

Premier Issue

# Amiga Video/Graphics Magazine

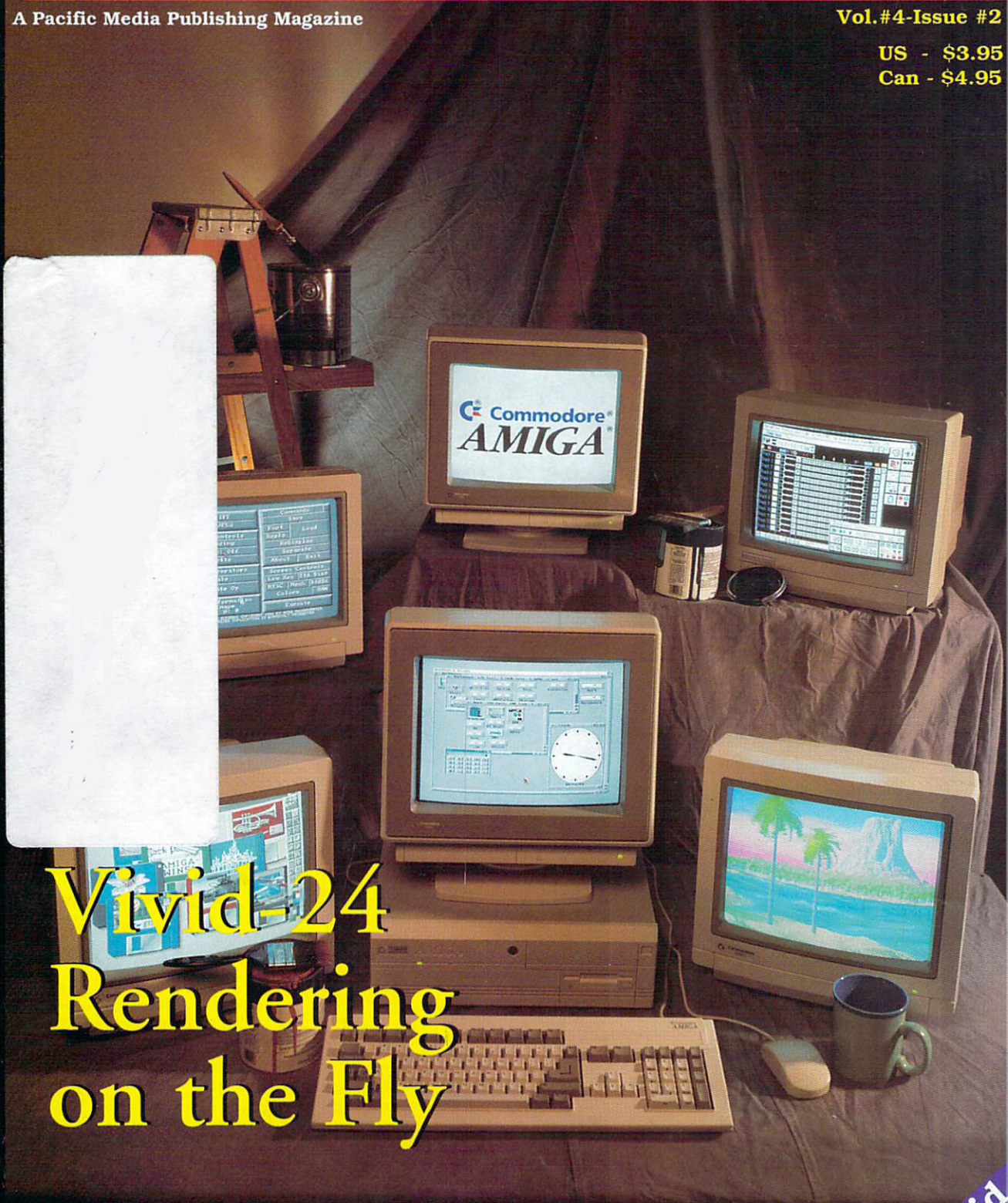
A Pacific Media Publishing Magazine

Vol. #4-Issue #2

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The MultiMedia Magazine



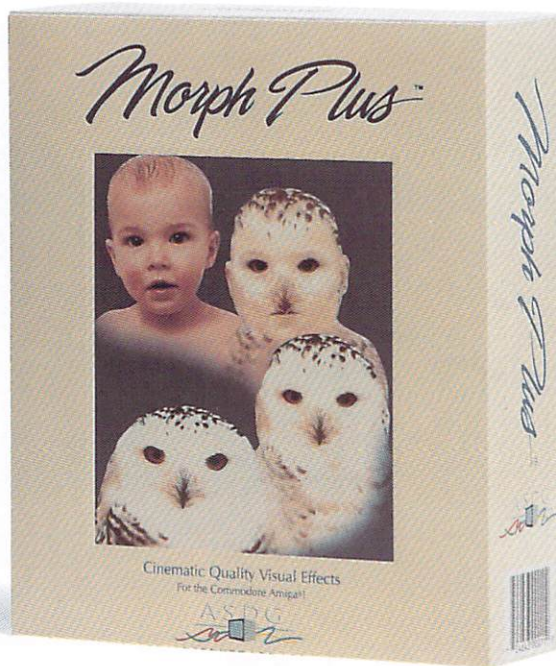
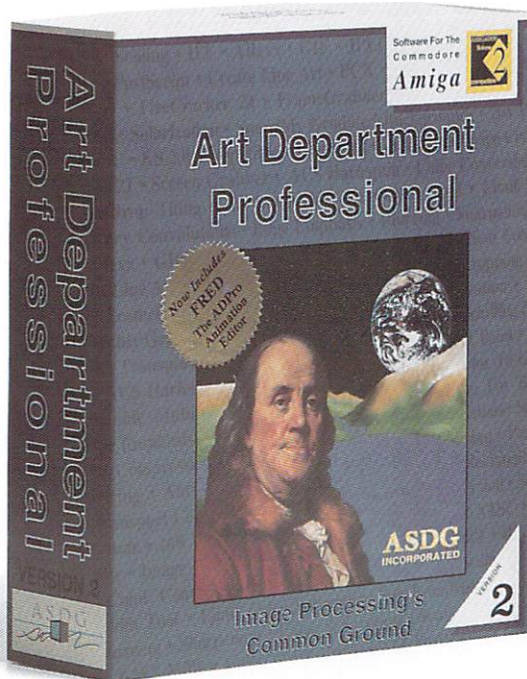
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- ADPro placed third among ALL Amiga® software products on the MicroPace 1992 Top 50 Sellers List.
- The Post Group, one of the largest post production houses in the world, has used ADPro and MorphPlus in the production of special effects for the prime time TV

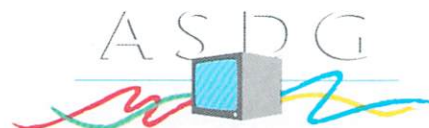


show Quantum Leap and for major motion pictures.

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

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# AVG



Editor-In-Chief

# EDITOR'S CORNER

Fred Kuramura

Hello, my name is Fred Kuramura and I am the new Editor in Chief of the *Amiga Video/Graphics Magazine* (formerly known as *Amiga Video Journal* or as *Avid*).

Here at Pacific Media Publishing, we are excited to see the new life that Commodore is breathing into the Amiga with the release of the AGA chip set and the aggressive pricing of the A1200 and the A4000.

This, combined with a veritable deluge of professionally oriented products, brings previously unheard of power to the hands of creative professionals, setting aside once and for all the myth that the Amiga is just another game machine.

The current industry buzzword seems to be MultiMedia. This is fine with us, since, compared to the other so-called MultiMedia Computer Platforms, i.e. *Macintosh*, *Microsoft Windows* compatibles, and *IBM's OS 2.1*, the Amiga AGA line of computers give more bang for the buck.

Until now, Avid has mostly covered material concerning developments in the hardware and software of the NewTek Toaster.

We feel it's time for a change. WAIT!! Don't pull out the lighter fluid yet! We're not cutting out anything, we're ADDING coverage.

We're expanding the level of in-depth tutorial coverage for products ranging from *AmigaVision* to *Zoetrophy*, and will increase the number of hardware and software reviews.

In addition, in the new columns department, we are adding *Amiga Updates*, an overview of the latest released versions of hardware and software and also *The AGA Connection*, which will keep you abreast of all new information concerning the AGA chips set and associated software/hardware.

We're also going to start a letters to the Editor column. In a way, this will be one of our most important additions. We will be using your input to determine what future issues to cover and to provide you with practical solutions to whatever problems you're having.

We hope you like the changes we've made to the format and would like to invite you to send in any suggestions or questions you may have.

Just address your letters to Amiga Q/A,


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Now aren't you glad you didn't pull out your Bic?

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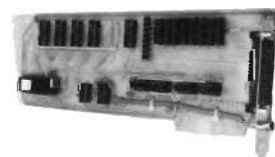
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# Welcome

**W**elcome to first issue of the Amiga Video/Graphics Magazine. AVG was born out of The Amiga Video Journal founded by Jim Plant. Jim and I have known each other for sometime, and when he told me he was looking for someone to continue AVID, we started to plan. I joined together with Fred Kuramura, and Gabriel Pan to form Pacific Media Publishing, and the rest is history.

We changed the name of the magazine because we wanted to improve the coverage of AVG for the Graphic Artist and Videographers. We know most of the readers fall into one or more of these categories, and are the most demanding type of users on the Amiga. Therefore, the need for a "How To" magazine is much like the need for a computer mouse (you can get by without one, but it makes your life a whole lot easier with one). Our plans for AVG is plain and simple. It is to produce the very best resource for the Amiga Artist on subjects of graphics, sound, and video. You will continue to get the most in-depth tutorials and informative reviews which have always been associated with the *Amiga Video Journal*. In addition, you will continue to be a part of the network of Artist that is the envy of the industry.

Our first addition, is to start a new column centered on the new AGA chip set. Many people, even those working on other platforms are finding out that the AGA chip set makes the Amiga the most powerful "Multi-Media" machine available for the money. We are also starting a question and answer column to help all the readers with problems they may have encountered in their projects. We will also listen to your suggestions and comments about the magazine and try to mold it to your needs. Well enough of my rambling. Now just sit back and enjoy AVG, and keep on creating.

*Tony Macchella*

Publisher

## Advertiser Index

### Advertiser Index

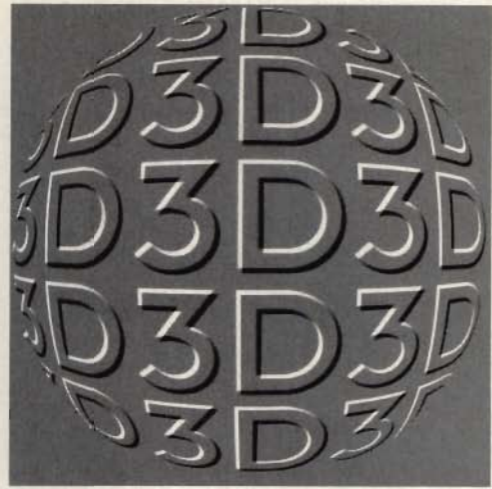
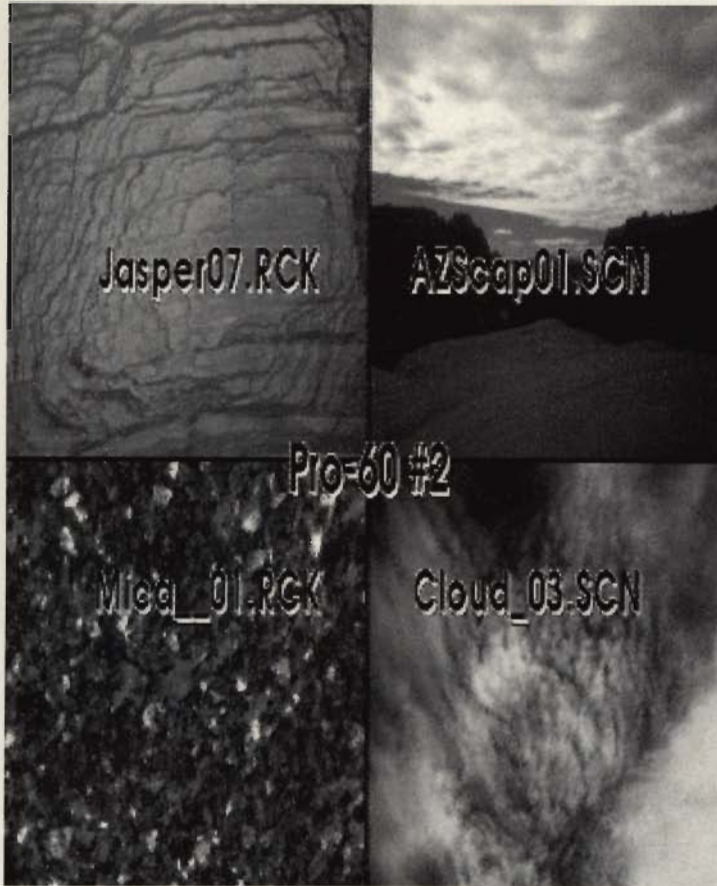
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## About the Cover

The cover is often the most exciting part of a magazine. This months cover is set to stir excitement for the Commodore Amiga. We surrounded the flagship of the "Multi-Media" revolution with some of it's top rated programs to inspire the creative energies within us all.

The cover was shot by photographer Jeff Bender (408-373-1320) of Pacific Grove, California. The computer equipment was supplied by VisionSoft (408-899-2040) of Seaside, California. Programs running on the monitors are Bars&Pipes Professional by Blue Ribbon SoftWorks (404-315-0212), Art Department Professional 2.0 by ASDG (608-273-6585), Deluxe Paint 4.5 by Electronic Arts(800-245-4225), and a rendering by VistaPro 3.0 from Virtual Reality Laboratories (805-545-8515).

The Commodore-Amiga logo was scanned in by Art Department Professional using an Epson ES-300C scanner and displayed by the FireCraker 24 from Impulse (612-425-0557).



# 3D Perspectives

© 1993 by

David Duberman

Welcome back to 3D Perspectives. As you probably know, new hands have taken over the AVID reins. Let's bid a hearty welcome to Fred Kuramura and Tony Moschella, the new editor and publisher. I know they've got great things in store for our favorite Amiga/Video magazine, and I for one can't wait to see AVID go full color so we can see Amiga artists' renderings in all their glory.

I just heard that Commodore dropped the list prices of the Amiga 4000 and 1200—now \$2700 and \$600 respectively—which makes these powerful computers incredible bargains at street prices. So things should really start heating up soon in the Amiga graphics world, which admittedly has been stagnating a bit of late. Although I'm no longer editor of the magazine, I'll continue to keep you informed of the latest and greatest developments in the 3D world of Amiga in this column. This month we have some new interesting products plus an in-depth look at *Aladdin 4D's* built-in procedural textures. Incidentally, if you're new to the world of Amiga 3D, you should know that there are various products, including *Ptxel 3D Professional* from Axiom Software and *InterChange Plus*

from Syndesis Corp., that can convert 3D objects between just about any two formats. So just because a product mentioned here is made for a specific program and you're into a different one, in most cases there's no reason you can't use it.

