is a trademark of Digital Equipment Corp. MIPS is a trademark of Silicon Graphics, Inc. Windows, Windows NT are trademarks of MicroSoft, Inc. Hell Creature image © 1995 Cinestasia. © NewTek, Inc. 1995. *Design, FryeAllen, Inc.*

NEW PRODUCTS

Compiled by Corey Cohen

Quality Prints

Product: PV-MP10
Description: Video printer
Price: $1,300
Panasonic
One Panasonic Way
Secaucus, NJ 07094
(201) 348-7000

Panasonic has announced the release of its newest video printer, the *PV-MP10*. With the PV-MP10, users can make high-quality still photos from any video source, such as a camcorder, VCR, PhotoCD player, video game system, laser disc player, or even broadcast television. Unlike a still camera, the video printer lets users scan through their videos and cull only the best, most interesting shots, then print them in about 75 seconds. Its 10-bit, artificial intelligence image processing enables the PV-MP10 to print colors more accurately than its 8-bit competitors. With 256 color gradations available, the printer can produce photos with a palette of up to 17 million colors. Images can be zoomed (2x), then combined to create larger pictures; mirrored, so the resulting print can be heat-transferred to coffee mugs, buttons, caps, etc.; or repeated four, nine or 16 times on the same print. The PV-MP10 allows for picture adjustment (tint, color, brightness, sharpness) after an image is stored in memory,

has a strobe feature for creating still pictures to study motion, and has a Swing mode for analyzing fast movement. And the video printer's thermal dye transfer system makes very delicate color adjustments possible. The PV-MP10 will work with any video source, including S-VHS.

FOR INFORMATION CIRCLE 1

Musical Medley

Product: Kaleidoscope III
Description: Music CD
Price: $49
MusiCrafters Inc.
P.O. Box 595
Montgomeryville, PA 18936

MUSICRAFTERS CUSTOM

(215) 368-8863

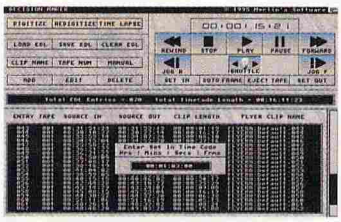
Kaleidoscope III is a high-energy, 72-minute CD with 17 tracks for various industrial or audio/video applications. Ranging in length from 2-1/2 minutes to 6-1/2 minutes, the tunes consist of five themes in two versions, plus seven classic cuts from MCR113 featuring acoustic bass and strings.

FOR INFORMATION CIRCLE 2

Choose Wisely

Product: Decision Maker
Description: Flyer/VLab Motion timeline interface
Price: $399.95
Visual Inspirations
809 West Hollywood
Tampa, FL 33604
(813) 935-6410 Voice/Fax

Would you rather do all of your editing in a full-blown edit suite, or have the additional option of complete portability to and from your Amiga without sacrificing quality? *Decision Maker* (DM) solves this dilemma by allowing users to easily import, create, use and export Edit Decision Lists in both CMX and Grass Valley formats from the Amiga. When used with the Flyer or VLab



Motion, DM takes the drudgery out of moving selected chunks of video to your hard disk. DM allows you to sit back and completely control your video deck directly from the computer screen: when you find usable footage, simply add it to the EDL with a few clicks of the mouse; when it's time to switch tapes, just tell DM the name of the next tape and keep on moving. Once you're done, click digitize and DM will read the EDL and automatically start moving the desired video footage to the hard disk. Other features of DM include batch digitize, redigitize, digitize audio clips and user-configurable screen backgrounds.

FOR INFORMATION CIRCLE 3

T-T-T-Techno

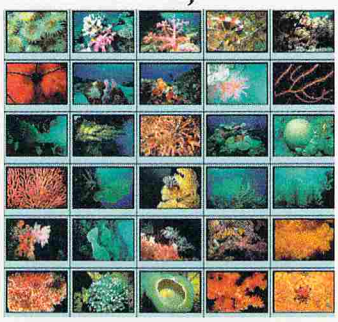
Product: Hi-Tech
Description: Music CD
Price: $59
Musi-Q Productions
8331 NW 53rd St.
Lauderhill, FL 33351
(800) 749-2887

The new *Hi-Tech* CD contains a number of elements useful for corporate presentations, advertising, news formats and more. The disc's high-tech effects, four to six seconds long, include laser

drops and swishes. Musical production elements such as segues, stingers and transitions vary from five to 10 seconds in length. Future Musi-Q CDs will include Orchestra 1, part of Musi-Q's new Premier Acoustics Library of real music performed by full orchestras; Sound-Alikes 1, containing sound-alikes of feature film scores; and a Holiday CD featuring eight traditional holiday songs each done in two or three different musical styles.

FOR INFORMATION CIRCLE 4

Underwater Objects



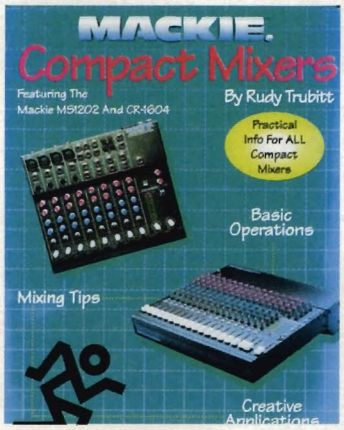
Product: FantaSeas
Description: Stock footage CD
Price: $49.95
Amiga Library Services
610 N. Alma School Rd.,
Ste. 18
Chandler, AZ 85224
(602) 491-0442

FantaSeas is a portfolio PhotoCD containing almost 300 high-quality underwater photographs. Reef shots

teeming with brilliantly colored fish, incredible macro shots of anemones and detailed shots of World War II wrecks are just a few of the items included. Photo sites range from the walls of Grand Cayman to the Blue Corner of Palau to the wrecks of Truk Lagoon and the pelagics of Mexico's Sea of Cortez. Each photograph is presented in five different resolutions; thumbnail renderings include each photo's subject description. Enclosed Portfolio PhotoCD software will benefit Mac and PC users. Each photograph is royalty-free up to 5,000 printed copies. FantaSeas was developed and produced by scuba divers and underwater photography instructors.

FOR INFORMATION CIRCLE 5

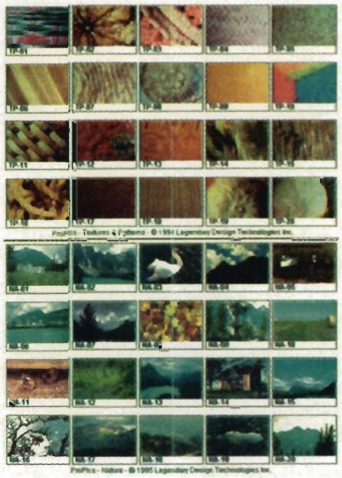
Master Mixing
Product: "Mackie Compact Mixers"
Description: Instructional book
Price: $19.95
Hal Leonard Corporation
7777 W. Bluemound Rd.
P.O. Box 13819
Milwaukee, WI 53213



Written by Rudy Trubitt, freelance audio specialist and editor of "Making Music With Your Computer" and "Concert Sound," "*Mackie Compact Mixers*" is a companion to Mackie Design's MS1202 and CR-1604 mixing boards. The 160-page book explains, in an easy-to-follow approach, the fundamental concepts of how mixing boards work, with a heavy emphasis on the big picture. How does audio get into and out of a mixer? What path does it take? Armed with this understanding of "signal flow," readers will learn how these mixers can best suit their individual applications and interface with other equipment. "Mackie Compact Mixers" includes many diagrams and documents direct from Mackie's files, and much of the information is geared toward answering questions commonly received by the company's customer service division.

FOR INFORMATION CIRCLE 6

Pics on Disc
Product: ProPics
Description: Stock Footage CD
Price: $49.95
Legendary Design Technologies Inc.
25 Frontenac Ave.
Brantford, Ontario
Canada
N3R 3B7
(519) 753-6120



LDT's *ProPics* is a six-volume series of photographs in 24-bit color digital format, per-

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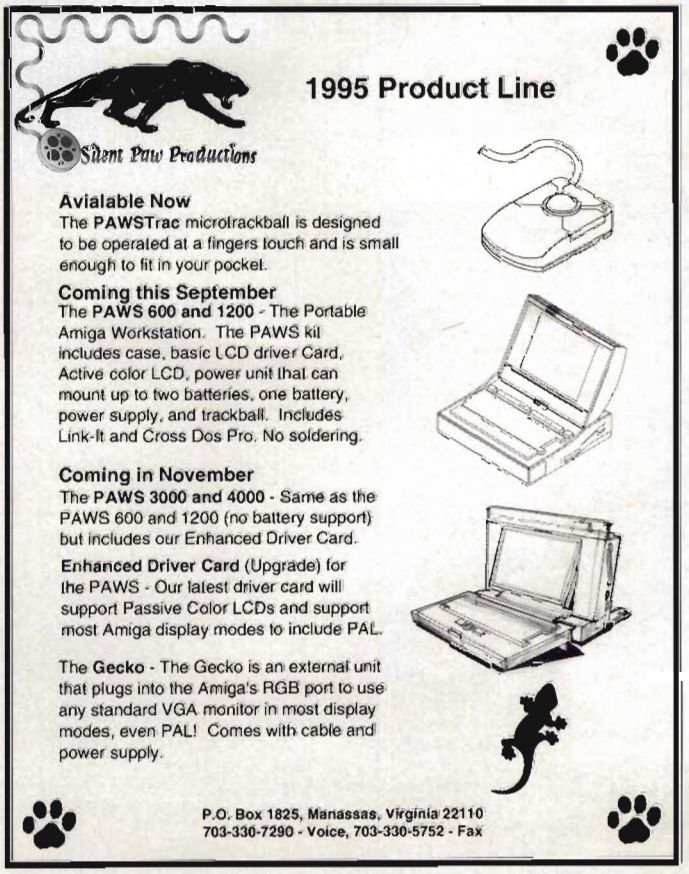
P.O. Box 92011 SLC UT 84109

FOR INFORMATION CIRCLE 105



FOR INFORMATION CIRCLE 128

fect for use in video and desktop publishing work. All 120 royalty-free pictures are stored in IFF, BMP, TIFF, JPEG and Video Toaster Framestore format. A thumbnail directory lets users look at the pictures quickly, while a color insert inside the CD shows a miniature of each photo. Picture viewer and image-processing programs for both Amiga and PC owners are included.

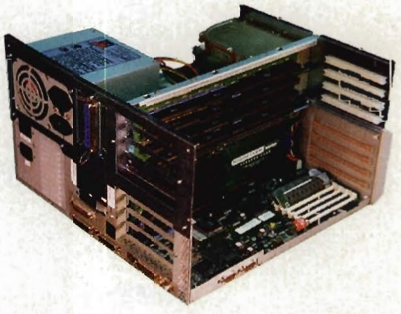
FOR INFORMATION CIRCLE 9

Lovely Melodies, Tunes for Travel
Products: Romantic #2, Travel and Leisure #2
Description: Music CDs
Price: $59.95 CD, $49.95 cassette
Energetic Music
645 S. Massachusetts
P.O. Box 84583
Seattle, WA 98124
(800) 323-2972

Romantic #2, one of Energetic Music's new releases, is a unique selection of romantic background music for a variety of uses. The musical selections span the spectrum of romantic moods, from pure and lighthearted to dramatic and uplifting, making this CD ideal for film and video work, wedding videography, and anniversary or memorabilia videos. *Travel and Leisure #2* features 45 minutes of up-tempo, neutral music—ideal for home movie transfers, nature videos and real estate demos.

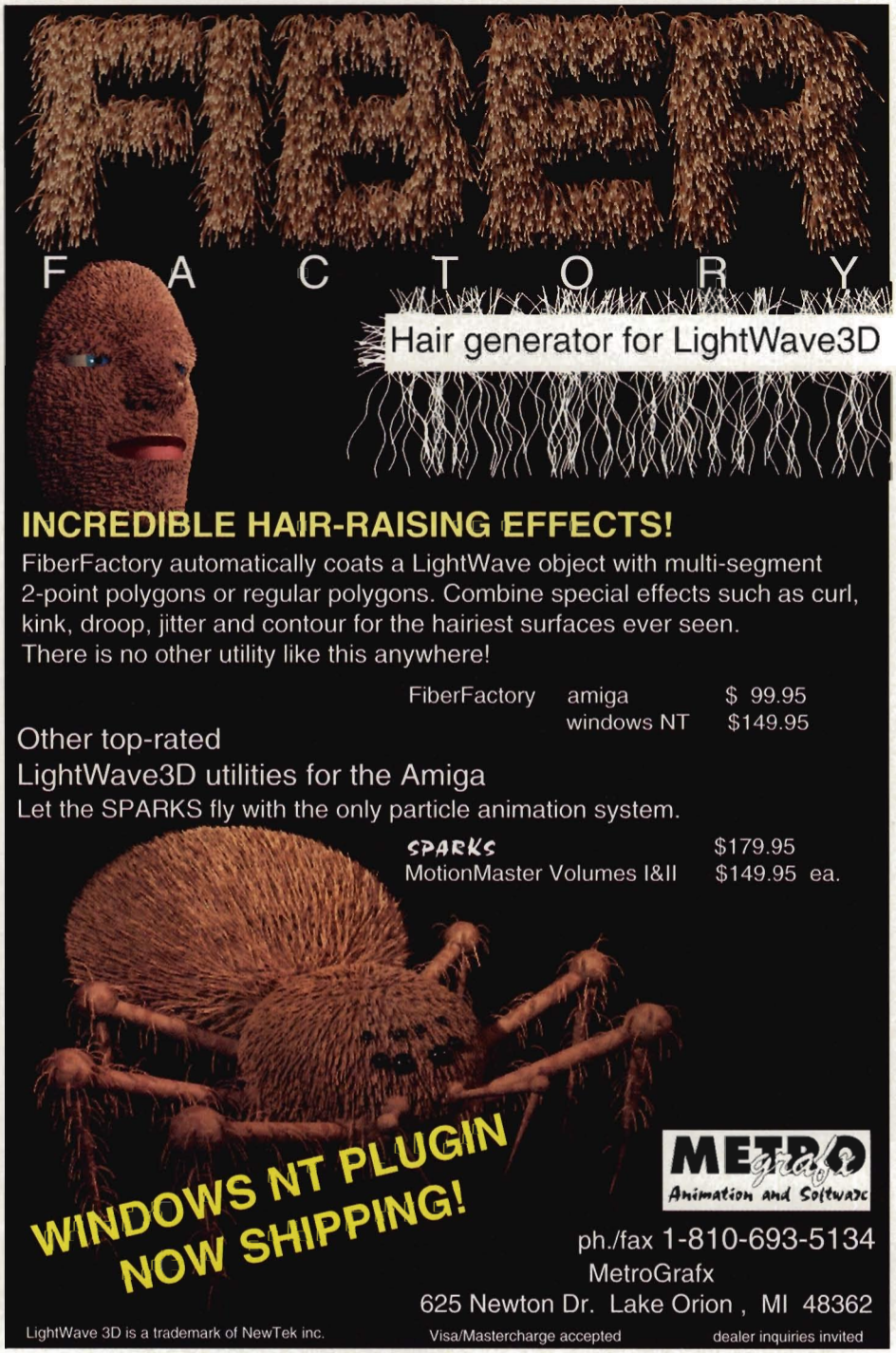
FOR INFORMATION CIRCLE 7

Flyer Expansion
Product: The High Flyer
Description: A4000 Expansion Chassis
Price: $499
Expansion Systems
44862 Osgood Rd.
Fremont, CA 94539
(510) 656-2890
Fax (510) 656-5131



The *High Flyer*, an integrated expansion chassis for the Amiga 4000, provides more slots, increased power and additional drive bays without rebuilding your Amiga. It is designed for the Toaster 4000 user who would like to make use of all four Zorro III and three powered PC slots with the Toaster installed. The High Flyer is especially useful when used with the NewTek Flyer editing system. In addition to the extra slots, the High Flyer's drive bay will hold the video A and B 3.5-inch-by-1.7-inch editing drives (or three 3.5-inch-by-1-inch). The audio drive is placed in the rear A4000 bay. The 5.25-inch and 3.5-inch drive bays in the A4000 are not affected and are still usable for even more drive space. The High Flyer cable kit will connect the Flyer board to all three editing drives and provide three 50-pin Centronics terminated connectors in cutouts at the

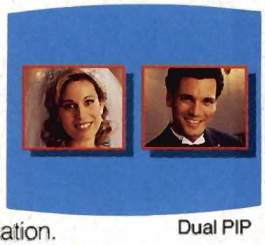
continued on page 22



FOR INFORMATION CIRCLE 154

Panasonic presents the WJ-AVE7 Digital Video Mixer. With Luminance Keying and over 100 special effects, it makes your videos especially effective.

Think of the Panasonic WJ-AVE7 Video Mixer as a way to turbo-charge your imagination.



Dual PIP

Its sophisticated technology lets you do almost anything you can imagine at a price that's so affordable it's unimaginable. For instance, its Luminance Keying feature lets you alter reality by superimposing video images. Its auto take feature creates flawless transitions, automatically. Add dual picture-in-picture, a color corrector, over 100 digital effects, a built-in audio mixing board and the optional video titler, WJ-TTL7, and this Panasonic Video Mixer lets you do almost anything you can conceive. And unlike other systems, the WJ-AVE7's digital synchronizer lets you dissolve or wipe between any 2 NTSC signals.

And our AV Mixer can do even more—to find out how much more, speak to your nearest Panasonic Dealer, at **1-800-365-1515, ext. 333.** ■

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TV picture simulated.

WJ-AVE5

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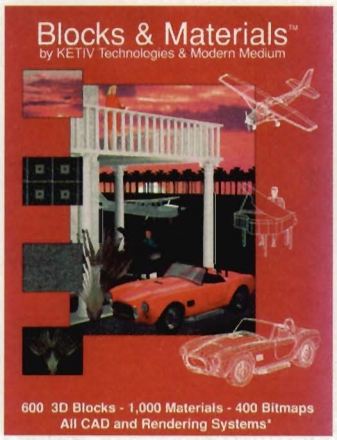
rear panel of the High Flyer for easy hookup of external SCSI devices. Front panel "drive activity" LEDs are provided for the editing drives and power supply. Two DB9 cutouts are also provided for the Flyer control cables. In addition to the Amiga's, the High Flyer provides a separate universal 250-watt power supply, for a total of 395 watts. And the High Flyer installs in just minutes using a screwdriver.

FOR INFORMATION CIRCLE 8

Building Blocks

Product: Blocks and Materials
Description: Model and texture library
Price: $395 or $199
Modern Medium Inc.
580 W. 8th Ave.
Eugene, OR 97401
(503) 343-4281

Blocks and Materials is a library with more than 600 3D blocks that are linked to 1,000 material definitions. The 3D blocks can be used in AutoCAD, 3D Studio and any



other CAD or rendering software that can read 3D DXF, 3D DWG or 3DS files. The program covers an extensive range of objects necessary for 3D modeling and visualization, making it useful for architects, interior and industrial designers, landscape architects, civil engineers, and anybody else who creates 3D models. The 600 3D blocks are very accurate and generate excellent results in hidden-line drawings. Blocks and Materials has render-ready blocks, and users of other rendering software can easily create their own materials with the 400 included bitmaps (200 textures are seamlessly tileable). The CD-ROM is compatible with ISO 9660 and can be used on the PC, Amiga (with ISO 9660 CD software), Macintosh (System 7.1 or higher) and many other computers.

FOR INFORMATION CIRCLE 10

Take Flite

Products: Flite Report, Code Breaker
Description: Flite Gear modules for the Toaster Fl
Price: Free for register
Flite Gear owners
Atomic Toaster
P.O. Box 9201
Salt Lake City, UT 841
(801) 466-7330
Atomic Toaster has c

with two free mod
owners of Flite Gea
Breaker is a timeco
field calculator. *Flite*
a Flyer/Toaster pro
play, report and EDL
tion program allowi
Gear users to output
(edit decision list)
from the Flyer's timeli
Flite Report, Flite Ge

Pg Photogenics™

At last the Amiga has a powerful image manipulation package with the ease-of-use and creative freedom of a traditional paint program.

You can edit multiple pages - each in its own resizable window.

Realtime HAM-8 display gives you full-color painting without the need of a 24-bit graphics board

Designed for professional graphic artists and serious painters.

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Photogenics gives a professional working environment offering many features not found on PC or Mac Software. Resizable tool bar can be placed anywhere on screen.

NORTH AMERICAN Version 1.25

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The ultimate 24-bit graphic and manipulation package for the Amiga A1200/A4000 series.

Manufactured in the UK by Almathera.
Distributed Exclusively in the United States by BMD-US

Photogenics features include natural paint tools for realistic graphics like air-brush, chalk pastels, crayon, marker pens, art pencils, felt tips. Image Processing Effects commands like antique, blur, bricks, colorize, displace map, emboss, flip x and y, gradient tint, line art, mirage, mix, monochrome, negative, paint, pixelize, rub through, sharpen, shift hue, shift RGB, solarize, texturize, tile, tint and slight tint, warper tool and many more effects to choose from!

Photogenics supports many image types: IFF-ILBM (Ham, Ham-8, and IFF-24), Windows BMP, GIF, JPEG, Amiga Screen grabs, IFF DEEP, VideoCreator QuadAnim, Impulse RGB8/RGBN (Imagine), Ripples, 24-bit Plasma, Text Loader, V-Lab, Picasso, OpalVision, CyberGraphics 24-bit painting, TIFF, PCX, Retina, Targa, and more!

Other amazing features include Load and Edit multiple pages, each in a resizable window, "Spray On" Effects, Undo, Compose feature, Full visual Alpha Channels, Realtime Ham-8 color display, Preferences Printer Support, and Save Non-AGA files.

(new features of North American version 1.25)

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OR FAX YOUR REQUEST TO 412-962-118
Dealer and Distributor Inquiries Welcome

FOR INFORMATION CIRCLE 127

can see edits, and all their parameters, in traditional EDL fashion as they work with the Flyer, making understanding and working with Flyer timeline edits easier. Flite Report lets you completely rebuild any parameter of any edit of any Flyer project. And using Flite Report, you can easily create a complete Flyer Report, an ASCII EDL, or a Project Element List from any active Flyer/Toaster project.

FOR INFORMATION CIRCLE 11

Out-of-Control Acceleration

Product: Wildfire 060
Description: A2000 acclerator
Price: $1,699.99
DKB
P.O. Box 438
Wixom, MI 48393
(810) 348-3821

DKB's *Wildfire*, slated for release in early September, is the first in a series of 060 boards for the Amiga. The Wildfire has an 060 50 MHz design, lighting high-speed local 060 memory, a 32-bit SCSI Fast Host bus DMA interface, 64-bit RAM expandable up to 128MB, and a PCI bus for future expansion. It supports interleaved memory; posted writes to motherboard; 10MB/sec. SCSI transfers; 4MB, 8MB, 16MB and 32MB SIMM modules; and transfers up to 100MB per second. And with the Wildfire, over 90 percent of the CPU is available at full-speed SCSI DMA. The fully configurable board uses industry-standard 72-pin SIMM and allows for mixing and matching of modules. It is compatible with the Video Toaster and the MegAChip 2000/500, and requires AmigaDos 2.1 or greater.

FOR INFORMATION CIRCLE 12

PRODUCT ANNOUNCEMENTS

Send your company's new product announcements, information and images to:
Avid Media Group Inc.
Video Toaster User
Attn: New Products
273 N. Mathilda Avenue
Sunnyvale, CA 94086
Or call us at:
(408) 774-6770
Fax (408) 774-6783

MOVING TEXTURES 100

ROYALTY FREE STOCK FOOTAGE FOR COMPUTER ANIMATORS

MOVING TEXTURES 100 is one of the most powerful tools currently available for computer animators. With this product, animators can effortlessly add natural phenomenon (such as clouds, fire, and smoke) to their animations. Choosing a clip for your project couldn't be easier. Every sequence on the ***MT_100*** CD ROM is also on the VHS reference video that is included with the product. You and your client can see exactly what each sequence looks like when it is played at 30fps. Stock footage of this quality usually costs $300 to $900 **PER USE!** For less than $300, you can own all twenty two sequences on this volume and use them over and over again.

"By simply adding one of these sequences to their animations, users can easily double or triple the value of their work! A must have for any computer animator."

MT_100 CONTAINS:
time lapse cloud animations
smooth burning flames - crackling fire
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IFF VERSION $229.00

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BURBANK, CA 91502-1024
818.842.6542

FOR INFORMATION CIRCLE 124

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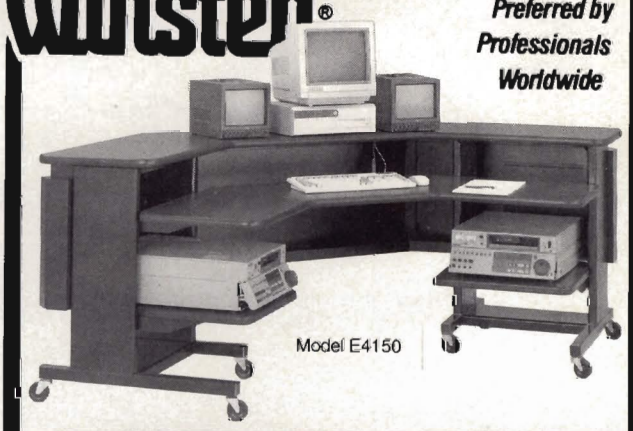

Model E4150

CORNER MINI CONSOLE
for Multimedia Systems

For computer/video combinations. Wrap-around design for easy access to electronics. Adjustable edit and VCR shelves. Rear access panels, dual wire raceway for separate AC and COAX cables.

• Ample work surface • Black granite laminate tops
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FOR INFORMATION CIRCLE 107

DEAR JOHN

Lens Flare Mysteries Explained

A Plane Solution

by John Gross

There's one given about any type of mailbox, real or electronic—the mail keeps coming. This month is no exception, so I'll try to make a little sense out of my overflowing letters.

Q: What type of monitors do you use at Amblin on your workstations? Do you use a vectorscope to tune the colors on the monitor, or is that handled within your monitors? I am in the market for a 21-inch model and want something that is going to be color accurate (a pleasure I did not have using my Amigas), so when I render something it turns out exactly like I see it on the monitor.
John Bunnel
via the Internet

A: All of the animators at Amblin have switched over to Alpha workstations. One of the resulting problems is the lack of NTSC capabilities. Currently, we are waiting for the DPS Perception card to ship with Alpha software, which we want to put in every workstation as an NTSC display device. For now, we are using our Amigas (about the only thing they are being used for anymore, with the exception of DirOpus, ImageFX and ADPro) to display a rendered image. Grant Boucher set up an ARexx script that will use ADPro to display all the images located in a specific directory via the Toaster's framebuffer. Attaching this script to the F1 key using the Amiga's F key commodity allows one to easily display an image in all of its NTSC glory. A simple delete script attached to the F2 key will delete all of the images in the directory.

"If you are trying to use your RGB computer monitor as your display monitor, be aware that you won't be able to get an exact match between RGB and NTSC."

If you are trying to use your RGB computer monitor as your display monitor, be aware that you won't be able to get an exact match between RGB and NTSC. They're apples and oranges. We just make sure that our NTSC monitors are color accurate (by adjusting color bars) and display the images on them to check for color and lighting. Of course, if you are rendering specifically for computer output, you would probably want to use your RGB monitor as the display device. In this case, you would want to use some type of monitor calibration software to ensure a WYSIWYG output.

Q: The station I work with is considering purchasing an Avid Media Composer 4000 running on a Power Mac. How can we input LightWave animation files directly into the Avid? I know that one can go to tape with an animation and re-digitize it back to the Avid, but I want to avoid tape altogether and have the Avid read the animation file directly. If this is not possible, the station has suggested an alternative: that we buy a Mac-based 3D animation system. This does not appeal to me at all since for the last two years I have poured myself into learning LightWave. If it does come down to that, though, what program would you suggest that is comparable to LightWave in ability and price? One last thing: when will LightWave be available for the Mac?
James Caldwell
via the Internet

A: If I'm not mistaken, the Avid system can import PICT files. By saving your LightWave files as PICTs and transporting them to the Mac either by network or other means, it should be a simple matter to access them.

Another possible solution if you cannot access images directly is to use a PC with a Perception card for LightWave rendering. Compiling your animation on the Perception and outputting it to the Avid package as if it was a tape source would result in high-quality capture without a need for tape.

When Macs are supporting Windows NT fully, you can most likely expect a Mac version of LightWave. However, NewTek has not announced plans regarding a Mac version of LightWave (yet).

Q: Howdy. I've got a lens flare problem that I thought I would bother you about. I'm using LightWave 3.5 (still waiting on my Raptor III Alpha). Here's the problem:

I have a sphere that I cut in half to act as an eye socket. This socket protrudes from a "head" object. I put two lights (which occupy the same position) about halfway into the "socket" to act as an "eye." Each light is set to be a flare only (no light intensity). Flare A is set to Fade Behind. Flare B is set to Glow Behind. The goal is to create a flare "eye" that glows and can be seen to also glow behind the "head" object. OK, I'm getting this effect, but I'm also getting a problem from Flare B. This flare seems to get cut off, as if it passes through the "head" object. At first I thought some renegade light source was shining on the object (since that is sort of what it looks like), but it is definitely the

Figure 1 A lens flare with Glow Behind Objs selected was placed too close to an object. Notice how the back half of the cow appears "cut" by the flare.

flare. If I turn Glow Behind off, the problem goes away. If I ramp the flare value up and down, the problem ramps accordingly. I'm not sure what is happening. Your help is much appreciated!

P.S.–On an unrelated note: somehow I got it in my head that there were finally going to be envelopes for surface velocity for LightWave 4.0. Am I dreaming, or is this forthcoming on the final release?
John A. Davis
DNA Productions, Inc.
via the Internet

A: The Glow Behind Objs parameter in the Lens Flare Options panel is meant to simulate flares at a distance. It should not be used as flares. Does this advice sound familiar? It should, as it is the message that appears every time you select Glow Behind Objs. But why?

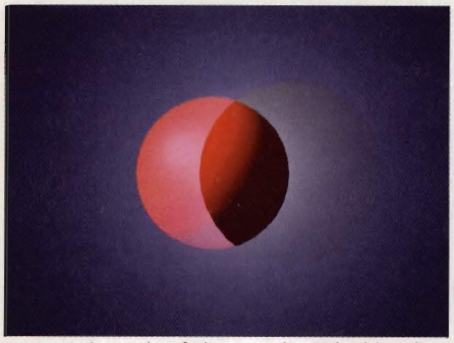


Figure 2 The results of placing a Glow Behind lens flare between opaque and transparent objects. The sphere in front is almost totally transparent, yet the area in front of the solid sphere is rendered incorrectly.

Lens flares are really only camera lens artifacts, and that's what LightWave's flares were originally designed to replicate. However, it soon became apparent that flares were being used to simulate actual light sources (certain submarines come to mind). Glow Behind Objs was added to the software after requests for this feature during the early production of *seaQuest*. We needed it in order to "backlight" underwater vehicles so they could be seen (in much the same way that the ever-present nebula "backlights" *Babylon 5* space). Before this option was added, we created the same result by mapping a bright, dissolved flare on a plane and placing it behind objects.

This plane solution is important, as it is pretty much the way LightWave creates flares with Glow Behind Objs selected. Think of the flare as being mapped on a plane that is always facing the camera and is the exact size of the flare itself. If a Glow Behind flare is placed in the middle of an object, it will appear to "cut through" the object. If placed directly behind an object, it may look fine until the camera moves into a position where the flare cuts the object (Figure 1). Oftentimes, this may not be noticed if the angle is right, or the flare is small enough to be contained within the bounds of the object.

Another Glow Behind problem you may experience is when the flare with Glow Behind Objs selected is located in front of an opaque object but behind a transparent object. In this case, the area of the transparent object corresponding to the opaque object behind it will be rendered solid (Figure 2). In general, Glow Behind flares should always be placed furthest from the camera, behind all objects.