## The Apex Newsletter

I recently received the first newsletter from Steve Worley's Apex Software Publishing. Steve wrote the great Imagine reference, *Understanding Imagine 2.0*, and created *Essence*, a terrific collection of procedural textures for Imagine that will also be usable with the next version of *LightWave 3D*. The newsletter includes exciting news about products coming soon from Apex, as well as tips and tricks for using *Essence*. Four pages are devoted to an in-depth tutorial on simulating flames! Finally, there's a short AREXX script for substituting Art Department Professional for Imagine's

Quickrender display. If you bought *Essence* but haven't sent in your registration card, you're missing a lot!

## These Here United States

If you've ever searched in vain for accurate 3D models of the United States map, you're not alone. Mike Schrengohst of The Associated Image Group, after months of frustrating

search for affordable *LightWave* US maps, decided to make his own, and the result is a useful disk called United States. Each state, painstakingly outlined—the Alaska mainland map uses 192 points in a single polygon—is available separately extruded or flat, and they're also grouped together in various ways. Of course, individual

states load into their proper positions in the US map. Each state has its own surface name, and extruded states have separate names for the side surfaces.

The US map objects are provided in a variety of configurations, one of

*The US map  
objects are provided  
in a variety of  
configurations, one  
which should fit  
just about anyone's  
needs*

which should fit just about anyone's needs, although Alaska and Hawaii aren't included. There are two permutations of a flat map with individual state outlines and slight gaps between each state, one with a single surface name and the other with different surface names for each state. The third flat map is an overall outline of the contiguous United States, useful as a background matte. Two extruded maps, both with individual state outlines and slight gaps, offer individual state front and side surfaces or share front and side surface names.

Useful scene files are also provided. Alaska and Hawaii load and center their respective states. Two others load all 50 or the 48 contiguous states in their proper layouts, allowing you to manipulate states independently. Finally, *Example.Texas* loads the 48 contiguous states, then brings Texas to the front. Gee, I wonder where Mike's from?

Anyway, if this sounds like something you could use, don't hesitate—get a hold of Mike in that little old state down there and send him \$29.95 plus \$2.95 shipping and handling, and recreate the War Between the States in your computer, with the actual states fighting! Such a deal!

## Mannequin Man

In these days of ever-increasingly tight budgets, it's nice to have access to an inexpensive alternative to a high-priced solution. *Mannequin Man* from *Apples Animation* is a simple hierarchical human-like model in *LightWave* format. It's suitable for scenes and animations in which a highly realistic human form isn't required. *LightWave*'s object hierarchy is contained in Scene files, of this package includes four: one simply standing, one sitting, and walking and running. Body parts supplied in left and right versions include thighs, calves, feet, shoulders, upper and lower arms, and hands. There's also a head, hips, and upper body. Also included are two surface files; chrome and mannequin wood. If you need an accurate but not detailed human form for your

*LightWave* work and don't have a C note to spare, check out *Mannequin Man*.

## Texture City

The latest collection of 60 stunning images from the specialists at *Texture City*. The *Pro-60 #2* package consists of a five-disk installer set with miniatures of their entire catalog in two-by-two HAM images, along with a viewer and decompressor program, plus a ten-disk set with the 60 images compressed in JPEG format.

There's quite a variety here. Outer space shots include a long shot and a fiery closeup of Venus, plus a medium shot of the moon with the curved horizon in the background. Stone textures include adobe, gray and red bricks, and stucco. Metal textures include brushed steel, tin siding, and a piled-up chain. Scenic backgrounds include a picturesque Colorado lake, an Arizona landscape, and some colorful walls of graffiti. Many of the images in the Water and FX categories are relatively abstract and contain beautiful and subtle color gradations, making them ideal for reflection maps. Other categories include Earth, Foliage/Plant, Wood, and a couple of one-image categories; Animal with rabbit fur and Textile with fish sack cloth.

The compressed files contained in *Pro-60 #2* range in size from about 50,000 bytes to over 150,000 bytes, with most weighing in at the high end of the scale. This indicates that the amount of JPEG compression used is the least possible, which still typically provides a ten-to-one compression ratio without causing any discernible degradation in image quality. Indeed, all of the images that I decompressed and viewed on *DCTV* and the Toaster were absolutely gorgeous.

geous.

If you're looking for a varied set of high-quality high-resolution (752 x 480) 24-bit images at a reasonable cost, you'd be doing yourself a favor by picking up this newest release from those *Texture City* image wizards. The included browser software makes it easy to find the image you need quickly and decompress it for use with just about any 3D or multimedia program.

## Taming the Wave

Moments before deadline I received *Taming the Wave* from *Mach Universe*, also known as fellow AVID columnist David Hopkins. This is a "Training System," which is best described as looking over the shoulder of a professional *LightWave* artist as he reveals just about all of the program's secrets. I don't think there's any better product available for those new to the program who need a thorough overall introduction. *Taming the Wave*, based on David's regular column in *Video Toaster User* magazine, is packaged like a piece of software, and in fact contains two disks of font objects, a Camaro object, some *ProFills* textures, and more.

The heart of the package consists of two videotapes produced by and starring David himself. The hour-plus Video Manual walks the viewer consecutively through each one of *LightWave*'s many controls. The second video is a series of tutorials, with support files provided on the included disks.

Need help with envelopes, surfaces, spline settings, or lighting? They're all here, and much more. The reasonably complete discussion of program usage is accompanied with views of the user interface combined with many illustrative images and animations. In this way, the Video Manual is superior to a book,

which can't show motion. However, due to the tape's linear nature, it's less than ideal for looking up a particular item in a hurry, particularly as there's no index provided (not practical with VHS).

*Texture City*  
A varied Set of  
high-quality high-  
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images at a rea-  
sonable price.

*Taming the Wave*  
is a "Training  
System" which is  
best described as  
looking over the  
shoulder of a pro-  
fessional  
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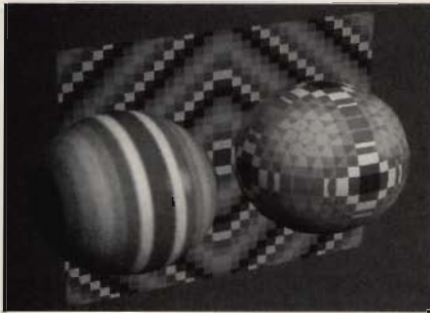


Fig. 1

I say the information is "reasonably complete" because no one source could possibly provide all available information on such a complex program as *LightWave/Modeler*. For example, the discussion of object morphing notes that objects to be morphed must contain the same number of points, and warns that this can be difficult to achieve. It neglects to say, however, that morphed objects usually start with the same shape, which is then modified to create shape variations and saved as several different files, something that's not readily apparent to the user.

Although specific to the 2.0 versions, this material can only help you get farther faster when the eagerly anticipated new versions come out. If you've been struggling with *LightWave*, David Hopkins' training system could be just what the doctor ordered.

#### Font Flyer

A brief word is in order about a new utility for *LightWave* users called *Font Flyer* from Mark Drummond's *MD Grafix*. This useful program eases the task of creating various circular and straight-line arrangements of objects such as text. It comes with three good-looking 3D fonts and nine effects such as Cir X and Y, Break, which is a left-justified paragraph, arcs, and flat circles. It creates a grouped *LightWave* scene, so the characters can be manipulated indi-



Fig. 4

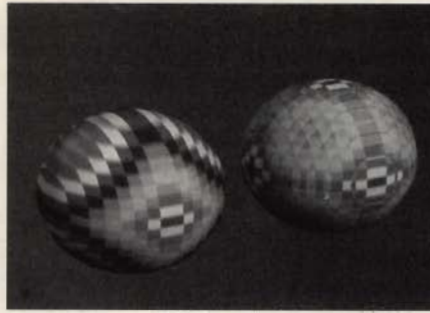


Fig. 2

vidually or as a whole. These can be converted to Imagine grouped objects with *Syndesis'* new *InterChange Plus*. See my review in the February/March 1993 issue of *Video Toaster User* magazine for more information about *Font Flyer*, or better yet, just get it—it's only \$30!

#### Aladdin 4D Procedural Textures

*Aladdin 4D* from *Adspec Programming* (Please don't sue them, *Disney!*) was perhaps the single most exciting software release in the Amiga 3D marketplace in 1992, or at least during the latter part of the year. While the program excels on many fronts, clearly one of its star features is texture mapping. *Aladdin* gives you Genie-like power to apply and animate textures, colorful patterns, and images on objects' surfaces.

Unlike other programs, there is no limit to the number of images that can be mapped onto a single object, other than memory.

Fortunately, *Aladdin* offers 25 procedural textures which combine up to eight colors in endless varieties of patterns at practically no cost in memory. While using procedural textures in *Aladdin* can present the user with a bewildering array of choices, happily the magic "Suggested" but-

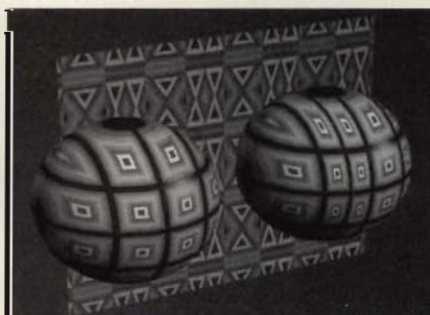


Fig. 5



Fig. 3

ton comes up with useful settings every time. Even if it doesn't give you the exact results you want, it provides a jumping-off point for adjustment of single variables at a time in small increments. Eventually, after playing with all of *Aladdin's* textures over a period of time, you'll come to know all the parameters at a glance.

In the accompanying illustrations, I've attempted to depict the major families of *Aladdin's* procedural texture varieties. In all cases the textures are applied Projected along the Y axis, using all "suggested" settings, or with slight size variations in some cases to make the patterns clearer. Also, every texture's center coincides with the center of the object to which it's applied. The way to do this is to select an object, then right-click on the Page Move gadget

to place the Attach Point at the object's center. Re-select the object, go into the Texture requester, and click on the Cur ATP gadget.

In Figure 1, the plane uses Blocks (2D), the left sphere uses Bands (2D), and the right sphere uses Blocks (3D). In Figure 2, the left sphere uses Cubes (2D) and the right sphere uses Cubes (3D). In Figure 3, the plane uses Scallops (2D), the left sphere uses Helix, and the right

*Clearly one of Aladdin 4D star features is texture mapping.*



Fig. 6

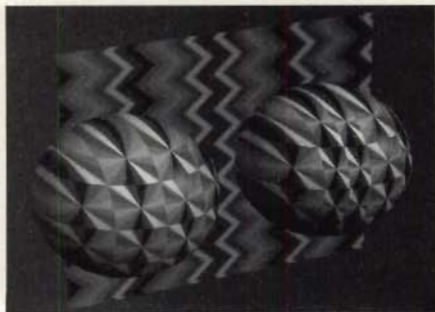


Fig. 7



Fig. 8

sphere uses Helix (M) (you can see the mirroring in the sphere's back half). In Figure 4, the plane uses Tiles Polygons, the left sphere uses Tiles Polygons (M), and the right sphere uses Tiles Polygons (H). In Figure 5, the plane uses Tiles Polygons (H)(M), the left sphere uses Tiles Rectangles, and the right sphere uses Tiles Rectangles (H). In Figure 6, the plane uses Noise Bounded, the left sphere uses Noise Open, and the right sphere uses Noise Closed. In Figure 7, the plane uses Zigzag, the left sphere uses Tiles Burst, and the right sphere uses Tiles Burst (H). In Figure 8, the plane uses Waves, the left sphere uses Tiles Circles, and the right sphere uses Tiles Circles (H). In Figure 9, the plane uses Tiles Circles, the left sphere uses Tiles Burst, and the right sphere uses Tiles Burst (H). In Figure 10, the plane uses Tiles Circles (H), the left sphere uses Tiles Closed Noise, and the right sphere uses Tiles Closed Noise (H).

I discovered a few anomalies while creating these examples.

Blocks (2D) actually creates Bands; I simulated it with Blocks (3D) on a flat surface. The suggested Noise Width values for the two Tiles Closed Noise textures are too large; I suggest reducing them to 5,000 or less. Also, I couldn't see any difference between them. Adspec has been notified and the new version with fixes for these and other bugs, plus AGA chip set support and other improvements should be available as you read this.

Aladdin provides a wonderful tool for experimenting with colorful patterns, and the best thing is that you can animate all of these textures! Psychedelic 3D movies, as well as many other more practical applications, are now within your grasp. Some of the parameters' functions can be somewhat puzzling, so we'll be looking at these in combination with animation techniques in an upcoming tutorial in these pages. Let me know if there's anything you'd like to know about this or any other 3D program, and subscribe to Adspec's newsletter!

*Aladdin 4D  
provides a  
wonderful  
tool for  
experimenting  
with colorful  
patterns.*

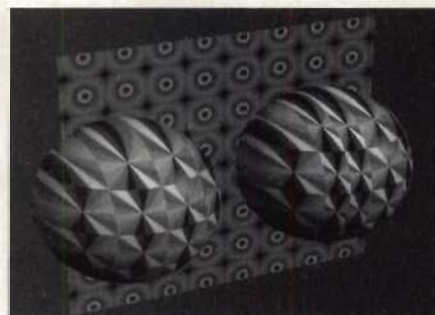


Fig. 9

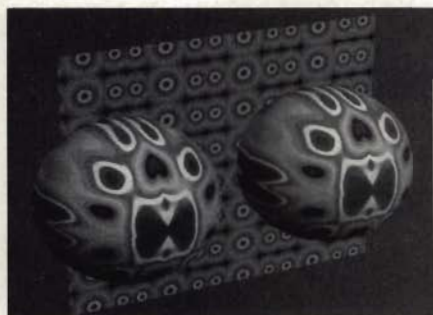


Fig. 10

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# Amiga UPDATES

as of February 1993

Welcome to Amiga Updates. Every month we're going to keep you informed on the latest versions of creative applications for the Amiga. The present list is somewhat abbreviated due to the rush to get the magazine to the press. Still, as time passes, we will expand the listings to cover more products that apply to your interests.