P.S.—It's a nice dream. While LightWave 4.0 has many new envelopes (Displacement Amplitude for one), surface texture velocity is not one of them. There has been a change to the LightWave object format, so it is possible in future versions, however. Also, Shader plugins could conceivably allow for velocity changes, among other things.

Q: My question is a quick and simple one. I was wondering why I often get the message "too much motion for a Medium Res ANIM" when I try to render certain scenes. This happens when I render to an ANIM file that will be played back from my A4000. Is this because the delta information is too great? If I get a Flyer and use it as a single frame recorder, will it fix this problem, or am I just doing something wrong?
Robert Gow
via the Internet

A: You've hit the nail on the head. LightWave can only create Medium Res 4000 Anims where the delta change (the amount objects move) is one-fourth screen or less. Using a Flyer will totally alleviate this restriction. The Flyer takes all the rendered LightWave images and compiles them into a real-time, full-color, playable clip. VTU

John Gross is a supervising animator for Amblin Imaging and the editor of LIGHTWAVEPRO *newsletter. Questions can be sent to him care of* VTU, *or for a faster response, send e-mail to jgross@netcom.com.*

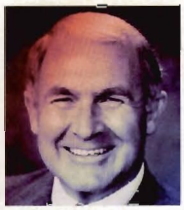
EDITORIAL EVALUATION
Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
Circle 032	Circle 033	Circle 034

TOASTER POST

Achieving Good Video

New Tips, Tricks and Techniques



by Burt Wilson

One of the major obstacles to doing good post-production is making sure all your Framestores are NTSC-friendly. If they're not, you'll see them vibrating and pulsating all over the place. It may be just a portion of the Framestore, or the entire image itself, but it's very noticeable, and unless it's fixed, your production will have an amateurish look.

How do you fix a Framestore with unfriendly colors? Three options. The first way is a preventive measure. Just make sure all the colors you use in a Framestore are 208 or under on the RGB sliders. The maximum color level that NTSC allows is 208. I know there are certain hues you'll want that necessitate violating that rule, but that's where the other two ways come in handy.

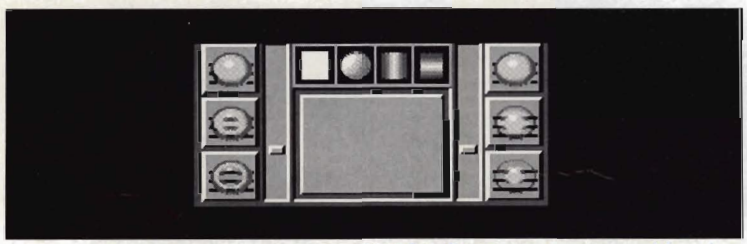


Figure 1: To make your vibrating Framestores NTSC-friendly, set your transparency sliders about two-thirds down.

The second way is to use ADPro, if you have it. Import your Framestore directly and go into the Operators menu and select Broadcast Standard. Then hit Execute. This will tone down the colors in your Framestore and probably stop the vibration. But not always.

In desperate situations, when you notice certain edges of graphics vibrating or you get a moiré pattern from having light and dark areas adjacent to each other, you can use a trick taught to me by my good Toaster buddy Stan Shumlick. I had a bunch of windows with gold frames that were vibrating something awful and Stan offered a solution, one I have now used many times and quite successfully. Simply put, you blur your picture. The trick is to go to the Transparency and Warping Control panel in ToasterPaint and set both transparency sliders—by moving the left slider—about two-thirds down from the top (Figure 1). This refines the blur procedure to the point where it eliminates the vibration, but does not degrade the picture very much.

To use this method in specified areas, go back to the Main TPaint Control Panel. In Blur mode, click on the rectangle and the fill buttons, and then draw a box over the area you want to fix. To do the entire Framestore, click on the rectangle and the fill buttons and then hit the (w) key. You will see your entire Framestore blur slightly from the top down to the bottom.

If one pass is not enough (and it frequently isn't) just hit the (a) key for Again and the procedure will remap the image automatically. Notice that when you finish, the picture will be nice and still and it will not look degraded at all. Be sure to return your transparency sliders to the top before working in TPaint.

Strong Editing

I love tough editing situations because they force me to learn new things about the Toaster. For example, it's tough to dissolve to live action and key in a lower-third super immediately. If you need to identify a person quickly, it's next to impossible with the Toaster, since you have to wait until the lower-third super loads before keying it in. Let's face it: it looks bad.

To get around this dilemma I use the Superimpose Panel to key in my lower-thirds. This might be a good solution for you, too. But please remember to make your key a background page in the CG, and to set all the Border and Shadow sliders to about 30, so they won't drop out and you'll get a good, clean key. With this method, you can have your keyframe already loaded in your Preview Buffer and then either: (1) fade it in immediately after fading in your live video, or (2) cut it in by simply clicking on the proper DV button in the Superimpose Panel—just be sure you have the black luminance button depressed.

On situations other than a fade-in—specifically, a cut anywhere inside your project—there's another trick you can use if you have to change lower-third supers over live video. Make up both lower-third supers using the CG's key pages and then exit to the Switcher. Then load the first super and key it by tapping the Spacebar. Next, load your second lower-third super, but just leave it loaded. Now, when you cut to live video, the first super will cut in at the same time. When it comes time to change the super, just tap the Spacebar and the super will disappear from the screen. And now for the magic! Just tap the Spacebar again and the new super will fade in. This is an anomaly of the Toaster's keying function that you can use to your advantage when you need to.

Tips Galore

OK, you remember that some time ago I gave you several ways to copy a frame with information in it into the same place on a number of succeeding

Framestores. Well, Jim Hicks of Graphicks Inc. in Lake Worth, Fla., came up with an even better idea!

Try this: Put your frame in TPaint's Swap Screen and the Framestore to which you want to copy it in the foreground screen. Go to the Swap Screen and, with the rectangle tool and the fill button depressed, draw a solid rectangle exactly over the frame. This is pretty easy. Then hit Undo. The solid rectangle will disappear. Now hit the (j) key and your Framestore will be in front. Now comes the denouement. Go to the Mode Panel and select RubThru, then hit Redo. Your frame will appear on your framestore in exactly the same place it was in the Swap Screen.

This comes in handy when you have to be precise about the placement of the frame in successive Framestores. After all, to see the frame move around slightly with each edit—which I've actually seen—is not very good video.

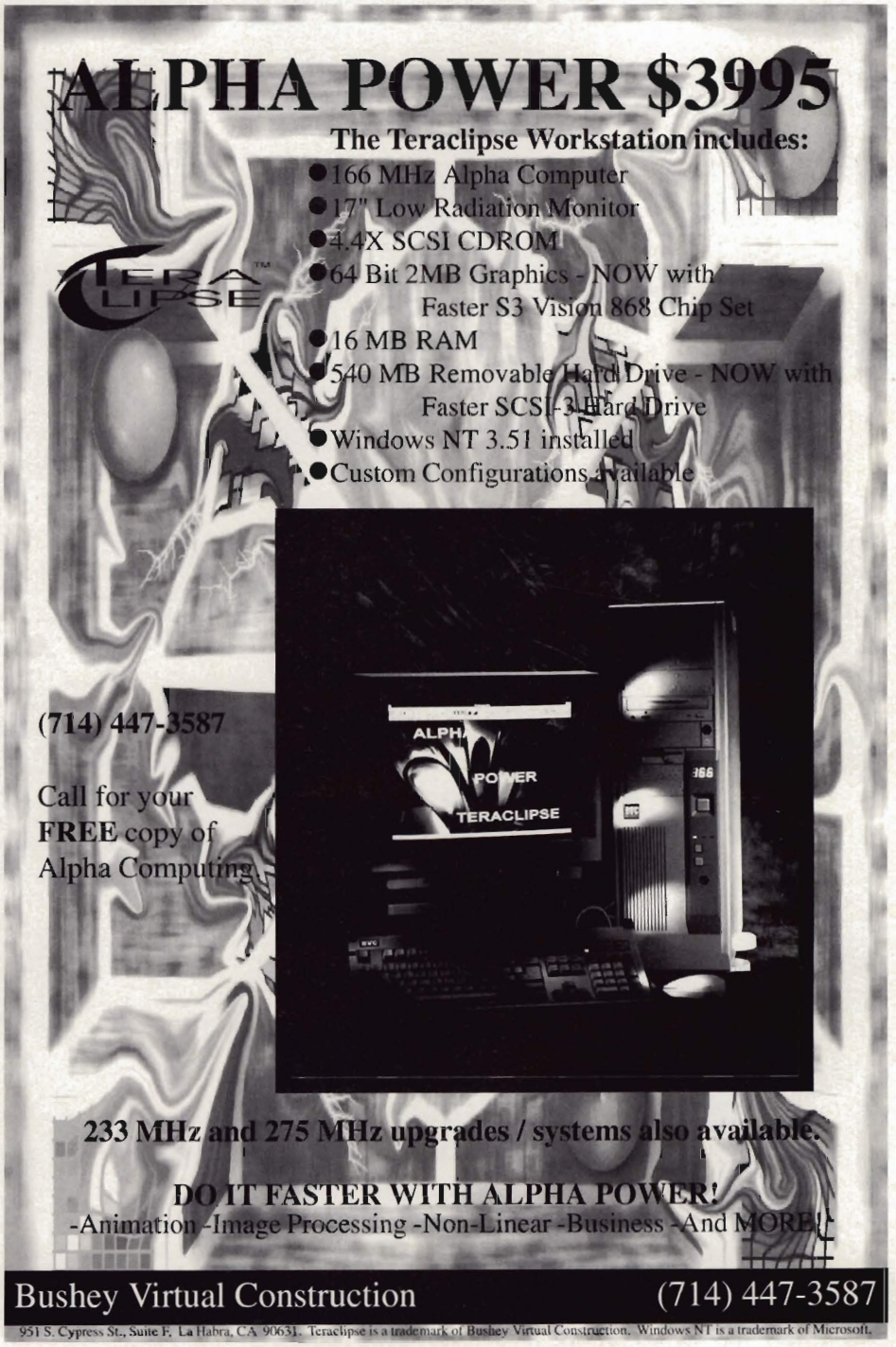
Here's a little field production tip: Make sure your field monitor—and edit monitors, for that matter—are terminated. No, you don't have to call Arnold What's-his-face. Just make sure the termination switch on the back of your monitor (all good monitors have them) is on. Many people think that since termination is offing, that means the switch should be off. No! On means it's terminated. On other monitors, you'll want them to be switched on to the 75 ohms setting.

Not having your monitors terminated means the brightness is going to be way off. You'll try to compensate for it and your entire video will be thrown off. Also, if you look in your field monitor and the screen seems to be fuzzy and overbright, it's not a tube going. You either don't have it terminated or it is not set to 75 ohms. This happens, believe me! Particularly watch out for a time when the switch in the back of the monitor has been accidentally moved by one of your production crew while transporting the piece. Don't freak out when you look in the monitor; just calmly check the termination switch.

Another thing that really makes a difference in doing good video is the use of the automatic iris control on your camera. Many amateurs leave the automatic iris control on when zooming or panning on a scene that has lots of light-and-dark contrasts. When you get back into post you'll see flashes of brightness here and there that really screw up the shot and make it unusable. Using manual exposure settings can help.

Another thing you may see in a commercial is a scene where a couple of people are eating dinner and a waiter in a white coat comes into the scene to serve their food. All of a sudden the people go dark and the whiteness of the waiter's coat blows you away.

All of this could have been avoided if the cameraperson had switched from auto-iris to manual iris. The trick is, when you are on auto-iris, the brightness automatically changes



FOR INFORMATION CIRCLE 109

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FOR INFORMATION CIRCLE 102

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when a new element of brightness enters the scene. That's what you want to avoid, unless you're doing a music video that is supposed to look bad.

The correct way to use your auto-iris in a contrasty situation is to zoom into that area of the scene where the darkest part looks the best. Auto-iris will automatically compensate for the light change. Now switch from auto to manual. Zoom out and you will see that there are no F-stop changes. Now you'll be able to shoot anything in the scene without flashes of brightness.

You may find, however, that after zooming out the rest of your overall scene is too bright, with all the whites going off the scale. Then you will have to manipulate the manual iris to find some level that works in both light and dark. Sometimes you have to sacrifice one or the other.

"Never shoot a scene with your iris on automatic unless you intentionally want to see iris adjustment during your shot."

Video really hates contrasts. Film handles it OK. But video does not do well in high-contrast situations, and you'll have to make decisions like this all the time, especially when shooting in outside situations. The best thing to remember is to never shoot a scene with your iris on automatic unless you intentionally want to see iris adjustment during your shot.

One last thing about the Toaster: I can't say enough about its Variable Effects feature. I have produced a lot of nifty and creative effects doing transitions at an extremely slow speed—say 300 to 400. Try the block break-up effect and the falling blocks effect in particular. Also, try those effects that change the screen by luminance. Experiment. That's what makes the Toaster so fun to use.

By the way, thanks for all your complimentary letters, and especially for the terrific response to my new book, "Complete Post Production with the Video Toaster." Happy Toaster Posting!

VTU

Burt Wilson is an award-winning writer/producer/director in Southern California. Send questions to him in care of VTU.

EDITORIAL EVALUATION

Circle number on Reader Service Card
I found this article:

Very Useful	Useful	Not Useful
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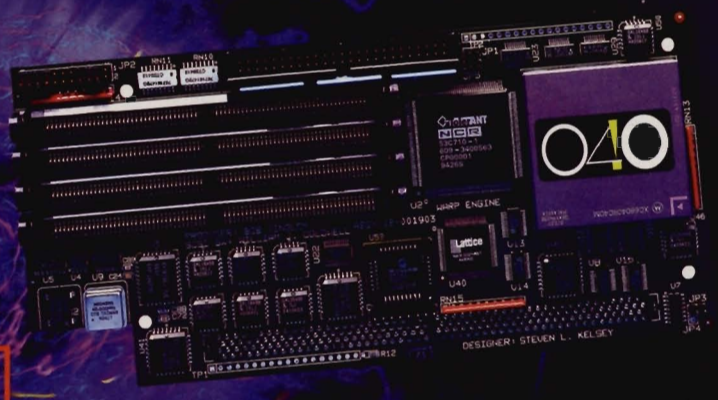

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FOR INFORMATION CIRCLE 118

THE FLYER SUITE

Flyer Audio Match-ups

Revealing the Secrets of Your Favorite NLE

by Frank Kelly

The Flyer's audio connections are designed to work with standard line-level audio equipment which usually operates at -10dbm. All consumer-model VCRs and audio gear accommodate this line level easily. These audio connections are identified by their use of the standard RCA-style jacks. However, equipment designed to work in professional installations will have three-pin XLR connections. Three-pin XLR connectors are used to carry audio signals at "balanced" levels that are either 0dbm or +4dbm. Though there are RCA-to-XLR adapters and pre-made cables available, they do not change the output signal of the incoming audio to conform to balanced audio levels. Some equipment will accommodate consumer line level inputs via an external switch; others will require the use of either a matching transformer or a certain model of mixer.

Though several audio mixers are designed to work with both mic and line-level inputs and will provide the required audio output levels, I highly recommend one transformer unit, the "Matchbox II." This unit was originally designed to interface consumer electronics to broadcast consoles. It has high-quality circuitry that matches levels perfectly without inducing the noise associated with using the inexpensive HiZ/LoZ in-line units found in most electronics stores. While these low-cost units in and of themselves are not "noisy," they do not exactly match the impedance differences between consumer and professional equipment. To use them properly, you would need to add some gain amplification. This can bring about distortion from levels becoming overloaded, or amplify line noise to objectionable levels. If you are more concerned with bringing audio into the Flyer than out of it, try using the headphone jack of the VTR with a patch cable that adapts the cord to RCA jacks. This method will usually allow you to adjust the levels using a combination of the headphone's volume control and the Flyer's input level sliders within the record clip control panel.

Care and Feeding of Flyer Video Drives

When investing in a large hard drive to use for *video* on the Flyer, it can be tempting to use some of that space to store audio clips, Framestores and other elements associated with a given project. Unfortunately, this procedure will lead to problems. The Flyer has three separate SCSI-II connections, each designed to operate simultaneously. By using a single video drive (and its corresponding SCSI channel) for elements that would normally be found on another device, you force the Flyer to copy those elements to other available drives just prior to their playback. This will usually impede performance, especially if your other drives are near capacity. It's also a poor use of your resources, since you will actually be using double the space to store the same information. Considering the rapid decline in hard drive prices, it's a reasonable expense to upgrade or replace your audio or system drives if they are becoming too full to use.

Using Reorg

To maximize your video drive's performance it is likely that you will eventually use the "Reorg" option displayed in your record clip requester. This procedure takes fragmented file information and moves it to contiguous space on the hard drive in areas where it can be accessed more quickly. The Reorg process can take a long time depending on the size of the drive and how many files need to be processed. In some cases it can last almost an hour. Don't make the mistake of re-booting your computer (thinking it's locked up) during this process. If you do, you will likely lose all the data on your video drive. This is one of the instances that make owning a U.P.S. (uninteruptable power supply) a good investment. They are reasonably priced considering the peace of mind they offer. Just remember that patience is definitely a virtue when using the Reorg command.

Funny Colors on Playback?

This will usually occur just after the Toaster/Flyer is "powered up" for the first time on a given day. It can also happen any time you turn off the system or perform a "warm boot." Multiple clips in a project from different hard drives that played back perfectly the previous day no longer "match" with respect to hue. The result is often shown as flesh tones that are too red compared to footage from the same source but playing from another drive. While I am not certain of the cause (I think it may have something to do with the Flyer.bin file), the fix is easy enough. Simply initiate the procedure for recording a clip, either by pressing the tilde key (~), or using the "new clip" button. Once the record clip control panel is displayed, select one of the resolutions (I usually choose HQ-5) and then press "continue" without recording a clip. The control panel will usually reappear once for each video drive attached to your system. Simply press the continue button on each panel. Once this procedure

is done, the colors will return to their previous "matched" settings. I have made this part of my daily routine before beginning to work with the Flyer (at the time of this writing, Flyer software was version 4.04B).

Phased Audio on Video Clips

Hi-fidelity stereo recordings of monaural material (such as narration tracks) sometimes exhibit a "phased" playback effect once recorded to the Flyer. The cause is a slight "phase cancellation" that occurs when the levels of the left and right audio channels are not precisely matched during recording. The easiest solution is to use the clip control panel to select only one of the two channels for playback, then use the "mono" setting. You will probably need to adjust the playback level of the clip to compensate for a slight drop in audio level when using only a single channel of the original two-channel recording.

It's Not Booting! What Gives?!

Assuming that you have already eliminated hardware conflicts and have successfully used the Flyer in its present configuration, you can begin "de-bugging" the next, most likely cause. The Flyer is extremely sensitive to loose connections. Poor connections (either external SCSI or internal computer bus) need to be carefully checked and re-connected or re-installed. Always make certain that all SCSI devices connected to the Flyer are on and fully operational. Your Flyer board's connection to the host computer's bus connections can become compromised by the expansion of components due to heat. Poor ventilation (especially in A4000 models) can affect all components, such as memory chips, accelerators, SCSI controllers, and especially the Flyer circuit board's connection to the backplane (the board that sits at right angles to the motherboard). There is also a chip located on the Flyer card itself (the only socketed chip on the card) which usually has a label with LOOPR printed on it. This chip needs to be firmly seated or the Flyer will not operate. Symptoms for loose connections or chips can vary from the computer refusing to boot to its displaying a message such as "Flyer init -133" (or some other number).

When the computer itself refuses to boot with the Flyer card installed, but operates normally once the card is removed, begin checking the connections as listed above (while the power is off) before calling NewTek or your local dealer. In most cases, reseating boards and chips and checking SCSI connections/devices will cure the problem. As always, you do so at your own risk. VTU

Frank Kelly owns Spot Ad Productions and American MessageTel in San Jose, Calif.

EDITORIAL EVALUATION

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I found this article:

Very Useful	Useful	Not Useful
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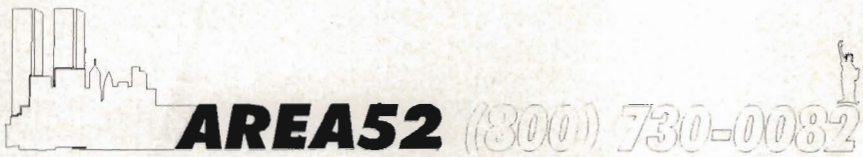

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SOUND REASONING

Audio Mixing and Sweetening

Recipes for Professional Sound

by Cliff Roth

The audio recording studio is a world unto itself, offering fantastic creative opportunities to manipulate and mix sound in a zillion different ways. Just ask any musician who has worked in a studio—even a modest 8-track garage facility (according to studio lore, The Beatles produced their *Sergeant Pepper* album with just 4-tracks).

Sound mixing is an essential ingredient in all professional film and video production. The modern TV industry, in its infancy, was built on the foundation of radio, which already had great expertise in mixing complex audio productions

Illustration by Brian D. Cowen

such as drama and big symphony orchestras.

But many beginning video producers ignore the importance of audio mixing in the overall scheme of things. Perhaps the worst offenders are people who rely on the built-in mix switches found on some VCRs (I'll be discussing those switches in depth in the near future). And that's despite the fact that, dollar for dollar, you can often spiff up the overall production quality of video far cheaper in the audio department than the picture.

Last month I discussed the ambience track, a perfect example of a very low-cost way to add an extra edge of quality to just about any video production. Ambience tracks are great because they don't need to be perfectly synchronized. But to add the ambience track to the final mix, you'll need a mixer.

Fortunately, mixers can be very inexpensive. Low-cost home units are available from Azden and Radio Shack for under $100, and excellent professional mixers can be bought from manufacturers such as Mackie and Tascam for as low as about $400. It's an absolutely essential accessory for combining music, narration, dialogue and sound effects together.

The Art of Mixing

Mixing is a lot like cooking: first you prepare each ingredient (peeling onions, chopping carrots, etc.), then you combine them together. When most novices first get their hands on an audio mixing console, their inclination is to play with lots of different level adjustments. (The audio equivalent of excessive zooming.)

But professional audio engineers and sound mixers usually start a mixing session by taking just a quick listen to everything together—just enough to get a sense of what the available elements are. Then they dive into the tedious and painstaking job of optimizing each of these audio elements.

The real art of sound mixing isn't so much in the mix itself, but in the preparation of tracks for the mix. Each track must be listened to individually (solo), and made to sound its best.

If a track has hum, distortion, hiss, or other noticeable problems, the worst attitude to have is, "Don't worry—it'll get lost in the mix." Ultimately, some minor defects in the audio may be deemed acceptable, but your goal during the mix is to keep them to an absolute minimum.

There are numerous special techniques for processing sound tracks, such as adding reverb, filtering out hum, compressing volume levels, etc. But the most basic technique that should be applied to each and every track, assuming you have a professional-type mixing console with separate EQ controls for each track, is to adjust the EQ to make the audio element on that particular track stand out. (EQ, or equalizer controls, are a set of calibrated bass, midrange and treble boost/cut adjustments.)

With a dialogue track, for example, you're trying to boost the frequency range centered around the pitch of the person's voice. This will give the voice a greater sense of presence, while diminishing background sounds. This is why professional film mixes almost always split the dialogue, putting each different voice on a different track, even though they may have originally been recorded on the same track, using the same fishpole microphone. With each voice isolated on its own track, the EQ settings can be optimized for that particular voice (and when mixed together, the volume levels

continued on page 38

Which **gift** will still be around next summer?

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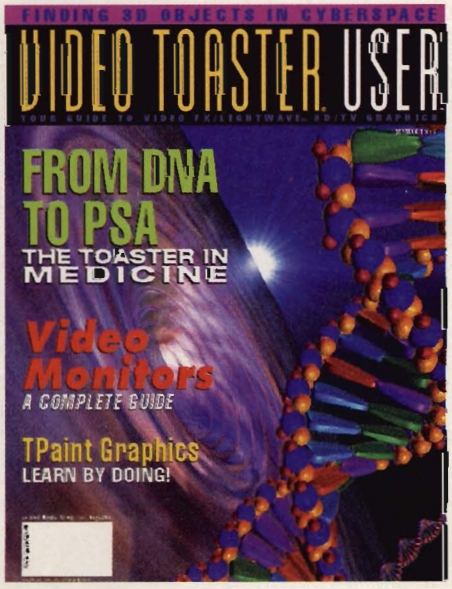

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SLICES

Color Bar Adjustment

The Boon (Bane?) of Working With Video Gear

by James Hebert

Depending on the tolerance of the individual components that make up any piece of equipment, there is a certain degree of variance from one device to another, even in the same production run of a given product.

Take a moment to re-read that statement, because it bears thought in light of what we'll cover in this issue.

Look to the left. Look to the right. Make sure no one is watching you as you read my next statement, because you certainly would not want them to see your reaction....*Pssst—no one's color bars are exactly the same!*

Owing to the fact that electronics change the way they affect an electrical signal as they warm up to operating temperatures (this is often called *drift*)—and that there are many components in a computer, its added circuit boards, variously connected VCRs, TBCs, cameras and equipment—it should come as little surprise that the color bar signal generated by each Toaster will be slightly different from every other Toaster. The trick is to learn how close to the ideal color bar signal your signal is, then determine if there's anything you need to do about it. Here are some issues to consider.

A number of arguments influence your decision. First, avoid the tendency to react too strongly. The sky is not falling, and the Toaster's bars are not bogus. From my experience, they're close enough on the waveform that it's difficult to measure the difference. On a vectorscope, the vectors are headed in the correct direction (meaning the hue is accurate) but they fall slightly short of the boxes (meaning that the color levels are slightly low). How short? It can vary, but it's generally just a small percentage.

If you produce homemade videos for personal enjoyment, friends or family, then you're not likely to care whether the Toaster's bars are slightly off (chroma is slightly low). You probably haven't spent the additional money on the equipment that can give you this information, and that's fine. I used the Toaster for years without bothering, and it brought me no less income or enjoyment.

I would argue that those who produce wedding videos shouldn't worry about the bar differential either. The quality of the *rest* of the equipment with which you acquire and edit video matters more than accurate bars. Your viewing audience, newlyweds and their families, are not likely to know how to adjust a television for correct color, much less be in a position to judge its accuracy. (This is not a slam to these people. It's just that most folks don't keep waveform monitors and vectorscopes in their homes, and they haven't taken production/engineering classes in college.)

Corporate video personnel, independent higher-level facilities, or anyone producing material for broadcast will want to work further with their Toaster's bars. However, these users probably have color bar generators, so they have little need for the Toaster's bars as a "perfect" reference source.

The Toaster's bars are best used for monitor adjustment, where "critical accuracy" is often a subjective goal. They can be used as the leader for your videos, but be aware that in most cases they are a little low on chroma (color, or saturation). "A little low" varies slightly from Toaster to Toaster, but it is not a wide variance. The worst possible outcome of it is that you might boost the chroma on your monitor somewhat to adjust for it, then lower the chroma levels on the TBC that feeds the Toaster because the incoming video might then seem a bit "too hot." If your customers have been complaining of low chroma levels (not likely, since the tendency of most folks is to set their color levels too high), then you may wish to take a look at this. Then again, if they haven't, why fool with what works?

Subtle Stuff, Isn't It?

If, on the other hand, you are absolutely adamant about making correct bars, you can spend some time doing what I have done and "create" your own useful bars. Keep in mind that this inside tip isn't likely to generate useful bars for someone *else's* Toaster. Electronic displays have enough variance that color bars will likely be off on another system compared with yours.

I figured that I could send a color bar signal into the Toaster, framegrab it, and be done with it. Good bars coming in, a clean grab, and therefore good bars coming out whenever I displayed the grab. However, whenever I grabbed the image, the bars dropped in chroma, to about the same level as that of the Toaster's internally generated bars. It's a low enough shift that it's not really visible to the eye, unless you have a *really* good eye, a *really* good monitor and a really dark room, and are free of distractions.

I reasoned that since there appeared to be a slight drop at the moment of grabbing, why not

feed the Toaster a color bar signal with boosted chroma? The resultant grab would drop slightly, sure, but with a certain amount of luck and carefully documented trial and error, I figured that I could work out the exact amount of chroma increase necessary to compensate for its loss when freezing the signal.

I went ahead and attempted to freeze the incoming color bar signal with a variety of boosted chroma settings. Afterward, I rebooted the system, made sure that each piece of equipment was reset correctly, and compared the original bars with my test bars.

It worked! I now have a framegrab of color bars that is reliable for use as an adjustment leader on videotapes, and for use when tweaking monitors. It has both accurate luminance levels and correct color levels.

Granted, the difference between the Toaster's bars and my homegrown bars is minimal. But as I have said on previous occasions, if you're interested in tweaking out every last ounce of perfection from every piece of equipment you have, then you may wish to experiment with this idea. If you have a color bar generator hooked up at all times to your system, my advice is to use that instead. If not, you might want to borrow, rent, or otherwise get ahold of a waveform and vectorscope to make your own color bar image. It's handy to have, though not critical.

If you're into cruel tricks, make some really *bad* color bars and show them to a cohort right after he's spent hours working on a crucial project. Ask him if he knows what's wrong with the setup and if it looked OK while he was working with it. (I am only *kidding* here!)

Flyer Tips

At press time version 4.04B of the Flyer is available for downloading from a variety of NewTek online sites (Internet and the NewTek BBS among them). Unfortunately, something is broken in the Switcher code that makes saving a framegrab difficult. The software can become confused as to the state of the framebuffers. Until the bugs are squashed (and they will be in 4.1), your best bet now is to use ToasterPaint. Framegrabbing ability was added with 4.0, and it works well.

Enter TPaint and select the Disk button on the lower left edge of the tool bar. When the Disk panel appears, click on the button (numbered 1-4) that corresponds to the input you want to grab. The Toaster will freeze the incoming image on that input. Then click on Import Frame to load the frame. Once loaded you can modify it and save it in the format you want.

If you insist on using the Switcher to grab frames, keep in mind the following tips. First, I recommend using a combination of Switcher and TPaint to grab images. Freeze the image in Switcher, then enter TPaint and import the freeze frame. Afterward, you can save it as either an RGB or Framestore file. This method is slow, but reliable.

If the Switcher grows confused over the state of the buffers (live versus frozen), try entering another of the Toaster applications, then exiting and quitting the program. This may reset the logic—though not always—and a reboot may be necessary.

Also remember that the Toaster tends to save the image residing in DV1 only, whether or not DV1 is selected on either the main or preview busses. This is *not* how the Toaster previously saved frozen frames (older Switcher versions always saved whichever buffer was selected on the main output), so it can certainly throw you off. Note also that I say it *tends* to save DV1. Sometimes, this too goes out of whack. The smart thing to do is check a saved image immediately after saving it, to ensure that the correct image was in fact saved.

VTV

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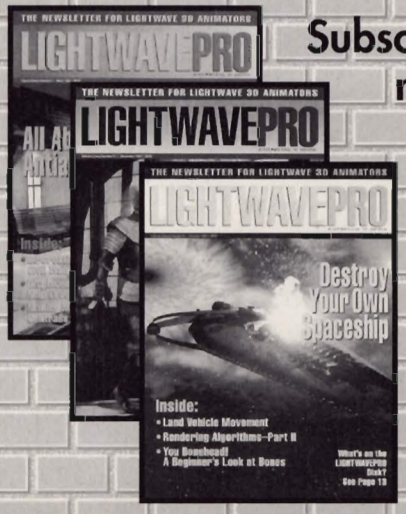

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SOUND REASONING continued from page 32

can be adjusted more precisely, with no distracting shifts in background ambience level).

The more you can isolate sounds on individual tracks, the better you can optimize how each one sounds in the mix. In music recordings, a drum set will typically have seven or eight microphones placed around it, with each going to its own separate track, thus creating a kick track, a snare track, a cymbals track, and so on.

To give you an idea of the pace that professional sound mixers work at, a typical three-minute song might take anywhere from half a day to a week or more to mix. A low-budget 16mm short typically takes about a day to mix; a feature-length film takes several days to several weeks on a low budget. And as much as a month or more is alloted for a big-budget Hollywood film (the mixing is usually done scene by scene). Remember also that this mixing takes place after all the editing has been completed (when the cutting stops, the mixing begins).