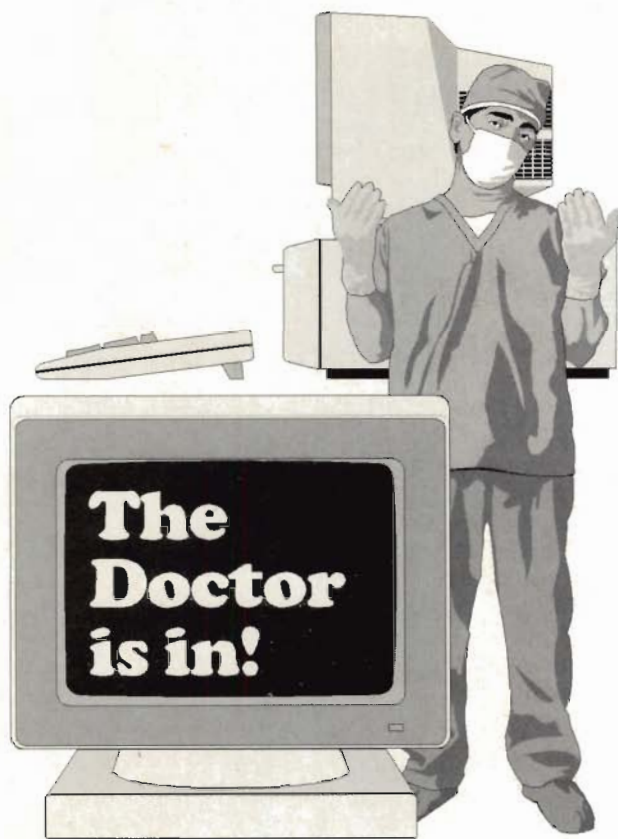
Products	Version
3D Pro	2.0
Amax II Plus	2.5
Aladdin 4D	2.1
Ami-Back 2.0e	2.0
AmigaDos	3.0
AmigaVision Professional	2.0
Aminatrix Modeler	1.2
Art Department Professional	2.01
Art Expression	1.0
B.A.D.	4.12
Bars&Pipes	1.01
Bars&Pipes Professional	2.0
Brilliance	1.0
Broadcast Titler 2	2.0
Caligari2	2.1
Caligari24	1.0
Caligari Broadcast	3.0
CanDo	2.0
CineMorph	1.0
CrossDos	5.0
DCTV Software	2.0
DeluxePaint AGA	4.5
Directory Opus	4.0
Digi-View Gold	4.0
Director 2, The	2.0
DiskMaster II	2.1
Distant Suns	4.2

Products	Version
Draw 4D Professional	3.0
Essence	1.0
Final Copy II	1.0
Hotlinks Editions	1.1
Imagine	2.0
ImageFx	1.0
Image Master	9.24
InterChange	2.0
Kindwords	1.0
Light-24 (Firecracker)	1.0
LightWave	2.0
Lissa	1.0
MathVision	1.0
Morphplus	1.0
Opalvison Software	1.1
PageStream	2.2
Pixel 3D Professional	1.03
PhoneFax software	1.0
Playmation	1.47
Presentation Master	1.0
Professional Page	3.0
Professional Draw	3.0
QuarterBack	5.0.2
Real 3D Classic	1.4.2
Scala MultiMedia 200	2.0
Studio 16	2.0
ShowMaker	1.0
ToasterVision	1.0
Trexx Professional	1.0
TruePrint/24	1.0
Turbo Silver	2.0
Toaster System Software	2.0
Vista Professional	3.0

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**Or send a fax to (408) 758-1744.**



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Dr. R Shamms Mortier

And the top of the year and the tip of the digital hat to you! I hope you were sufficiently Amigaified during the holidays, and that your hanging stockings manifested that extra eight megs of RAM you were seeking. 1993 brings the promise of great things to come for all *Amiga* obsessive. Hopefully, the economy will blossom as well, making those hard working developers of all of the promised *Amiga* goodies well rewarded for their efforts. There's a lot coming in '93, folks, enough to make you trade in the little sleep you're getting now for more all-nighters at the CRT.

#### **Brilliant-**

By the time you read this, I should be pouring over *Digital Creation's "Brilliance"*, an *Amiga* paint package that promises mega magic...especially to A-4000 owners (of which I can be happily counted). I already know some secret things I'm sworn not to divulge. Just let me say that if it's half the software it's hyped up to be, it'll be ten times what we've been working with thus far. Get ready. To prepare for it, up the limit on the old smokin' credit card and get an *Amiga 4000*.

#### **Aladdin 4D-**

*ADSPEC Programming* is releasing a "speed fix" upgrade to their *Aladdin 4D* software. Most screens should render from two to five times faster! This upgrade is free to registered users, so get those cards in to *ADSPEC* fast. This upgrade also features *HAM-8* support for rendering and textures, 256 color support for textures, an added "line modes" feature, and more. It will be sent automatically to all registered *Aladdin-4D* owners. My *Amiga 4000* renders *Aladdin 4D* animations 2.5 times

as fast as does my 68030 based A-2500, so that means the upgrade should run at from five to twelve times as fast on the A-4000 as on the A-2500! *Aladdin 4D* already boasts the fastest frame rendering of its competitors, and this will just underline its quickness. By the way...look for both *Aladdin 4D* and *OpalVision* to make appearances on upcoming versions of the famous syndicated techie TV show "Computer Chronicles" (show #1016) on computer art, which they taped on December 19th in San Francisco.

#### **Slides 'n Stuff-**

I've recently been using the slide services of *Digital Imagery*, a production house at 945 Walnut Street in Fall River, Mass. (508-676-0844). My *Amiga* slides look great. Their "economy service" (72 hour turnaround) offers slides at only \$3.50 each, while overnight service runs from \$5.00 to \$6.00 a slide. Not only do they add thermal prints and transparencies if you need them, but offer iron-on fabric transfer media as well (\$4.50 to \$6.50 each). What about that *Amiga* illustration that you wanted to have emblazoned on your shirt? Now's the time. For other pricing and more info, just call Ernie Viveiros Sr. at the number listed above. You can send in your *Amiga* disks and get your order back in quick time.

#### **Axiomated-**

*Axiom Software's Pixel-3D Professional* software released in December looks like a real winner. Cost varies between a \$249.00 retail to a tentative \$75.00 upgrade cost for 2.0 users. The Bitmap conversions are a reported 5 times as fast and include spline fitting and eight smoothing algorithms. There is also point editing with zooming and double buffering. Though a future version will contain new *LightWave* parameters, this one allows for *Imagine* grouped objects. New data reduction is included as well as all new and exciting "Router Bit" sculpting. New included formats include *Caligari*, *Aladdin 4D*, and DXF loads and saves.

Also coming even sooner is *Axiom's ANIMworkshop* software, a blessing for ADPro user who desire animating the applications addressed by ADPro (and Morph+) "Operators". When I see this package I'm going to shout for joy. The cost will be in the \$90.00 range.

#### **ANIMatics-**

*ANIMatics*, the developer responsible for the *Fantasy Fonts* collection, is releasing a piece of software I wish I would have had a few weeks ago. I sent a client a rush tape of about eighty samples of my electronic paintings for background posters in a movie. When the order came back, it was with a verbal description of what was going to be needed, and I had a devil of a time finding the right pictures. *ANIMatics* is marketing a simple time-code generator (not related to any hardware, so it really has nothing to do with generating "readable" timecode). What it does is to place a simple updating time reference on a tape (genlocked), so that a client can find and point to needed items. What a great idea! It only costs \$19.95, and you get a bonus eight-ball divination game as well. Contact *ANIMatics* at (908) 493-3630. What *Amiga* video person, especially if you're into wedding photography, can afford to be without this small but vital utility?

#### **Texture City-**

They've done it again. *Texture City* has another collection of their wonderful 24bit background and texture mapping graphics. This time, there's stuff like cow and deer hide, skull bone, glass, brushed steel, more space

scenes, more wood, more textiles...and the set comes either on disk or on a CD-ROM. The price is only \$100.00. Contact *Texture City* at (310) 836-9224.

#### **The A-4000**

The first three programs I dumped to my new A-4000 harddrive were *Aladdin-4D* from ADSPEC, ASDG's *ADPro/Morph+*, and *ProFills 2* from JEK Graphics. I had the bright idea of also adding the screen grabbing package "Spritz" from *Glacier Technologies*, but that turned into a big mistake. Spritz rewrote one of the library routines, and caused the machine to go seriously astray. In short, I had to re-install the operating system before it would work again. Moral: watch what software you dump to the A-4000, especially older stuff.

As I mentioned earlier, my new 4000 seems to render 3D work at from two to three times the speed of a 68030 A-2500. I recently tested the same *Aladdin-4D* scene on both an *Amiga* 2000/68030 and the A-4000/68040. The 60 frame scene was rather complex with moving objects, animated waves, cast shadows, moving procedural textures, transparencies, rendered to the DCTV 3 bitplane interlaced video-overscan format. The 68030/68882 A-2000 took 22 hours 14 minutes, while the A-4000 accomplished the same feat in 8 hours 45 minutes. Quite a difference! I'm busy looking for another IDE drive for it (preferably one with 300+ megs), and will soon add my GVP series II SCSI controller for other drives as well (maybe a Floptical sometime next year). The 24bit *ADPro* pictures I've put up on the screen in the new *HAM-8* mode are hard to distinguish from real 24bit stuff at all but the closest glance, and the 256 color work isn't bad either. I know there's been a lot of bad press about the IDE drives, but I've got to tell you that mine works like a charm. I'll be anxious to see, however, how well it (or "they") handshake with SCSI drives. The internal A-4000 drive is really ultra quiet. I'm still waiting, however, for someone to write a translation routine for the high-density A&E drive so I can translate old animations saved with it to other storage media. I plan to add other cards and devices to my A-4000 as my wallet permits, so I'll keep you posted on developments. One of my first additions, after pumping up the RAM to 16 megs, will be to add the *OpalVision* board. Please...other readers who have A-4000 joys and woes to report, write to me so I can share your experiences with others in the AVG forum. (R. Shamms Mortier / 15 Rockydale / Bristol, Vermont 05443)

#### **ANIMatrix fans-**

In a fairly short time, *duBois Animation's ANIMatrix Modeler* has caused a creative stir in the creative Amiga community. *ANIMatrix* combines many of the translation features of *Pixel-3D* with some novel approaches to 3D modeling. Coming are new formats (*Aladdin 4D* included). Reports are positive about this software running on A-4000's. Jon duBois reports that he's also working with a new 3D digitizer that has many new features and that interfaces well with his software. Call him at (405) 348-4670 for pleasant talk and details.

#### **Octree Software-**

*Octree Software* (1955 Landings Drive / Mountain

View, CA 94043...415-390-9755) is saying that its *Caligari24* software will be ready for market before February 8th, 1993. By all indications, its features far outweigh other products in the *Caligari* lineup as far as the Amiga is concerned. *Octree*, like every other serious Amiga developer, is rushing to put in support for the Amiga-4000 series (256 color and *HAM-8* modes). It will finally be able to address IFF's as texture maps, with other needed additions and upgrades as well. I have owned *Caligari*, and all of the various upgrades, for years, and am still mesmerized by its awesome 3D virtual reality interface. I hope *Octree* has also added icons for the lights, but won't know for sure until I see a copy of it (very soon!). Except for *Caligari IV24* owners, other present users are invited to upgrade for a mere \$109.00 (\$129.00 for international users). As a reminder, remember that *Octree* also markets *DynaCADD* for around \$500.00.

#### **ASDG News-**

ASDG recently won top honors in the "Image Processing" category from the *Amazing Computing* readers poll for their software "*ADPro*" and "*Morph+*". I have seen (and used) some of the new operators being included in the *ADPro* upgrade (February?), and can only say that the best keeps getting better with each season. At AVG, we are well aware of how empty our video pursuits would be without *ADPro*. While at ASDG this last summer, I saw brand new *Epson ES-800C* scanner sitting in a box. ASDG has just added a driver for this scanner to their input list for *ADPro*. The driver sells for \$200.00. Contact the lovely Gina Cerniglia at ASDG for more info. (608-273-6585).

*Caligari24,  
Its features  
far outweigh  
other prod-  
ucts in the  
Caligari  
lineup*

#### **Playmation-**

Martin Hash & Will Vinton's *PlayMation* is out. This upgrade of what was once called "*Animation:Journeyman*" has been rewritten to address the IBM systems, with an Amiga version tagging along. Speed is the main upgrade in this unique 3D spline animation package, with some neat rendered samples on an addendum disk (it's nice to see these 24bit renders, by the way, on an A-4000 in the new *HAM-8* mode...with the help of ASDG's *ADPro*).

#### **Sony-**

For those of you needing to dump to standard VHS in a qualitative fashion, allow me to suggest that you will want to investigate the *Sony SLV-696HF* recorder. This little \$450.00 beauty has video and audio insert capabilities, both rear and from A/V jacks, and a professional jog shuttle. I recently used it to tape a needed rush project, and was most pleased with the high quality of the playback. It's an extremely sturdy little deck, and has other features as well. Contact your local video outlet for more info.

In addition, *Sony* is also offering a continuation of its series of video workshops throughout the country. These cover every facet of video interaction, from production to postproduction and computer interfacing. For details and dates for your area, contact Sony Corporation / 2021 North Western Avenue / PO Box 29906 / Hollywood, CA 90029.

## In Search Of...

...a Polaroid FreezeFrame film recorder. I am looking for a bargain price on one of these units for the University of Vermont, so that Amiga work on the A-4000 can be written to high quality slides, perhaps even from the composite output of my DCTV unit. Like all educational facilities, the university is somewhat strapped for funds. Anyone knowing about where I could trade for or purchase said device should contact me. Perhaps you know of someone who's moved on to more expensive options, and has one of these units gathering dust in a corner. American education in the Northeast will thank you.

## More Masterful Images-

*ImageMaster*, the thick multi-optioned image manipulation package from *BlackBelt*, is now (as of 12/15/92) in its 9.22 version. Unlike some packages which send the user upgrades sporadically, *BlackBelt* seems to send out every possible upgrade, sometimes resulting in new disks every month. As *ImageMaster* comes on four disks, this is no doubt somewhat expensive. In version 9.21, the AGA chipset was supported (the new A-4000 modes), and development code is SAS C was enhanced. The render panel was recreated from scratch, and a new dithering panel was added. In 9.22 many changes and enhancements were incorporated into the Morphing module, and some 9.21 bugs in the way that it addressed the AGA chipset were fixed. Owners of this fine package can expect at least seven or eight new upgrades next year if this past year serves as a model.

## MegageM-

Being a gem of mega size, the software from Dr. David Wolff continues on its merry fractal way, getting more advanced with each release. Now we have *ScapeMaker 3.0*. Previous users will recognize this software as a great way to play with the DEM files that *Vista-Pro* and *Scenery Animator* use. It also converts IFF's into DEM's for use by those and other programs (like *Aladdin-4D*). DEM's can now be added, subtracted, and more. New is \$50.00, while upgrading costs \$25.00. Contact MegageM for this and much more. MegageM / 1903 Adria / Santa Maria, CA 93454-1011 or call (805) 349-1104. This is great software for video backgrounds and other applications, besides being

long lasting fun at a bargain price.

## A Valuable Tip-

Recently I suffered a rendering terror. A member of my family entered my studio and shut off my system while it was rendering an *Aladdin 4D DCTV* animation. It was thought that the system was left on accidentally while it was really in the middle of creating a 20 hour long animation rendering! The file was obviously corrupted since the system shut-down happened while a frame was being written to hard disk. I tried everything to revive it, but nothing seemed to work. In desperation I picked up the *Elan Package "Performer"*, and loaded the corrupted incomplete animation in. It worked! The messed up frame was skipped over, and I was able to save out what was left, and then continue the rendering from the corrupted frame in a later rendering session. The finished piece was stitched together in *DPaint* and saved. Thanks "*Performer*" (contact *Elan* desing for info on this superlative software). Isn't it about time, by the way, the *Performer* was upgraded? It's been over a year now.

## Beyond-

And more *Amiga* 24bit background scenes in full 24bit color. At a cost of \$200.00, the *Beyond Backgrounds* set from *FrostByte Systems* consists of ten disks full of IFF24 pictures and 24bit brushes, all said to have been developed on a Silicon Graphics system. Though some unique images are represented, my impression is that an Amiga could have been used to better advantage. I found the brushes more useful and variable than the full pictures, but you may disagree. Contact *FrostByte* at (416) 769-7516.

## Apologies...

I promised two issues ago that I would give you a general rundown of some very useful public domain and shareware software, useful in *Amiga* video pursuits. I'm still late doing that, but will endeavor to bring you the goods next issue. Meanwhile...ENJOY! See you in ROMulan space. That's all for now.

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# Multi Media

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Matt Drabick

The Amiga 4000, unveiled at the September, 1992 World of Commodore Amiga show in Pasadena, California, is the first of a new generation of Amigas to offer more colors and resolutions tailored for video and MultiMedia presentations. With its fast Motorola 68040 CPU rated at 25 MHz, 120 megabyte IDE hard drive, six megabytes of RAM, and most importantly its new AGA chip-set, the Amiga 4000 provides a serious leap in performance over previous Amiga models. Along with releasing the A4000, Commodore has even adapted a very healthy attitude by aggressively advertising the virtues of the A4000 as the ultimate video and MultiMedia platform in various video and computer magazines. This new attitude also has Commodore, normally very reserved about announcing any new developments, actually discussing future plans for both the Amiga and CDTV.

Externally, the A4000 is slightly larger and boxier-looking than an Amiga 3000. Some of the external

connectors have been moved to a different location or in the case of the SCSI port simply deleted from the platform. The two mouse ports have been moved to the left side of the machine. The mouse has an extra-long cable for reaching around to the right side of the machine. Along with the parallel and serial ports, the single RGB and external floppy disk drive connectors, the keyboard connector is located on the back of the machine. Two RCA connectors are provided for audio output. Unlike the A3000 with its 15-pin and 23-pin RGB connectors, the A4000 provides only a single 23-pin RGB connector. An adapter is provided for attaching a 15-pin VGA or multi-sync monitor.

Internally, the A4000 has four Zorro-III expansion slots with three Amiga/PC-AT compatible slots and a single video slot. A single dual-speed (880 kilobytes or 1.76 megabytes) high-density 3.5 inch floppy disk drive is included, with room for two rear and two front-mounted 3.5 inch drive bays and a single front-mounted 5.25-inch bay. To many people's

surprise Commodore decided to use an IDE interface for the 120 megabyte hard drive instead of the usual SCSI interface. IDE was chosen over SCSI because of its lower cost and the relatively low use of SCSI devices by the average Amiga user. Commodore will be making available a 32-bit SCSI adapter, the A4090, for those people who need a SCSI interface.

The A4000 is very modular in design, allowing for the easy addition of memory or swapping out of the 68040 CPU in exchange for another processor. Up to 18 megabytes of memory can be installed on the motherboard, with two megabytes allocated to Chip RAM and the rest fast RAM. The A4000 is currently shipping with 6 megabytes of memory installed. Additional memory can be added in the gigabyte range. Unlike adding memory to an A3000, a rather unpleasant chore that involves disassembling most of the machine, fast memory is easily added to the A4000. After removing two screws and sliding the metal

housing off, memory is conveniently added on the motherboard in the expansion slot compartment using easy-to-install one-megabyte or four-megabyte SIMM modules.

By putting the CPU on a removable module, *Commodore* has made it very easy to upgrade the A4000 to future processors as they become available. Currently the 68040 CPU from Motorola uses mostly CISC (Complex Instruction Set Computing) technology. The next processor from Motorola in the 68000 series, the 68060, is said to be a true RISC (Reduced Instruction Set Computing) processor like that found in *Silicon Graphics* workstations. Using a RISC-based processor with the *Amiga* will provide for a quantum leap in performance, with vastly reduced rendering times for 3D graphics and animations.

The real news with the A4000 is the introduction of the AGA chip-set. AGA, or Advanced Graphics Architecture, provides for substantially more colors to be displayed at all resolutions compared to the previous generation of *Amigas* and their ECS chip-sets. True 6, 7 and 8-bit color register modes are built into the platform, providing for 64, 128 and 256 colors at resolutions ranging from 320 by 200 pixels up to 1472 by 482 overscanned and interlaced pixels. Even more impressive is the new *HAM-8* display mode that provides for an 18-bit display. Unlike regular *HAM* and its pseudo 12-bit, 4096 colors display, *HAM-8* doesn't suffer from the awful fringing problems associated with regular *HAM*. *HAM-8* uses six bits of information for 64 base colors and two bits for calculating the deltas. The additional colors provide a photo-realistic display perfectly suitable for many video applications such as creating still images and 3D animations. All of the new color modes including *HAM-8* can be used to create and display animations from memory with smooth 30 frames-per-second playback.

Unlike earlier *Amigas*, using a higher resolution screen with the A4000 doesn't result in a corresponding decrease in the total number of colors to work with. All of the new color register and *HAM-8* modes are available from the lowest to the highest resolutions. The AGA chip-set is backwardly compatible with the ECS chip-set, with the major dif-

ference being that the user has between two and 256,000 colors to work with at 320 by 400 pixels, 640 by 400 pixels, 1240 by 400 pixels, etc. NTSC, PAL and VGA display modes are available as well, including 800 by 600 pixels, 640 by 960 pixels and 1200 by 800 pixels.

Another impressive feature of the AGA chip-set is how fast operations are performed when working with 8-bit and *HAM-8* images. At 640 by 400 pixels resolution, an 8-bit flood-fill using *DPaint* AGA is completed on an A4000 faster than the same operation on an A3000 at 4-bits (16 colors) at the same resolution. While there is a noticeable slowdown when working at 1280 by 400 pixels resolution, the performance is still very acceptable. Animation playback is very smooth at all resolutions as well. When working with both 8-bit and *HAM-8*, it's possible to render and playback photo realistic 3D animations from memory (RAM animations) without having to perform single-frame recording. This capability alone is worth the A4000's list price of \$3699.00.

In addition to providing more colors at all resolutions, the AGA chip-set provides another important capability, an interlaced and overscanned 35 nanosecond true broadcast resolution display when using 1472 by 482 pixels. 35 nanoseconds is an industry standard for determining what is considered broadcast quality for character generation. While the A3000 does have the same super-high resolution it's limited to displaying only four colors, inadequate for professional work. With the A4000, 256 or 256,000 colors can be displayed with a 35 nanosecond broadcast quality signal (assuming the genlock being used with the *Amiga* to output the video signal is broadcast quality as well). This is very important to the future of the *Amiga* because both the *Mac* and the *IBM-PC* now have video display cards that allow those platforms to perform character generation with 8-bit, 15-bit and even 24-bit displays. In the past one of the *Amiga's* strengths was its ability to perform professional character generation with 16 colors. Both the *Mac* and the *PC* have unfortunately captured part of that market away from the *Amiga* because of their ability to display more colors. With the introduction of the AGA chip-set, that will change.

At the time of writing, both *Scala, Inc.* and *InnoVision Technology* were preparing new releases of their existing CG software to take advantage of the new display modes found with the AGA chip-set.

In addition to video titling, both the 8-bit and *HAM-8* modes are excellent for performing painting and animation work. While *HAM-8* offers 256,000 colors to work with, allowing for very realistic looking images, 8-bit images can often have the same photo realistic appearance when working with 1280 by 400 or even 640 by 400 pixels and using dithering. As part of a comparison test, I framegrabbed a 24-bit image of a basket of flowers using the *IV-24* from *GVP* and re-rendered the image as both a *HAM-8* and an 8-bit file using *MorphPlus* from *ASDG*. The *HAM-8* image looked identical to the original framegrabbed image, while the 8-bit image had only the slightest hint of color banding. Future upgrades to *Caligari24* (the 3D animation renderer from *Octree Software*), *Scala Multimedia* (the titling and presentation software from *Scala, Inc.* that playbacks images, animations and audio from memory) and *Scenery Animator* (the terrain generator and animation program from *Natural Graphics*) will provide support for the AGA chip-set. Photorealistic animations can be created using those programs and then recorded directly to videotape from memory without having to perform single-frame recording using an expensive animation controller and frame-accurate VCR.

While having a 68040 CPU and true 32-bit bus helps the A4000 to perform real-time animation with 256 or 256,000 colors at broadcast resolution, the A4000 benefits from having a four-hundred percent increase in bandwidth compared to earlier *Amigas*. Bandwidth is the measurement of how many pixels can be addressed from chip memory per second. The AGA chip-set achieves this increase by using 32-bit chip memory for reading and writing information and also using 32-bit page mode access to RAM. Because of this dramatic improvement in processing information, the AGA chip-set provides sparkling performance even when playing back an 8-bit overscanned and interlaced animation at super high resolution.

In spite of all its new capabili-

ties, after working with the *Amiga* for the last five years, it's surprising just how familiar the A4000 is to work with. Even with the new display modes and lightning-fast performance, I felt very comfortable in going from my A3000 to the A4000. While Workbench 3.0 now supports 256-color screens and has other improvements, the new operating system is still very easy to work with.

Future planned upgrades to the A4000, confirmed by *Commodore*, include the addition of DSP chips from AT&T to the 68040 processor for 16-bit sound capability. While details were still scarce, the DSP chips can also be used to aid the main processor for other applications such as 3D rendering, resulting in vastly reduced rendering times.

Other planned additions for the A4000 include both MPEG and *Kodak's Photo CD* as well as an internal CD-ROM drive. MPEG is a compression technology that encodes motion images and then allows those images to be played back in real-time from a CD-ROM drive. Compression ratios are typically about 50 to 1 before any image degradation occurs. The potential of CD-ROM plus MPEG as a mass storage device that can

playback full-motion videos very significant. Photo CD is a means of transferring to disc photographic images taken by a 35mm SLR camera, etc. and then playing those images back on a video monitor or television set. It's important that *Commodore* plans to incorporate MPEG, Photo CD and CD-ROM with the A4000 as they represent the technologies of tomorrow.

Whether or not *Commodore* releases a cost-reduced version of the A4000 is a question many people have been asking ever since the model was first displayed at Pasadena. Substituting a Motorola 68030 for the 68040 CPU and installing less memory and a smaller hard drive would certainly help to bring the price down. Given their marketing history, it wouldn't be surprising to see a "power-up program" for owners of previous *Amiga* models that allows them to purchase an A4000 at a substantially reduced cost. *Commodore* does plan to release a tower version of the A4000, comparable to the tower version of the A3000. Contrary to rumors, the AGA chip-set is not mounted on a removable module that allows for the easy installation of the fabled "AAA" chip-

set with its reported 32-bit display (24-bits for color information and an 8-bit alpha channel). However, according to *Commodore* there will be an easy upgrade path for any future chip-sets under development.

In addition to the A4000 *Commodore* has released several other new *Amiga* models as well. Both the *Amiga 600* and the *Amiga 600HD* represent yesterday's *Amiga* technology neatly packaged in what looks like an *Amiga 500* with the numeric keypad chopped off. Both models feature the same Motorola 68000 CPU rated at 7.16 MHz and ECS chip-set found with the A500. The A600HD differs from the A600 in having an internal 40 megabyte hard drive installed. At \$399.00 and \$599.00 respectively, the A600 and A600HD offer the *Amiga* user some very affordable models to choose from but without a lot of the capabilities of the A4000 and the new A1200.

The A1200 was recently introduced after the A4000 at the fall COMDEX show in Las Vegas. With its 68EC020 CPU rated at 14.32 MHz and the AGA chip-set installed, the A1200 is a powerful low-cost companion (\$699.00) to the A4000.

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Although the A1200 doesn't have any expansion slots for a video display card like the *Video Toaster* from *NewTek* or the *IV-24* from *GVP*, it does have an internal IDE connector for mounting a hard drive plus an internal 150-pin CPU connector for adding a faster CPU or additional 32-bit memory. Two megabytes of memory are shipped with the *A1200* and up to 10 megabytes of memory can be installed. An external PCMCIA connector is provided for adding extra memory, a fax modem or even a SCSI adapter. Connectors are provided for standard serial and parallel ports plus an external floppy disk drive. For video applications the *A1200* has numerous outputs including composite video, RF, VGA, SVGA, RGB analog and two audio connectors, making the *A1200* ideal as a production tool for creating and playing back animations plus performing video titling.

Commodore has big plans for

CDTV as well, including finally releasing the AVM (Advanced Video Mode) module that brings the 21-bit video display technology from *Digital Creations'* *DCTV* to *CDTV*. An internal SCSI adapter and a hard drive for *CDTV* will become available as well. It wouldn't be surprising to see both MPEG and Photo CD incorporated into *CDTV* as well.

At the time of writing (the first of January) the *A4000* works with the *IV-24* from *GVP*, *Firecracker24* from *Impulse*, *DCTV* from *Digital Creations*, the *Resolver*, *Vivid-24* and *EditMaster* from *DMI*, the *OpalVision* from *Centaur Development*, and the *Harlequin* from *ACS*. Apparently there is a problem that prevents the *Video Toaster* from working properly with the *A4000*. Hopefully, this will soon be cleared up.

Existing software is being rewritten and new software being introduced that takes advantage of the new display modes found with the AGA chip-

## Specifications

### A4000 Configuration:

#### CPU

\*Motorola 68040 series 32-bit processor clocked at 25Mhz.

#### MEMORY

\*2 MB 32-bit Chip RAM

\*Up to 16 MB 32-bit Fast RAM, 6MB installed.

#### SOFTWARE

\*512 KB 32-bit ROM

\*AmigaDOS™3.0 Multitasking Operating System.

\*CrossDOS MS-DOS® file transfer utility.

#### SYSTEM SLOTS

\*CPU slot(200 pin) supports high speed memory and advanced processors.

\*Four 16/32 bit Amiga Expansion Slots (100pin)

\*Three PCAT™ slots.

\*Extended 24-bit Video Slot

#### INTERFACES

\*94-key Key Board

\*2-Button Opto-mechanical Mouse

#### DISK DRIVES

\*Built-in 3.5-inch high density disk drive (880 KB/1.76 KB formatted)\*

\*120 MB IDE Hard Drive (formatted and preload with system software.)