Sweeter Sounds

The term "audio sweetening" is often used to describe improvements to and augmentation of audio tracks in the mix. Audio sweetening can be the addition of laugh tracks and applause to comedy TV programs, adding reverb to cabaret singers, adding synchronized sound effects like footsteps (Foley effects), or compressing the dynamic range of vocal tracks so they're always audible, using a noise gate (a.k.a. an audio expander) to isolate a desired sound from background noises.

The only real difference between sweetening and mixing, if there is any, is that there's a slight implication of something going on after the fact with sweetening. The popular low-budget films *Slackers* and *El Mariachi*, originally produced at budgets of around $20,000 and $7,000, respectively, each got tens of thousands of dollars of professional audio sweetening when they were picked up by major distributors.

Mixing and Panning

After each track has been optimized, it's time for the serious mixing to begin. Watch the VU levels, but mainly listen with your ears. And listen, and listen.

Listen with a variety of speaker systems, including a good stereo system, a TV set's speakers, and headphones. The relative balance of ambience, dialogue, SFX and other elements will change depending on both the speaker system you listen through and the volume level you listen at. You should usually try to set mix levels that represent the best overall compromise.

If you're producing in stereo, mixing will also involve panning each sound element to the left, right or center. Usually, the original tracks that are being mixed are monaural. The exception is prerecorded music (such as from a CD or cassette), in which case the stereo signals should be fed into separate channels of the mixer and panned hard left and hard right (a mixer with stereo inputs does this automatically). Panning is another reason for splitting dialogue onto separate tracks: to pan one character slightly to the left, the other to the right, giving them different locations in the stereo field (hopefully matching their screen positions). Don't go overboard with panning, since extreme left or right placements can be fun for sound effects, but use more moderate settings for dialogue tracks.

Finally, note that after many long hours of listening to the same tracks again and again, you may experience mixing fatigue, losing the ability to hear things in perspective. The remedy is to take a break, or sleep on it, and listen again with fresh ears tomorrow.

VTU

Cliff Roth is the author of "The Low-Budget Video Bible." He can be reached via CompuServe at 74774,1017.

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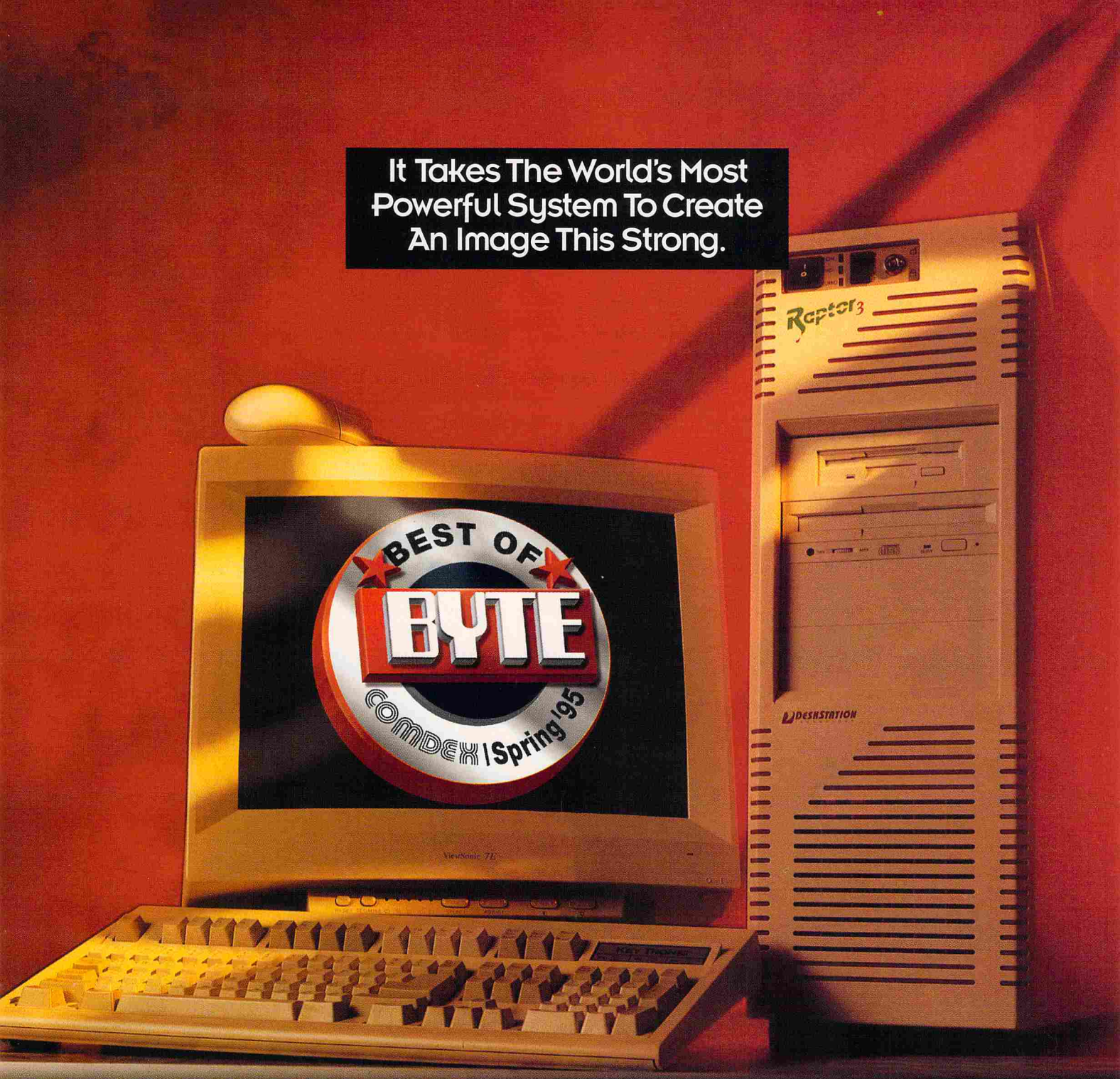

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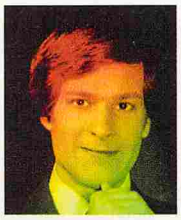
FOR INFORMATION CIRCLE 111

CYBERSPACE

Riding the LightWave

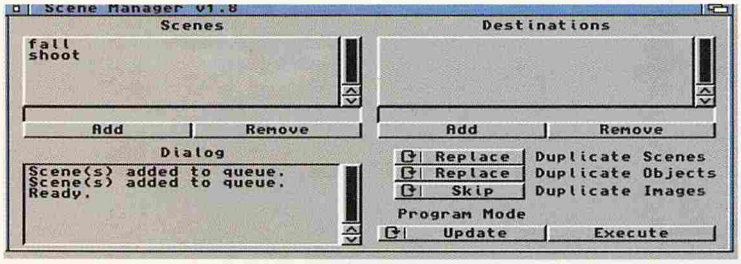
Macros and Utilities on the Net



by Geoffrey Williams

Every time I cruise cyberspace I wonder whether the amount of Amiga utilities will begin to decrease. I expect to see many utilities for the PC version of LightWave soon (at press time it was a little too soon, since the pre-release version just started shipping), and when the Toaster for Windows ships I suspect there will be many PC utilities for that as well. The good news is that, while there are fewer Amiga finds then a couple of years ago, there are still many to be had. This month, we dive into the latest and greatest utilities for LightWave. These should really keep Amiga users humming along.

Those using the Amiga version of LightWave have one big advantage. You have ARexx macros. On the PC version, you'll have to use plug-in technology, which means that if you want to create a macro yourself, you'll need some sort of program that can write actual code. You'll also need to have some programming skills. To create your own ARexx macro, all you need is a word processor and a very basic understanding of ARexx. Consequently, a number of ARexx macros are freely available especially on the Net. Marc Gantz's Hair macro is based on the modification to the Random Points macro written about in *LIGHTWAVEPRO* by Gonzalo Garramuno. Marc contributed to data entry and debugging it, but I believe most of the credit goes to Gonzalo, with a special thanks to Marc for making it more available.



Scene Manager makes it easy to archive scene files and transfer them between machines and networks.

Also available is Nir Hermoni's MiddlePoints, a macro for scaling an object by its center, and Sergio Rosas's MMM. Simplifying the process of animating things such as walk cycles is what MMM is all about. It joins action scene files with the same objects into one large scene file. When running the macro, it prompts you for the name of different preset action scene files, such as Walk, Run, Stop, etc. You can also add padding between one action and another. The author includes some sample objects and scene files to give you a good idea of how the macro works.

If you have a graphics card, you might find Richard Waspe's LWStatus to be handy. It opens a small window on the Workbench that shows the progress of your render and displays the current Frame, Segment and Pass. When the last frame has been rendered the display flashes. Of course, you get the same information on the LightWave screen, but some graphics cards, such as the Picasso, do not like attached screens. It is also handy if you want to do some work on the Workbench while rendering in the background and keeping an eye on your rendering status. Not life-saving, but handy in some cases.

Peter Rittwage and Chris Hurley's Scene Manager moves and updates scene files around a network or offline, and can create archives containing all of the files required to render a scene. These archives can then be decompressed on another machine, such as a PC, SGI, or whatever you may need to transfer scene files to.

The unregistered version of Scene Manager has a few limitations. It will archive in the LHA format but not de-archive, nor can you use an alternate archiver. You are also limited to processing just one scene at a time. Other than that, it is very easy to use and does the job of moving scene files around in a very configurable fashion.

Take a Good Look

There are a couple of utilities on the Net for viewing LightWave objects. Andreas Heumann's ShowObject allows you to load a LightWave object (or one in the Imagine TDDD format) and display it on a public or Workbench screen. ShowObject can display objects using several different modes: bounding box, wireframe, dither solid, gray solid, or color. You can also choose between four views: front, right, top and perspective. In the perspective view you can rotate the object by moving the mouse while pressing the left mouse button. You can also zoom in by moving the mouse while pressing the right mouse button. Moving objects around is accomplished by holding the mouse button down or by using the arrow keys. It's also possible to track the camera in perspective mode to the objects, and get information about them. Tracked objects are drawn in wireframe mode and in a different color.

ShowObject is a great little utility, but you must have both Workbench 3.0 and MUI (an excellent utility I will write about at a later date) installed.

Other than that, it will work with any processor.

If you don't have Workbench 3.0 and MUI, you can compromise a little and try Andre Hotz's LightWave Object Viewer. It must be run from the CLI/Shell, but it will bring up a requester to let you select an object. You then have a choice of move mode, which lets you grab the object with the mouse and move it around the screen, or rotate mode, which lets you move the object around its axis in three-dimensional space. Unlike ShowObject, LightWave Object Viewer only displays the objects in wireframe.

The main advantage to both of these utilities is that they allow much faster object loading than loading objects directly into LightWave. You can also use them to preview objects while LightWave is rendering (assuming you are not maxing out your memory at the time, since both of these need a good chunk of memory to do their thing), or you could use them on a machine that does not have LightWave installed if your other machine is busy. Either way, they are handy to have, quick and easy to use.

In the Dust

One of the more interesting and comprehensive utilities to appear of late is A. Maschke's Dust, which currently is at version 2.02. This is the first version with English documentation, but it was rather hastily put together as an AmigaGuide file and many of the links do not work. You may prefer to just load it up into a word processor or text reader and read it so you can then access all of the information.

Dust extends the ability of LightWave in several areas. It can load, save and view object sequences. It has great morphing between two objects without the usual limitations and has a particle system built-in. It also allows for the creation of realistic explosions (gravity, stokes-friction, etc.); realistic water waves (3D-unharmonic waves); 1D, 2D and 3D waves; and transversal, longitudinal and particle waves. The mathematical distortion of points, face colors and particles means you can also use Dust as a simple function plotter.

Sounds great, but the downside is that this utility was really designed to be used by programmers. It still has a lot of capability for us mere mortals because most of it can be accessed through writing ARexx scripts. Dust also includes many sample scripts. It is a power tool aimed at 3D professionals who want to extract even more abilities from LightWave.

You should also know that I am beginning to see a lot of third- party scripts and utilities for use with Dust. I have not had a chance to really check any of them out, but because of Dust's power and flexibility, I think we can expect quite a few add-ons for it, as well as scripts taking advantage of its built-in power.

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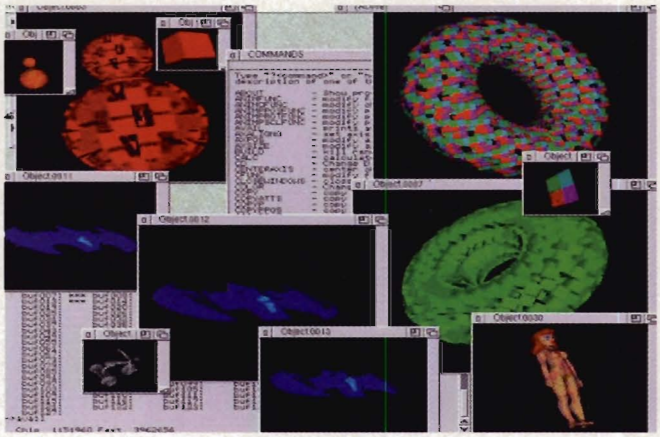
Dust allows you to open as many windows as you want showing a single object. These windows can be open on a public screen in up to 256 colors. You can change the attributes (such as draw mode, size or position) interactively by pressing a shortcut key or using Dust commands.

You can choose from several drawing modes in these windows: Bounding Box, Wireframe, Solid, Gray (16-256 colors), Color (16-256 colors using object color), or Face (27, 64, 125 or 216 individual face-colors will be drawn). You need Workbench 3.0 for the Gray, Color and Face modes. Each window has shortcut keys for things such as rotation, zoom, rescale and perspective. Morphing capabilities include several types. You can choose between Deform (slow, but offers the best results), Triangle (Dust creates two new objects with equal face and point counts from the source objects, which can then be morphed in Dust or in LightWave directly) and Build (build up the destination object while killing the source).



Add particle systems, gravity, waves, realistic explosions and unlimited morphing to LightWave with the Dust utility.

Explosions are quite authentic. Small particles fly wider than larger particles, rotate faster and are all affected by gravity.

Many types of harmonic waves can be applied to objects: 1D, 2D and 3D (spherical or faked), transversal or longitudinal. You can also adjust many parameters, such as wavelength, amplitude, wave center (source), damping and phase. You can really develop some very realistic water effects.

One of the most powerful features of Dust is its built-in particle system. Dust creates particle objects from two ordinary objects. A programmer can easily make an external program that uses Dust's built-in capabilities to create brand-new particle effects. The external program only has to calculate the particle positions, angles and sizes. The 3D object is created by Dust.

There are many options, including ADDFACE (creates objects adding faces), RENAME (renames object sequences), LWSTAGING (creates multiple scene files from one, exchanging object filenames and creating an ARexx-render-script), BUILD (RND) (kill sequentially/randomly faces up to one), DISTORT (moves randomly points of an object), TRIANGULATE (creates points and edges for every face), SCALEFACES (scales faces along their center), and many more.

Dust comes with extensive ARexx capabilities, so it can be easily controlled from external programs. There is on-line help with lots of tutorials and examples. Though it's not for beginners, advanced users would profit from taking the time to hunt down a copy of Dust.

"Dust extends the ability of LightWave in several areas....It also allows the creation of realistic explosions."

Besides programs, there are several help files and tips out there on various bulletin boards. You tend to find more of these on boards that specialize in LightWave and 3D applications. By the way, if you have such a board, drop me a line or e-mail me so that I can tell our readers about it. I'm always on the lookout for good LightWave BBSs, and I can't try them out if I don't know about them.

Sent to me recently was the LWHelpFile. This is a compendium of tips and tricks that have appeared on the LightWave mailing list and newsgroups on the Internet. (There are two newsgroups now: comp.graphics.packages.lightwave and comp.graphics.apps.lightwave). You'll find a ton of LightWave info in these two sites, including the LWHelpFile. The tedious job of compiling all of this information was undertaken by Thomas Healy. It includes some 15 quick tips, 14 tutorials, and more extensive help sections for surfaces, Layout and Modeler. The file contains almost 10,000 words of useful information on a wide variety of topics, so it is definitely worth looking for.

As usual, if you are not so inclined to hunt these down (and they are all generally available in cyberspace), I have put them all on a disk you can have by sending $5 to Geoffrey Williams, LightWave 4 Disk Offer, 1833 Verdugo Vista Drive, Glendale, CA 91208.

VTU

Geoff's Favorite Stops in Cyberspace

Almost everything I write about can be found in one of the following locations with a little digging.

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- Mike's Video House (818) 240-1593
- LightWaved BBS (510) 228-0886

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TAMING THE WAVE

Remarkable Rendering

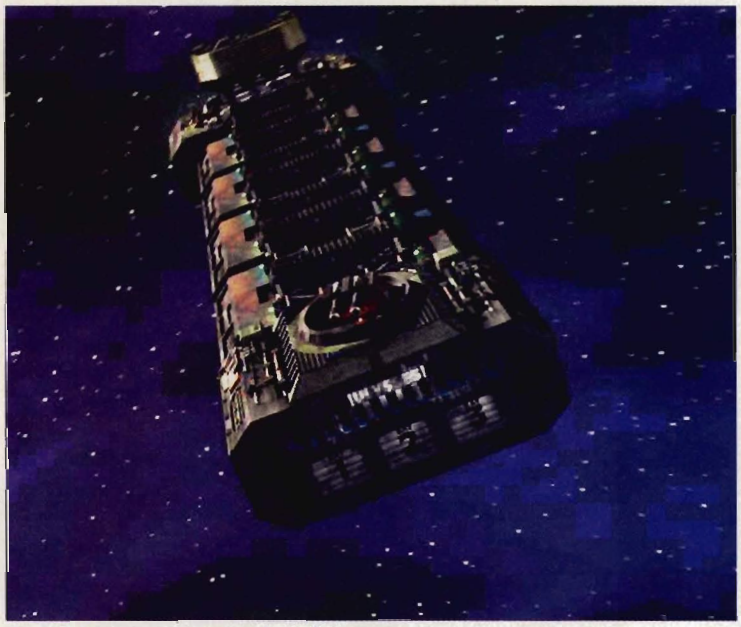
Saving Time Means Saving Money

by David Hopkins

Pssst! Hey, buddy—want some *real* speed? It doesn't get any better than this stuff. But it's gonna cost ya."

As a LightWave user, you're no doubt aware that speed is extremely important. It's become the vogue to compare one machine to another with a clear indication of CPU envy. And guess what? My Raptor 3 with a 300 MHz Alpha processor is bigger than yours.

I just got my hands on one of these silicon sex machines, and let me tell you, it's remarkable. A mini-tower case contains the super-speedy Alpha 21164 chip, 64MB of RAM, a 1GB hard drive, a Diamond Stealth 64 graphics card, a CD-ROM drive, and more. It looks pretty much like any other mini-tower—until you run something on it.



Courtesy of LightYear Productions/Mach Universe

Figure 1: The space transport *Ulysses* from *Space Marines*

You remember that old Texture Examples scene (not the newer one supplied with 4.0)? Load it in, click Render, and in five seconds you've got a finished frame. Granted, Texture Examples is not the perfect test for power rendering, but at least it's one you can relate to.

A better performance test came with one of the film-res scenes I'm working on for LightYear Productions' film *Space Marines*. The scene contains more than 80,000 polygons, bump and image maps galore and about 60 lights. It is rendered in high-res at 1024x768 with traced shadows and motion blur. I wouldn't call this a benchmark test; it's more like a skidmark test. A single processor of my Raptor Plus (MIPS R4600/133) renders the frame shown in Figure 1 in one hour, 22 minutes. And that's pretty darn fast in my book. But wait. The 300 MHz Raptor 3 does the deed in 27 minutes, 30 seconds!

There are a number of things I like about the Raptor 3 besides the mind-numbing speed. First, the architecture of the machine is called UniFlex. UniFlex, in essence, means processor-independent. The actual CPU resides on a card in the Raptor 3 instead of directly on the motherboard like most other machines. When a faster CPU becomes available, you need only replace that card, not the entire computer. Currently, the Raptor 3 comes in a range of flavors: MIPS R4600, Alpha21064/275, Alpha21164/266 and Alpha21164/300. Note that the 21064 is what many of the other Alpha-based workstations are using, not the faster 21164! Lower-end CPU cards are expected soon for those that want to start with an Intel, for example, and move up from there.

A few other system manufacturers offer you the ability to upgrade from one speed CPU to another, but here you can actually change processor types. Early buyers of MIPS technology (myself included) were taken by surprise when the turbo-charged Alpha family proved to have better performance. For all we know, Intel or some other manufacturer may develop a new chip family tomorrow that will change the balance of power again. With a Raptor 3, we'll just replace that one card and be at the forefront again.

Another thing I like about the Raptor 3 is the manufacturer, DeskStation Technology. They've been around for six years (a long time in the hardware biz) and have introduced one milestone after another to the NT workstation market. This market is much like the PC. "Clones" are taking off like mad, but many of the companies selling machines today won't be here in a year or two. One of them, in fact, seems to be growing out of the ashes of an Amiga hardware manufacturer that vanished from that market after a warehouse fire, which left many users in the lurch. These days, *always* check out the manufacturer of any machine before you buy!

Additionally, DeskStation offers the best technical support I have seen in years. Ray Zwiener runs a tight ship, and isn't afraid to tackle complicated issues in his efforts to assist. As I am mostly Windows NT-illiterate, he easily walked me through some hairy configuration

continued on page 46

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feats by phone to get the machine into my existing network. My recent upgrade from a Raptor to a Raptor Plus (which required a fair amount of swapping parts) was as painless as could be. There aren't many times that I enjoy talking to tech support, but DeskStation makes it easy.

If you are still looking for your render engine/alternate platform, this is the place to be. According to a recent press release from Digital Equipment Corp., makers of the Alpha processor, the Raptor 3 is the "World's Fastest Windows NT Workstation." It's expandable to 1GB of RAM, which should satisfy any sane LightWave user. It's from a company you can trust with a solid reputation. It'll let you plug in new CPUs as they are developed and/or you can afford them. Tech support is extremely tolerant of Windows NT newbies. In short, consider buying one now. If you don't need or can't afford the full speed of a 300 MHz 21164 Alpha, start with a 21064 266 MHz or a MIPS R4600. You could also wait for the lower-end and less expensive versions, which are not far off. In my opinion, getting anybody else's machine would be to your disadvantage. Now if we could just do something about that silly logo...

Now then, let's get back to LightWave, shall we? The fact of the matter is that the faster your machine the more complex the scenes you create become. The animation that I used in the Raptor 3 tests is truly huge. Running 1,000 frames in length (over 41 seconds of film in a single scene!), it begins with a shot of space near an asteroid belt. Establishing text types into the upper-left corner of the screen as the camera performs a slow tilt down to reveal the freighter *Ulysses* advancing toward an oncoming asteroid. The freighter fires its nose-top cannon, blasting the asteroid to smithereens. The camera continues its move toward and alongside the *Ulysses*, finally turning to watch the ship head away toward the looming belt of debris.

Since this shot is being rendered at very high resolution, with ray-traced shadows and motion blur, it was important to have the minimum amount of "extras" in my scene at any given frame. The asteroid explosion required a large number of objects (created using PowerMacros), and so did the asteroid field that you don't see until the end. This resulted in many objects that just hung around in memory even though they were only seen a small portion of the time. The obvious solution was to break the scene into two separate scenes.

I designed the entire animation as one complete scene, making sure that every element was exactly the way it should be in the final animation. This was saved as a master scene. I then set the last frame of the scene to be the first frame after the asteroid explosion, in which none of its elements were in camera view (in this case, 399). Carefully examining my list of more than 130 objects (many asteroids were grouped as single objects), I cleared all of the objects defining the asteroid field. Since this scene would never render to the frames they were seen in, they weren't needed. This scene was saved as "Part One" and the master scene was reloaded.

"By carefully managing your resources and making LightWave work with only the bare minimum amount of data, you can be much more productive."

This time around I set the first frame to be the next in order, or 400. All of the elements that made up the asteroid explosion at the beginning of the shot were removed. The resulting scene was saved as "Part Two." When the two scenes were rendered they fit together seamlessly.

I pass this story along because you may find it of use in your own work. If you find that you don't have enough memory to render a scene you've set up, try applying this thinking. Likewise if you find that your scene takes a staggeringly long time to render. Keep in mind, however, that this trick is not without concerns.

It is really important to make sure that your scene is complete *before* splitting it up. If you need to make any sort of change after the split, be certain to update the associated object (or other item) in each portion. For example, to change the camera motion you would need to make your adjustments in one scene, save the camera's motion, load each of the other scenes and load that camera motion. It doesn't sound like a big deal, but it's real easy to render a scene in parts, only to find that the parts don't match. Don't forget that splines affect a great deal more than just the keyframes they are set on.

So you've tried this and your render times are still beyond belief. During a large portion of the previously mentioned scene, the camera is sweeping along the left side of the *Ulysses* from front to rear. Earlier in the animation the right side of the ship was visible, but for a substantial number of frames in the middle you couldn't see any of it. I took the opportunity to replace the completed model with a stand-in consisting only of the left side of the ship. There were no polygons on the right side of the model at all. Render times for that section again showed a dramatic drop, with no real difference in the look of the final animation.

Finally, you should always go through each object in your scene and determine the proper shadow settings if you are ray-tracing or shadow-mapping. If you are doing a space scene, for example, your stars should not cast shadows, receive shadows or self-shadow. Every item that you can exclude from shadow computations saves time.

Hopefully, these tips will help solve some of your rendering time problems. By carefully managing your resources and making LightWave work with only the bare minimum amount of data, you can be much more productive. Of course, there's always that Raptor 3...

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The Toaster in MEDICINE

by Matt Drabick

The operating room is harshly lit; an air of tension fills the room. The drone of pumps and ventilators is punctuated by the rhythmic call for tools from the attending physician: Scalpel...Sponge...Retractor...Framestore. *Framestore*!?

With all of the attention paid to the Video Toaster and its role on *The Tonight Show*, *Babylon 5* and *Star Trek: Voyager*, it's easy to overlook other, less flamboyant areas where the Toaster is used. But how many businesses can claim that their Toaster helped save a life? Or allowed the terminally ill to create a living testament to their bravery and spirit? From visualizing the complex and hidden workings of DNA to training the custodial staff with basic video presentations, the Video Toaster is used on a daily basis in hospitals, clinics and other medical facilities. Staff and patient training tapes, promotional fundraisers, local cable access programming and Public Service Announcements (PSA) are just some of the projects produced with this technology. The increased use of the Toaster in the medical profession not only helps keep people healthy, it represents exciting opportunities for today's Toaster user.

Good PR

St. Joseph Hospital in Lexington, Ky., is a 468-bed facility providing general health care to the public. As a member of the hospital's public relations department, Jeff Murphy uses the Video Toaster to create training and promotional videotapes for hospital staff and patient education. "Though video production has been a part of the PR department for the last 10 years, the Video Toaster was only added in October 1993," Murphy said. "We initially used expensive outside production facilities." By buying its own equipment and producing videotapes in-house, the hospital was able to save money while gaining greater creative and deadline control.

St. Joseph Hospital uses a Video Toaster Flyer, an 040 with 18MB of RAM, a DPS TBC-III, a 500MB audio drive and two 9GB drives for the Flyer. Third-party software includes

DPaint IV, ADPro and Pixel Pro. JVC S-VHS and Sony BetacamSP VCRs, along with the Flyer NLE system, are used for taping and post-production work. The idea is to create broadcast-quality productions in-house. An auditorium with multiple video cameras, editing and control rooms, plus a sound booth, is currently under construction. The hospital also has a closed-circuit television system (CCTV) that carries health-related programming produced by the PR department.

Production work ranges from taping hospital events and adding titles with the Toaster to producing full-blown PSAs ready for broadcast on local TV. St. Joseph's PR department also plays an important role in fund raising by producing short videos used at local breakfasts and other events for new hospital programs, projects and facilities.

Recent patient and employee educational videos include a tape that explains to patients undergoing cardiac open-heart surgery exactly what is going to happen to them from the minute they walk into the hospital until the time they go home. Video helps calm and guide the patient through what can be a very difficult time.

Employee and staff training is also crucial. A recent three-part employee educational video covered better patient relations, how to interact with and respect patient confidentiality, and getting along with fellow co-workers. On average, finished videos range from 10 minutes to 30 minutes.

"The Toaster is instrumental in all of these productions," Murphy said. "Both the ToasterCG and TPaint are used to create eye-catching titles and graphics. The Flyer has also been extremely helpful, allowing A/B-roll editing with nice transitions to be played back directly from our hard drives. The Flyer is also fast and easy to work with."

Bay Hill Systems in Bay City, Mich., is another medical facility using video to reach both patients and staff. They have been using the Toaster since 1992. Three people work in Media Production Services, producing mostly patient, staff training and PR tapes for the hospital's closed-circuit TV (CCTV) and staff training facilities.

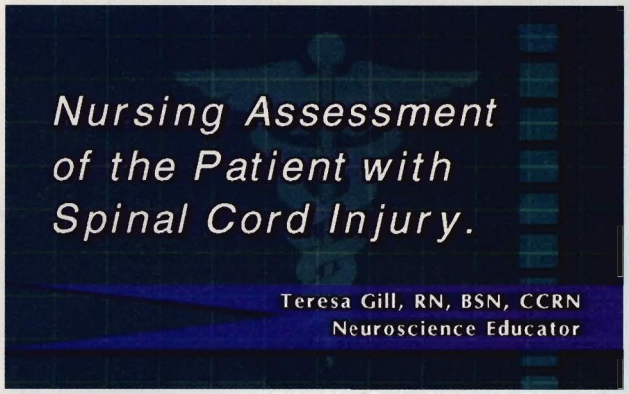
The Toaster at Bay Hill is a basic system with the original Toaster 2.0 card in an Amiga 2000. Because it lacks animation recording capability, LightWave animations aren't produced. AmiLink machine control is used with Sony BetacamSP editing VCRs for A/B-roll editing.

Studio and post-production work is done using two BetacamSP camcorders to tape events and do location work. Lectures by resident physicians and guest speakers are documented as well as surgical procedures. PSA spots are produced for other local non-profit health providers and organizations like Junior Achievement. Promotional fund-raising videos are also recorded for the hospital's foundation or for new facilities like the recently opened cancer center.

"Patient educational video's include everything from before-and-after back problems to brain surgeries," said Bob Przybylski of Bay Hill's Media Production Services. "We literally walk patients through the entire surgical process: which door to enter the hospital with, what elevator to take, which floor to go to, where to go for tests, what to expect during and after surgery, etc. It really seems to help."

Instructional videos for training hospital staff on how a new piece of equipment works are common. A good example is a piece showing nurses how a new mechanical ventilator operates and how to tell if there's a problem. "With a ventilator, it's very important that you be factual, as it could save a patient's life," Przybylski asserted.

The Toaster is used throughout the editing process to create backgrounds and titles, and to perform A/B-roll transitions. Both TPaint and the CG are used heavily. Przybylski likes to build layered backgrounds using the title as the last layer. "For a video on brain surgery, we made extensive use of framegrabbed images of a patient's brain with a neuromicroscope providing the video feed. A four-hour surgery was transformed into a short four-minute video with Toaster-generated graphics and titles," he said. Przybylski would like to upgrade Bay Hills' Toaster to the latest system software so he can



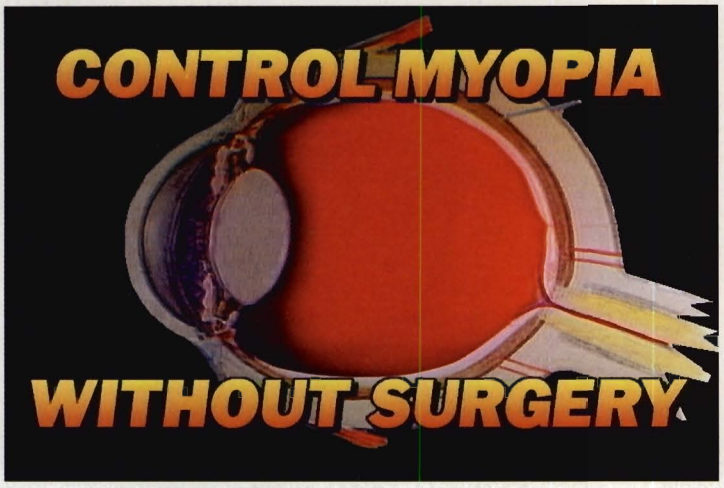
Self-paced training via video is rapidly becoming a popular means of educating hospital staff.