#### GRAPHICS MODES

\*AGA custom chipset produces resolutions ranging from 320x200 to 1280x400 (more with over-scan).

\*NTSC and PAL video resolutions

\*2 to 256,000 user definable colors displayable on screen from a color palette of 16.8 million.

#### VIDEO DISPLAY OUTPUT

\*Works with RGB analog, VGA or multiscan monitors.

\*Horizontal scan rates 15 kHz - 31 kHz

\*Vertical scan rates 50Hz - 72Hz

#### SOUND

\*Four channel stereo sound, capable of reproducing complex waveforms.

\*Built in sound buffer up to 800 KB nominal

\*8-bit D/A converters

\*6-bit volume

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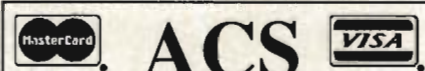
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set. Besides *Caligari24*, *Scala Multimedia* and *Scenery Animator*, *Electronic Arts* is releasing a new version of *Deluxe Paint* (*Deluxe Paint AGA*) that has all of the drawing and animation capabilities of previous versions but now provides support for all of the new display modes including *HAM-8*. *InnoVision Technology* should be releasing a new version of their CG software *Broadcast Titler* that supports the AGA chip-set, and *Digital Creations* will be releasing a new 24-bit paint and animation program called *Brilliance* that supports all of the new display modes found with the A4000 and A1200. Finally, the image processing software *ADPro 2.1* and *MorphPlus* from *ASDG* as well as *ImageFX* from *GVP* support the AGA chip-set.

With both the A4000 and the A1200, *Commodore* has finally released some new models that puts the *Amiga* on a even footing with the *Mac* and *PC* and even surpasses those platforms in some areas. New hardware and software is becoming available such as the *OpalVision* and *Scala Multimedia* that will help to assure the *Amiga's* future. While *Amiga* developers are hard at work introducing products that support the new *Amiga* models, it would be nice to see some name-brand video and broadcast hardware and software developers such as *Truevision* and *AT&T* supporting the *Amiga*. The *Mac* has certainly benefited in the video market from having *Truevision* develop a version of their *Vista* display board as well as *AT&T* releasing CG software for the *Mac*. While the introduction of the A4000 certainly proves that the *Amiga* is the ideal computer platform for performing video applications with, die-hard *Mac* and *PC* users won't be convinced of this unless they see familiar names such as *Truevision*, etc. developing products for the *Amiga*. *Commodore* and all of the *Amiga* developers are doing their fair share to promote the *Amiga*. Perhaps it's up to us, the people who use their *Amigas* every-day for video applications, to help convince other video professionals that the *Amiga* is the platform of choice.



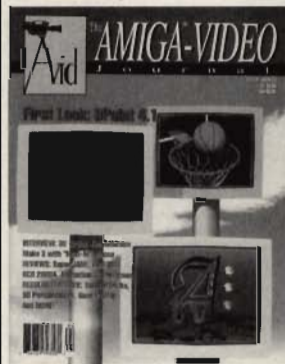
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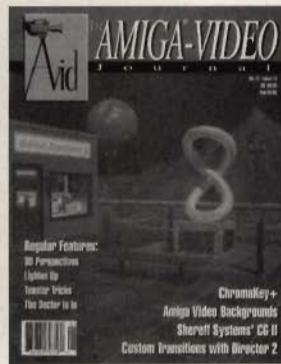
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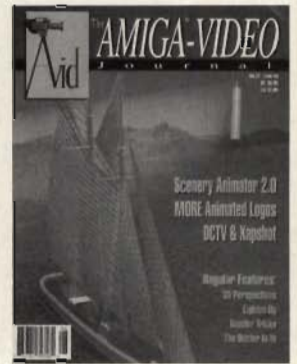
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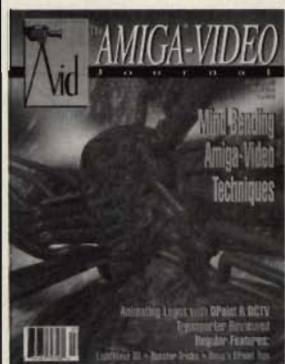
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## What's the fuss about 24 bit?

### How and Why it Works

#### The Olden Days

Many of us old timers remember the heady early days of the *Amiga*. How it pushed the quality of 12 bit graphics to the limit. While all the other computers were capable of displaying a maximum of eight, sixteen, or possibly 32 colors, the *Amiga* blew them away with an amazing 4096 color pallet. Not only could it display all 4096 colors at one time, they could be used to create stunning real time animations of ball bearing men juggling mirrored balls. Four thousand plus colors seemed to be more than we would ever need. Remember the *HAM* wars? *Photon Paint* seemed to have been the winner, though they may have won the battle and lost the war. *Photon Paint* vanished from the scene and *Deluxe Paint* picked up the slack by finally adding *HAM* capabilities to its already powerful arsenal. Then the *Amiga* performed what many at the time had considered heresy. It began presuming that it could be used to produce professional video. While the native four thousand colors was sufficient for taking over many tasks in many of the areas of high end video equipment, for true photo realism it just was not enough. To make matters worse, not all 4096 colors were useful for video. This is really more of a problem with the NTSC standard than with the *Amiga*. Nearly a quarter of the possible colors are to "hot" for normal video. On the other end, I

have found about a dozen values that are indistinguishable from black when dumped to video. By restricting the pallet to only what is video "legal", our choices are reduced to around three thousand. Because the eye refuses to perceive colors in a precise mathematical manner causing noticeable banding on gradients. Some color spreads will flow smoothly from to the next but others will have noticeable jumps, often referred to as "HAM Boning". While it is possible to achieve some amazing results with in these limitations, it takes much patience and time. Patience and time is often in short supply in video production.

#### What is the answer?

24-bit Miracles  
The kids do not remember it, but it was only about two years ago that the only way to output 24-bit images from your *Amiga* was to install a bridgeboard, an *IBM* emulator card, and use a 24-bit Targa card. Today the situation is reversed, the *Amiga* community has economical high quality 24-bit display devices coming out of our ears, and *IBM*'s are still pretty much stuck with Targa boards. Do

your productions need to have 24-bit capability? Depends, we are still not quite up to doing broadcast quality real time 24-bit animation, though *DCTV* is knocking at the door, and if you have the facilities to lay down single frames the question is moot. If you are a budget conscious video maker and are not interested in doing single frame animation, can you justify purchasing a 24-bit display device? Definitely! For example, the afore mentioned *DCTV* is a

amazing tool for the video producer. Not only will it display 24-bit images (which is the only thing that many *IBM* 24-bit cards do at ten times the price), it can frame grab full color, and manipulate them in its full featured paint program. Though the composite out put of the *DCTV* unit is not the best available for the *Amiga*, it is quite usable for most applications, and the unit itself

has set a standard and a price challenge for *Amiga* 24-bit devices.

#### Binary and the Color Pallet

Whether you are using an external device like *DCTV*, or internal cards like the *IV24*, *Firecracker*, or the *Video Toaster*, the 24-bit pallet adds up the same. Let us take a look

Two years ago  
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at what we are actually talking about when we say 24-bit.

"Bit" is a term used in describing a piece of binary information. By now everyone has heard the computers use the binary language that consists of a "series of ones and zeros." This makes it sound a bit more esoteric then it actually is.

Here is a quick lesson in counting in binary. Counting in binary is just like counting normally, but you eliminate the numbers 2 through 9. This gives you a sequence like this:

0  
1  
10  
11  
100  
101  
110  
111  
1000

Can you see the pattern?

While this does not appear to make sense in a base ten system, what we normally use, see how it adds up in a binary system. Instead of carrying over to the next decimal place every time we reach ten, we do it for every time we reach two. (A friend of mine is fond of saying "if God had meant for us to count in binary, he would have given us two fingers.") Simply remember that every place in a binary number is exactly double of the place that precedes it.

Here is a chart showing the values of the places.

4096	/0/
2048	/0/
1024	/0/
512	/0/
256	/0/
128	/0/
64	/0/
32	/0/
16	/0/
8	/0/
4	/0/
2	/0/
1	/0/

Do some of those numbers look familiar? Think of how many times those numbers show up when dealing with anything concerning computers and programs. See what hap-

pens if you add up the values of the first 12 positions

(the binary number 111111111111):

$$1+2+4+8+16+32+64+128+256+512+1024+2048 = 4095$$

If you include the value 000000000000, it gives you **4096** possible combinations. Now where have we heard that number before? When the computer is decoding the color value of an individuals pixel, it takes the those 12-bits and breaks it into three four bit components, four each for red, green, and blue.

RED	GREEN	BLUE
0000	/ 0000	/ 0000

If you add up the first four values in the binary sequence, 1+2+4+8, and include the value 0000, you get 16 possible increments of each individual color. By multiplying the number of possible values of each color, 16x16x16, you get the total number of possible colors. This number happens to be 4096. This all fits together very nicely, doesn't it? If the artists out there are having trouble conceiving how this relates to making pretty pictures, I have worked really hard to come up with this analogy. The Analogy Imagine if you had a job in company that mixed paint. At your station you have three pipelines carrying pigment, one red, one green, and one blue. On each pipeline you have a valve that has 16 positions, 0 through 15. By using the same math on the valves as we had for the binary values, we come up with a possible 4096 different colors of paint. So what happens when we go

to 24-bits? At first glance you might think that 24-bits would only give you twice as many options as 12-bits, but look at how it breaks down in binary:

RED	GREEN	BLUE
00000000	/ 00000000	/ 00000000

Instead of four bits per color, the pixels now have eight bits apiece. By referring to the previous chart of binary values, you can calculate that you can have a 256 possible increments for each value. By multiplying the number of possible values of the red, green, and blue, you come up with the number 16,777,216. This is were the much vaunted 16.8 million colors comes from. Thinking back about our pigment pipeline analogy, we have replaced our 16 position valves with ones that have 256 possible settings, that is a lot of cans of paint. Hopefully, this has taught you some of the basics of binary and cleared up some of the mysteries of the relationships of bits and pallets. I hope the theory hasn't scared anyone off, because it apply as much to a C64 as it does to *Sun Workstation* running *Wavefront* software. The *Amiga* has been an instrumental force in the role of bringing desktop video to the masses. Not just because of the power of the peripherals that it uses, but also in the challenge it has served to every other PC platform. It could happen that there will be future devices with the power to blow the *Amiga* out of the water, but they will only exist because the *Amiga* charted the river.

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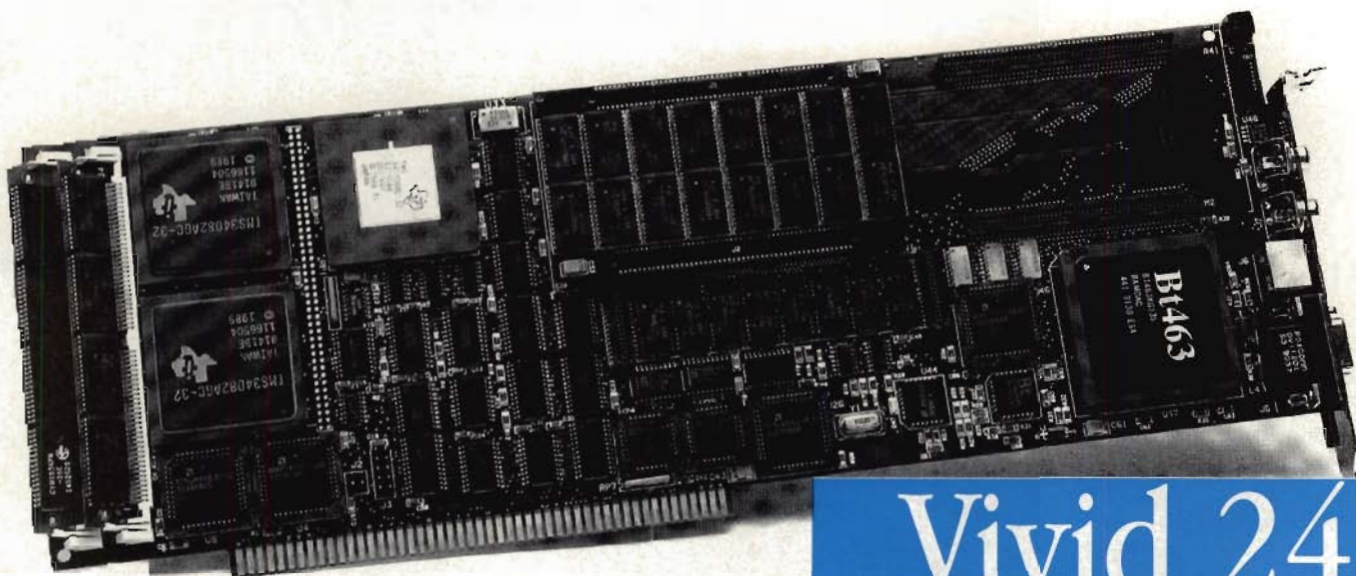
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## Vivid 24

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### REAL-TIME RENDERING WITH THE VIVID-24

As satisfying as it is to create 24-bit three-dimensional animations using a computer, the process has always been a little bit frustrating due to the fact that each individual frame must be recorded one at a time using a frame-accurate VCR with an animation controller. With the advent of the Vivid-24 from Digital Micronics Inc., real-time rendering of three-dimensional 24-bit images for animation purposes is now possible using the Amiga.

The Vivid-24 is a single card that uses one of the Zorro-III expansion slots inside an Amiga 3000 or Amiga 4000, leaving the video slot free for a Video Toaster, IV-24 or OpalVision display device. Because the Vivid-24 requires a 32-bit bus, it won't work with the Amiga 2000. A VGA-style RGB monitor connector, three RCA composite video connectors and one Y/C four-pin video connector are provided for input and output purposes. The Vivid-24 is capable of locking to an external sync signal such as blackburst and can output either NTSC or PAL composite video as well as Y/C video for use by S-VHS and Hi8 video production equipment using the optional video encoder module.

The Vivid-24 uses the TMS34020 graphics processor from

Texas Instruments, the same processor used by the Rambrandt from Progressive Peripherals and Software. DMI chose the TMS34020 processor over other high-speed producers such as the Weitek processor or the i860 processor from Intel because the Texas Instruments family of TMS340 processors are well documented and there is an abundance of graphics libraries and compilers available for the processors worldwide. DMI has a great deal of experience developing high-resolution graphics rendering engines for the Amiga, having released the 8-bit Resolver over a year ago. Besides offering only 8-bit instead of 24-bit color, the Resolver differs from the Vivid-24 in using the TMS34010 processor which doesn't allow for the addition of math coprocessors. The ability to add up to four math coprocessors to the TMS34020 main processor used by the Vivid-24 results in significantly reduced rendering times for 24-bit still images and animations.