Illustrating complex medical procedures and concepts is accomplished here with TPaint and a 3D object.

Bob Kemper of the O'Berry Center's Media Services department works on a video using the Toaster and LightWave 3D.

do angled titles with the CG. Budget allowing, a Flyer is also on the wish list to perform non-linear digital editing and thus save time.

"Overall, I'm pleased with the Toaster and its capabilities," Przybylski said. "If you know what you're doing and plan properly, the Toaster provides sharp-looking graphics that can add a professional look to any video production."



VTU columnist Burt Wilson created this eye-opening still for a practitioner in Sherman Oaks, Calif. The image was outlined in TPaint, imported with ADPro, cleaned up in DPaint III and extruded with Pixel 3D. Wilson used LightWave to apply the original image to the extruded model, and the gradient spread title was done in ToasterCG.

A Different Approach

Video production at Children's Hospital in Los Angeles emphasizes the *patient* more than the production of staff training or hospital fund-raising tapes. According to Richard Garcia, a member of the Mark Taper Artist in Residence Program at Children's Hospital, "The Video Toaster plays a big part in providing hands-on therapy for sick and injured patients, and occasionally, children dying from AIDS."

Children's Hospital treats children to age 21. For the last three years a muralist, a literary artist and a video artist have worked together to make a real difference in patients' lives. With their Video Toaster editing system on a mobile cart, the system is wheeled into patients' rooms, where they can experiment with the video camera, record sound with a microphone, and create computer graphics or animations. "Sometimes the system is rolled into a playroom, where a group of children, perhaps accompanied by a sibling or parent, can work on a project together. It's very therapeutic," said Garcia.

Other projects include day-in-a-life documentaries in which one or two patients are given the opportunity to walk around the hospital and interview people they run into. Skits are also produced, with ideas coming from both staff members and patients. Animation is combined with live footage and morphing is used to create interesting graphics. Special performances given at the hospital have included a symphony and puppet players. These were taped, edited and played back later over the CCTV system. Additionally, a fund-raising tape was recently produced with the staff and patients working together to complete the project. The hospital's Video Toaster system includes a Video Toaster 4000, an A3000 with 18MB of RAM, a Sony Hi8 camcorder and editing system, a drawing tablet and an HP color printer.

Special Needs

The O'Berry Center in Goldsboro, N.C., is one of five regional care facilities operated by the state of North Carolina and serves a 17-county region for persons with developmental disabilities such as severe and profound retardation. Bob Kemper is coordinator of the two-person Media Services facility at the center.

"The Video Toaster was introduced to the center three years ago. First we had a 4000; now we've got a Flyer," said Kemper. Before the Flyer was purchased, all editing was done with a JVC S-VHS VCR and a Sony Hi8 VCR feeding a JVC S-VHS editing recorder. In addition to producing videotapes, Media Services also provides still photography, images for publications and overhead projector support, said Kemper.

"With 1,000 employees on staff and about 450 patients staying at the center 24 hours a day, 365 days a year, producing in-house staff training tapes is an important role for Media Services," he said. Recent training tapes include a seven-minute video on handwashing and gloving featuring a nurse demonstrating the proper procedures to follow. Other interesting examples include videos on airborne pathogens and how to properly evaluate center staff job performance.

Because the O'Berry center covers a large 17-county area and parents can't always drive to the center, family coordinators go to local communities monthly to meet with the parents of center residents. In an effort to improve attendance at these meetings, videotapes are prepared that include everyday footage of their sons or daughters. "Showing family members attending workshops, eating or taking speech therapy has proven to be very popular," Kemper said.

Video is also used to tape special events at the center such as musical performances. After Media Services staff taped the event, the footage is edited with the Toaster to add transitions, special effects and titles. It's then shown over the CCTV system to everyone unable to attend the original performance.

"The Toaster and Flyer combination are extremely useful for editing videotapes. We use the Toaster's Switcher, paint and CG functions extensively while the Flyer adds A/B-roll editing capability for doing dissolves and transitions," Kemper said. "Non-linear editing is a big leap forward compared to traditional videotape editing." Upgrade plans at the center include adding another Flyer hard-drive, a tape backup system and a new video camera. It takes unique video people to take care of the special needs of The O'Berry Center. Luckily, the Toaster talent is there—threefold.

Four-Legged Friends

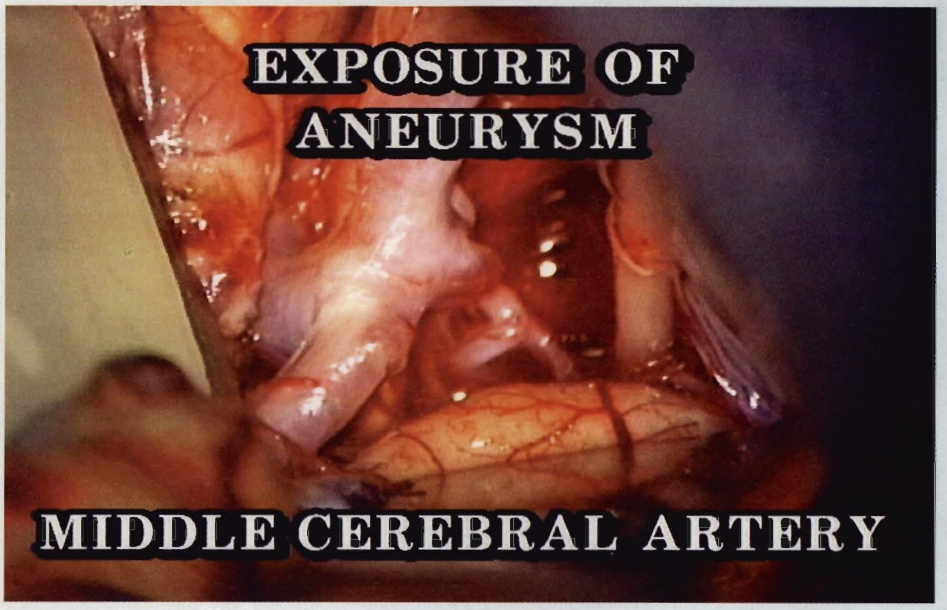
Located in Preston, Conn., the Preston Animal Hospital provides small animal care for the local community. Run by veterinarian Dr. Walter Doolittle, an early Amiga advocate, the hospital uses the Toaster for storing X-rays and medical documents. Simplifying animal

identification by using Framestores and Flyer clips is another recent advancement.

Before buying his Video Toaster system over a year ago, Doolittle bought five Amiga 1000s when they were first introduced: one for himself and one for each of his four children. Doolittle was fascinated by a computer that offered multitasking, custom chips, color composite video output and stereo sound, yet only cost about $1,000. Over the years he bought an Amiga 1200, 2000 and 3000. "I recently added a Flyer to my Toaster system!" he said proudly.

Doolittle's Toaster system includes a Video Toaster Flyer, a Toaster oven with a 68040/25MHz CPU, 50MB of RAM, 500MB IDE system hard drive, a pair of 9GB Flyer drives, a Toshiba CD-ROM, a SunRize AD516 and SoundSwitch, and a Sharp scanner. Third-party software includes ImageFX, HollyWood FX, WaveMaker and ADPro.

Doolittle uses the Video Toaster and the Sharp scanner to digitize animal X-rays and save them to his hard drive for fast random access. He uses paint packages to enhance



Documenting critical operations for security and educational purposes sometimes requires a strong stomach.

X-rays. Before buying his Toaster, Doolittle used a black-and-white video camera and a NewTek DigiView slow-scan digitizer to do the same thing. "Using a computer to digitize and store X-rays and other medical documents is finally becoming common practice in the medical profession—something I have been doing for years," he said. "Besides facilitating easy retrieval, storing X-rays using a computer's hard drive allows those images to be easily sent to another doctor via modem."

Another potential use for the Flyer is digitizing an animal's likeness for fast ID purposes. According to Doolittle, "Many people think someone has stolen their missing animal and ask their veterinarian to make a positive identification or provide an image." By having a pet's likeness digitized onto his Flyer's hard drive, Doolittle can quickly identify the animal by its distinctive markings and coloring. Being one of the first to explore the use of the Toaster in veterinary medicine Doolittle is truly at the forefront.

"At Children's Hospital, the Video Toaster plays a big part in providing hands-on therapy for sick and injured patients, and occasionally, children dying from AIDS."
Richard Garcia, Children's Hospital

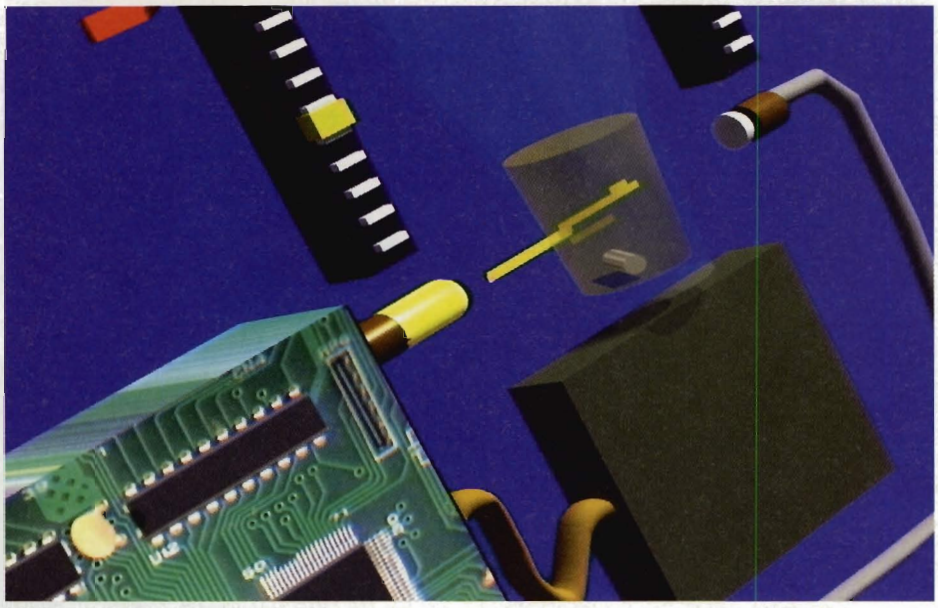
Corporate Medical Videos

Durham, N.C.-based VHS Video Productions uses the Video Toaster to produce corporate videos for a variety of health-industry clients, including Becton-Dickinson, Troxler Electronics and Cone Mills. Medical clients include Duke University's In Vivo Microscopy Lab, Sigma Diagnostics and Organon Teknika.

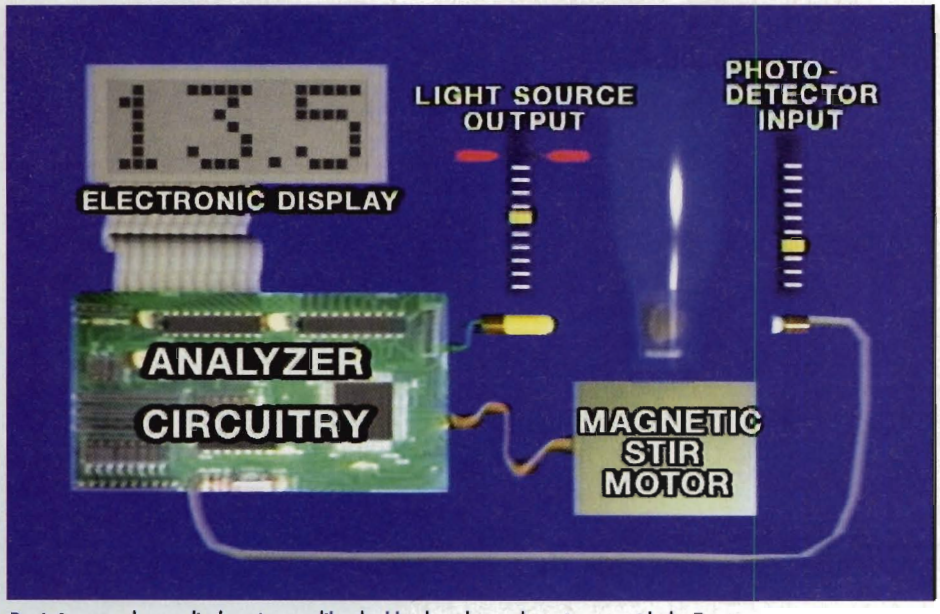
VHS Video uses two Video Toaster systems. The main one, tied into a U-MaticSP-to-BetacamSP video editing system, has a Toaster 4000 card with 3.1 software inside an Amiga 4000 with a 68040/40MHz Warp Engine, 18MB of RAM, a 1GB SCSI hard drive and a 120MB IDE system drive. The second system, tied into an S-VHS editing system, has the original Toaster card with 3.1 software in an Amiga 3000 Tower with a 68030/25MHz CPU, 18MB of RAM, a 200MB hard drive and a 25-inch RGB monitor. Finally, an Amiga 2000 with an AD516 16-bit audio card is used for mixing down voiceovers, music and natural sound effects, and laying the final audio mix back to videotape. Upgrading to the latest Toaster system software and buying a Flyer are part of VHS Video's future plans.

The company's work with Duke's microscopy lab included part of a promotional videotape used for securing grant money from the National Institute of Health (NIH).

Using a refined version of a magnetic resonance imaging (MRI) device that works on a much smaller scale, the lab specializes in creating state-of-the-art animations of scientific and medical subjects. Some examples include blood flowing through a live rat's heart or rotating the same heart in 3D space for a variety of perspectives.



By combining the power of LightWave, ToasterCG and TPaint, video producers can illustrate ideas that cannot be shown in any other way. Here, a signal path is pictured with an image from TPaint animated in LightWave.



Depicting complex medical equipment like the blood analyzer above is easy with the Toaster.

For the promotional piece VHS Video hired a scriptwriter, shot and logged the bulk of the footage while Duke's lab provided S-VHS animation footage to create the 16-minute fundraiser. "The Toaster was used to provide switcher transitions and character generation, and for converting PICT files from Duke by loading them into TPaint," said Rick Melges, VHS's computer artist.

VHS Video has also produced sales and training videotapes on two models of blood coagulation testing equipment sold by Sigma Diagnostic of Research Triangle Park, N.C. One 46-minute training and one 10-minute sales tape were produced for each analyzer.

"For the blood-testing tapes, actors were hired to portray two monks from the Middle Ages. The monks are 'transported' from the past to a modern research lab using the Toaster's center flash wipe and an angelic sound effect provided by the AD516," Melges continued. More than 200 Framestores were created for all four videotapes using the Toaster's Framegrabber and TPaint. LightWave was used to create a 20-second animation used with all four tapes to illustrate exactly how the blood analyzers work.

"Breaking into the medical video production field can be difficult," said Melges. "To win the contract with Sigma Diagnostics, we created a DPaint animation *on spec* as part of a promotional tape to prove to them that we were capable of doing the work." Melges is passionate about using the Toaster, especially TPaint and LightWave.

"As scientists and chemists look for new ways to uncover and illustrate the molecular world, innovative means like the Toaster are needed," he said. "While LightWave designs and colorizes shapes easily, insuring that each object, molecule or DNA stand has the exact proportion and color is crucial. Movement is also a challenge, but one that LightWave can handle.

"Compared to other systems such as the VideoCube, I find the Toaster easy to use and extremely reliable," he asserted.

Post-Op

Whether you're an enterprising Toaster owner, a medical practice looking for a cost-effective way to educate patients and staff, or a scientist eager to illustrate ideas, the opportunities for the Video Toaster and Flyer are limitless. As medical procedures become more complex and people take a more active role in their health care, the opportunities for Toaster-created images, videos and animations can only increase. From DNA exploration with animation to informing the public through PSAs, your skills will put you on the cutting edge of the Toaster's use in medicine.

VTU

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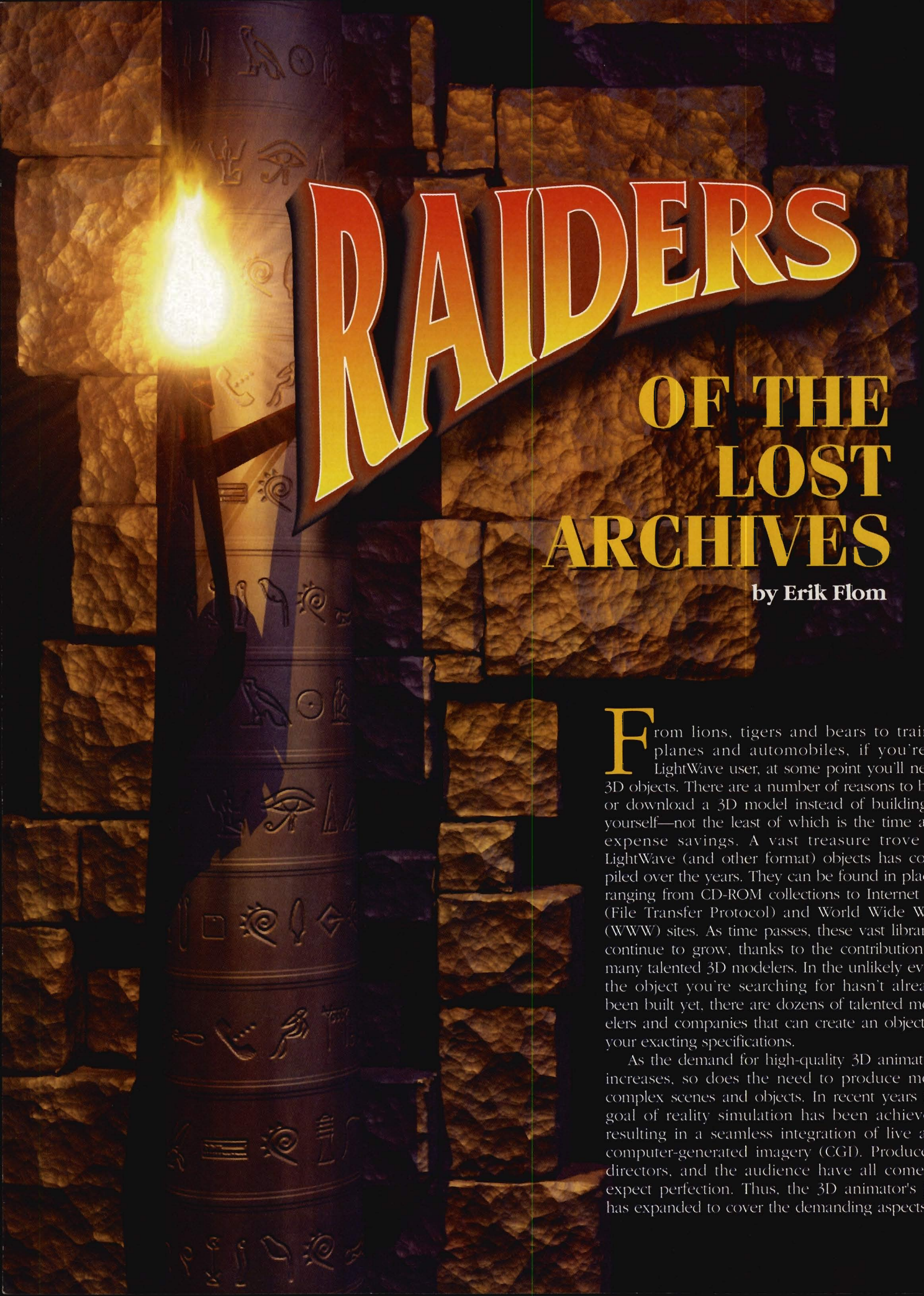

RAIDERS OF THE LOST ARCHIVES

by Erik Flom

From lions, tigers and bears to trains, planes and automobiles, if you're a LightWave user, at some point you'll need 3D objects. There are a number of reasons to buy or download a 3D model instead of building it yourself—not the least of which is the time and expense savings. A vast treasure trove of LightWave (and other format) objects has compiled over the years. They can be found in places ranging from CD-ROM collections to Internet ftp (File Transfer Protocol) and World Wide Web (WWW) sites. As time passes, these vast libraries continue to grow, thanks to the contribution of many talented 3D modelers. In the unlikely event the object you're searching for hasn't already been built yet, there are dozens of talented modelers and companies that can create an object to your exacting specifications.

As the demand for high-quality 3D animation increases, so does the need to produce more complex scenes and objects. In recent years the goal of reality simulation has been achieved, resulting in a seamless integration of live and computer-generated imagery (CGI). Producers, directors, and the audience have all come to expect perfection. Thus, the 3D animator's job has expanded to cover the demanding aspects of

traditional filmmaking, from lighting, composition and pacing, down to set construction, prop design and even special effects. Given that good 3D animation requires attention to all these details, it's clear that any animator can benefit from ready sources of 3D models.

Many production houses using Toasters are more concerned with delivering finished products than taking the time necessary to truly master a program like LightWave. If the Toaster is part of an edit suite, it becomes even more costly to devote time to 3D development. One way to cut design time is to incorporate objects and scenes from existing libraries of stock 3D objects.

If all this talk of modems, webs and objects (oh my!) is enough to make you think twice about using your Toaster for 3D animation, then you might consider subcontracting your animation needs to one of the dozens of specialty houses that have popped up in the last few years. Taking advantage of LightWave's lower overhead, these facilities specialize in developing custom objects, scenes and animation to be incorporated into larger productions. Unlike larger 3D companies, whose clients have deeper pockets, the personalized service offered by these small local LightWave based companies might be just what you need.

Consider the position of a typical movie set designer, whose job is to recreate a typical city street from the '30s. Would the production be expected to recreate the cars, costumes and even the buildings from scratch? No, they'd just go to some place and rent the cars for the duration of the shoot. Costumes would be requisitioned from the wardrobe department., or rented from a costume shop. Even the buildings probably already exist, either on location or in a backlot set given some minor redressing.

Or try to put yourself in the shoes of the hapless 3D animator for some B-grade film. Beset by hordes of screaming producers, all you want to do is incorporate their latest changes into your animation production schedule, suddenly the director glares at you from his throne and screams:"Bring me a fully modeled whale by sundown or you're fishbait!"

Knowing there's little chance of talking your way out of this one, you return to your office mulling the possibilities. You could model it yourself, losing a day (or more) of production time. You could also try searching through a number of CD-ROM libraries and on-line services. Failing that, you could take advantage of the vast army of independent modelers and companies that specialize in subcontracting model and scene construction. And, once accomplished in the art of LightWave, you could offer these services yourself.

Like the intrepid treasure hunter, your task is now to venture out into the wilds of cyberspace, find the treasure you seek, and bring it back in time to get your project done.

Probably the most widely known source of high-quality, stock and custom-built models is Viewpoint Datalabs. Having served the high-end graphics and military simulation fields for years, Viewpoint is finally beginning to offer direct, active support for the LightWave object format. Though they're somewhat expensive, the quality of the objects is generally very high. Viewpoint's digitized objects for many popular films and TV commercials, and the company is used to providing custom digitizing services for a variety of media. A few of their objects are included with LightWave.

Viewpoint currently distributes their complete library on an encrypted CD-ROM, free for the asking. To buy one of their objects, you merely call for the ID code to unlock the object from the CD, and your account is billed appropriately. Beginning with volume 3 (to be released at SIGGRAPH), all the objects on the disc will be directly accessible in LightWave format, eliminating the need for costly third-party object translation utilities. This CD, combined with the Web site (which we'll discuss later), will enable an animator to purchase one of Viewpoint's models instantly, at any time. (This can be real handy for those jobs that come in late Friday and must ship by the following Monday!)

Other places, like Acuris, generally support the 3DStudio, Mac and SGI platforms, but their objects can be translated for use in LightWave, and they have a wide range of items available.

The downside to any of these larger object companies is that they generally charge a premium for their objects, and once you've bought the object you'll find that it'll still need some final surface detailing. In the case of most Viewpoint models I've seen, the surfaces are named properly, but everything is a flat white. Depending on the complexity of the object, texturing by itself could take several hours. An example of how important texturing is can be seen in the before-and-after pictures of the really nice '57 Chevy object they gave away during the 1993 SIGGRAPH meeting.

If you have a CD-ROM player hooked up to the PC or Amiga that you're running LightWave on, then I would strongly recommend purchasing one (or more) of the many 3D collections available on CD-ROM. Though most CD packages tend to be the best objects culled from some of the BBS and Internet sites, the cost of a CD is less than what you'd spend downloading even half of the files. A CD usually comes with some sort of pictorial archive (either on the disc or in print form) of its contents, allowing you to quickly scan the resident objects.

Whether from the Internet, CD-ROM or public domain, 3D objects can give you the world.

LIGHT-ROM volumes I and II are probably the nicest collections I've seen for LightWave-specific scenes and models. All filenames fit within the 8.3 filename convention, so even PC LightWave users should be able to use them. The disc is well-organized into broad object categories, with color thumbnail images of every object on the disc. (Beginning with volume II, the index images are in a separate directory structure, allowing you to easily copy the index onto a local hard drive for off-line browsing.) The remainder of the disc is filled with a variety of useful DEM files and assorted goodies. There's even a directory with some animated image sequences that can be mapped onto LightWave objects. Volumes I and II are available for less than $40 each, and at that price, they're well worth the cost.

Distributed by Graphic Detail, LIGHT-ROM III should be on the shelves by November of this year. This multi-disc set should include a number of new objects, along with selected objects from the previous two discs. The collection will include an enhanced collection of Digital Elevation Maps (DEM) from around the world.

The Syndesis 3D-ROM was the first 3D CD collection released for LightWave and was primarily a vehicle to promote

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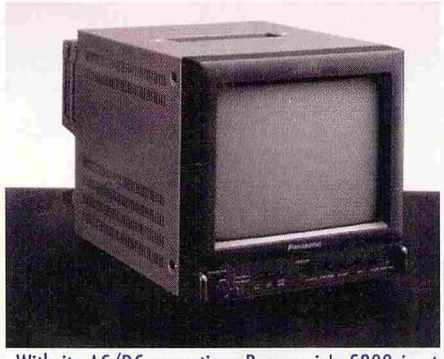
Monitor Mania

Hints on Finding Your Perfect Screen Savior

by Wayne M. Cole

At some point, everyone who has put together a video editing suite has wrestled with the question of monitors. "Should I get monitors that are hi-res, low-res, with or without audio monitoring, multi-format or single-format? Should I get big ones, little ones, multi-input or single-input monitors? Do I need pulse cross, color off, degauss, blue check, underscan and genlock-capable monitors? Should they be high-persistence, low-persistence, or use SMPTE standard C phosphors? Do I need ones with shielded cases, or can I get away with unshielded cases? And can I get them in colors to coordinate with the other studio equipment and furniture? (Don't laugh. Some people would argue, with some justification, that, in some situations, looks are more important then exotic "bleeding edge" functions.)



With its AC/DC operation, Panasonic's S900 is at home in the studio or in the field.

A surprising number of people who make money with video, either full- or part-time, say things like, "Joe told me Monitor X was great, so I bought three Xs." Too often, no thought is given as to whether or not these monitors meet or exceed the user's real needs until after the money is spent.

You may already have guessed that, because you are reading a magazine rather than a video engineering book or video supply house catalog, we are not going to do in-depth technical comparisons of all the monitors available. However, we will take a general survey of various monitor configurations on the market today while identifying some key "buy points" for various categories of possible use.

Resolution Resolved

I recently spoke to a producer friend whose bread and butter is wedding videography. He lamented that he wished he had one "good" monitor. In exploring his definition of "good," it became obvious that his definition had *resolution* at its core. His problem was that when he set up his editing suite he was shooting with industrial VHS equipment. He later moved up to S-VHS and was disappointed with the results because he saw very little visual difference in his editing suite. But, when he took some of his "before and after" footage to a suite where he could view the output on a monitor with S-VHS resolution, he was satisfied that the investment in a S-VHS camera was not wasted. He, like many others, has discovered the value of having at least one monitor that matches or slightly exceeds the resolution of the video format you are working with.

Now, the question is, should you spend the small king's ransom it takes to get a monitor capable of 900 lines of horizontal resolution just because that's the highest resolution you can find? Well, that depends on what you are going to feed it. If you only do VHS or 8mm work, you will never use even one-third the capability of the monitor. These formats are, at best, 240 lines of horizontal resolution. A 900-line monitor will not make the picture look any better—the monitor can't make up for what isn't there to begin with. In fact, if you look at the specification of most tape formats in use today, from VHS to D1, you won't find *any* that have the ability to record better than 500 lines of horizontal resolution. So a 900-line monitor would really be necessary only if you are doing critical broadcast work where you need to view the camera output directly before it is processed for transmission. After all, most professional camera people are likely to use cameras that can provide 700 to 850 lines of resolution before the signal is recorded.

So if you are primarily going to work with VHS, 8mm and possibly Y/C formats, you should consider at least one good 450- to 500-line horizontal resolution monitor. This will even cover your potential growth into the Betacam and Beta-SP arenas, as those tape formats have horizontal resolution limits of about 360 lines and 460 lines, respectively.

Bigger May Not Be Better

If resolution is the top priority for video monitors in personal video production suites, then overall size has to be No. 2 on the list. But this doesn't mean bigger is better. With the potential promised by the Flyer and other non-linear editing systems, many smaller post-production facilities are thinking about adding a second editing position or another format to their existing facility. For example, you may want to use the Flyer and one Beta-SP deck to have a second editing chair in an already cramped suite with only one editing spot currently set up for a standard linear A/B-roll operation. Such a Flyer system would require, as a minimum, a preview monitor and a program monitor, or a source monitor and a program monitor, in addition to the Amiga's control monitor. Better yet would be a preview monitor, program monitor and source monitor. Having one full-featured, higher-resolution monitor for the linear system's program-out means that you could get lower-cost monitors without all the bells and whistles for your sources. After all, the source deck's output adjustments are going to be made at the Toaster inputs on the linear system using a waveform/vectorscope. Therefore, the source monitors

really only need to be able to show the source video and the source decks' superimposed time-code displays.

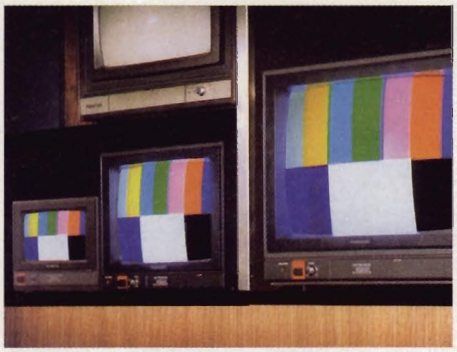
A set of 20-inch or 13-inch monitors might seem fine before any thought of a second system comes into play. But you should also consider a set of 5- to 9-inch monitors grouped together in a rack mount cabinet. This setup offers enough room to add two more small rack-mounted monitors, and still leaves room for a decent-quality 13-inch monitor for the Flyer's program out. The downside to the smaller rack mount monitors is that they generally cost significantly more than their 13-inch counterparts.

Having visited many suites with little or no room for growth, I would summarize the issue of size as a buy-point like so: *Don't choose with an eye for filling the available space.* Rather, buy with the idea that your equipment needs will increase while your overall available space may not. Or, from a business perspective, your company's growth or your pocketbook will likely dictate equipment purchases before it will support a move to larger facilities. So it would be prudent to make form and fit decisions accordingly.