In addition to sharing the same processor used by the Rambrandt board, the Vivid-24 uses the SAGE graphics environment jointly developed between Progressive Peripherals and Software and DMI. SAGE stands for Standard Amiga Graphics Environment. The Vivid-24 is one of the first devices that offers retargetable graphics or RTG for the Amiga. Retargetable graphics simply means that the hardware becomes transparent to the software, allowing multiple versions of the same software to be

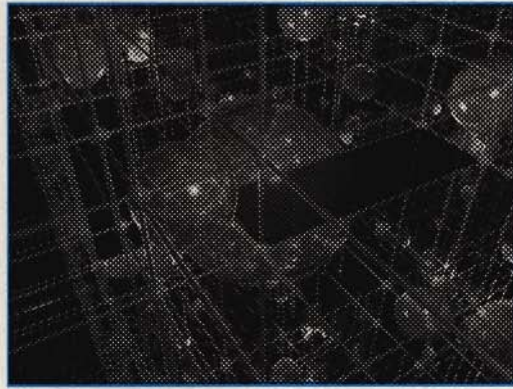
used by various display devices that support the SAGE standard. This eliminates the need to write special versions of a particular program to work with different display devices and greatly simplifies the software developer's work. When Commodore finally releases the version of Workbench 3.X that incorporates RTG, SAGE will integrate neatly with it.

In addition to rendering complex 24-bit images in near real-time, the Vivid-24 is capable of generating extremely high resolution images. While the basic board offers 1024 by 1024 interlaced pixels resolution, additional video memory modules can be added to the board for up to 2048 by 2048 (2K by 2K) interlaced pixels. The advantage of working with such high-resolution display modes for video applications is extremely smooth-looking images and photo realism. A Silicon Graphics workstation, often used to produce animations used in high-end television commercials, typically operates at 1280 by 1024 pixels and can produce stunning results thanks to the high-resolution display mode being used.

With a list price of \$2995.00, the basic Vivid-24 board comes equipped with the TMS34020 processor operating at 40 MHz and a single four-megabyte video memory module offering interlaced resolutions up to 1024 by 1024 pixels. Up to four video memory modules can be added for a total of 16 megabytes of video memory with up to 1280 by 1024

non-interlaced pixels and 2K by 2K interlaced pixels. The video memory can also be used as system memory by the *Amiga*. To aid the main processor in performing its work, up to four TMS34082 math co-processors can be added to the board. Each math co-processor is rated at 40 MFLOPS (Million Floating Point Operations Per Second) and can draw 25,000 shaded polygons per second. When all four video memory modules and four math co-processors are added to the Vivid-24, the board is rated at 160 MFLOPS and capable of drawing 100,000 Gouraud-shaded, 10-pixel by 10-pixel polygons per second at up to 2K by 2K pixels resolution when working with an *Amiga 3000* or *Amiga 4000* equipped with a *Motorola 68040* CPU. This compares very favorably with the 70 MFLOPS generated by a *Silicon Graphics 4D/480 VGX* system with a list price that approaches \$200,000. Compared to a stock *Amiga 3000* equipped with a 25 MHz 68030 CPU, the fully-equipped Vivid-24 has 100 times the rendering speed of a plain vanilla *Amiga 3000*. It's possible to use the Vivid-24 to create 24-bit, three-dimensional animations and record them in real-time to a VCR or optical disc recorder at thirty frames per second, depending on the complexity of the images being produced.

The Vivid-24 is shipped with four megabytes of program memory for running applications with. An additional four megabytes of program memory can be added if desired. To help make the board operate more efficiently, 32-bit Static RAM is included with each math coprocessor and is shared between the main processor and the math chips. This provides for a memory buffer that can be evenly divided between the application being run and the calculations being performed. When multiple math coprocessors are added to the Vivid-24, one math chip



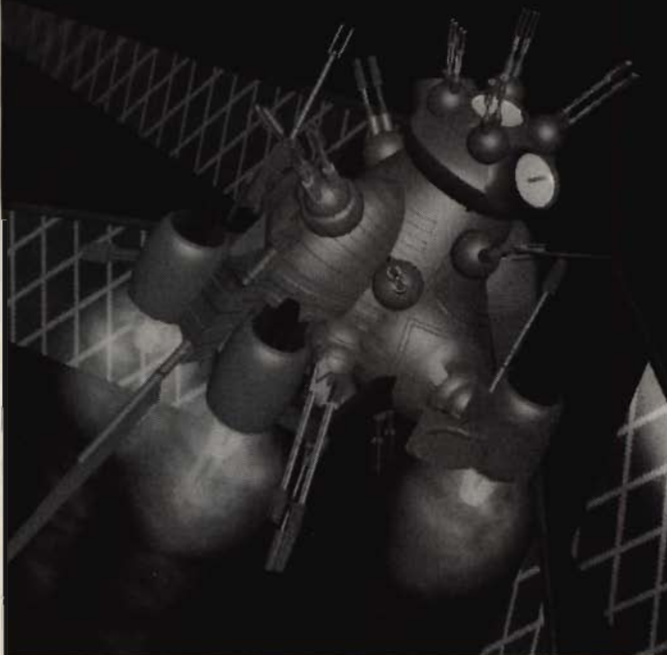
A rendering done using the speed of the Vivid24.

can be used to calculate the object being created, another math chip can be used to calculate

the light source, a third math chip can be used to calculate the color of the object being generated, and so on. Because the board is extremely efficient when equipped with all four math coprocessors, even complex images designed in *LightWave* or *Imagine* can be generated in less than a second when using the Vivid-24 as the rendering engine.

It's important to understand that while a high-resolution 1024 by 1024 pixels image can be extremely realistic looking thanks to the smaller pixel size being used, it's not possible to record such a resolution directly to videotape. Instead, a device known as a scan converter must be used to convert the images to a video resolution in real-time. Scan converters are available from a number of manufacturers including YEM America and Lyon Lamb. The Vivid-24 itself has the capability to scan-convert 1280 by 1024 pixel images a frame at a time for single-frame recording purposes using the available digital video

# Vivid 24



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Illustration courtesy of Matt McDonald/Insync Productions.

encoder chip, one video memory module and special algorithms included with the board. The digital video encoder chip can be used to output video resolution images originally created at 768 by 482 pixels in real-time, bypassing the need to perform scan converting at the expense of having to work with lower resolution images.

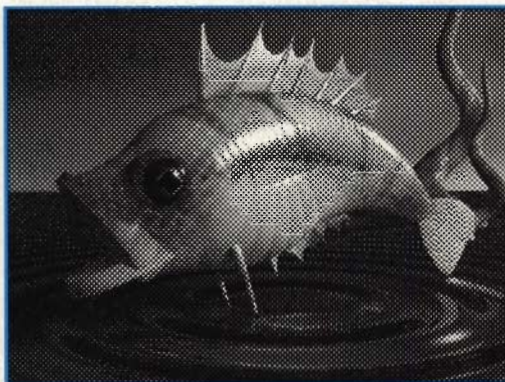
Because the *Vivid-24* is capable of generating extremely high-resolution interlaced and non-interlaced RGB output, the user will want to use an RGB monitor that can accept at a minimum an 800 by 600 pixel non-interlaced display such as the *Commodore* 1950 multi-sync monitor. Such a monitor can also display the board's interlaced 1280 by 1024 output. While more expensive, the best overall choice is a monitor such as the NEC 6FGX that can work with the *Vivid-24*'s 2K by 2K interlaced pixels high-resolution output.

Included with the *Vivid-24* are a number of programs including *DMI-Workbench*, *DMI-Render*, *DMI-Tweek*, *SAGE*, *TVPaint* from TecSoft of France, and the TMS340 Graphics Library or TIGA (the industry-standard Texas Instruments Graphics Architecture interface) for the *Amiga*.

*DMI-Workbench* copies the *Amiga*'s workbench display to the *Vivid-24*'s Video RAM using direct memory access or DMA for super-fast screen refresh. Only one monitor is required when using the *Vivid-24* for displaying either the *Amiga* workbench or *SAGE* applications. When running a *SAGE* application the workbench screen will vanish and the application being run will appear. The *Amiga* workbench display will then return after quitting the *SAGE* application.

*DMI-Render* is designed to import 24-bit 3D files from programs such as *Imagine*, *LightWave* or *Sculpt* and render them as Phong or Gouraud shaded objects in near real-time. *DMI-Tweek* is a utility that allows the user to easily select whatever resolution they want the *Vivid-24* to display. After power-up the board will display the default resolution, typically 640 by 480 pixels. The horizontal and vertical resolutions plus the screen refresh rate can be adjusted to any setting, allowing the *Vivid-24* to send the correct output to any display or recording device.

*TVPaint* has replaced *DMI-Paint* as the resident paint program bun-



A rendering done using *Vivid24*.

dled with the board. *TVPaint* is an extremely powerful 32-bit paint program with a full complement of standard drawing tools. Alpha channel support is included for varying the degree of transparency of objects over the background. *TVPaint* also has its own convolution matrices for processing images with. Images can be sharpened, blurred, etc., just like the convolution matrices found with *Art Department Professional* from ASDG. Both *Art Department Professional* and *Image Master* from *Black Belt Systems* will offer support for the *Vivid-24* as well.

Consistent with the nature of the board, various 3D programs are being prepared to take advantage of the *Vivid-24*'s lightning-fast rendering speed. *SAGE* versions of *Real3D* from *Activision International, Inc.*, *3D Professional* from *Progressive Peripherals and Software* and *Surf-X*, a 3D modeler and renderer from Canadian Software Developers will be available. Expect to see other 3D programs being written to work with the board as well.

*Animator Broadcast*, developed by *Vision Images* of Denmark, is an integrated graphics software package for the *Vivid-24*. While the software wasn't available in time for this review, the information provided by *DMI* on the package was very impressive. Combining 32-bit painting, image processing, digital video effects, two-dimensional and multi-layered animations and more, *Animator Broadcast* will work with

IFF-24, Targa, JPEG, and Rendition (the file format used with *Caligari* from *Octree Software*) image files as well as alpha channel (MASK) files. Images can be digitized directly into *Animator Broadcast*, and VLAN support will be available for digitizing entire sequences of frames for rotoscoping purposes as well. The software will also provide support for *DMI's EditMaster JPEG* board, which allows video from a camera or VCR to be recorded directly to a hard drive in real-time as compressed JPEG files. Each file can then be loaded into a paint program and manipulated, then sent back out in real-time and recorded to a VCR or optical disc recorder.

The package consists of five interactive modules, Mask, Process, Combine, Paint and Animate. The Mask module controls the alpha channel and provides 256 levels of transparency for combining images and objects. The Process module

offers image manipulation such as water color, line art, posterization, mapping textures to spheres and more. Various filters are included for increasing image sharpness, reducing noise and performing antialiasing. The Combine module allows the user to composite two or more images together. The alpha channel can be used with the Combine module to provide varying

**DMI-Render is designed to import 24-bit 3D files from programs such as *Imagine*, *LightWave* 3D, or *Sculpt* and render them as Phong or gouraud shaded objects in near realtime.**

amounts of transparency between images. The Paint module offers additive and subtractive functions, rub through and more. Finally, the Animate module allows for up to five layers of images or animations to occur at the same time. All of the modules are interactive with each other, providing for endless possibilities. With a list price of \$2999.00, the package is definitely on the expensive side for the *Amiga* market but combined with the *Vivid-24* certainly has the potential to be an extremely powerful system for creating graphics and animations with.

Because a 24-bit 2K by 2K resolution image is approximately a 16 megabyte file, it's important to use a hard drive, preferably a very large

one, when working with the Vivid-24. DMI provides the ideal solution for working with large image files by using their removable media floptical drive. The DMI floptical drive is a SCSI device for the *Amiga 2000* and *3000* with

**Vivid 24 provides the Amiga user with the ability to produce 24-bit 3D animations in real-time without the need to perform single-frame recording.**

both internal and external versions available. The external version that I worked with easily connected to the SCSI port on the back of my *Amiga 3000* using the included cable. Because the drive is designed to work with *Macs*, *PCs* and *Unix* workstations as well as the *Amiga*, it must be initialized for the *Amiga* using the *HDToolbox* found with the *Amiga's* operating system. Once initialized,

the floptical drive can be treated just like a regular *Amiga* floppy disk drive.

The removable disks used by the drive cost about \$20 and look like a standard three-and-a-half inch floppy diskette. An optical track is embedded on the back of the diskette just like an audio CD. The floptical drive uses the track for accurately placing the drive's magnetic head over the floptical diskette, providing for significantly more data to be stored onto the diskette compared to a regular floppy diskette. Each diskette can hold about 20 megabytes of information after being formatted. With an access time of about 65 milliseconds, a floptical drive is nearly as fast to read and write to as most hard drives.

Depending on the complexity of the images being rendered, the *Vivid-24* provides the *Amiga* user with the ability to produce 24-bit 3D animations in real-time without the need to perform single-frame recording. Even

complex images created with standard 3D programs such as *LightWave* or *Imagine* can still be rendered in less than a second per frame. The *Vivid-24* also offers the ability to render images using up to 2K by 2K resolutions for scientific and medical imaging, photo-retouching purposes as well as high-end animation work. Because of its modular design, the board can be outfitted as an extremely fast rendering engine, a high-resolution display board or both. With an abundance of 3D software available to support the board, the *Vivid-24* should prove to be an outstanding high-resolution 3D animation system for the *Amiga*.

#### DMI

2075 Corte Del Nogal, Suite "N"  
Carlsbad, CA 92009  
(619) 931-8554  
(619) 931-8516 (FAX)

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

Black Belt Systems  
398 Johnson Rd, RR-1  
Box 4272  
Glasgow, MT. 59230  
(800) 852-6442

## Resolutions

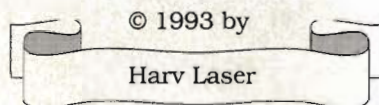
### Specifications for the Vivid-24

#### RESOLUTION CAPABILITIES

Number of Video Memory Modules	MB of Video Memory	Maximum Programmable Resolution	Video Modes
1	4 MB	1024 by 768 1024 by 1024	Non-interlaced Interlaced
2	8 MB	1280 by 1024 1600 by 1280	Non-Interlaced Interlaced
3	12 MB	1280 by 1024 2048 by 1536	Non-Interlaced Interlaced
4	16 MB	1280 by 1024 2048 by 2048	Non-Interlaced Interlaced

# Public Domain Software

Free and nearly free



With AVID's new ownership and management comes a change in the focus of this column. Rather than wholly concentrating on video and graphics-related freely distributable *Amiga* software, we'll now open our horizons beyond those specific areas of interest, and also include all manner of utility software, art, animation's, audio, music, and, from time to time even some games. Thus this monthly column will revert more to the flavor of the one I used to write for the sorely-missed .info magazine.

Again, there'll be many sources from which you can acquire the software described here. ALL files listed will always be available via *The Portal Online System*, where I run *The Amiga Zone*. As of this writing we have over ONE GIGABYTE of *Amiga* software in the Zone, including all 790 current *Fred Fish* disks plus three dozen other *Amiga*-specific software libraries covering the entire galaxy of freely-distributable goodies. With our unlimited disk space, we don't have to delete files to make room for new ones. We have very fast batch-Zmodem downloading and you can access the service in many ways: dial it direct, dial it through the *SprintNet* and *Tymnet* X.25 packet networks, or use the UNIX "telnet" or "rlogin" programs to connect to *Portal* from an existing Internet-capable account you may already have somewhere else. *Portal*'s BBS-style "front-end" takes the fear out of using a UNIX-based service.

If you're not a *Portal* subscriber you can get more information by dialing 1-408-973-9111 and talk to a customer service rep.

My involvement with them aside, *Portal* offers *Amiga* users **MORE** *Amiga* stuff, and at a lower cost than any other dialup service you could name. Still, the files described here will likely be available on the other pay services, and eventually also propagate out to user-run BBSes, user group disks of the month, and commercial re-sellers of freely distributable software. So, as the saying goes, "check around." With the housekeeping out of the way, on with the show!

Filename: **AVPLYR24.LHA**

author: *Commodore Business Machines Inc.*

purpose: to play *AmigaVision* "flows"

status: Copyright by freely distributable

Generally speaking, all *Amiga*-based commercial products which can create MultiMedia presentations also include a player program which one can include with one's creations, so folks who don't own the product can see your work. *Director* has its *Projector*. *Scala*, its *ScalaPlayer*. *MovieSetter*, its *Movieplayer*. This has been pretty much standard practice for years. The one major holdout, though has been *Commodore*. Up until now, if



you wanted to play some *AmigaVision* presentations, you had to own *AmigaVision* to do it. Well, at long last, a player for *AmigaVision*-created MultiMedia projects, known as "flows" is here.

With the release of its new upscale *AmigaVision Professional*, *Commodore* has finally acquiesced to years of user demands and given us a freely-distributable flow player. Now you don't have to buy the *AmigaVision* package itself to play its creations! *AVPlayer* Version 2.04 has no interface and is intended to be run as a CLI/Shell command, although the included documentation explains how you can chain it to an IconX-driven WorkBench icon if you want or need to. The player comes with four *AmigaVision*-specific libraries which must be installed in your SYS:Libs directory if your flows use certain features of *AmigaVision*. Well, just go ahead and install the libraries anyway, they won't take up much disk space. There's really not much more to say about *AVPlayer*. It's here, and it works. So if you've never bought *AmigaVision*, you can go back and download many wonderful AV-created goodies that you never had any way to play before, and there are some truly amazing ones out there. Check *The Amiga Zone*'s Multi/Hypermedia file library for some excellent AV flows. And, thank you *Commodore*.

Filename: **WBICONS.LHA** author: Mike Crossmire (mike-c@cup.portal.com)

purpose: beautiful WorkBench 2.04+ icons

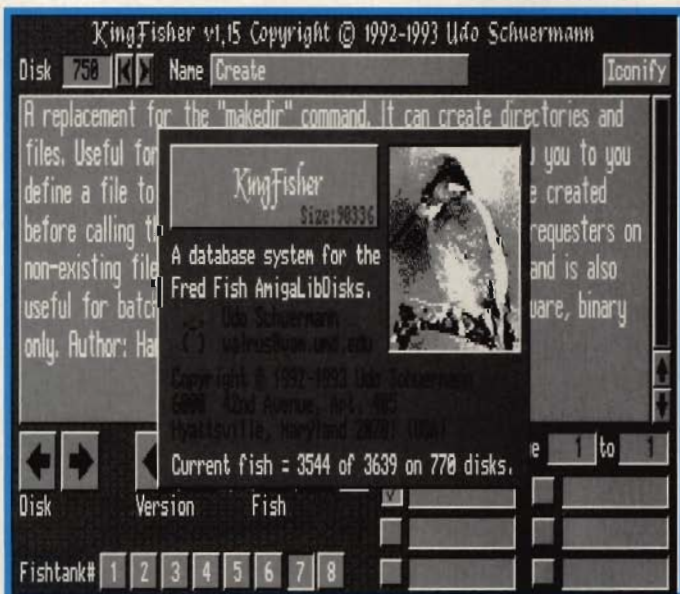
status: Copyright but Freely Distributable

Speaking of *AmigaVision*, you've no doubt admired the exquisitely rendered faces of the draggable gadgets/graphs in its interface. The *Amiga* artist who designed those little beauties was Mike Crossmire. Mike has now released an entire suite of gorgeous icons suitable for use under WorkBench 2.04 or up.

Now I've seen a lot of collections of user-made icons over the years, and I'm sure you have too, but feast your eyes on these babies. The creation of eye-appealing icons is really an art in itself, and Mike is nothing less than a master of this art of miniatures. There's such a good supply here that you can truly revamp the entire look of your 2.04+ WorkBench by replacing the stock Commodore icons with the ones from this collection.

Filename: **KINGFISHER115.LHA** author: Udo Schuermann (walrus@wam.umd.edu) purpose: a modern Fish Disk management database  
status: Copyright but Freely Distributable

As I write this, the *Fred Fish* collection of freely distributable *Amiga* software is approaching its milestone 800th disk. There's really nothing else like the *Fish* collection available for any other brand of computer, probably because no other platform has a saint like *Fred Fish* performing a service like this for nearly 8 years. This represents an absolutely enormous amount of material. Many individuals and user groups collect every disk, or have them on CD-ROM from such publishers as *Hypermedia Concepts*. But when a disk collection grows beyond its first few dozen, managing it - finding something in it when you need it, can be a major hassle. Thus



the need for a database program to index the whole collection and let you browse it and locate individual programs and files quickly. There have been any number of *Fish* Disk specific databases released over the years.

*KingFisher* is the newest and best so far. Its list of features includes: - Maintains a split database across multiple disk volumes, - Searches this database more than 3 times faster than *Aquarium*, - Offers a program name index for extremely fast location of programs by name, - Adds new fish directly from Contents files or *Usenet* postings, even from multiple concatenated post-

ings or email contents files, - Fish can be deleted from the end of the database to undo errors, - Database is a line-oriented text file accessed through index, that can be modified by hand and then reindexed, - Flexible print and export functions with search filter, - Select from multiple different search strings, - Limit searches to a portion of the database, - Follow version links to older or newer versions of software, - Maintain multiple different "bookmarks" into the database, - Supports proportional and scalable fonts for description text, - Uses the display database under 2.0+ and has limited support for overscan, PAL, and interlace resolutions under 1.3 - String gadgets optionally kept active for keyboard comfort, - Full configuration saved between executions, - Iconifies to save Chip RAM (46K). *KingFisher* has been upgraded frequently since it was first released just a few months ago, as people found little bugs that needed to be squashed, so 1.15 may not be the latest when you go to get your copy. This is a wonderful program with a very specific but sorely-needed purpose.

Next month, more of the hottest (and the coolest) *Amiga* freely-distributable software.

*Public Domain Software* is a regular *AVG* column about low cost and free useful products for *Amiga* Professionals. Author Harv Laser is well-positioned to know about such things, being the coordinator of the *Amiga* area on *Portal*, a national information service. Contact Harv via this publication, or directly via these online addresses:

Portal: harv

Internet: harv@cup.portal.com

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## Animating a Lightning Storm with DPaint IV!

I love to watch a full blown electrical storm roll over the Vermont ridges in the heat of a summer night. You can see them approaching from miles away if you're positioned on one of the heights. Clouds swirling with the wind, internally set aglow from electric explosions, and every once in a while sending a sliver of blue-white lightning to the ground. It sort of puts you in your place, realizing how insignificant we are compared to natural forces.

Amiga animators can simulate many natural materials and events on their computers. This article will walk you through the creation of animated storm clouds in a step-by-step procedure. It requires that you have an Amiga with at least a meg of memory, and a (legally purchased) copy of DPaint IV (from *Electronic Arts*). It also assumes that you have some general experience with using your Amiga as an artistic tool, and that you have a modicum of control over the mouse as well. Other than that, your close attention to the procedure should result in storm-cloud success! Let's begin.

We will be working in Lo-Res for this example, though I suggest working in Hi-Res or HAM for videotape suitable results. Better yet, use the new Amiga-4000 256 color Hi-Res

modes on the DPaint upgrade, or with *Digital Creation's "Brilliance"*. Some users may want to enhance this tutorial by applying it to an *OpalVision* 24bit animation as well. Starting in Lo-Res, however, gives us quicker screen refreshes for experimental purposes. So first, boot up DPaint and choose "OK" when the screen resolution gadgets pop up. The Default is Lo-Res, 32 colors. Please refer to your DPaint IV manual if the directions presented here are either too incomplete or confusing for you to interpret. It is assumed that you have some experience with DPaint before trying to duplicate this tutorial. Bring up the Color Palette by striking the "p" on the Amiga keyboard (Figure 1 top). We are going to

white. Exit the color palette.

Now bring up the "Range" requester (Figure 1 Bottom) by hitting the Control key [CTRL] and the "r" key at the same time. DPaint IV allows you up to eight separate ranges of color. If you are working in HAM (or better yet HAM-8), you will get a truer color spread from one color to the next. If you are not, the Amiga will attempt to interpolate some in-between colors. Since we have simplified matters greatly by selecting only two simple ranges of color in our palette, the results should be smooth and evocative. We are going to set two separate ranges: #1 will include all of the blues to white and #2 will be our grayscales. Set each in turn.

Now go to the Fill Requester (Right mouse on the Paint Can icon), and select the SHAP button (shape fill). We will now fill each cloud frame with a shaped gradient of grays (range #2). Every time we go to the next frame to fill a shape, we will choose a new angle in a counter-clockwise direction, until we've come full circle at frame #30. Run the animation (see Figure #5) to see how it looks, and make any corrections to single frames you deem necessary. We could leave things as they are at this point and save the moving cloud as an ANIMbrush, but let's take another couple of steps to get things more organic looking. Clouds have fuzzy edges, so let's treat each frame so as to create a more believable cloud. First, use the "Smear" tool in the modes menu to smear the edges



Figure 1

ning. You may also opt to use yellow-whites for the lightning. On the range of colors in front of you are 32 color pots. Select #3 and make it a medium blue, and spread this color to pot 18 which you have made a pure white. Now create a spread of color from pot 19 to pot 32, making it a range of grays from dark to pure

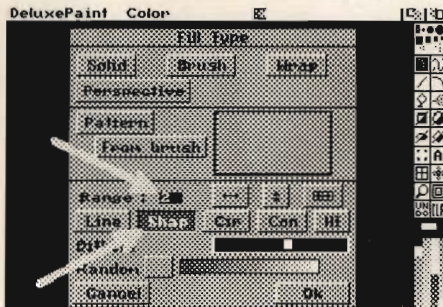


Figure 2



Figure 3



Figure 4

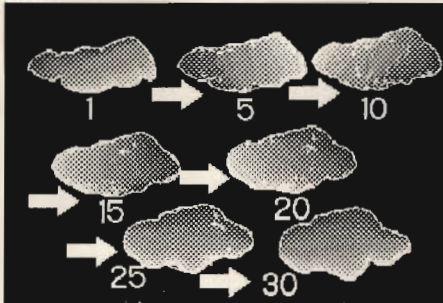


Figure 5

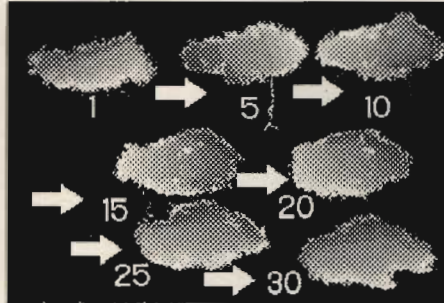


Figure 6

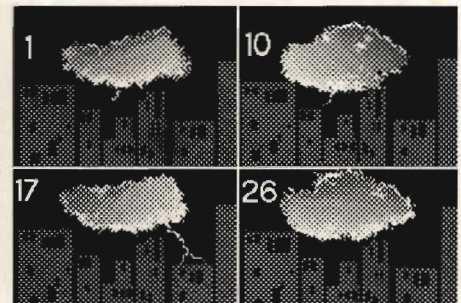


Figure 7

of each cloud frame. Now create a large rectangular brush on the "scratch screen", pick it up, and choose "Smooth" in the modes menu. Use the rectangular brush to smooth out each cloud frame by stamping it over the cloud (make sure "Smooth" is still the chosen operation first). At the end of your efforts, you should have a nice organic looking cloud (See Figure 6). Run the animation to test it, making any additional changes you desire.

The DPaint IV Range requester offers many options as far as setting cycle ranges. If you look at the "track" at the top, you'll see that there are as many positions as colors in our 32 color palette. By placing any color in the palette on a track position, you can create an almost infinite series of dithered effects and cycle options. If you are not working in a HAM mode, the program will attempt to use a dithering algorithm to fill in colors where there are blank spaces. In non-HAM modes this looks rather chunky, but it serves our experiment OK. When you think you've got the hang of this process, re-render it in a HAM format for a much smoother result.

Lightning is a jagged and quick affair. To get the effect, I turned on the "Lightbox" in DPaint IV. This lets you see through a frame to its preceding one, which is an unbelievable aid in creating animations. My lightning strokes use the one pixel brush, and I varied the line a bit in every

frame to make it look more random and sparkly. I used the range of blues for my lightning. To make the strikes look more random (which is vital if you want to record this to video for a few seconds of multiple looping), I started one strike when the other was in the middle of its phase. I drew a quick little cityscape for reference, and lit up the windows of the building that were being "hit". I could just as well have created a Transylvanian castle as a prop, or had the lightning hit and explode a person running quickly to escape the storm. The variations on this theme are endless. I color cycled the grays slower than the blue tones, making the entire city slowly light up from the flash. The overall effect is very interesting, and I hope your experiments with these techniques also prove intriguing. See Figure 7 for an idea of what my finished frames look like.

If you want a copy of the finished animation and are an AVG subscriber, send \$10.00 to:  
Non-subscribers must send \$15.00.