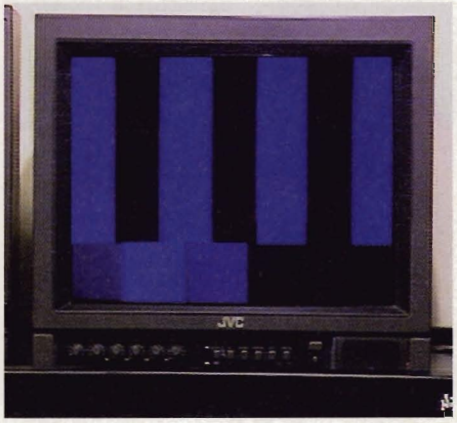
Those Ever-Important Details

Defining the resolution and size of the monitor you need doesn't really narrow the field of monitors you have to pick from unless you want really big or minuscule monitors, say outside the 5-inch to 25-inch range. So now you have to start considering other features, like number of inputs, operational standards (PAL, SECAM, NTSC) and input formats (composite, Y/C or S-VHS, component, analog or digital). You also need to look at whether or not you need audio monitoring in the monitor itself, and if you need video adjustment and diagnostic features like underscan, pulse cross, color off, blue check, and setup, luma, chroma and phase adjustments.

The consensus among the editors I spoke with is that the program monitor should allow you to see, as nearly as possible, exactly what is going onto the tape in the edit deck. This means that the monitor must be adjustable to provide a picture that has "unity" from a test signal perspective. Unity is important because you could easily adjust the monitor to give adequate skin tone reproduction on screen, while the image going on the tape is actually green-faced people! Color-off and blue-check controls are a great help in setting up a monitor for proper output when using SMPTE bars as an input, especially if there is no color analyzer available to slap on the front of your monitor. Some of the more expensive studio monitors have built-in circuits that will automatically do the monitor setup. But, even if a monitor only has



Monitors come in all shapes and sizes. Choose yours with care, keeping pocketbook and usage in mind.



With monitors, bigger doesn't always mean better.

brightness (luma or video level), contrast (setup or black level), color (chroma) and hue (phase) controls, it is still possible to properly adjust it to nearly "standard" picture luminance and chrominance performance. And this adjustment should be mandatory for the program out monitor in any editing setup. (See the "Slices" column in June 1995's *VTU* for the proper procedure.)

When it comes to the source monitors, however, such sophisticated adjustment aids are not as critical. In some cases, as when using an external TBC with the source monitor plugged into the source deck, the monitor output doesn't really reflect what is going to the switcher anyway. And, for editing purposes, the quality of the source video at the switcher is what really counts. So for the source monitors, your requirement might be just to have viewable output. You might, however, want to have all your source monitors matched as closely as possible so that whether you put a particular reel in the B-roll or A-roll deck makes little difference in how it looks. Monitors of the same make and model will be easier to get similar looks from, even though they may require fairly different settings to get matching pictures. Matching pictures may be important to you at the source monitor level, especially if your clients look at the video as you edit.

Another consideration in monitor selection is audio. Do you need to have audio monitoring capability on your source monitors? Well, if you are using professional gear, chances are you are routing the source audio to a mixer anyway, so audio might not be a requirement for your source monitors. You should, however, have one video monitor with audio capability, mainly because the audio facility of video monitors generally stinks! Why is poor audio a feature? Think about what most clients will be using to view the finished output. With nice high-quality studio monitor speakers, a mixer and an audio processor, you may be able to make some pretty poor audio acceptable. But what will it sound like when the client gets it and hears it through that crummy little three-inch speaker located somewhere at the back of his television set? If you don't want surprises, you should listen to the audio track on the lowest common denominator before it goes out the door. Similarly, it always pays to have access to one consumer-quality setup to view the final project on before handing it to the client. If it looks good on such a setup, you can be confident that there will be no complaints after the client has that nice S-VHS or BetaSP master dubbed to VHS.

Monitors to Go

I'm sure everyone who has done electronic news gathering (ENG)-type production (essentially one camera, and maybe one or two extra lights, out in the field) has had anxious moments over color rendition. Yes, that little black-and-white viewfinder picture on professional cameras is great (when adjusted right) for letting you know what the luma and contrast levels are like. And after all, if they are bad, no amount of color fidelity will help.

How many times have you thought, when looking at footage back in the studio, how you might have lit a scene dif-

ferently or even shot it from a different angle if you could have seen it on a color monitor before you started to roll tape? Amazingly, there aren't that many really good, affordable, rough-and-tumble portable monitors that run off DC power. None, at least, that don't require giving up your body parts to acquire.

One notable exception is JVC's TM-550U. People who buy these monitors hold on to them. Whether you are buying a new one or are lucky enough to find a dealer who will put you on a waiting list for used or "B" stock, chances are it will take months or longer before a TM-550U becomes available. These little 5-inch monitors run on either AC or DC. For DC you can either hook them up to a DC source via a 4-pin XLR, or plug a NB-G1 or NP-1B battery into their side compartment. Anton Bauer and PaG even make battery units that can be attached to this monitor.

The TM 550U has a complete set of controls on its front panel for choosing either of two sources, internal or external sync (in case you need to genlock it), or PAL or NTSC operation. There is also volume control for both the built-in speaker and headphone input.

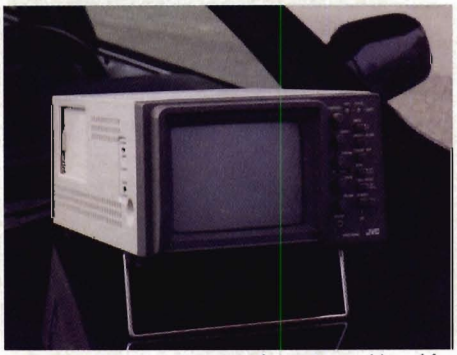
Generally these monitors can be nabbed for a tad under $600 (street price) new. Sony also makes AC/DC portable models in both the PVM and BVM series. while two of these models, are slightly bigger (8-inch screen); they all cost 35 to 100 percent more.

There is also the Panasonic BT-S900Y, which has a 9-inch screen and lists for just under $1,000. These units have higher resolution than the 550U, but bang for buck, and for road show utility, the JVC TM-550U deserves a good look.

Now, for small production houses—particularly "lone wolf" operations where one person is everything from janitor to executive producer—AC/DC portable monitors might seem like a waste of money, or a luxury. That is, you spend a fair amount of cash on a monitor that sits on the shelf a lot. But there is a way to double up on this investment.

Rasterizing waveform/vectorscopes (e.g., the Magni Monitor 400, VideoTek VTM 100, Hamlet HT 301 and Techtronix WVR-500) are popular with smaller production facilities. They don't come with monitors, so many users plug them into that unused second or third line-in on the program monitor. This is OK for setting up and timing the system before an edit session. But for full-time signal monitoring the problem is you have to switch the line you are viewing between the program output, and/or the waveform /vectorscope output. You enter the mode of signal *spot-checking* instead of *signal monitoring* a very important distinction.

You can also use your portable AC/DC monitor in the edit suite, as the waveform/vectorscope output monitor for full-time program signal monitoring. If you are really on a shoestring budget and don't have a waveform/vectorscope, you might decide to double up by getting an AC/DC portable to serve as both a source monitor in the studio and your field monitor on location.



JVC's TM-550U provides versatility, value and long life.

"Fits-All" Monitors

Hunting for bargain "two-fers" seems to be a favorite pastime with videographers who are on a tight budget. And Toaster users who have Commodore 1080s, or early 1084 or 1084S models with most of the controls on the front of the monitor, have been spoiled by the seeming advantages of inexpensive multi-purpose monitors.

With a little cabling ingenuity, these early Commodore models could be wired so that they displayed Amiga output and, with the flip of a switch, Toaster or other NTSC video output. In fact, with the right cables and connectors, even Y/C output is possible. Once the company stopped manufacturing the 108x series of monitors, only high-end multi-purpose monitors were available, costing $1,000 or more apiece.

Although multi-purpose monitors have their place and purpose, they are not necessarily for everyone. If you are a videomaker and have many international contacts for whom you do video work, that PAL/SECAM/NTSC monitor may be a godsend. Further, say that, because of your jet-setting ways, you have minimal living/working space in order to keep the monthlies low. Then, perhaps, a monitor that also doubles as a computer monitor would be optimal. This is particularly true if you work serially with distinct times when you need to view video output rather than computer output.

Modeling, animation and recording animations to tape is where a multi-sync monitor really shines. Well, if you are in that situation, has Sony got the monitor for you! Actually, this company has several to choose from. The GVM series come in different sizes (13-inch and 20-inch) and one model even comes with a touch screen. The backs of these beasts look like the patch bay at a rock concert. The A line is a set of loop-through connectors for composite video plus audio. The B line accommodates looped-through Y/C video and audio. There are also two RGB inputs—one switchable for digital or analog operation, the other switchable to a "superimpose" mode. The RGB inputs are superimposed onto the composite and Y/C inputs.

These monitors even have remote control, via a Sony wired remote or RS-232C port. Switching from the main RGB display to one of the other displays can be triggered by a GPI signal applied to an RGB-A select port. Going to the Sony PVM series, you can find virtually all the same features with the exception of the RS-232C control, but in sizes ranging from 8 inches to 32 inches. These type of "fits-all" monitors run anywhere from $1,500 to $2,500. If you are just editing for local markets, they are not worth the price. For the same money, you could get a good-quality program monitor, two reasonable source monitors and maybe even a decent multi-sync. You would also gain the advantage of being able to view sources, program and control displays all at once instead of having to switch from one to the other. So, while you may be able to envision a scenario where a "fits-all" could be an asset, for most video production operations they shouldn't receive a second thought.

So What's Good?

The bottom line of what makes a monitor "good" is based upon its intended use. Once you get beyond the basics—such as available space, input formats and display standards (NTSC/PAL/SECAM)—you need to visualize the work process and how the monitor you want to buy fits in. Does it *need* to support Y/C, composite, component or some combination of these formats? Is it going to be used at a point in

the process where it needs to be finely tuned to a standard output mode (i.e., do you really need blue check, color off, and perhaps pulse cross and underscan)? Will the extra 200 lines of resolution, which may run you as much as an additional $500, actually make a difference in the way you do your job or handle your video material?

When I'm laying out an editing suite for someone, I always produce a diagram with all the gear, including audio, video and control signal paths. By looking where the monitors are placed, what lines go in, what lines may be looped through, and ultimately the level of production engaged in (event or training video, industrials, or broadcast), most of these questions answer themselves. Then, with the budget and answers in hand, it's simply a matter of searching the catalogs for the "right" monitor instead of just a "good" monitor.

Monitor Basics

Everyone wants a monitor that produces "good pictures." But, especially since most readers of this publication deal with both computer video and "television video," literally at the same time, there is no single answer to what makes a good picture. However, it helps to understand a little about how monitors work in order to be able to sort through various monitor specifications, and thus be able to select a monitor with a picture that is "good enough" for any particular application.

Making the Picture

Ignoring LCD panels, monitors make their picture by creating energy fluctuations in a continuous electron beam, then targeting that beam at a surface that is coated with phosphorescent materials of one type or another. (Figure 1). These substances are used because the electrons in the atoms that make up the coating are easily "excited," and thus elevated to a higher energy state than when left alone. The electron beam striking the phosphorous electrons does just that. But since the beam immediately moves on, these excited electrons, now missing stimulation, fall back to their lower energy state. In so doing, they give off the excess excitation energy in the form of light.

The color of the light these electrons give off is a function of the amount of energy they have to give up to get back to the original energy state (i.e., the amount they got from the electron beam in the first place). The rate of decay of the energy these light-emitting electrons demonstrate determines whether they are high-persistence (slow-decay) or low-persistence (fast-decay). High-persistence monitors are a godsend to people who work with highly detailed pictures in a static environment (e.g., interlaced CAD displays). But unless you are into "trails," for most video and computer work, normal or low-persistence monitors are more than adequate.

Back to the monitor innards. There are sophisticated electronics that point and focus the electron beam and govern its side-to-side and top-to-bottom sweep of the phosphorescent surface on your viewing screen. This sweeping movement is characterized in the spec sheets as horizontal and vertical scan rates. In a color monitor, the beam itself is split into three streams aimed so that they will hit phosphors that glow predominantly red, green or blue.

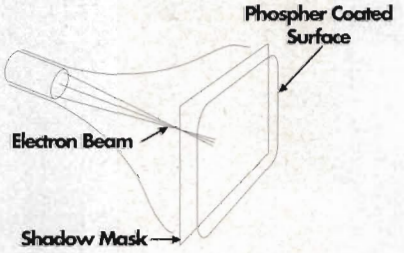


Figure 1. Cathode Ray Tube

There is also a mechanical "digitization" process incorporated into a monitor's picture tube that affects resolution and the crispness of the picture. First of all, for color monitors, the phosphors that glow red, blue and green are laid down in vertical stripes at an offset from one another. A collection of these varying phosphor regions lies under one of many holes in the "shadow mask" of the picture tube.

The shadow mask is essentially a barrier with lots of holes in it designed to let the electron beam through in discreet locations so that the corresponding beam components strike a set number of red, green and blue phosphor locations on the viewing surface. The action of the shadow mask in combination with the phosphor "striping" form the "pixels" that are common on computer spec sheets. The density of the holes and the phosphor stripes determine dot pitch and contribute to the resolution of a monitor (and ultimately to picture quality).

Scan Rates

When talking about monitors for display of "Television Video" (ignoring the looming spectre of HDTV), the choice of scan rates is rather limited. For NTSC video—used in most of the western hemisphere, Japan, South Korea and Taiwan—the horizontal scan rate will be about 15.75 kHz and the vertical scan rate will generally be 60 Hz. This says that the electron beam will sweep horizontal lines in succession from top to bottom of the picture 60 times a second. Because NTSC video is "interlaced," only one-half of the total of horizontal lines available on the display are scanned each vertical pass. On one pass, all odd-numbered lines are scanned; on the next pass, all even-numbered lines are scanned. Doing the arithmetic, you will find that this leads to a limit of 525 horizontal lines per picture. For PAL and SECAM, the numbers are more like 50Hz vertical over 625 lines, but, unless you are planning to do a lot of international work, these numbers will not have much meaning for you.

For NTSC, the maximum number of short lines or even dots of one pixel width that you could see placed one above the other would be 525. In effect, the scanning mechanics set the limit of VERTICAL resolution (the number of distinct horizontal lines stacked one above the other that we can make out gives the limit of vertical resolution). However, in determining the horizontal resolution, manufacturers have a little more leeway. Horizontal resolution (the maximum number of vertical lines placed side by side that are distinctly resolvable) can be changed by varying the width and focus of the electron beam, the size and density of the holes in the shadow mask, and the width of the various color vertical phosphor stripes. And for video work, horizontal resolution is one of the key "buy points" you should keep in mind when considering a video monitor.

VTU

Wayne Cole owns Infinity Heart Productions in Goleta, Calif.

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What a Treasure

The Path to an Image

by Dan Ablan

When *VTU* originally asked me to create this image for the 1st Annual LightWave Animation Contest, I had some big ideas. I envisioned pirates, sunken treasure, scuba divers and ships. What I ended up with was an old chest washed up on a sandy beach—something better than the original plan.

The first thing I needed to do to create this image was to decide on a look, and sketch out a simple outline. Once that was complete, it was easier to tell where the project was going, which, of course, helped to save time. The second thing was a photograph or illustration of a treasure chest. I went to two libraries and three bookstores, but never came across what I was looking for. I found plenty of boxes and ships, but no treasure chests. I knew exactly what the chest should look like, but modeling always goes better if you have a photograph, or the object itself, in front of you. Little nuances make things unique, and the memory does not always provide them. Well, after a lengthy search, I found a "hidden treasure" book with a nice color photograph of the chest on the box. At that point, it was time to begin modeling.

Initially, with any project, the modeling portion needs quite a bit of attention. Often, after spending an hour or so modeling an object, I scrap everything and start over. It seems that the first time around helps one get a feeling for how the object should be built. Starting over then allows for more accurate modeling because you know exactly where you're going. I know it sounds nuts, but, you know, whatever floats your boat—or treasure chest.

So, in one layer I built a box in the shape of a rectangle. In another layer, I built a smaller box, which would be used to cut out the inside of the Treasure Chest. The smaller box was positioned a few inches or millimeters from the bottom of the chest and the left and right sides, but extends out the top (Figure 1). Keep in mind that the lid for the Treasure Chest will be built later. Using Modeler's Boolean Subtract feature, I cut out the interior of the Treasure Chest. This portion was saved as TC_box, for safety. I studied the photo of the chest I had, and decided that the main wood supports surrounding the Treasure Chest should be the next part to model. In a clean layer, with the Booleaned chest object in the background, I simply made long rectangular boxes around each side of the chest. I gave these the surface name "wood supports." (I surfaced the Treasure Chest object as TC_sides and TC_inside.) I didn't bother separating the inside walls, because they won't be fully seen in the final image. Thanks to LightWave's Cubic Image Map, I was able to give only one surface name to the wood supports. Before this feature was available, it would have been necessary to name the Y and Z sides of the wood for proper image mapping.

Next, I joined the Treasure Chest with the wood supports (using the Boolean Union option), merged points, and saved the object. After cleaning out the extra layers, it was time to pay attention to the little details. I needed to create the leather straps, metal brackets and corner supports. These parts of the Treasure Chest are simple objects, but need to be sized and placed correctly. Using the period key in Modeler, I blew up my working view in order to build the details at the right size. All I needed were basic shapes. Although this is an important part of the final object, I know that my scene and final image won't require any close-ups. It's good to know where you are going with

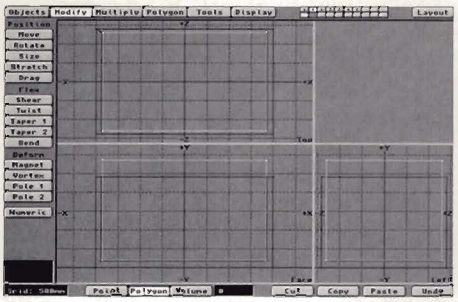

Figure 1

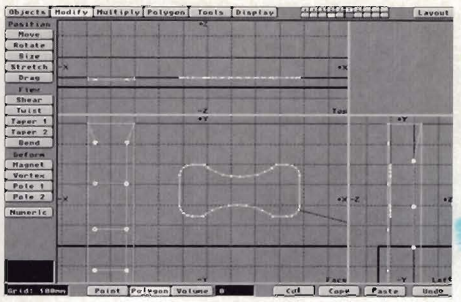

Figure 2

your projects, as you will save enormous amounts of time.

For the metal brackets on the chest, again, a simple object was built, and this time, extruded just a couple of millimeters and placed so that it would "sit" on the Treasure Chest. To place the leather straps and metal brackets on the chest, their particular layers were put in the foreground and the chest was placed in a background layer. Zooming in and getting as close as possible helps placement (Figure 2).

To make the corner brackets, I made long, thin rectangles, at a 90-degree angle to each other, and mirrored them to the other corners. If you look at the color image, you'll see that there are also tiny rivets on the brackets. In a separate layer, I made a simple ball and cut off the back 80 per-

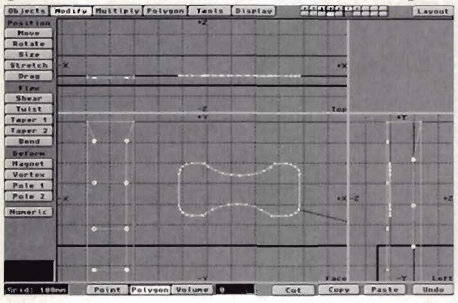

Figure 3

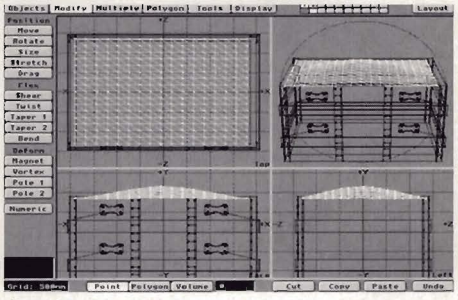

Figure 4

cent so only a rounded disc was left. This disc was multiplied using the clone feature, and added to the metal brackets with even spacing between them (Figure 3). All of these add-ons—the leather straps, metal brackets and corner supports—were given appropriate surface names, before being added to the Treasure Chest.

Now that everything was together for the chest, it was time to concentrate on the lid and its contents. To make the lid, I copied the base chest to a clean layer. By taking away the top half of the Treasure Chest and moving the points down, I was able to make a lid the same size as the chest, without going through the Boolean operation and surfacing again. This new piece was flipped over and added to the top of the original Treasure Chest. Making the coins that spill out over the top of the chest was a bit more of a challenge. After a few attempts, I came up with a way that seemed to work well.

First, I built a flat polygon the size of the the chest. It was tripled, then subdivided to give it more segments. Using the magnet tool, I pulled the lump up, so it looked more like a small pile (Figure 4). Next, I scanned in a gold coin. Actually, it's a Haitian doubloon, which really captures the look of a gold coin. Once it was scanned in, I used ToasterPaint to cut out the coin and replicate it over the entire frame. I rotated the coin periodically for randomness. This image was then scaled down to 64 colors, and its size was decreased with ADPro to save memory in LightWave. Also in ADPro, the full-screen image of the coins was scaled to a two-color image, to be used as a bump map.

Back in LightWave, the planar image map of the gold coin image and a bump map of the coins produced a fairly convincing pile of coins. For added measure, I modeled a single coin, which was placed randomly around the chest, in the sand. But the sand needed to be created before any coins could spill out onto it. I made the sand by simply building a large flat plane in Modeler, then tripling and subdividing it. In LightWave, its surface settings consist of a very tight bump map for a grainy look and a slight displacement map to add ripples.

The same object was saved with a different surface name and used for the water. Its setting consisted of a displacement map with fractal bumps, and the color was set to a bluish-green. The water was given a high glossiness and a reflectivity of about 20% to reflect the sky. I used a large bent polygon to make the sky. Since I knew the camera would not be moving, and this was to be a still image, I didn't need to create a dome covering the entire scene. A large polygon facing the Z axis was bent slightly toward the camera, on the X and Y axis to gain reflectivity in the water. Then, from a CD-ROM collection of clouds, I picked a cloud image that had some perspective. Once it was in place and the image map was applied, the sky was set to 100% luminous and 0% diffusion. Now, a few boxes with words on them acted as prizes falling out of the Treasure Chest. I added some pearls made with single rail clone in Modeler, under the multiply menu. I first made one single pearl, then drew a string with the Stretch tool to produce a beautiful string of pearls. To add more realism to the final scene, a simple bird was modeled, cloned and placed in the sky.

With this particular situation, where I started was not at all where I ended up. Be open to new ideas and new ways of creating in LightWave, TPaint, DeluxePaint, or whatever you work with. Tunnel vision with any creative project can truly damage the final outcome, as you can never be sure what obstacles you'll encounter throughout a project. As you continue to create images in LightWave, don't be afraid to conquer uncharted waters Trying something new and straying from the norm will make your work stand out. VTU

Dan Ablan is president of AGA Digital Studios in Chicago, Ill., a LightWave-based animation company. He can be reached at (312) 239-7957 or via e-mail at dma@mcs.com.

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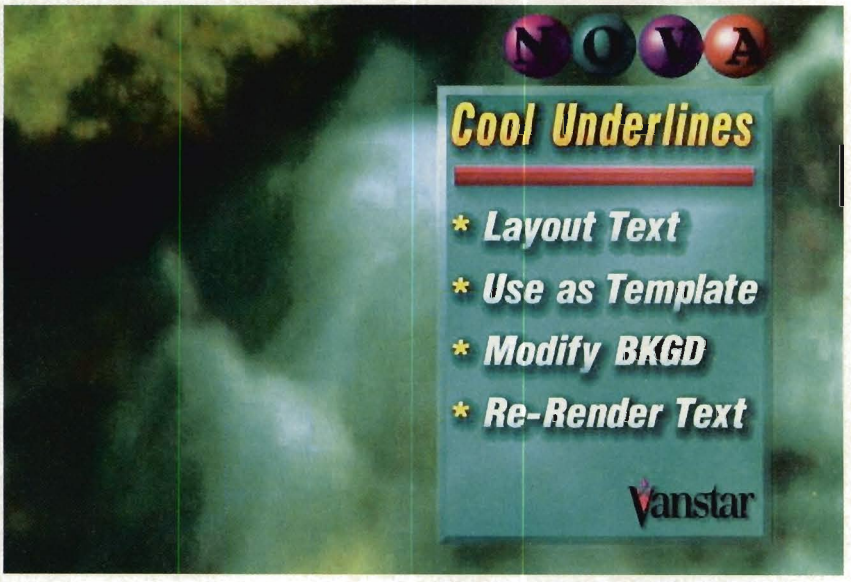
Awesome Underlines:
ToasterPaint Graphic Separators

by Chris Fenwick

OK, fine: a lot of you out there think that ToasterPaint is not worth its weight in floppies. When I first came across the Toaster I was totally impressed that I could "paint" in video. As a result I came to not only like TPaint, but depend on it, and now I really appreciate it. As someone told me on the floor of NAB last year, "TPaint is a good paint program with a poor user interface."



Here is a technique I use to create a killer "graphic separator" (read: underline). I've never been happy with underlines from character generators, so I usually end up spending time in TPaint to create underlines for my text. While I'm there, of course, I make sure to draw a cool shadow. Here's how to do it.

The first step is to make a page of text in your CG program and leave a slightly larger then normal space between your headline and text body. This is where your underline will go. If you're using ToasterCG you will have to create what is called a buffered page (F7 is the hot key). This page can then be loaded into TPaint from the Pages directory. A Pages directory, if you did not already have one, will be created when you buffer a page, and it can be found within the Framestore directory. Remember to create your CG page with a TPaint background and not as a CG Key page. I use Montage from InnoVision Technology (which is only compatible with Toaster 2.0 and 3.1). The reasons for this are many, not the least of which being that Montage has really cool soft-edge shadows. Montage automatically checks your Framestore directory for the lowest address over 700 and renders the page there.

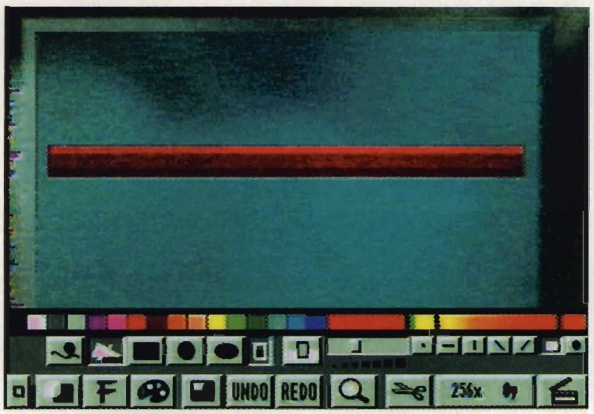
I've found that the best way to go about this process is to use your rendered page, whether it comes from Montage or ToasterCG, as a guide from which you decide positioning. You actually do the drawing on a "Clean Background," and that's the real technique. Every graphic artist that I've ever watched saves their work at several different stages. What this allows you to do is always go back and change something from an earlier version. You can also always go back to the original and redo what the client didn't like. Additionally, you can reveal each step as a special effect using the Toaster's dissolve transition. For this reason, when I start a project I *always* create the base background and save it as "BKGD" in the RGB file format. This will ultimately produce a larger file then if I were to save a Framestore, but when I recall it from within TPaint it is exactly what I originally saved. Loss-less video storage...that's cool!

Back to our project. To make this underline, enter TPaint and load the original background that you rendered the text over (in my case it is always called "BKGD"), then put that image in the Swap Screen (j). At this point, load the rendered CG page—either from the Pages directory in the Framestore directory (if you were using ToasterCG) or in the 700 series of Framestore numbers (if you were using Montage). Now try swapping the page several times (hit j). Watch how the text comes and goes perfectly. That's because the swap page is exactly registered from one buffer to the next. As you swap back and forth it will appear that the text is the only thing that is changing. Actually, the entire image is changing. When coupled with the Rub-Thru Mode, the feature of the swap-screen can be used in many different paint techniques.

When you have your page of text in TPaint, the next thing to do is to draw a box of about 15 pixels in height under the header of your page. Make it the width of the page. Pressing the period key (.), then (R), selects the filled rectangle tool with square corners. One example is

to make this box (underline) red in color. Why not? Everyone else uses a red underline. However, on our rendered CG page we will create this "underline" in the default white color. If you don't like the original size of the underline, Undo the process (F4) and redraw it. Use your imagination while determining if this plain white box will be a good graphic separator for your text needs.

At this point we are ready to start painting on the original background, which has been hiding in the swap screen buffer. If you haven't done any painting since you drew the white box, press the (J), (4) and (F5) keys. This will jump us to the swap screen. The (j) key puts us in the Colorize mode (4) and REDO (F5) recreates the box size in the exact same position as the other page. Your end result is a colorless bar across the page in the exact location of the white box that will later act as your underline. The act of colorizing with white actually pulls all color out of an area. Without drawing anything else, pick the red color from your palette and press (F5). (Don't press anything else.) What we have now is a Colorized original background with red at full intensity.



Though sometimes cryptic, TPaint can produce remarkable results.

Transparency Menu

Let's take a look at the transparency controls in TPaint by selecting the Transparency Menu button, or (F1). Alternately press (F6) and (F7), which will show you how to set the transparency level of *any* operation to 50 or 100 percent. The sliders that you see moving can also be manually set to allow greater flexibility in setting transparency. Now press (F4) and it will undo the last Colorize procedure you did, leaving you with the black-and-white (or colorless) box. Press (F6) and then (F5) on your keyboard. We have now set the transparency level to 50% (F6) and redone (F5) the Colorize procedure. This will give us a more "palatable" red hue and it won't bleed so much. Now Press (3) and (F5). This changes to the darken mode (3) and redoes (REDO F5) the last paint area (the original box). This darkened red line allows us to add some interesting accents to our titles and graphics.

Now the Fun Part

Press (F1) again, returning to the original TPaint Menu. Select the Polygon/Line drawing tool (hotkey V). This is the tool that looks like a triangle. Remember the way this tool works: left click at each corner of the polygon until you are done, then right click to tell the computer to draw it and let go. Then move on to the next operation. It took me awhile to figure that out. Brush size is selected in roughly the middle of the menu. Choose a brush tip size about four pixels in height.

You will also want a brush tip with square corners. To the right of where you selected the size of the brush you can select the shape of the brush you are using. We are going to bevel the top and bottom of this line. We will not be performing a full bevel, but if you take this approach to the fullest extent you could certainly bevel all four edges. We are just going to highlight the top and bottom of our underline by drawing straight lines, or polygons with two points. If you use the coordinates while drawing (G on your keyboard) you can watch the change of the Y coordinate and see that it remains at zero. Then you can be sure the line you draw is straight. Select the lighten mode (2) and draw a small line across the top of our new underline (in the red part). Choose darken mode (3) and draw a small line on the "lower" edge of the underline.

Render this out (F10) and look at the fruits of your labor. For a sneak preview of what the overall look of the underline will look like (and a quick lesson in Rub Thru), try this. Press the period key (.), (R), (5) and (F7). This sets us up to do a full-intensity Rub-Thru rectangle shape. Now draw a rectangle around the entire underline and see what happens. It should disappear, but don't panic. Press (F4), (j) and (F5). This undoes the Rub-Thru operation, jumps to the swap-screen and redoes the Rub-Thru. Render out the screen to your program monitor and see how it looks. Don't be scared if parts of your title get cut off because we are not done yet. This is really just a tease of what is to come.

At this point if we did not want the shadow we could return (j) to the screen we were drawing on and save the image to be called up in our CG project. Press (P), which will call up the Save RGB requester. Saving as an RGB file maintains as much image integrity as possible. Select a place and a name for the file. I would call it "BKGD Underline." Using the same starting characters (as opposed to "Underline BKGD") will ensure that the images are at least "near" each other in the directory that you save everything in. This kind of tidy name choice can make your life much easier on a big job with several images saved within a directory. We would then return to the CG program and re-render the text over the new background. Then the text and the underline would be first-generation.

Underlines and other graphic shapes can add real style and a high-end look to your titles and video graphics.

VTU

Chris Fenwick owns Broadcast Business Graphics in Redwood City, Calif., and specializes in corporate presentation graphics and video production. He can be reached at FENBBG@AOL.COM.

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Radiosity - Wavemaker v2.0	185
Realsoft - Real 3D v2.4	389
Scala Multimedia MM300	199
Sports Object for Lightwave	49
Syndesis - 3DROM Vol 1	84
Syndesis - 3DROM Vol 2	84
Synergy - Hollywood FX	224
Synergy - Hollywood FX Lite	49
Swipes	89
Visual Inspirations - Visual FX for Lightwave Vol 1	114
Virtual Reality Studio v2.0	69
Pixel 3D Professional v2.0	169

CBM AMIGA EMULATORS

A2088 XT/AT Bridgecard (2000)	99/299
GVP PC286 (GVPA500+ & A530Turbo)	199
Emplant Basic / Deluxe Version	239/339
ES86 Upgrade: IBM Module	99
Emplant Macroms	299
A-Max II+ w/A-Max IV Color	329

CBM AMIGA SYSTEMS & PRODUCTS

4000 68040 or 68030 25-40Mhz	CALL
1200 Computer without HD	899
2000 Computer System w/ECS	599
500 Computer System w/ECS	299
600 Computer System w/o HD	399
520 Video Adapter (works w/ all systems)	49
2 MB Ram For 2091 (256x4 dips)	96
2/3000 internal low density disk drives	79
500 internal low density disk drives	49
2/3/4000 internal high density disk drive	129
2/3/4000 external high density disk drive	139
1/2/3/4000 5/6/1200 Keyboards	CALL
1/2/3/4000 5/6/1200 Power Supply	CALL
Replacement Mouse	29
2320 Flicker Fixer (2000/4000)	299
2232 seven port serial card	299
2091 HD Controller card w/0MB	199
3640 68040 @ 25mhz for the 4000/3000	399
2630 w/2MB or 4MB	399/499
2620 w/2MB or 4MB	199/299
501c 512K ramboard w/clock	49.95
501c 1mb ramboard w/clock	69.95

CPU & FPU UPGRADES & REPLACEMENTS

68040-40 w/MMU&FPU	499.00
68040-33 w/MMU&FPU	299.00
68040-25 w/MMU&FPU	199.00
68040-EC25	149.00
68030-RC-50 w/MMU	139.00
68030-RC-40 w/MMU	119.00
68030-EC40 (NO MMU)	99.00
68030-RC-33 w/MMU	99.00
68030-RC-25 w/MMU	75.00
68030-EC-25 (NO MMU)	50.00
68882-RC-PGA-50 FPU	99.00
68882-RC-PGA-40 FPU	89.00
68882-RC-PGA-33 FPU	49.00
68882-RC-PGA-25 FPU	45.00
68881-RC-PGA-25 FPU	35.00
68882-FN-PLCC 40 FPU	135.00
68882-FN-PLCC 33 FPU	49.00
68881-FN-PLCC 25 FPU	35.00
68881-FN-PLCC 16 FPU	25.00
80387-25SX (386BB) FPU	69.95
Crystal Oscillators	10.00
68040 Heat Sink	25.00
Intel 486 DX2 - 66	175.00
Intel 486 DX2 - 50	145.00
Intel 486 DX 33	135.00
Intel 486 SX 33	99.00

MEMORY CHIPS

1 x 8	120 - 60ns SIMMS	39+
1 x 9	120 - 60ns SIMMS	45+
4 x 8	120 - 60ns SIMMS	129+
4 x 9	120 - 60ns SIMMS	139+
1 x 4	120 - 60ns Static ZIP	19+
1 x 4	120 - 60ns Page ZIP	19+
1 x 4	120 - 60ns Page DIP	39+
1 x 1	120 - 60ns DIP	5+
256 x 4	120 - 60ns DIP	5+
256 x 4	120 - 60ns ZIP	5+
256 x 32	100 - 60ns (1MB Simm)	39+
256 x 36	100 - 60ns (1MB Simm)	45+
512 x 32	100 - 60ns (2MB Simm)	85+
512 x 36	100 - 60ns (2MB Simm)	99+
1 x 32	100 - 60ns Simm (4MB)	149+
1 x 36	100 - 60ns Simm (4MB)	159+
2 x 32	100 - 60ns Simm (8MB)	299+
2 x 36	100 - 60ns Simm (8MB)	319+
4 x 32	100 - 60ns Simm (16MB)	599+
4 x 36	100 - 60ns Simm (16MB)	639+
8 x 32	100 - 60ns Simm (32MB)	999+
8 x 36	100 - 60ns Simm (32MB)	1199+
16x32	100 - 60ns Simm (64MB)	2299+
PCMCIA Ram Card 2M		119+
PCMCIA Ram Card 4M		229+
GVP SIMM32 60NS 4MB		199+
GVP SIMM32 60NS 16MB		799+
GVP SIMM32 40NS 1MB		129+

AMIGA CUSTOM CHIPS & UPGRADES

3.1 Upgrade kit (roms, soft, manuals)	199.00
3.1 Upgrade kit (pick two)	149.00
3.1 Kickstart roms (specify unit)	125.00
3.0 Kickstart roms	199.00
2.1 OS Upgrade Kit (complete)	99.95
2.1 OS Upgrade Kit (software,manuals)	79.95
2.05 Kickstart Rom	99.95
2.04 Kickstart Rom	99.95
1.3 Kickstart Rom	21.95
1MB Agnus (8372A)	49.95
2MB Agnus (8372B)	99.95
Super Denise (8373)	59.95
Paula (8364) Or Denise (8362)	29.95
CIA (8520)	29.95
Gary (5719)	29.95
Superbuster (rev11) (4091)	99.95
Ramsey (rev 07)	99.95
Fat Gary (A3000)	99.95
Super Dmac (rev 04)	99.95
Amber (A3000 & 2320)	99.95
Janus 2.1 upgrade kit	49.95
2620/2630 upgrade kit (7.0)	49.95
2091 upgrade kit (7.0)	49.95

Amiga Analyzer $69.95
Diagnostic software & hardware for problems

DPS

DPS PAR (IBM)	1699
DPS PAR (Amiga)	1549
w/Conner 540MB	+249
w/Conner 1275A 1.2G	+399
w/Micropolis 2217A 1.7G	+899
Personal TBC IV 4:2:2 & SVideo In & Out	799
Personal VScope	735
Personal Componet Adapter	229

Macro Systems WARP ENGINE

- Includes SCSI I & II Fastest hard drive controller available for the Amiga 4000/3000
- Up to TEN megabytes per second with a Seagate Barracuda 2.1 gigabyte hard drive
- Expandable to 64MB (3000) or 128MB (4000) using 72 pin industry standard simms

68040 - 28Mhz w/o CPU	(4028)	799	68040 - 28Mhz w/CPU	(3028)	895
68040 - 33Mhz w/CPU	(4033)	1099	68040 - 33Mhz w/CPU	(3033)	1099
68040 - 40Mhz w/CPU	(4040)	1299	68040 - 40Mhz w/CPU	(3040)	1299

Low profile, power & heat simms for maximum performance - 04 MB 60NS $149, 08 MB 60NS $325, 16 MB 60NS $499, 32 MB 60NS $999

Upgrade rebates for A4000-040 owners with original CPU card & four mb simms & A3000 owners with zip style dram

SYQUEST (Amiga / MAC / IBM)

5.25" HH 44MB DRIVE (SQ555) SCSI	199
5.25" HH 88MB (SQ5110C) (R&W44) SCSI	265
3.5" LP 105MB IDE or SCSI	259
5.25" HH 200MB (SQ5200) (R&W 44&88) SCSI	399
3.5" LP 270MB SCSI (SQ3270S) 13MS SCSI	399
5.25" 44MB Cartriges	41
5.25" 88MB Cartriges	51
3.5" 105MB Cartriges & 270MB Cartridges	59
5.25 200MB Cartriges	79
External Versions w/Cabling Add	99

SCSI CD-ROM DRIVES & DRIVERS

Model	Buffer Size	Access	Rate	Amount
Hitachi External	64k	320MS	150k/sec	99
Panasonic Int / Ext	256k	380MS	300k/sec	175/199
NEC 3Xi Internal	256k	190MS	450k/sec	259
NEC 3Xp External	256k	150MS	450k/sec	279
Toshiba 4x Int/Ext	256k	120MS	600k/sec	299/399
Toshiba 4.4x Int/Ext	256k	140MS	660k/sec	329/429
Plextor 4x Int/Ext	1024k	150MS	600k/sec	415/515
Plextor 6x Int/Ext	256k	145MS	900k/sec	499/599

ASIM CDFS 3.0 w/Fish&Photo CDs (AMIGA) 67

Lightwave 4.0 Windows & NT $775

CSA DERRINGER+ ACCELERATOR

68030 @ 33MHZ with MMU
68882 @ 33MHZ (Math Co Processor)
1Megabyte of 32bit ram (remap kickstart)
Install up to 32MB of 72 pin industry standard ram
Ours is the only one to come standard with the modification to work with the DKB Megachip
(a $25.00 value if purchased seperately)

399

4MB - 499 8MB - 699 16MB - 899 32MB - 1399

68030 @ 50MHZ with MMU
68882 @ 50MHZ (Math Co Pro add 99.00)
1Megabyte 60NS 32bit ram (remap kickstart)
Install up to 32MB of 72 pin industry standard ram
Ours is the only one to come standard with the modification to work with the DKB Megachip
(a $25.00 value if purchased seperately)

499

4MB - 599 8MB - 699 16MB - 999 32MB - 1499

WORKS IN AMIGA 2000 & 500

CONNER 1060 SCSI I & II
***** BLOWOUT SPECIAL *****
9 MS - 1060MB - 5 Year Warranty
up to 10 MB/Sec Synchronous
up to 5 MB/Sec Asynchronous
Works great with all controller cards! **$395.00**

3.5" HARD DRIVES

Maxtor

	Access Time		Warranty	
425 AV LP IDE	64k buffer	12 MS	2 Yrs	175
540 AV LP IDE	32k buffer	12 MS	2 Yrs	199
850 AV LP IDE	64k buffer	12 MS	2 Yrs	249
1260AV LP IDE	256k buffer	12 MS	2 Yrs	369

Micropolis 1936 SCSI & II
12 MS - 3000 MB - 5.25" FH
4 MB/Sec Async 10 MB/Sec Sync — 5 Year Warranty — **799.00**

Quantum

365 ELS SCSI I & II or IDE	11MS	2 Yrs	125
540 ELS SCSI I & II or IDE	11MS	2 Yrs	199
730 LPS SCSI I & II or IDE	11MS	2 Yrs	255
850 LPS SCSI I & II or IDE	14MS	3 Yrs	269
1080 LPS SCSI I & II or IDE	12MS	3 Yrs	435
1075 Atlas 7200RPM 1MB	8MS	5 Yrs	775
*2.1G Atlas 7200RPM 1MB	8MS	5 Yrs	999
*4.3G Atlas 7200RPM 2MB	8MS	5 Yrs	1599

Quantum 850MB SCSI I & II
128 Buffer - 1" x 3.5" - Trailblazer
10 MB/Sec Sync — 3 Year Warranty — **269.00**

Micropolis

2217 A/V 1.7G SCSI I&II	10MS	5 Yrs	899
2217A 1.7G IDE	10MS	5 Yrs	899
*3221S 2.1G SCSI I&II	8.9MS	5 Yrs	999
*3221 A/V 2.1G SCSI I&II	8.9MS	5 Yrs	999
*3243S 4.3G SCSI I&II	8.9MS	5 Yrs	1499
*3243 A/V 4.3G SCSI I&II	8.9MS	5 Yrs	1599
*1991 9.0G SCSI I&II	12MS	5 Yrs	2395
*1991 A/V 9.0G SCSI I&II	13MS	5 Yrs	2499

Conner

CFA 1275A IDE 256k buffer	12MS	3 Yrs	399
CFA 850A IDE 256k buffer	12MS	3 Yrs	265
CFP 540A IDE	12MS	3 Yrs	199
CFA 540A IDE (Works w/PAR)		3 Yrs	225

Seagate

ST3145A 120MB IDE LP	16MS	1 Yr	99
ST3290A 260MB IDE LP	16MS	3 Yr	179
ST3491A 420MB IDE LP	16MS	3 Yr	199
ST31200A 1050MB IDE LP - A4000 Autobootable drive!!!	9MS	3 Yr	299
ST31230N 1050MB SCSI LP	9MS	5 Yr	519
ST32550N 2.1G Barracuda	8MS	5 Yr	1099
*ST15150N 4G Barracuda	8MS	5 Yr	1549
*ST410800N 9G Elite	11MS	5 Yr	2699

*** Video Flyer Certified Drives**

2.5" IDE or SCSI HARD DRIVES

ST9080A 80MB Seagate	75
ST9150A 130MB Seagate	99
ST9190A 170MB Seagate	125
ST9300A 260MB Seagate	229
ST9385A 340MB Seagate	289
ST9550A 455MB Seagate	369
ST9655A 520MB Seagate	429

AMIGA NETWORKING

Interworks ENLAN-DFS (Five node licence)	299
CBM A2065 Ethernet board	299
CEI 4066 ETHERNET PLUS	299

Three network interfaces for 2000,3000,4000
- 10 BASE T, Thick AUI, Cheapernet (10BASE2)
- Diagnostic LEDs & 1 Year Warranty
- 10MB/SECOND&is SANA II compliant

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EXPANSION SYSTEMS

HIGH FLYER

Standard	395
With Power Supply	495
Fan Kit	45
Cable Kit	85

Dataflyer SCSI Card 4000SX 90
- SCSI Controller card supports up to seven devices internally, can add external port later

Dataflyer SCSI Card 4000SX-25 100
- Includes the DB 25 external connector for external devices

Dataflyer SCSI + A4000 119
- Converts IDE Header into SCSI support for SCSI devices w/ pass thru to work with original IDE drives you already own!

Dataflyer SCSI + A1200 99
- Same thing for the A1200 series systems

Dataflyer XDS 1200 / 600 69
- External case supports 3.5" IDE hard drives & allows use of original 2.5" hard drive. Connector also uses power from inside the machine.

Ramboard w/2MB Ram exp to 8MB 199

Dataflyer 2000 SCSI 95
- Supports up to seven scsi devices , internally mount a 3.5" hard disk drive onto controller card

Dataflyer 2000 IDE 95
- Support two IDE devices, one can be mounted onto controller card.

Dataflyer 2000 SCSI & IDE 125
- Two controllers in one card! Support seven SCSI and two IDE devices!

Dataflyer 500 SCSI 149
- Supports Seven SCSI devices , one can be mounted internally and powered!

Dataflyer 500 IDE 149
- Supports two IDE devices , one can be mounted internally and powered.

Dataflyer 500 SCSI & IDE 179
- Supports two IDE devices , oue can be mounted internally & seven scsi devices can be connected!

VILLAGETRONIC

MainActor Professional 79
- Full featured animation program that works with all Amigas with support for Picasso II owners.

Ariadne 299
- Zorro II Ethernet card offering 10base-2 (cheapernet) & 10base-T (twisted pair) Features; 2 parallel ports 32k buffer; boot eprom option; SANA-2 Compatible drivers & Envoy network software; DOS 2.04 or higher required.

Liana Network 89
- Connects any two Amigas togeather via the parallel port

Pablo 179
- A video module for your Picasso II card permitting output to your TV or VCR - Quality comparable to high performance video broadcast encoders; includes RCA - S-VHS - SCART cables & 24 bit animation program

CRYOGENICS for the FLYER

Store your work on 4/8GB DAT TAPES

Conner Internal 400k/sec	899
Conner External 400k/sec	999
Sony Internal 500k/sec	999
Sony External 500k/sec	1099

NOAHJI's VLab Motion

High quality non-linear video editing for the Amiga

Records video & audio directly to your hard disk in real time
Plays video & animations from your hard drive in real time
High quality - Selectable compression rates allow user selectable output from very low to BROADCAST quality without the high price & color degradation of decks.
True field support for smooth motion: 60 fields/second in NTSC, 50 fields/second in pal
Composite & Y/C video inputs & outputs. Optional transcoder for component in & out
Expansion connector for options like Toaster interface & component in & out
Records video directly. No need for an additional costly TBC or dedicated hard drives
Genlocks to input video for amazing real time chroma keying effects
Motion JPEG Zorro II card works with your A2000/3000/4000
Works with standard off the shelf hard drives and SCSI controllers
Up to 2.5 mega/minute throughput for high quality video
Video standard YUV 4:2:2 square pixel recording, 640x480 NTSC (equals 752x480 Amiga pixels) full screen recording & playback.
Custom high speed file system (JPEG-FS) with transparent access from AmigaDOS. JPEG frames automagically appear as IFF-ILBM pictures to other Amiga programs
Supports the Toccata 16 bit audio digitizer for simultaneous CD+ quality audio
Supports the Retina graphics cards for 8, 16 and 24 bit display of the MovieShop editing interface.
Real time video scaling for picture in picture effects.
Fast hardware compression and decompression of high quality JPEG stills
Load & compress stills, anims, & image sequences from all Amiga animation software
Supports PAL & NTSC video standards
MovieShop editing software included

VLab Motion Card	1595
VLab Motion System (Includes Toccata)	1995
VLab Motion Complete (Toccata & Retina Z3 w/4MB)	2749
Toccata	425
Retina Z3 w/4MB - Z2 w/4MB	795/529
VLab Y/C Int/Ext	389/445

VIDEO TOASTER SYSTEMS

CBM Amiga 4000 Motherboard, Case, Power Supply, slotboard, 1.76 Floppy Disk Drive, Mouse, Keyboard & 2MB Chip ram — 2495

Processor Options -

CBM A3630 68030 @ 25mhz w/mmu & fpu	299
CBM A3640 68040 @ 25mhz w/mmu & fpu	499
Macrosystems Warp Engine 4028 w/CPU & SCSI I & II Controller	999
Macrosystems Warp Engine 4033 w/CPU & SCSI I & II Controller	1099
Macrosystems Warp Engine 4040 w/CPU & SCSI I & II Controller	1299

Memory Options - (Minimum of 8MB Fast Memory needed)

1x32 Simms 60ns 4MB		149+
2x32 Simms 60ns 8MB	(must have warp engine or extra ramboard)	299+
4x32 Simms 60ns 16MB	(must have warp engine or extra ramboard)	499+
8x32 Simms 60ns 32MB	(must have warp engine or extra ramboard)	999+

Newtek Video Toaster 4.0	1995
Newtek Video Flyer	3995
- 2.1 GB Quantum Atlas Video Drive	999
- 4.3 GB Quantum Atlas Video Drive	1599
- 9.0 GB Seagate Elite Video Drive	2295

Amiga 2000 Accelerators

GVP 68040 @ 33mhz w/MMU, FPU, SCSI Controller with Extra Serial, Parallel Ports & 4 MB Ram 60ns Expandable to 64MB ram using 16MB simms (799 each)

Only 1395.00

CSA 68040 @ 33mhz w/MMU, FPU & SCSI II controller card w/0MB. Uses 72 pin 60ns industry standard simms and is expandable to 64 mb using 16mb simm moduals.

Only 1395.00

GVP 68030 @ 40mhz w/FPU & SCSI Controller & 4MB ram at 60ns expandable to 16MB ram total.

Only 999.00

REMOVABLE MEDIA SCSI DEVICE CLOSE OUT

Richo 50 MB Removable HD 99.00

USRobotics Modems

Internal Sportster 14.4kbps v.32 bis data v.42, v.42bis, quicklink II s/w, fax $109
Internal Sportster 28.8kbps v.34 data, 14.4kbps class 1 & 2 fax v.42/v.42bis quicklink II s/w $259

AMIGA Lightwave 4.0 stand alone Version 775.00

AMIGA RAM BOARDS

Paravision MBX1200Z w/20Mhz&1MB		159
Paravision MBX1200Z w/20Mhz&2MB		199
Paravision MBX1200Z w/20Mhz&4MB		299
Paravision MBX1200Z w/20Mhz&8MB		429
Paravision 8-Up! w/0MB	(2000)	99
Paravision 8-Up! w/2MB	(2000)	149
Paravision 8-Up! w/4MB	(2000)	229
Paravision 8-Up! w/6MB	(2000)	309
Paravision 8-Up! w/8MB	(2000)	389
DKB 2632 w/4MB	(Requires2630)	399
DKB 1202 FPU & 1MB Ram	(1200)	159
DKB 3128 w/4MB	(3000/4000)	395
Exp. Sys. Dataflyer Int. w/2MB Exp to 8MB		199
Supra External w/2MB (500)	(500)	199
CBM 2052 w/2MB	(2000)	99
CBM 2058 w/2MB Exp to 8MB	(2000)	175
CBM 501c Clone w/512K	(500)	49
Exp. Systems 601c w/1MB	(600)	69
DKB Megachip 2000/500 w/2MB Agnus -accesses & adds 1MB of chip ram. The -must have for graphics & audio users		249

CSA 12 Gauge Accelerators

33Mhz w/MMU & SCSI Board w/4MB 80-70NS Ram	399 / 549
33Mhz w/MMU & FPU & SCSI w/4MB 80-70NS Ram	499 / 649
50Mhz w/MMU & SCSI Board w/4MB 60NS Ram	499 / 675
50Mhz w/MMU & FPU & SCSI w/4MB 60NS Ram	599 / 775

Micro R&D

2000 Bigfoot Power Supply	159
1200/600/500 Bigfoot	89
Slingshot A500 (1A2000Slot)	39
Slingshot Pro A500	69
X-Calibur A4000 Ram Unit	649

ICD

AdIDE 40MB HD System w/2.5" Drive (500/2000)	269
AdIDE 130MB HD System w/2.5" Drive (500/2000)	399
Flicker Free Video II	249
ADRAM540 w/4MB (A500)	275

DKB

Megachip 249

Allows your A500 & A2000 series computers to have two megabytes of chip ram. A must have for people who use video, graphics and audio applications. Included is the Megachip daughterboard with 2MB Agnus chips with an extra one megabyte of ram. (Requires A500 to have A501 ram expander +49.95)

A1202 board (A1200 Only) 99.95

A multi-function board for the A1200 Computer that provides the maximum fast ram expansion plus a battery backed up clock-calendar. Includes two simm sockets for combinations of 1, 2, 4, 5, or 8MB of fast ram using industry standard 32 bit simms with 72 pins. Optional plcc math co processor can speed upmath functions as much as 1000% or more.

A3128 Ram board (A3000/4000 Only) 249

Allows 32 bit ram expansion to 146 megabytes of ram using 72pin industry standard simms. Four simm slots accept either 4, 8, 16, or 32 megabyte simms.

A2632 Ram board (A2630) 399 w/4mb

Allows 32 Bit ram expansion onboard of 112mb of ram using industry stanard 72pin simms. Has four sockets allowing use of 4, 8, 16, or 32 mb simms. Allows full burst mode support.

Kwikstart II (A1000) 54.95

A1000 owners can now add kickstart roms to their machines with this device! Supports two different revision roms & allows access to more system ram

Multistart II 6a (A500, 600, 2000) 29.95

You can use more than one kickstart rom chip with this device! Switchable by resetting the machine for a few seconds.

Cobra 28 mhz & 40ec mhz 159/249

Accelerator for the A1200 computer system that allows you to speed your machine up to 600% faster. Includes capibility to add 128MB of fast ram using industry standard 72 pin simms & battery backed clock-calendar. Optional FPU can be added. Optional SCSI I & II Controller can be added +89.00

Mongoose (A1200) 275.00

Accelerator for A1200 computer with 68030@50mhz Expandable to 128MB of fast ram using industry standard 72 pin simms. Increase in speed up to 800% & has battery backed clock-calendar. Optional FPU or SCSI I & II Controller can be added +89.00

FOR INFORMATION CIRCLE 121

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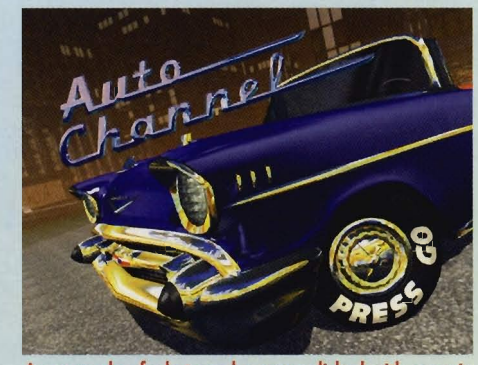
the company's Interchange Plus software. It has approximately 500 objects, with each object in one of five different formats: 3DS, DXF, OBJ, Imagine and LightWave. All the objects for each format are lumped together in one folder, making it hard to find the specific object you're looking for. While a printed reference book is included, the tiny grayscale



An example of what can be accomplished with generic 3D objects and a little hard work.

images made it very hard to get an idea of how detailed the object was. Volume II was released about a year and a half later, and consisted of all-new material with approximately 200 objects. Each has a suggested retail of $99. A third CD-ROM, which consisted of a copy of all the files from the popular avalon.chinalake Internet site, has been discontinued with the recent changes at the site.

If you haven't already purchased a CD-ROM player, now is the time to invest in one. For starters, LightWave 4.0

The '57 Chevy 3D object as received from Viewpoint

will be released on a CD-ROM, along with several hundred megabytes of objects and images from a number of companies. Since you can buy double-speed CD-ROM players for about $200 these days, it's another investment well worth making. (It works with a PC, too!)

There are also a number of floppy disk-based collections of varying quality. Two standout examples are the Humanoid series from Crestline Software and the CityBuilder set from Dedicated Digital Imagery (DDI). The Humanoid series includes detailed, morphable figures of a human male, female and child. Also included is a variety of facial expressions and hand gestures, allowing an animator to easily create complex action sequences. A new series from Crestline, called KineModelz, will be seamless figures optimized for use with LightWave 4.0's Bones and Inverse Kinematics features. The first of the series will be a collection of dinosaurs.

The CityBuilder series is a decent collection of famous buildings from around the U.S., including the TransAmerica pyramid, the Chrysler building, the Empire State building, and about 20 others. Also included are a number of generic building and building blocks. Road Elements is a welcome group of items in the set. It includes various templates for creating roads and extruding your own raised highways. DDI also distributes four other object collections: interior furnishings, medical objects, space objects and autos/trucks. Future plans include releasing all five collections on a single CD for $199. (Current owners of any set can upgrade for a reduced cost.)

To the right is a sample frame that shows how stock objects can be quickly combined for dramatic effect. This scene took only a couple of hours to assemble from stock objects. The buildings are from the Citybuilder collection. The giant is the strongman humanoid object. The light beams and theater sign are objects I had created for a self-promotional video.

If you've got more time than money, then your best bet is to try and "surf the net" for free or shareware objects. There are thousands of models available from hundreds of BBSs across the globe. There are also several large Internet sites where you can ftp (download) hundreds of models from a variety of themes. The main problem with all of these sites is that (aside from the size of the file), there's no way to tell whether the object is well-made. It's a sad fact of life that the majority of stuff on many of these sites is pretty crude. When cruising the net for free objects, you can generally expect to find low polygon counts, weird surface names and missing pieces. Part of the problem arises from the fact that many objects originate on the PC platform as DXF files. While LightWave is able to load these files, some details, like surface names, can get lost in the translation. If you're going to get serious about downloading objects, consider investing in a professional object converter, like Interchange Plus (soon to be available for Windows).

There are, however, some real gems out there. There's an Enterprise NCC-1701D object by Carmen Rizzolo that is testimony to the power of Boolean operations. My company has uploaded several objects, including a Fender Stratocaster guitar, a Listerine bottle, and an Earth model in two resolutions. Many other companies have released small samples from their larger libraries of objects, ranging from interior furnishings all the way up to models from *Babylon 5* and other famous objects. In many cases, the surface attributes will need to be fine-tuned, but just having the model as a template can save you hours.

If you're fortunate enough to have access to the Internet, there are two major sites for Lightwave objects: tomahawk.welch.jhu.edu and avalon.viewpoint.com. Both of these sites can be con-

Using ready-made 3D objects saves time and money.

tacted by anonymous ftp, and each has hundreds of models in a variety of formats, including some in LightWave.

A longtime favorite BBS location is Studio Amiga BBS at (817) 557-2111. With an extensive and well-organized collection of models for many different 3D programs, this location is worth the long-distance charges it'll take to access it. A side benefit is that sometimes you can get questions answered by Allen Hastings himself, as he has been known to frequent the board. There's also a list here of other BBSs that specialize in LightWave-related subjects.

It's important to consider the cost/benefit ratio of searching for objects. It's easy to spend hours rooting around looking for objects, when you could either pass that responsibility on to a subcontractor or build it yourself.

3D object library collections are of greatest value when they are available for immediate use, so the best thing to do is search out those hidden treasures on the net when you have spare time. Copy them back to your workstation, set up their textures, and then stuff them away for that fateful day when your producer decides he needs an army of miniature dachshunds (or whatever). continued on page 77

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NEW! Panasonic

AG-456 2-HOUR S-VHS CAMCORDER

- Now includes manual zoom control.
- Laminated amorphous heads assure exceptional picture quality, high resolution, and superb color reproduction.
- 12:1 power zoom lens with continuously variable speed zoom
- Hi-fi stereo and linear track for recording. Also has "Audio Out" select switch for Hi-fi/Normal/Mix combinations. High performance stereo zoom microphone features three different settings: Wide, Telephoto or automatic zoom.
- Built-in VITC (Vertical Interval Time Code) time code generator for frame accurate editing
- Audio/Video fade-In /fade-Out for smooth transitions
- Automatic iris and manual control for fine adjustment
- **Digital Mix** – soft fade-over between memorized images
- **Digital Tracer** – to add an after-image effect to moving subjects
- **Digital Still** – freeze a scene for as long as you like, without interrupting sound recording
- **Digital Gain-Up** – delivers clear, distinct images in low-light
- **Digital Strobe & Digital Wipe** – add professional effects to your shooting.

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 extrawide 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.
- 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.
- Provides two different grips with independent start/stop and zoom controls. Also has built-in sports finder.
- 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 1/60 to 1/1000 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.

- The L2 has a variety of special effects:
  Close-up – instantly doubles the magnification of the lens
  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.

Optional VL-Mounts:

Extrawide 3x Zoom
The CL 5-15mm lens is a compact 3:1 extra wide angle lens. It provides wide angle coverage starting at the equivalent of a 27mm lens on a 35mm camera. Focuses as close as 3/8" in the wide macro range.

Lightweight 8x Zoom
A lightweight 8:1 zoom (8.7-69.6mm) is much more compact and weighs half as much as the 15:1 zoom, making the L2 much easier to handle.

250mm Super Telephcto
The CL 250mm Reflex Lens achieves the same magnification as a 1,350 mm lens mounted on a 35mm SLR. A built-in neutral density filter system provides easy four-stage brightness adjustment equivalent to f/32,16,8 and 4 — a remarkably bright maximum aperture for a lens of this power.

10x Zoom w/Optical Image Stabilizer
The Image-Stabilizing Zoom Lens CL 10-100mm can deal with everything from the slow movements that show up during hand-held telephoto recording to the fast vibrations encountered when shooting from a moving car, making it effective in every situation. It is equally effective in low-light conditions and during zooming.

EOS-VL Adapter
The EOS-VL Adapter allows over 65 high-quality Canon EOS lenses to be used with the L2. Because of the difference in size between 35mm film and the L2's 1/2" CCD, the effective focal length of still camera lenses is multiplied by 5.4 times. A 600mm lens, for example, becomes an incredible 3,240mm super-telephoto.

CL 2x Extender
The CL2X Extender fits between the L2 and any VL lens, doubling magnification with no loss of sharpness.

MILLER Fluid Heads & Tripods

The silky, smooth action of each Miller Fluid Head is the product of the finest quality cast and machined parts functioning together in a fluid environment. They are engineering masterpieces, built to operate under extreme conditions. They're engineered to exceptionally fine tolerances and their mechanisms are protected effectively against ambient moisture and dust.

Miller 20 - Series II Fluid Head
- Continuously adjustable fluid drag control
- Sliding/Quick Release camera platform
- Weighs only 4 lbs. will handle cameras up to 22 lbs.
- Counterbalance system designed to compensate for nose heavy or tail heavy camera configurations, and permits fingertip control of the camera throughout the tilt range.
- Includes independent pan and tilt locks, bubble level, dual pan handle carriers and integrated 75mm ball levelling.

#440 -Lightweight Tripod
- Weighs only 4.5 lbs., supports up to 30 lbs.
- Minimum height down to 24", maximum height to 57".
- Extremely portable, folds down to 33"
- Engineered from thermoplastic moldings, diecast alloy and hard anodized tubular alloy.
- Fast one turn, captive leg locks
- Includes 75mm (3") ball levelling bowl

#420 -2-Stage Tripod
- Two extension sections on each leg. Operates at low levels as well as normal heights without the use of mini legs.
- High torsional rigidity, no pan backlash
- Weighs 6.6lbs., supports 50 lbs.
- Very portable, folds to 27"
- Includes 75mm (3") ball levelling bowl with model 420 model 402 includes 100mm (4") ball levelling bowl.

System 20 Catalog #338
- Miller 20 II fluid head
- 440 Lightweight tripod
- 410 tripod spreader with foot pads **1549.00**

System 20 ENG Cat. #339
- Miller 20 II fluid head
- 420 2-stage tripod
- 410 tripod spreader with foot pads **1895.00**

JVC

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 F8.0 at 2000 lux and LOLUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 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

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.

Panasonic

AG-DP800 SUPERCAM

S-VHS 3-CCD Digital Signal Processing Camcorder

- Three high-density 380,000 pixel CCDs with half-pitch pixel offset achieves over 700 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of f8 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits
  1) Consistently reliable up-to-spec performance.
  2) Fine adjustment of a wide range of parameters.
  3) Memory storage and instant recall of specific settings.
  4) More flexible and higher quality image processing, as well as easier maintenance.
- Some of the DSP circuits and their functions:
  - CHROMA DETAIL - This function compensates for poor resolution in the high chroma areas of the picture.
  - DARK DETAIL - Determines optimum degree of contour enhancement in dark areas to deliver crisp, natural-looking images
  - HIGHLIGHT COMPRESSION - Expands the dynamic range of the highlighted areas and prevents halation. The highlight compression circuit allows a wide dynamic range producing detailed images even against bright backlight or daylight.
  - FLARE CORRECTION CIRCUIT - Compensates for unsteady black caused by light or by a subject's movements.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are *normal*, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments 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.

porta brace Quick-Draw Professional

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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 secure 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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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 outpoint 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. Memorizes 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 - Provides separate editing of 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.

EVO-9800A Hi-8 Player/Recorder/ Edit Feeder

- The EVO-9800A incorporates a built-in Digital Chrominance Noise Reducer (Digital CNR) to provide higher quality pictures. When the CNR mode is set to ON, chrominance S/N ratio is improved. At the same time, the field store used in the noise reduction process removes jitter to give clear, stable pictures.
- The EVO-9800A provides two channels of high quality PCM digital audio and a single channel of AFM. The EVO-9800A also provides balanced audio inputs and outputs via XLR connectors.
- Jog/Shuttle for picture search - The SHUTTLE mode provides high speed picture search of -17 to 19 times normal speed.
- Equipped with a built-in 8mm time code generator to record an absolute address on the video tape and to perform time code based editing. The 8mm time code is recorded between the video and the PCM audio tracks to identify each frame. The time code data is converted and transmitted via 9-pin (RS-422 serial) interface. If the tape was recorded with no time code, you can subsequently insert 8mm time code on the tape. Alternatively, existing time code can be overwritten with new time code.
- Dial Menu Operation for maximum ease of operation. Use the search dial to easily set various VTR operational modes; time code preset, time code superimposition, self-diagnostics display, digital hour meter information, etc.
- The EVO-9800A is 3-unit high and can be installed into a 19-inch rack by using the optional RMM-980 Rack Mount Kit.

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.
- 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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NEW!

SONY

SVO-2000 S-VHS Hi-Fi Editing VCR

The new SVO-2000 is a powerful, yet easy-to-use S-VHS Hi-Fi editing recorder. Two SVO-2000 recorders combined with the optional RM-250 Edit Controller forms a cost-efficient cuts-only editing system – with full assemble, video insert, audio dub and program editing capability.

Superb Video and Audio Performance

- S-VHS format delivers 400 lines of horizontal resolution and consistent, clear image reproduction for superior results.
- Adaptive Picture Control (APC) System for optimum picture performance. In record mode, APC automatically tests an inserted tape and checks the condition of the heads. It then adjusts the VCR recording circuitry to capture images that are as clear and crisp as they can be. In Playback mode, APC automatically sets ideal balance of picture sharpness and clarity.
- Hi-Fi stereo recording system has a wide frequency response of 20Hz to 20kHz and a superb 90dB dynamic range, and individual recording level controls for the left and right channels.

Editing Features:

- The SVO-2000 has a Control-Edit Spin remote terminal that allows it to be controlled externally. Connects directly to RM-250 for easy setup.
- With Control-S input and output terminals, two SVO-2000s can be connected for synchro editing, without the RM-250.
- Also offers program editing capability, which allows automatic sequential editing of up to 20 pre-assigned scenes.

Convenient Functions

- Both the SVO-2000 and the supplied remote control have a dual mode shuttle dial for slow motion playback, frame advance and picture search in either forward or reverse.
- Automatic repeat enables it to repeatedly playback a program. At the end of the program or the tape, the VCR automatically rewinds and restarts the program from the beginning.
- Auto head cleaner prevents head clogging which could lead to deterioration of picture quality.
- Has an on-screen set-up menu for easy set-up of tuner, clock and timer programming as well as VCR and cable box control.

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.
- They also incorporate Chroma Process Improvement circuitry for excellent color picture quality in the playback mode. This advanced circuitry greatly improves the chroma bandwidth, thus enabling sharper and clearer color picture reproduction.

ADVANCED EDITING FUNCTIONS

- For frame accurate editing, both machines employ a sophisticated servo system, an improved quick response mechanism and built-in LTC/VITC time code capability.
- 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 of normal audio tracks 1 and 2. In the insert mode, video, audio and time code can be inserted independently.

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.

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.
- 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.

COLOR MONITORS

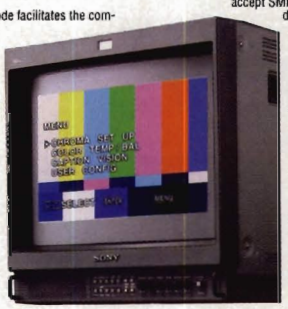
PVM-1350 13˝ Presentation Monitor

- 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 dritt 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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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.

GVR-S955 S-VHS Single Frame Recording VCR

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 ONR 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.

TAO EDITIZER 3.0

A/B Roll Edit Controller for PC or Macintosh

Hardware Features:

- 3 VCR control ports for true A/B roll. Each VCR port can support a different protocol.
- Dynamic Tracking (Slow Motion) Control provides a "fit and fill" type interface
- Built-in SMPTE Longitudinal (Audio) Time Code generator with external & internal video sync.
- Three multi-speed SMPTE Longitudinal time code readers.
- Auxiliary serial port for full control of Newtek Video Toaster, GVG 100, and Panasonic WJ-MX50 switchers. Also Hotronic AS-11, Pinnacle Alladin and Videonics MX-1
- Audio Control: Mackie CR-1604, TAO FollowMix, Alesis ADAT
- MPC Audio & MIDI support for embedding sounds and MIDI sequences in your EDL.
- DPS TBC II & III support – you can control two personal TBC cards and the Personal V-Scope from a serial port.

Software Features:

- VCR Control – up to three VCR controllers on-screen simultaneously. Jog and shuttle control. You can use either your mouse or keyboard.
- Tape Logging – Mulit-event search, copy directly into edit list, multiple log windows may be opened simultaneously, log files or selected events may be printed to a window.
- Includes non-linear editing support
- Time code generator in Drop/Non-Drop frame.
- Multi-event controller/can handle up to 16,000 events.Interactive graphical "Time Line" window. Two audio-video splits per event, cut/copy/paste events.
- Preview, Perform, Review. Automatic and manual EDL ripple.
- Optional support for AutoDesk 3D Studio, Lightwave 3D.

NEW! EDITIZER-DTC

First editing controller to directly control JVC's BR-S500U and BR-S800U (Edit Desk) VCRs. The Editizer-DTC plugs directly into their 12-pin serial bus connectors and consistently achieves accurate edits through control of the BR-S500/800 capstan bump feature.

- TAO's 12-pin interface provides a direct line to JVC's precision-built VCRs and eliminates the need for hundreds of dollars worth of extra control boards needed in an A/B roll set-up.
- Direct connection also means that the two slots in each VCR remain free for other enhancement boards such as TBC cards.
- Editizer's time code generator window provides remote control of JVC's CTL Time Code Generator so there is no need to buy additional time code boards. Plus, this leaves both linear channels free for higher quality production work.

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.

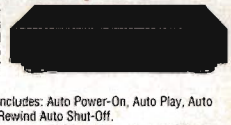
- Uses amorphous video heads which are clearly superior to conventional ferrite heads. They are better because their magnetizing strength is much greater, yielding a higher signal-to-noise ratio.
- Incredibly accurate with optional AG-A570 Edit Controller, an accuracy of ± 3 frames can be achieved.
- 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.
- Portable - 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.
- Advanced dual-loading mechanism features a quick response time, exceptional tape protection & remarkable tape control accuracy.
- Automatic head cleaner removes dust and other particles from the heads to help maintain optimum performance.

AG-W1

VHS Hi-Fi Video Cassette Recorder w/World TV Broadcast Signal Conversion System



The Panasonic AG-W1 breaks down the barriers posed by different TV broadcast systems. Its advanced digital standards conversion circuitry lets you play back VHS tapes recorded in any of the world's major TV broadcast systems – including PAL, SECAM and NTSC – on any ordinary monitor. Using a second VCR for playback, you can also convert your NTSC videotapes and send them for viewing in countries using PAL or SECAM systems.

- Just slip in a pre-recorded VHS or S-VHS tape and the AG-W1 will automatically detect the TV broadcast system that it was recorded on, it then proceeds to set the tape and cylinder speed to match it, and begin playback. Before playback though, you select the TV broadcast system to be output - NTSC, M-PAL, N-PAL, SECAM, MESECAM - using the control panel system selector or the world map geographic display on the front panel. You can watch the tape on any monitor, anywhere in the world.
- The AG-W1 also does standards conversion. You can convert pre-recorded NTSC tapes into PAL or SECAM, PAL into NTSC or SECAM, whichever you require.
- The AG-W1 is VHS but has S-VHS Quasi playback function for playing back S-VHS tapes recorded in NTSC and PAL system. It accepts regular VHS tapes recorded in any TV system.
- Automatic functions includes: Auto Power-On, Auto Play, Auto Rewind, Power-Off , Rewind Auto Shut-Off.
- Has two rotary Hi-Fi heads for NTSC and two rotary Hi-Fi heads for PAL/SECAM. They each have a dynamic range of 90dB and frequency response from 20Hz to 20,000 Hz. There is also a stereo headphone jack with volume control.
- Playback functions include Still, Frame Advance, Variable Slow (1/30 to ½ normal speed), and Speed Search (5x SP normal speed). These functions apply to any broadcast system.
- The AG-W1 also features: Digital Tracking, Edit Switch, Memory/Search Lock, and a Linear Time Counter.
- Has one set of audio/video inputs in the rear plus one set in the front. Has two sets of audio/video outputs in the rear of machine.
- Worldwide 110-127/220-240VAC, 50-60Hz power sources.

AG-DS840/AG-DS850

S-VHS DIGITAL Slow-Motion Editing System

- They provide clear, noise-free, high qnality slow playback. Playback speed, including Digital Still is selectable in 10 steps (-1/4, -1/6, -1/10, -1/20, -1/30, +1/30, +1/6, +1/4, +1/2).
- 3-dimensional digital TBC with a correction range of one field. With the VCRs continuously retaining one field in memory, the data is used for 3-D type processing thereby providing excellent dropout compensation.
- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. A Chrome Aperture Compensation (CAC) circuit eliminates color blurring and expands chroma bandwidth. Other digital processing circuits include
  - Dig. Noise Reduct. (DNR): Processes Y & C signals separately to boost S/N Ratio by minimizing noise during playback.
  - Digital Comb Filter: Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring.
  - Switching Noise Mask Circuit: Eliminates noise caused by head switching during slo-mo playback.
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VITC (Longitudinal/Vertical Interval) time code reader/generators for absolute frame accurate editing.
- Equipped with component outputs allowing easy connection to other component video equipment. This allows high quality transfer of S-VHS source material to Betacam or MII.
- IQ (Intelligent Quest) mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 4 channel audio – 2 hi-fi stereo channels with dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-DS850 only) and output with individual channel-level setting capability and uses XLR connectors.
- Provide 16:9 wide aspect compatibility, so they are fully equipped for the next generation of televisions.
- 3 rack units high, they are unbelievably compact for easy space saving installation. 19" rack-mountable with optional AG-M730.

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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.

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)

HORITA
BSG-50
Blackburst/Sync/Tone Generator

The BSG-50 provides an economical means for generating the most common RS-170A video timing signals used to operate various video switchers, effects generators, TBCs, VCRs, cameras and video edit controllers.

- 6 BNC video/pulse outputs
- Now available: 6 blackburst, 4 sync, 2 subcarrier
- Each sync output individually settable for composite sync, composite blanking, H-drive, or V-drive.
- Separate buffer for each output–maximum signal isolation
- 1KHz, 0dB sinewave audio tone output, locked to video
- Outputs can easily be configured to meet specific user and equipment needs $269

CSG-50
Color Bar/Sync/ Tone Generator

- Generates full/SMPTE color bars, blackburst and composite sync signals.
- Built-in timer can automatically switch video output from color bars to color black after 30 or 60 seconds. Easy and convenient for producing tape leaders and striping tapes with color bars and black.
- Front panel selection of full-field or SMPTE color bar patterns or colorblack (blackburst) video output.
- Includes crystal-controlled, 1KHz, 0dB audio tone output.
- Outputs: video, sync, ref frame, 1 KHz, 0dB
- Audio tone switches to silence and color bars change to black when using 30/60 second timer
- Fully RS-170A SC/H phased and always correct. No adjustment required $349

WE STOCK THE FULL LINE OF HORITA PRODUCTS INCLUDING:

WG-50 -	Window Dub Inserter
TG-50 -	Generator/Inserter
TRG-50 -	Generator/Inserter/Search Speed Reader
TRG-50PC -	Has all of the above plus RS-232 control.
VG-50 -	VITC Generator, LTC-VITC Translator
VLT-50 -	VITC-To-LTC Translator
VLT-50PC -	VITC-To-LTC Translator / RS-232 Control
RLT-50 -	Hi8 (EVO-9800/9850)TC to LTC Translator
TSG-50 -	NTSC Test Signal Generator
SCT-50 -	Serial Control Tiffer "Industrial" CG, Time-Date Stamp, Time Code Captioning
SAG-50 -	Safe Area, Convergence Pattern and Oscilloscope Line Trigger and Generator

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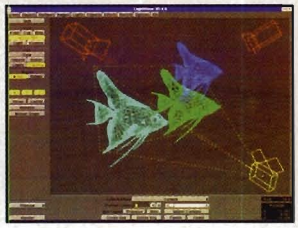
LIGHTWAVE 3D
The Ultimate 3D Rendering and Animation System for Broadcast Graphics



LightWave 3D is an all-in-one photo-realistic animation system. As part of the Emmy-award winning Video Toaster, LightWave 3D has been used in television shows such as seaQuest DSV, Babylon 5, Hercules and Star Trek: The Next Generation and Voyager. LightWave is also used by tens of thousands of people to create graphics for corporate videos, commercials, video games, print graphics and much more. LightWave 3D provides a comfortable, intuitive working environment that draws a real-world metaphor between an actual soundstage and your personal computer. Within LightWave Layout, create dramatic lighting effects, photo-realistic surface materials and intricate camera movements, Render still images or entire animations in 24-bit color. Create new props with the powerful tools in LightWave Modeler. From technical geometric forms to free-flowing organic shapes this model shop does it all. LightWave 3D's new plug-in architecture is supported by a growing number of independent developers. This allows you to customize LightWave with additional features such as gravity, particle systems, image processors, and more surfaces.

FEATURES:

- Inverse Kinematics allows creation of complex character animation more quickly. It makes animating more like puppeteering.
- Incredibly powerful modeler with new Metaform function that will transform rough geometry into organic looking objects.
- Reads (and writes) JPEG, IFF, SGI, TIFF, BMP, FLIC, CINEON, and many more image formats through Elastic Reality's Host Independent Image Protocol.
- Robust plug-in architecture gives other developers control over LightWave 3D to add additional features, such as gravity, image processing, or new modeling tools.
- Full Ray Tracing renderer including shadows, reflection, and refractions for ultra realistic imagery.
- Nearly all attributes of your scene can be animated through an easy-to-use key frame interface, or with envelope controls. You can animate lights, lens flares, textures, objects, even camera attributes such as zoom or depth of field.
- LightWave 3D includes a CD-ROM packed with license free objects, images, textures, and scene files created by the pros from seaQoest DSV, Babylon 5, and many other television shows.

VIDEO TOASTER FLYER

VIDEO TOASTER TAPELESS EDITOR

The next big leap forward in video production technology, a non-linear editing system for everyone. Not only is the Flyer the easiest-to-use non-linear editor, but it also has the same capabilities and quality you expect from a production suite with $50,000 video tape decks. Not JPEG. Not MPEG. The Flyer utilizes a breakthrough technology called VTASC, which was designed from the ground up to put broadcast quality video onto a hard drive. The Flyer is a powerful tapeless editing system. Record video and audio segments as clips, which you arrange using a simple drag and drop interface. Using the Video Toaster System 4.0 software add real-time video effects, graphics or text. Press the play button and your video plays back, real-time in broadcast quality. You can even use the Flyer as an animation recorder with LightWave 3D.

Of course great video requires great audio. A powerful DSP chip provides up to eight tracks of 16-bit, CD quality audio for music, sound effects and voice overs. Editing with the Video Toaster Flyer gives you the power to experiment. Initial cuts come together quicker and changes happen in the blink of an eye. Now, the power to create unbelievable video is yours.

Your Flyer card is the heart of the new Toaster. With your Flyer installed in the Video Toaster Bay, it becomes the new Video Toaster system. Now you have a portable field recorder. Plug your camera into the Toaster and record direct to hard drive.

Your new Toaster system also has built-in time base correction with proc amp controls, three digital still stores, a four input production switcher, video processor, luminance keyer, SMPTE time code reader/generator and a single frame animation recorder. The Flyer installed in the Toaster Bay gives you the added flexibility of running it with your Amiga/Toaster system or any PC running Windows 95 or Windows NT giving you the freedom to use your Flyer anywhere.

DIGITAL PROCESSING SYSTEMS INC.
DPS PVR-2500 Perception Video Recorder

A successor to the immensely popular PAR (Personal Animation Recorder) the PVR-2500 adds powerful features for awesome animation, morphing and rotoscoping capabilities. With features like PCI bus interface, 720x480 resolution, 10-bit 2x oversampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and FAST SCSI-2 hard drive controller, Perception empowers your computer to rival the finest professional production studios.

- The PVR-2500 is a full-length PCI card with a SCSI-II interface which connects to one or up to seven dedicated hard drives. Because the SCSI controller is integrated with the PVR-2500, video data never has to move over the PCI bus during playback. This avoids the bottlenecks found in systems which use the computer's hard drive for video storage.
- Perception is designed to run under Windows NT 3.5 on computers employing 486 (DX2-66 or higher) Pentium, DEL ALPHA or MIPS processors. Perception's software utilizes Windows NT's native support for multitasking and multiple processors, allowing use with the most powerful computers available today.
- Perception gets animations out of your computer quicker and easier. Its exclusive multi-format virtual file system ensures complete integration with your existing Windows NT applications. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP anf IFF. Perception is compatible with all the new NT versions of Lightwave 3D, Autodesk 3D Studio, Crystal Graphics TOPAS 5.1 Professional, Microsoft SoftImage, Elastic Reality and others.
- Video output section utilizes 10-bit 2x oversampled encoding and provides broadcast quality CCIR-601 (720x480) resolution. Perception's dynamic range is in excess of D1 scaling so that images are brighter, have more color and greater spatial resolution than ever before. Component, composite and S-Video outputs are provided via the included breakout cables.
- Coupled with the optional AD-2500 video capture daughtercard, Perception becomes a digital video recorder. It has component, composite and S-Video inputs for real-time recording. It delivers unsurpassed picture quality and storage capacity is limited only by the size and number of attached SCSI hard drives. Captured video can also be exported as sequential RGB files for rotoscoping and other compositing applications.
- The AD-2500 incorporates a sophisticated automatic entropy prediction circuit that analyzes the content of incoming video and dynamically calculates the optimum amount of compression on a field-by-field basis—even during real-time recording. You also have complete manual control over compression level/quality settings.
- Perception can also control BVU protocol VCRs for video acquisition. VCR-like controls on the Perception's GVI simplifies the task of batch digitizing and recording. In this mode, the PVR-2500 can read SMPTE time code from the source deck.
- Can be used with any Windows NT compatible sound card. Synchronization of audio and video is maintained by the PVR software. Some sound cards, such as those made by Turtle Beach, provide accurate system timing and consistently maintain synchronization during long video clips. Captured audio is stored on the computer's system hard drive, not on the dedicated drives. This approach provides maximum flexibility for manipulating audio and video during editing.
- Perception can perform real-time interpolation of 30 fps video to 24 fps film rates or convert vica versa. This means that it is also at home on the Hollywood movie set as well.
- Software for Windows 3.1 is supplied as well. Third party editing sftware such as Adobe Premier or InSync RAZOR can be used. In fact, a system equipped with the PVR-2500 and the AD-2500 capture card, a sound card, editing software and one or more SCSI hard drives becomes a non-linear editor of unparalled performance at an unbeatable price.

MICROPOLIS
AV SERIES DISK DRIVES

- Specifically designed for enhanced digital video and audio performance in applications such as multimedia, digital video editing and video servers.
- Using Advanced Thermal Calibration (ATC) technology, the AV series provides a continuous data stream. You get none of the data stream gaps that occur when ordinary drives are engaged in internal housekeeping tasks.
- They provide minimum sustained data rate of 3.0 MBs and a maximum uninterrupted data rate of 2.9 MBs, ensuring smooth and continuous data flow for A/V reproduction.
- Worst case data access of 30 ms makes sure there are no more frozen frames or audio drop outs.
- Multi-segmented, Read-Ahead Caching (internal memory) improves read performance by eliminating extra seeks.
- They provide the super capacity required for serious audio/video applications:

Model 4221AV 3.5 in. 2.0 GB Drive
Model 1936AV 5.25 in 3.0 GB Drive
Model 3243AV 5.25 in 4.2 GB Drive
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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 rotoscoping 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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B&H AUDIO-VIDEO

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**
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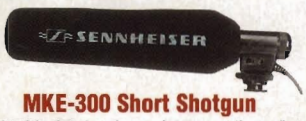

MKE-300 Short Shotgun

- 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 **179.95**

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 **219.95**

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 **209.95**
ME66 with K6 Powering Module **429.95**

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 **159.95**
ME64 with K6 Powering Module **369.95**

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 **139.95**
ME62 with K6 Powering Module **349.95**

MACKIE

Micro Series 1202

12-Channel Ultra-Compact Mic/Line Mixer

Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Mackie's fanatical approach to pro sound engineering has resulted in the Micro Series 1202, an affordable small mixer with studio specifications and rugged construction. The 1202 is a no-compromise, professional quality ultra-compact mixer designed for professional duty in broadcast studios, permanent PA applications and editing suites where nothing must ever go wrong.

CR-1604

16-Channel Mic-LineMixer

The hands-down choice for major touring groups and studio session players, as well as for broadcast, sound contracting and recording studio users, the Mackie CR-1604 is the industry standard for compact 16-channel mixers. The CR-1604 offers features, specs, and day-in-day-out reliability that rival far larger boards. It features 24 usable line inputs with special headroom/ ultra-low noise Unityplus circuitry, seven AUX sends, 3-band equalization, constant power pan controls, 10-segment LED output metering, discrete front end phantom-powered mic inputs and much more.

SONY

TCD-D7

DAT Walkman Player/Recorder

- High-quality Standard Play (SP) mode provides up to two hours recording of 16-bit digital audio on a DT-120 DAT cassette. The SP mode is ideal for recording live music.
- Long Play (LP) mode allows up to 4 hours of record/playback of 12-bit audio on a single DAT cassette. The LP mode is ideal for meetings, conferences or other voice recordings.
- Equipped with digital coaxial and optical input connector. Maintains the highest signal purity for recording and playback of digital sources with all information retained in the digital domain.
- Also has analog Mic and Line inputs for recording from analog sources without external adapters.
- High-speed Automatic Music Sensor (AMS) search function finds and plays tracks, skips forward or back up to 99 tracks, all at 100x normal speed.
- Has a Digital Volume Limiter System (DVLS) that increases listening comfort and sound quality by automatically adjusting for sudden level changes of the recording. It also helps prevent sound leaks through headphones.
- Two-speed cue-review lets you hear sound while player is in fast-wind modes, up to 3x or 25x normal speed.
- Compact and portable, it has an anti-shock mechanism that permits accurate recording and playback even while in motion.
- LCD display with backlit windows clearly shows recording level, track number, operating status and 4-segment battery indicator, even in low ambient light conditions.
- Optional RM-D3K System Adapter Kit for complete digital interface. The kit is equipped with the input/output connectors for both the optical cable and the coaxial cable. Therefore you can use it as a relay between the TCD-D7 and other digital equipment. Also includes a wireless remote control.

NRG

POWER BELT SERIES

NRG power belts are the ultimate power solution. They provide the power to run lights, camcorders and decks without the fear of shutdown. Advanced high-density nicad power cells provide the lightest weight and longest service life of any power products made. Innovative features such as dual power outputs, power indicator, removable packs, plus accessories like high-speed chargers, solar panels and high-current cables combine to form the complete power solutions for any kind of users.

880 Power-Pro +

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

970 Power-MAX

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

- Highest capacity quick-charge capable 12 Volt 14-AMP sintered nicad power pack (removable).
- Rugged high-grade, black leather belt case; chassis assembly with dual 3-pin XLR inputs for pack interchange without shutdown.
- Belt with cellpack weighs a comfortable 7.5 lbs.
- Includes Power-MAX belt and power chassis, 14-amp cell pack in 12V or 13.2 volt configuration, model 600 overnight charger, comprehensive owner's manual. Fits waist size 29"-44".
- Also available in 13.2-Volt 14-amp version. The 13.2-Volt version offers 15-20% longer runtimes because industrial VCRs shut off at higher voltage levels.By not shutting off the Power-MAX is allowed to fully discharge, thus the longer running time.

VARA-LITE PRO

Professional DC On-Camera Light

The revolutionary new NRG Vara-Lite Pro combines the ruggedness, light efficiency and versatility of NRG's best selling Versalight Pro (DC only) with a sophisticated electronic light management system. Thanks to on-board control IC's using NRG's Light-Gate technology, light intensity can be infinitely adjusted by the user within a range of 10% to 100% of the lamp's rated power. Now instantly adjust light output to exactly meet changing light requirements. Best of all, the Vara-Light Pro virtually eliminates color shift and dramatically conserves precious battery power by using only the power required for the selected light level.

- Accomodates bulbs from 20W to 100W DC.
- Prismatic dispersion grid provides smooth even light ouput and reduced glare without changing light intensity.
- Sturdy all-metal click tilt mounting bracket with ratchet action. Eliminates shake under action shooting conditions.
- Optional barn doors enhance light control capabilities.
- Front retainer assembly pops off for instant bulb access without the bother of screws.
- Rugged milled aluminum light head disperses heat and provides years of service under adverse conditions.

POWER STATION-2 SERIES

Just plug the PowerStation-2 into any AC outlet in the world and out comes perfectly regulated 12-volt DC power through four 4-pin XLR connectors and one cigarette lighter connector. It uses an advanced pulse-width-modulated power supply which allows for ultra-light weight and small size . It operates with little heat even at full output. The PowerStation-2 is the ultimate multiple-output professional power source for cameras, decks, lights, monitors, and a host of other video accessories.

- 85-264 volts worldwide auto-adjusting input (just plug in).
- Supply is fully protected from overcurrent.
- Ultra-light weight - under 3 lb.
- Outstanding 300,000 hour mean time between failure is far in excess of any other manufacturer.
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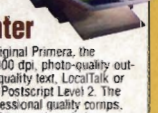

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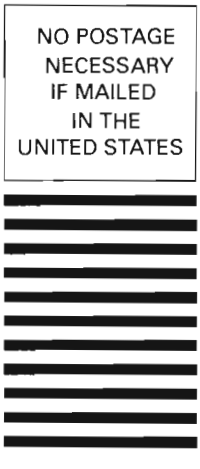

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Avalon: Paradise Lost?

The Internet has existed for years, primarily as a conduit for educational and experimental data. In recent months, however, it has become like the Pet Rock of the '90s - everyone and his cousin needs to "get wired" and "surf the net." This popularity has been spurred mainly by the widespread acceptance of a new graphical front end called the World Wide Web that makes accessing the huge storehouse of information on Internet much easier.

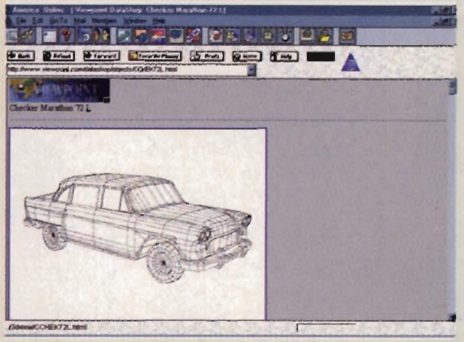
The Web, as it's commonly called, is a seemingly endless, ever-growing, series of "home pages" of information. Each "page" can contain text and graphics that link to other "pages," creating a giant, international resource of data, ready for easy access. Using applications called "Web Browsers" [AMosaic (for the Amiga), Spry mosaic (PC, Mac), NetScape (PC), etc.] and a 14.4Kb (or higher) modem, it's now possible to access the entire Internet without having to learn the new, arcane language of TLA (Three-Letter Acronym) commands, like "ftp," "ping," "rlogin" and "finger" (my favorite).

Just like everyone else who's decided to cash in on the World Wide Web, lots of 3D animators and object companies are beginning to advertise their services. However, unlike the Ragu Spaghetti home page, or the SPAM page, selling software (like 3D objects) over the Internet makes sense. Since the entire product can be transferred electronically, a whole line of objects could be available for access at any time of the day or night. (Great for those projects where you can't afford to wait an entire day for the object to be shipped.) Viewpoint is one of the first to offer this service through the WWW, but the number of sites is increasing dramatically.

However, before the Web, most users could only access the Internet using somewhat arcane, UNIX-based software. Of all the 3D object sites on the Internet, probably the most popular was avalon.chinalake.navy.mil.

Recently, Viewpoint Datalabs assumed administration of the Avalon site. An initial press release announced the voluntary closure of all mirror sites (locations where an exact duplicate or mirror of one site's files are kept), and cessation of ftp access for the site (the site would remain open, but only through the World Wide Web, which requires different software from standard ftp software). A second press release, on the same day, from Syndesis Corporation, announced a voluntary liquidation of Syndesis' Avalon CD-ROM, as Viewpoint would be distributing all future copies.

Apparently, this was cause for concern among many longtime net users. They were suspicious that this was a first step toward elimination of the free Avalon site. I have to admit to sharing those concerns, since it didn't make sense that a commercial 3D object company would want to spend money on a site that distributed objects for free.



ViewPoint's Internet and WWW sites allows you to download 3D images 24 hours a day.

The resulting outcry from Internet users, who feared the loss of a valuable and free resource, caused Viewpoint to rethink its decision to eliminate ftp access to the site. When questioned, a Viewpoint representative explained that they had seriously underestimated the number of people who could only access the site through ftp, and in no way wanted to limit free access to the site for as long as they administered it.

KineModelz from Crestline is optimized for LW 4.0

In an official press release posted on the Net several days after this whole thing blew up, Viewpoint thanked everyone for their honest, open and direct feedback regarding (their) initial steps in maintaining the avalon site. They went on to stress that they considered the administration of the site to be a "public trust," and wanted to clarify any misconceptions that might have arisen. ftp access would be continued, and two of the more popular mirrors of the site were also reactivated.

The immediate benefits of Viewpoint's administration are the addition of more access lines, and elimination of the security check required when the site was running on "chinalake.navy.mil" (a U.S. Navy run site). Future plans include development of a WWW page for Avalon similar to the one they currently run for Viewpoint's commercial objects.

The Viewpoint Web Page (http://www.viewpoint.com) is an interesting example of how electronically generated material (like 3D objects) can be marketed on the Internet. Graphically oriented, but still tolerable on a 14.4Kb modem, every object has its own page, complete with text description of the object, a wireframe picture preview, and even a little "Buy It" button. Using the new "digicash" procedures for Internet purchases, or by using an existing account, buying an object is as quick as downloading it from their BBS. Viewpoint isn't alone in offering 3D models for sale over the Internet, but they're the only ones I know of that are solely dedicated to supplying 3D objects.

In my opinion, it is this marketing edge that drives Viewpoint's desire to maintain the avalon site. Viewpoint actually benefits from the name recognition of the avalon site, and probably hopes to benefit from the increased traffic. If someone can't find an object on the avalon site, then it stands to reason they might check the Viewpoint libraries, since they're right next to Avalon's site now. As they have publicly stated: "Viewpoint makes a living selling 3D data. We used to view the dissemination of free 3D data on the net as a threat to our business and secretly hoped that it would go away. But that was ridiculous. In fact, we believe now that just the opposite is true. A net resource like Avalon is actually a compliment to our business, and if we help build it, improve it and always keep it free, we'll build positive goodwill for 3D and for Viewpoint, and introduce our company to people who someday might become clients."

As the Internet continues to grow and mature, I'm sure we'll see more "strategic alliances" such as the one described above. Whether they will all be "free"remains to be seen. The Internet is an exciting new frontier. If you have a chance, check it out!

VTU

Erik Flom is the president of ELF Works 3D Construction Co. in Alameda, Calif. Questions, comments, suggestions? E-mail your thoughts to 71204.407@compuserve.com

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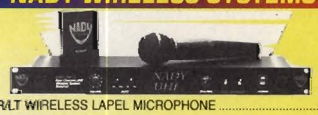

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er L. Elowitz
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rganville, NJ 07751-1649
8) 536-4786
ts on the second Friday of the
th, 7:30 p.m.

sburgh Commodore Group
346
ert W. Peach
Box 16126
burgh, PA 15242
: (412) 396-5483
ts on the third Sunday of each
th at Duquesne University's
lon Hall (except July and
ust).

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: (718) 539-3338
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ce/Fax (914) 561-5866
for information.

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falo, NY 14217
6) 873-1856
: (716) 873-9262
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ne month, 7-9 p.m.

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ntwood, NY 11717-2506
6) 273-4876
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LightWave User Group
System Eyes Computer Store
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Nashua, NH 03063
(603) 889-1234
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George Triolet
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Yorktown, VA 23693
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Meets the first and third Wednesdays of the month, 7 p.m.

WV Video Toaster Users Group
Destiny Images
Jamie Cope
P.O. Box 4631
Charleston, WV 25364
(304) 445-2368
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A-TUG Border States Amiga Group
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Fort Smith, AR 72901
(501) 782-4048
Meets on the second Saturday of the month, 9 a.m.

West Tennessee Video Toaster Users Group
Brian Churchill
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Memphis, TN 38133
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Arthur Szczygielski
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Charles Meier
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The Computer Room
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Englewood, CO 80112
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Arizona Assn. of Artists and Animators
Richard Garrison
Dave Thompson
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Inland Empire Toaster Users
Neil Aheynayake
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Redlands, CA 92373
(909) 335-1209
Fax (909) 335-1480
e-mail: scanam@realm.net
Meets on the first Thursday of the month, 6:30-9:30 p.m.

LA Toaster User Group
Ken Wilder
1818 W. Victory Blvd.
Glendale, CA 91201
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Fax (818) 552-5025
Meets on the second Saturday of the month from noon to 5 p.m. at 10844 Acama St., N. Hollywood.

MACRO Graphics/Multimedia
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Phoenix, AZ 85061
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Orange County Toaster Users Group
Bruce Gleason
Thumbs Up Video
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Orange, CA 92667
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Sacramento Video Toaster Society
Glen Cornish
Applied Computer Systems
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North Highlands, CA 95660
(916) 432-9358
(916) 338-2000
BBS:(916) 338-2543
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Amiga LightWave User Group
MG Software & Video
Mark Miller
6660 Reservoir Ln.
San Diego, CA 92115
(619) 463-0545
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T.U.G. 98XXX
Larry Simpson
Amiga Northwest Studio
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Bothell, WA 98011
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Washington Area User Group
Wade Nelson
Spectral Multi-Media
10655 NE 4th St., Ste. 400
Bellevue, WA 98004
(206) 451-4075
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Silicon Valley VTU Group
HT Electronics
Andrew Timmons
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Santa Clara, CA 95050
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▼Jet Jackson's Bar and Grill
by David Lo

Taken from the soon-to-be-released CD-ROM movie *Angel Devoid* from MindScape Publishing, Lo's work reveals the main character's hangout. The scene was rendered with a Toaster 4000/040 and LightWave. Electric Dreams, where Lo creates images and animations, can be reached at (714) 573-2112.

▼Artifacts
by Joe Dean

Dean used an Amiga 2000, LightWave 3.5 and DCTV Paint to depict the remnants of an ancient alien civilization. LightWave's CrossTexture function was used on the domes, while the Underwater Texture supplied the plants' ripply appearance. Dean can be reached at (407) 453-2425.

▲Wondanaz Tree II
by Joshua Gordon

Wondanaz Tree II depicts the legendary figure hanging on the tree of life, discovering wisdom. This image is taken from *Runic Whispers*, a one-hour video exploring the Indo-European mythos. The tape's animated sequences were produced with LightWave 3.5 and an A2000 with a Fusion Forty accelerator and 32MB of RAM.

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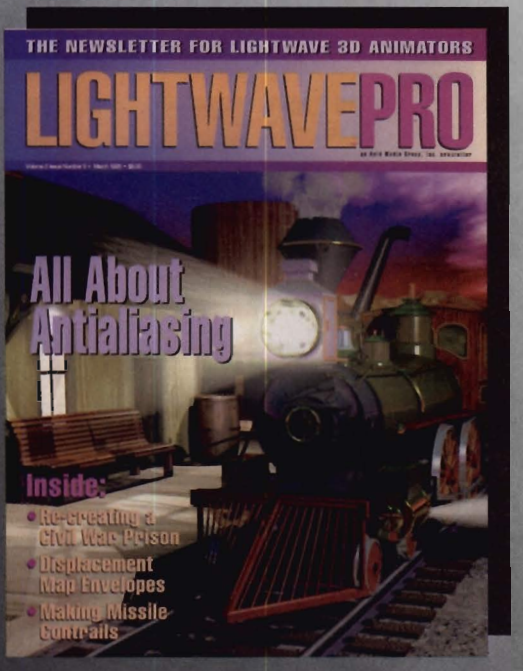

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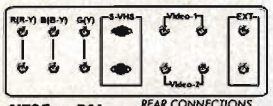

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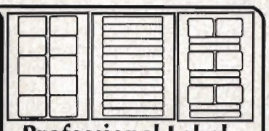
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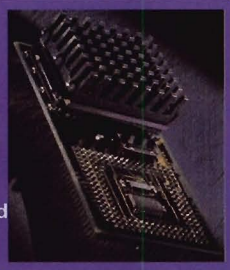

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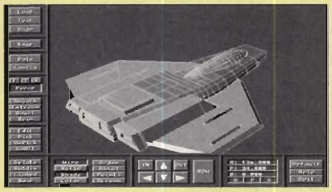
The Sonnet Doubler(tm) 4000 accelerator unleashes the Amiga 4000/40 to run at an unprecedented 50MHz 68040 processing speed.

Available Now for the Amiga A4000

Pixel 3D Professional Version 2

is the most powerful object/logo utility available. Use PixPro2 to convert bitmap pictures of logos and shapes to 3D with unrivaled speed and quality. Smooth, extrude and bevel your converted bitmaps with precise control.



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$85

Use PixPro2 to load, save and display seventeen different 3D file formats, including 3D Studio, Imagine, complete DXF AutoCAD and LightWave scenes and objects. Pixel 3D has become a standard in the Video Toaster and 3D animation workplace.

Pixel 3D Professional Version 2 features:

- Automatic object/logo smoothing.
- Complete online help menus.
- Full object hierarchies support.
- 3D logo beveling with router bits.
- 3D polygon selection support.
- Infinite point and polygon limits.
- Full-feature hierarchy tree requester.
- Intelligent bitmap to 3D object/logo conversion.
- Auto-sizing screen for large monitors and work areas.
- Select and manipulate muliple objects simultaneously.
- Z-Buffer, flat hidden and wire viewer rendering.
- Full color PostScript font and file support, including Encapsulated PostScript and all other types of PostScript files
- Load and save 17 different 3D file formats including: LightWave scenes, LightWave objects, Imagine Objects (with hierarchy support) complete DXF AutoCAD suport, 3D Studio (ASCII and Binary), WaveFront and any more!
- Point editing.
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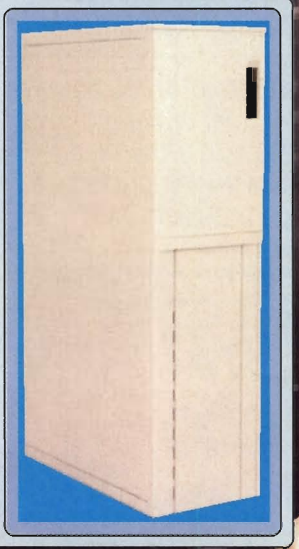

Options

ToasterOven Thermoneter	$Call
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SCSI-2 External/Internal Kit	$120
HighDensity SCSI-2 Terminator	$ 25

FOR INFORMATION CIRCLE 163

RENDERSAURUS™

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Today, 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: The Next Generation, Deep Space Nine, & Voyager. And combineing LightWave with the Rendersaurus WorkStations allows you to take a powerfull Byte out of your computer 3D graphics.

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LightWave WorkStations $9,995

Starting At

RENDERSAURUS-LW275A2™

Includes: LightWave3D 4.0 Alpha-NT, 17" monitor, 4X CD-Rom, 500MB HD, 32MB Ram, Ethernet, Keyboard, & Mouse.

RENDERSAUR-BC200M™ $6995
200MHz Alpha AXP 21064A CPU / 2MB of Cache & 32MB Ram
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RENDERSAUR-BC233A™ $7995
233MHz Alpha AXP 21064A CPU / 2MB of Cache & 32MB Ram
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Each of these RENDERSAURUS systems comes complete with 500MB HD, 2X CDROM Drive, Ethernet, 14" SVGA Monitor, keyboard, & mouse.

RENDERSAURUS RAX™

The RENDERSAURUS RAX is a Monster Rendering machine which holds Upto 10 rack mounted RENDERSAURUS RAX-**550A** racks each rack mount has 2 Alpha-275MHz CPUs. With 20 Alpha-275MHz processors the RENDERSAURUS RAX will give you **5.5 Giga-Hertz** of processing Power!

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TWO CPUs: 275MHz ALPHA AXP 21064A CPUs

each with: 128-bit external data path,
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CACHE(ON-CHIP):16K Instuction
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128-bit RAM Architecture
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2 Alpha-275MHz CPUs,
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DRIVE RAX: $ Call for Configuration

NOTE:
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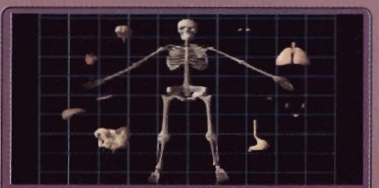

Medical/Anatomy (25 objects) $135

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

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Warp	$ 45
Terminator	$ 15
TAPEBackUp Drives:	
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50MHz-060/32MB Ram/
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FLYer/Toaster/TBC IV/
Two 9GB Flyer HD's and a 1GB AudioHD/
4X CDRom/ASIM

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AGH-7	7	250	3	7	3	Yes	$395
AGH-9	9	300	3	9	3	Yes	$475

MacroForm™ $215

RailToolz Environment:
- ☐ RailRout
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- ☐ ☐ ...More!

Powerful modeling macros for LightWave 3D™

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Whereas other texture libraries help you enhance objects you created — Snap Maps help you create objects!

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Pro Wipes are not animation, they are real Video Toaster format transitions that work just like original toaster wipes.
75 Toaster Transitions & Effects
33 Live (Actor) Action Wipes,
42 assorted 3D Style Wipes,
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Pro Wipes $70

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Surface Pro, Road Signs, & Batch Factory 2.0 $125

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New Flyer & V-Lab Motion EDL generator and VTR controller

Decision Maker takes the drudgery out of moving selected chunks of video to the harddisk. You control your video deck directly from your Amiga! And when you find useable footage simply add it to the EDL. When you need to switch tapes, just name the new tape and continue. When you are done, click ***DIGITIZE*** and the disired footage will move to the harddisk. Then when the Edit is done you can take the EDL to an ***ON-LINE SUITE*** or ***REDIGITIZE*** at a higher resolution!

Features:
- Import, Create, Export EDL's (CMX & GrassValley)
- Online Editing
- Control over your deck from your computer
- Keeps track of multiple source tapes
- Digitize and Redigitize
- User-Configurable Screen Backgrounds
- Ease of Operation
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- Requires NewTek Flyer or VLab Motion
- Compatible with V-LAN, AmiLink, & BCD single-frames, & the EVO-9650 and Sanyo CVRS-950, Single Frame VCRs.

VISUAL FX $125

You don't have to go all the way to Hollywood anymore to get first rate fx.

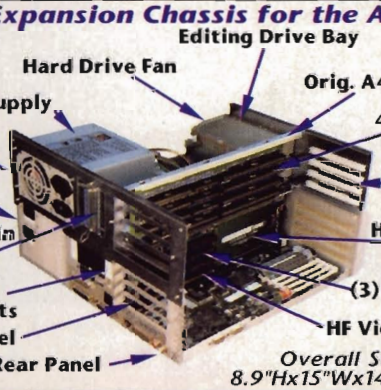
Volume one by Leo Martin and volume two by Mark Thompson are State-Of-The-Art Fx. The impressive front end of ***Visual FX*** gets you into production now, no previous Lightwave experience needed. The transition volumes are perfect for use with the NewTek Video Flyer or the DPS Personal Animation Recorder, just select what images or video sequences you want to use and ***Visual FX*** will do the rest. The Logo volumes are just as easy. Simply select what object you wish to replace our default and you are off on your way to creating professional quality animations that you never thought possible. ***Visual FX*** requesters actually open up on the LightWave screen and walk you through each step. ***Visual Fx*** is perfect for batch processing. Each volume comes with 20 effects, each of which has a full 30 frame preview animation attached to it so you will know exactly what the effect will look like. ***Visual FX*** works with both the Video Toaster and stand alone LightWave.

HIGHFLYER EXPANSION SYSTEMS

The **HIGHFLYER** was designed for the Toaster 4000 user that would like to make use of all four Zorro III and two powered PC slots with the Toaster installed. The HIGHFLYER is also especially useful when used with the Flyer Editing System from Newtek. In addition to the extra slots it also provides an extra venting fan, room for the Video A and B 3.5 X 1.7 inch editing drives, three 50 Pin Cent.-two DB9 cutouts and an additional 250W power supply. Optional cable kit allows connection of external 9 Gig Drives without removing the cover. The HIGHFLYER installs in just minutes using just a screwdriver and maintains the same footprint. All metal double high cover is painted same color as the original.

Features:
- ☐ Four Zorro III Slots with Toaster
- ☐ Three PC Power Slots
- ☐ More 3.5" Drive Bays
- ☐ Additional 250 Watts of Power
- ☐ 3 External 50 Pin SCSI Ports
- ☐ 2 External DB9 Ports
- ☐ All Metal Double High Cover
- ☐ Increased cooling capacity

Integrated Expansion Chassis for the Amiga 4000



Overall Size is 8.9"Hx15"Wx14.6"D.

HighFlyer	$ 395
HighFlyer PS *with Power Supply*	$ 495
Cable Kit	$ 85
Fan Kit	$ 45

DataFlyer 4000SX	$ 90
DataFlyer 4000SX-25	$ 95
DataFlyer SCSI+ 4000 Does not use Zorro Slot	$ 95
270MB IDE SyQuest A4000	$Call

WaveMaker 2.0 $185

is a flying-logo animation scene builder for LightWave.

You don't have to be a Lightwave expert to create eye-catching, professional-quality flying logo animations.

New Features:
Image Factory, PAR Convert, 72 New Elements,...More!

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LightWave
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Homes: $95

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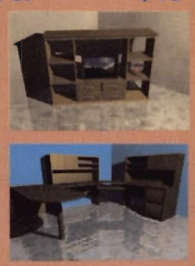
Over 50 Real-World Scaled Furniture Objects:
beds, tables, chairs, cabinets, and more.
Doors and drawers can be animated!

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!

Interior Design 3: $45

Over 50 Real-World Scaled Office Objects:
chairs, desks, book cases, file cabinets, shelves, PC workcenters and more.



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Toaster-Net *LightWave Network Rendering*	$ 325
Ethernet Board	$ 295
I-Card Ethernet for the A1200	$ 345

Cables, T-Connecters, and Terminators are available call for details & prices.

TOASTER-NET $295

The First and Only professional distributive rendering software available for use with LightWave 3D!

NOW SHIPPING

Toaster-Net brings the power of the pros to all LightWave users with an impressive list of high-end features that will drastically improve animation productivity.

- Render multiple LightWAve scenes with the Toaster-Net Scene Que.
- Render select key-frames (perfect for professional story-boards!)
- Modify LightWave rendering settings such as resolution, anti-aliasing, save paths, etc. directly from Toaster-Net.
- Transfer LightWave scenes effortlessly (complete with all objects, images, etc.) from one system to another with Toaster-Net's scene mover utility (great for archiving work tool).

And combined with an ENLAN-DFS network:

- Utilize frame-based Distributive Rendering power!
- Monitor your rendering progress with a graphical representation of your LightWave-Farm (network rendering at a glance!)

Only Toaster-Net allows you the ability and confidence to prepare several LightWave scene files for your system, and know that when the long weekend away from the office is over, all scenes will be rendered and ready when you return.

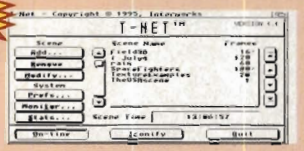
Stretch your Toaster Productivity!

Toaster-Net Features and Functions:

- Render a list of multiple LightWave scenes.
- Select specific frames to rend (i.e. only render frames #2, 18, & 62)
- Modify rendering settings directly from Toaster-Net such as, resolution, anti-aliasing level, raytracing options, & save paths.
- Use Toaster-Net's Scene Mover utility to simply and easily move a scene, complete with all objects & images, from one Toaster system to another. Great for archiving your work or setting up multiple Video Toasters to render the same scene.

Advanced features can be utilized when Toaster-Net is used in conjunction with an ENLAN-DFS network.

- Frame-based distributive rendering across a network of unlimited Toasters.
- Monitor your Toaster-Farm with a graphical representation which allows each node on the network and its current rendering status including the scene name, frame number, and time of the current frame in progress.



ENLAN-DFS $265

ENLAN-DFS is the Ethernet-based, Peer-to-Peer networking solution for the Amiga. ENLAN-DFS provides diskdrive, file and peripheral sharing. ENLAN-DFS is the ideal network software for turning your Amigas into powerful, integrated workgroups! NO DEDICATED SERVER is required; any system can share rexources with any other system.

media4 productions

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PHOTOPRO TOOLKIT $65

PhotoPro Toolkit enables Art Department Professional and ImageFX to load and save Adobe Photoshop-format image files.

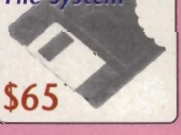
It does what it does very quickly, quietly, conveniently and reliably. If you save your Photoshop artwork as Photoshop-format image files, you'll greatly appreciate your Amiga's newfound ability to directly read and write Photoshop images. It saves time, which saves dollars. And it doesn't take very many of those dollars to get PhotoPro Toolkit in the first place. If you use Art Department Professional or ImageFX and find yourself loading your artwork into Photoshop so that it can be resaved as a TIFF or PICT before you move it to the Amiga, PhotoPro Toolkit may well change the way you do what you do. Or, at least, the speed with which you do what you do.

Features:

- Works with Photoshop for Macintosh or Windows
- Read and write Adobe Photoshop format image files from ADPro or Image FX
- Eliminates the need to Re-Save Photoshop images as PICTs or TIFFs before using them
- Supports files with attached channels of alpha data
- Great with MaxDOS

MAXDOS v2.5

AMIGA to MAC File Transfer File System



$65

MaxDOS is the ultimate solution for moving data between the Amiga (or Video Toaster) and Apple Macintosh.

It is a true, full-featured Macintosh HFS-compatible filesystem, plus much more. Simply plug any Macintosh format SCSI drive into an Amiga SCSI port, and MaxDOS will list all available partitions. Choose the partitions to be mounted, and they appear on Workbench and in all applications' file requesters. That's all it takes--go ahead and use the drive without even thinking about the fact that it's Mac formatted. MaxDOS will do the same for Emplant and A-Max partitions, as well. Plus, if you have a high-density floppy drive, you can do the same thing with high-density Mac floppies, too. MaxDOS is straightforward, flexible, powerful, quick, slick, magic and, most important, remarkably inconspicuous. Don't let file transfer concerns impede productivity or creativity.

Features:

- Transparent compatibility with all Amiga software
- Straightforward use of nearly any Macintosh format SCSI drive or cartridge
- Displays Macintosh icons on Workbench
- Provides access to both data and resource forks of Mac files
- Configurable double click reaction based on type and creator properties
- Access to Mac disks even over Amiga networks

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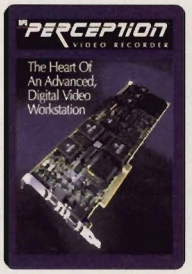

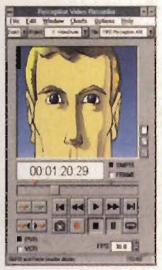

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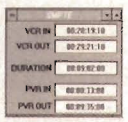

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✕ DOS ✔ AMIGA
✱ WINDOWS ✲ MAC OS
◉ WINDOWS NT ✲ SGI

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LAST WORD

The Emperor's New CPU

You Deserve What You Pay For

by Mojo
with Ron Thornton

A quart of milk? $4.00, please. A pound of potato salad? $12.99. Laundry detergent? That'll be $60.00, sir. Yes, you can finance the steak, ma'am.

Is this a scene from the far future of grocery shopping? Perhaps a Southern California 7-11 right after a major quake? No, no, dear readers. It's what today's prices would be if the corner store were run by Silicon Graphics.

Let me explain.

The world of computers and electronics has always been unique in the marketplace by continually getting better and cheaper. We're now at a threshold where desktop computers have virtually caught up with big, expensive mainframes. A little over 10 years ago, a flat-looking *Last Starfighter* was rendered on million-dollar Crays. Today, a photoreal *Babylon 5* is rendered on $4,000 PCs. Powerful computers simply don't cost a lot anymore. Your Toaster is a perfect example.

Silicon Graphics, on the other hand, seems to have lost touch with the economics of the computer industry. Their current pricing seems to reflect a company that has either a very large gambling debt or a philosophy that people will still pay through the teeth for a name. You be the judge.

Foundation Imaging currently uses Macintoshes running After Effects software for 2D image compositing and optical effects. Our workload is getting a bit heavier, so we decided to look into some powerful new tools from Silicon Graphics. What we discovered may shock you.

A new piece of SGI software called Flint (from Discreet Logic) is arguably the best and fastest 2D effects package out there. The demo blew everyone from Foundation out of the water.

How much?

With all the bells and whistles, we were quoted a "bargain" price of $103,000 (that's one hundred and three thousand dollars). Of course, that's *with* a $20,000 discount on a used machine. We batted an eyelash and asked for an itemized breakdown just to see exactly what we would be paying for.

The Flint software runs a hefty $32,000. Kind of expensive, but without a doubt a remarkable piece of software. Next on the list was the actual machine needed to run it, a Silicon Graphics Indigo 2 Extreme. This week, it was on blue-light special for only $40,000. Exqueeze me?

Now folks, we're talking about a machine that has more or less the same processing power as, say, a 150 MHz Pentium, which costs about $5,000. Where does the extra $35,000 go? To be fair, Silicon Graphics did point out that the SGI also has a graphics co-processor on board. Boy, that Amiga must be really underpriced!

What about this machine costs so much? Well, the 32MB memory upgrade costs $2,500. Yes, I know the street price for 32MB of RAM is around $1,000, but remember: this is *SGI-approved* memory (maybe it costs a lot to silkscreen their logo on the chips). Next item? CD-ROM drive. A good one can be purchased for around $200 these days. But a *really* good one? I mean, one good enough for an SGI? That would be more like $950. You can find them right next to the $500 toilet seats they sell to the military.

Next is storage. Silicon Graphics suggests an 8GB RAID array (basically a box with several very fast hard drives working in unison). Now let's see, 8GB of super-fast SCSI II would set you back around $3,000, tops. Silicon Graphics price? $11,500.

Now, I know some smart cookies out there are thinking they can beat the system by buying a bare-bones SGI and putting in their own RAM, CD-ROM and hard drives. Keep in mind, however, that this will invalidate your service contract. Yes, just like the kind they try to sucker you into at the local electronics store. Most people know it's a scam, so they just walk away from it. But the smart guys at Silicon Graphics *know* you know, so they *require* you to purchase a service contract at $3,000 a year. Actually, I admit my facts may be a little off. I forget if it's a service contract or protection money. You know, things can *break* if you ain't too careful.

Foundation Imaging has decided to stick with the Macs for now. We flatly refuse to be party to such unethical tactics and believe that fewer and fewer people are going to be shelling out $100,000 for the Silicon Graphics nametag. Sure, Flint is better, but is it a $95,000 improvement over After Effects? No. Many computer graphics "pros" using SGIs stick their nose up to "low-end" platforms running software such as LightWave. How can our PCs and Amigas possibly compare to their $100,000 workstations? I don't know: let's compare *Babylon 5*, *seaQuest*, *Hercules* and *Voyager* to SGI output. Is there a difference? Sure. But is it a $100,000 difference? Not a chance.

Silicon Graphics wants you to believe that computers must be expensive to be good. They equate price with respectability and have led people to believe that nothing cheap should be taken seriously; they are the most expensive and therefore the best. As long as they manage to convince people of this, the practice will continue. But as software like LightWave continues to show that performance does not equal cost, you can bet that, sooner or later, people will stop buying $4.00 quarts of milk.

P.S. Flint crashed during the demo.

VTU

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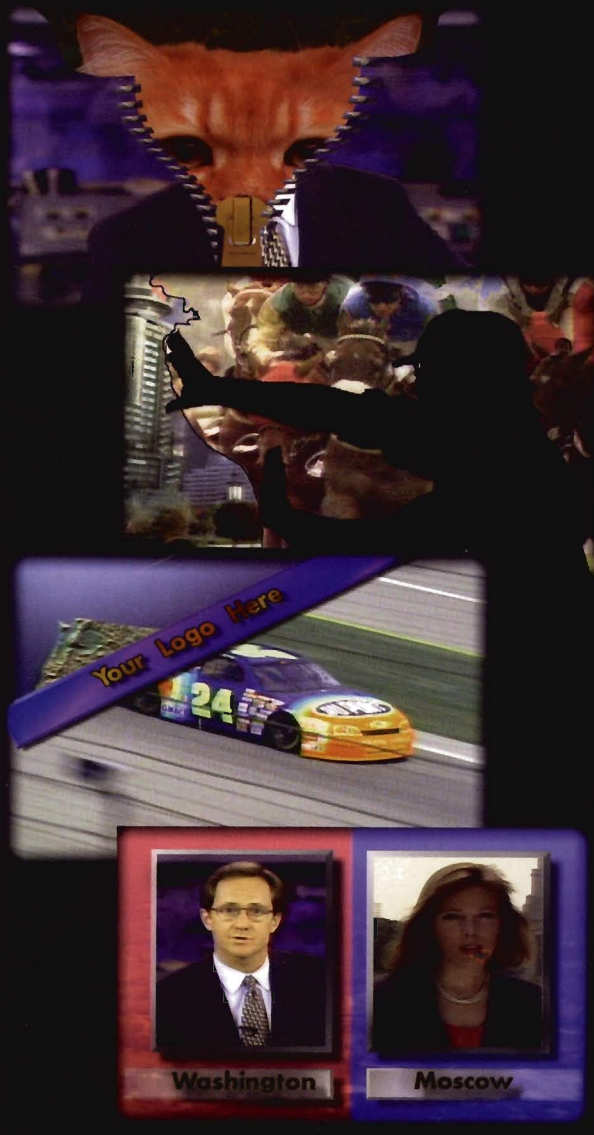

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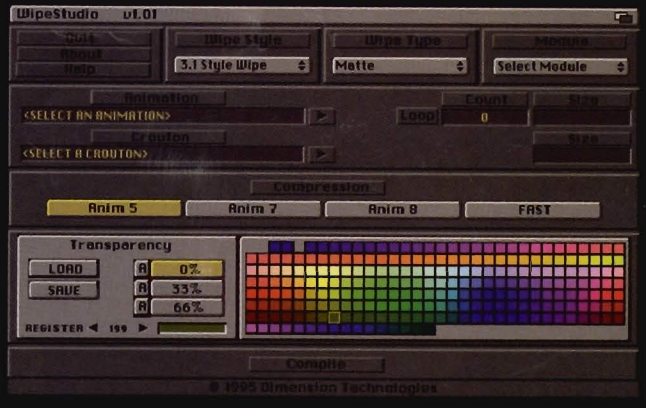

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FOR INFORMATION CIRCLE 110

VIDEO TOASTER

FLYER™

TAPELESS EDITOR

The next big leap forward in video production technology, a non-linear editing system for everyone. Not only is the Flyer the easiest-to-use non-linear editor, but it also has the same capabilities and quality you expect from a production suite with $50,000 video tape decks.

Not JPEG. Not MPEG. The Flyer utilizes a breakthrough technology called VTASC, which was designed from the ground up to put broadcast quality video onto a hard drive.

The Flyer is a powerful tapeless editing system. Record video and audio segments as clips, which you arrange using a simple drag and drop interface. Using the Video Toaster System 4.0 software, add real-time video effects, graphics or text. Press the play button and your video plays back, real-time in broadcast quality. You can even use the Flyer as an animation recorder with LightWave 3D.

Of course, great video requires great audio. A powerful DSP chip provides up to eight tracks of 16-bit, CD quality audio for music, sound effects and voice overs.

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

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Your Flyer card is the heart of the new Video Toaster. With your Flyer installed in the Video Toaster Bay™, it becomes the new Video Toaster system. Now, you have a portable field recorder. Plug your camera into the Toaster and record direct to hard drive.

Your new Toaster system also has built-in time base correction with proc amp controls, three digital still stores, a four input production switcher, video processor, luminance keyer, SMPTE time code reader/generator and a single frame animation recorder.

The Flyer installed in the Toaster Bay gives you the added flexibility of running it with your Amiga/Toaster system or any PC running Windows 95 or Windows NT. Everything you love about your Video Toaster Flyer and the freedom to use it anywhere.

"With the Flyer it is phenomenal how fast and easily you can create A/B roll edits. I can put together 5 shots with dissolves in 5 minutes, before the Flyer, that same job would have taken an hour." Rex Olson, Rave Video Productions, Burbank, CA.

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