Dr. Shamms Mortier  
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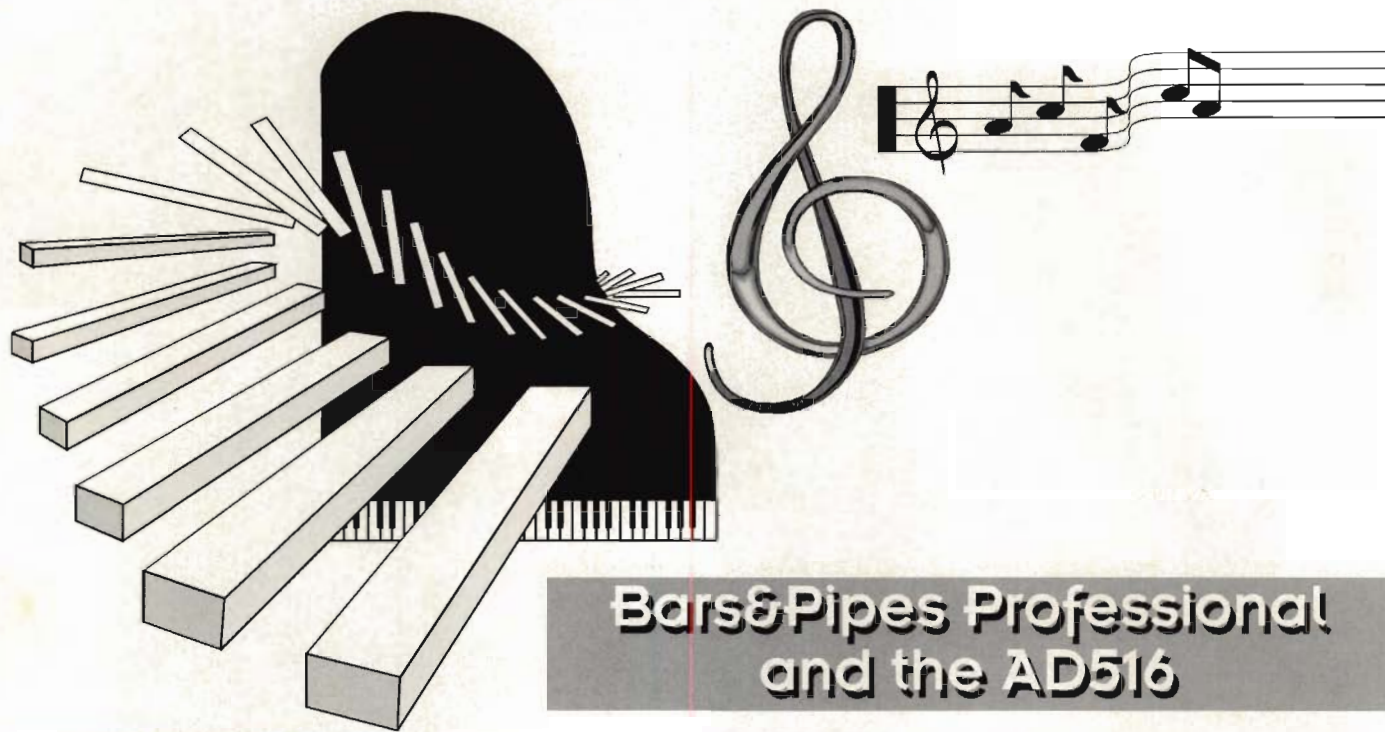
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## Bars&Pipes Professional and the AD516

Jaxon Crow

In order to understand the full potential of this powerful hardware/software combination and its applications in the production of audio-for-video, we first need a background description of both the *Bars and Pipes Professional* and *AD516*. I'll start by outlining the *Bars and Pipes Professional* program environment. *B&P Pro* contains most all of the basic functions found in most major music sequencing programs. It also has the addition of a unique system of Tools and Accessories used to create and modify your MIDI music sequences. *Bars and Pipes Professional* is almost entirely graphically (icon) oriented, although most major operations can also be accomplished with keystrokes. By using a MIDI keyboard, and assigning certain program functions to specific MIDI notes the MIDI keyboard can be used for remote control. *Bars and Pipes Professional* is, in fact a combination of music sequencer, algorithmic composition software, and musical notation printing software. The program environment is comprised of a unique set of modules, integrating a system of Tools for computer-aided, algorithmic composition with a flexible and open-ended, multi-track sequencer. These Tools are capable of interacting with incoming MIDI data by producing automated

accompaniments, melodies, echoes, chords and rhythms. All of these compositional elements can be specified to occur within the user-defined key and scale. (In other words, NO WRONG NOTES!) No real musical knowledge is necessary. In fact, I highly recommend *Bars and Pipes Professional* for anyone who wants to produce some useful and interesting music within the first couple of times you boot the program.

One particularly strong feature available for scoring to video is the ability to independently record tracks in either song-time mode, or in Real-Time. In song-time mode, the default setting, the timing of the individual tracks is dependent on the tempo (expressed in Beats-Per-Minute.) If the song's tempo is increased, the tracks play faster. By double-clicking on the Track's name, a requester appears which gives the options of naming the Track, saving any notes or comments about the Track, as well as whether the Track should be recorded in the Real-Time mode. This gives you the ability to precisely synchronize audio and video cues with frame accuracy to SMPTE time (Hours:Minutes:Seconds:Frames.) This greatly simplifies the process of synchronizing sound and visuals. (The synchronization methods offered by most other sequencer programs for the Amiga usually involve multiplying the song's tempo, in Beats per Minute, times the exact hit

points, measured in Measures, Beats, and MIDI clocks to sync an exact SMPTE location. As you can imagine, the SMPTE timing method is FAR superior!) One clear advantage to *Bars and Pipes Professional* is the program's ability to selectively lock Tracks to Real-Time (SMPTE time.) This is not the case in most other MIDI sequencers. Usually, if the tempo is changed, so is the placement of the sound cues...

Also included in the *B&P Pro* system is *Mix Master*, the *B&P Pro* real-time mixing controller. *Mix Master* can be used in much the same way an automated mixing console is utilized in conjunction with a multi-track tape recorder. Each Sequencer track has a corresponding set of controls for MIDI volume, stereo pan, or any other Control Change information. (*Mix Master* can also be used to control the volume and pan settings for sounds being produced by the *AD516*.) The Sequencer tracks may be controlled individually or locked together and manipulated as a group. The *Mix Master* settings are recorded and the changes become an integral part of the mix.

While the program works with the Amiga's own four voice 8-bit sound chip, it is with external MIDI synthesizers that *Bars and Pipes Professional* really excels. While the Amiga does possess a four voice 8-bit sound chip, and the ability to record



and reproduce samples and sounds, it does not compare in sound with even the most inexpensive MIDI keyboards. The Amiga's sound is acceptable in some situations, like playing back voice samples or background sounds, and they can often be used to supplement a combination of sounds. But, just about any Casio, Yamaha or Kawai in the \$150 to \$300 price range has more voices and better sound fidelity than the Amiga's internal voices. When combined with the AD516, the Amiga becomes a fully integrated digital audio/MIDI multi-track recording and production facility.

#### THE AD516/STUDIO 16

For those of you unfamiliar with SunRize Industries' AD516, it is a professional quality 16-bit digital audio hard disk recording/playback system. The AD516 is extremely well implemented, and is particularly well-suited to enhance and facilitate the production and synchronization of audio for video. SunRize Industries is also the manufacturer of the AD1012, the predecessor to the AD516. The AD1012 was the first high fidelity sound board and hard disk recording system for the Amiga. While the AD1012 records and plays 12-bit digital words, and handles only a single audio channel, the AD516 is a true stereo 16-bit soundboard. Studio 16 is the sampling, editing, and playback software which is provided to control both the AD516 and AD1012. (All of the operations described here will work with either the AD516 or the AD1012. For the sake of simplicity, in this article I'll refer only to the AD516...)

Like Bars and Pipes Professional, Studio 16 is actually comprised of a set of interactive applications and modules. Each module is designed to handle a specific set of functions and operations. These functions include the monitoring and recording of sounds, graphically editing samples, and the assembling of cue lists to be triggered from SMPTE time code. In many ways, Studio 16 uses the analogy of an eight channel tape recorder. Samples can be recorded and edited either separately or in pairs. Depending on your Amiga's processor speed, up to eight digital tracks can be played back simultaneously. Individual sound samples can be recorded from either the Recorder or the Transport module. In the Transport window, up to seven samples can be played back while recording a sample on the eighth track. Tracks can record the audio input, or by "bouncing" or mixing down existing tracks to the next virtual track. Since you're dealing entirely with digital data, and not analog audio

signals, no tape noise is added, and the signal-to-noise ratio remains consistently high (typically averaging 87 dBs). By using this ping-pong mixing technique tracks can be repeatedly mixed, thereby opening up tracks to be recorded again and again.

#### DYNAMITE COMBINATION

In order to operate the AD516 from within Bars and Pipes Professional, you must first copy the Tools and Accessories provided on the Studio 16 diskette into the appropriate drawers with your other Bars and Pipes Tools and Accessories. Then, the next time you run Bars and Pipes Professional, you must load these Tools and Accessories to activate them. The Accessories include SunMPTE, which allows B&P Pro to be synchronized with SMPTE timing messages received at the AD516's SMPTE input, and SunSet which gives access to ALL of the Studio 16 modules through the Studio 16 Instance List. (More on that in just a moment.) Two Tools for Bars and Pipes Professional are provided with Studio 16. The SunRize Out Tool allows any selected track to send it's MIDI note and control messages to the AD516. As with B&P Pro's other Tools, the SunRize Out tool must be placed in the selected track, where it replaces the standard MIDI Out tool. Each MIDI note can be assigned to trigger separate sample. These samples can be set to play the entire sample, or to play only as long as the note is held. The SunRize Virtual Track Tool, at least in theory, will allow a digitally recorded audio track to be played in conjunction with a MIDI sequence. The Virtual Track Tool is intended to allow non-MIDI sounds (i.e., vocal, guitar, dialogue or sound effects) to be recorded, played back, and synchronized with MIDI tracks. The Virtual Track Tool will be a great help in producing audio for video when it is perfected, but in truth, it caused my Amiga to crash consistently. (I spoke to SunRize's chief genius, Anthony Wood about the problem, and he assured me that they were working out the problem, and that they would provide the updated software as soon as possible. Unfortunately, it did not arrive before the submission deadline for this article...)

When activated within B&P Pro, the SunSet Accessory opens the Studio 16 Instance List. It is through the Instance List that the other Studio 16 program modules are accessed. The Instance List contains a list of all of the modules currently loaded and active in the program. Modules can be added or deleted in the Instance

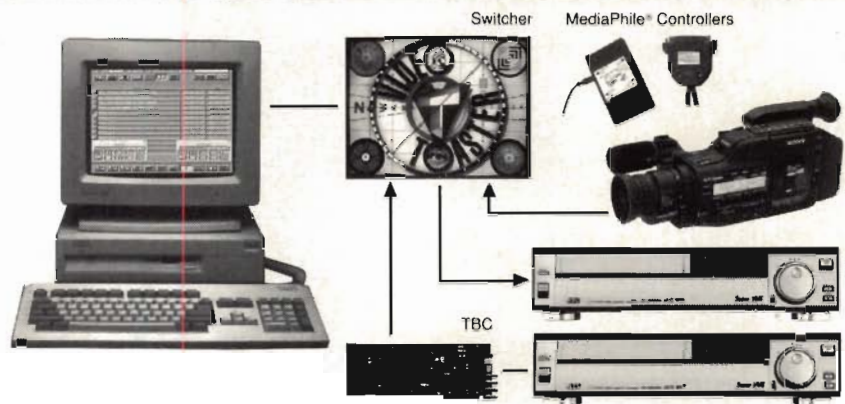


list as they are needed. (All of the *Studio 16* modules are fully functional within the Bars and Pipes Professional environment.) To initiate a module, double-click on its name in the Instance list, and the corresponding window opens for recording, editing or file manipulation. The module windows can be resized and moved on screen to suit your needs. The Open List window holds a list of the names of the samples currently loaded, as well as their path/directory assignments. This list is updated every time a new sample is recorded. Selected samples can also be played from the Open List. Samples can be loaded into the Open List from any directory. Another truly outstanding feature of the *Studio 16/AD516* package is its capacity to play back sounds from multiple hard disks at the same time. The *AD516* will also play back standard 8-bit IFF Amiga sound samples, so, if you have a collection of IFF sounds, they can still be used with the *AD516*, though they will not sound as good as the 16-bit samples created with the *AD516*.

Inside *B&P Pro*, you can access the powerful sound editing features of *Studio 16*, either through the Applications menu or through the Open List module. The Editor module presents a graphic display of the currently selected sample (or pair of samples, in the case of stereo sounds.) An excellent zoom function is also available for close inspection and manipulation of the soundwave. A range in a waveform can be marked by dragging the mouse, and this range can be edited in either of two different modes, each with a slightly different set of options. Edits can either be made in the Non-Destructive mode, leaving the original sample data on disk intact, or Destructively, making permanent changes to the data. In Non-Destructive mode, a highlighted range can be cut, copied, pasted, erased, or saved, discarding the unused portion of the waveform. The *AD516* will then play the sound, complete with the requested changes without permanently altering the existing wave. In the Destructive edit mode, all edits are permanent, and cannot be undone. (The safest way to make edits, of course, is to work in the Non-Destructive mode. Then, when your changes are just right, they can be made permanent.)

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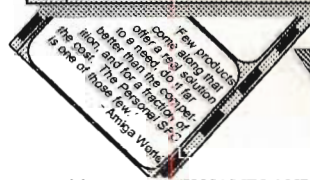
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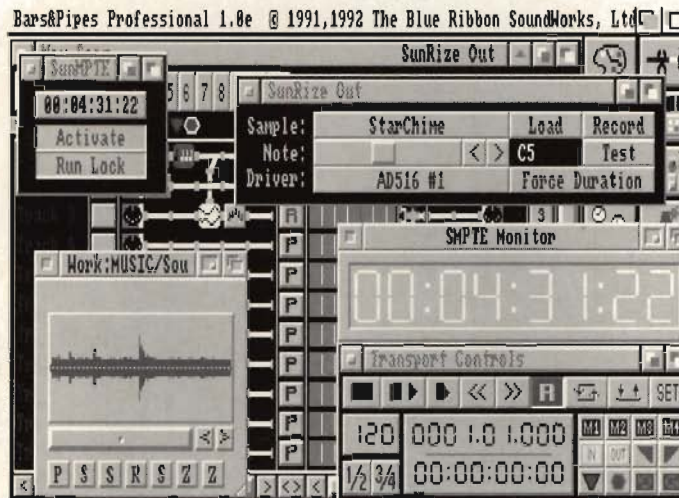
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inverted or edited freehand. A segment of silence can also be inserted into a soundwave. In either editing mode, volume can be ramped by setting starting and ending percentages, creating smooth fades up or down in levels. The Editor can also automatically generate a 1000 hertz sine wave of a specified length to be pasted into a sample. (This is often used as a test signal to calibrate audio levels.)

In the Cue List module, samples from the Open List can be sequenced, and synchronized to SMPTE timecode. The AD516 has an internal SMPTE generator, or it can be synchronized with timecode on videotape. This requires an external SMPTE time code reader/generator, such as *Black Knight Peripherals' S.A.M.*, or *Blue Ribbon SoundWorks' SyncPro*. (SunRize Industries has also just announced the release of the SMPTE Output Module for *Studio 16*, which will allow SMPTE timecode to be produced from the *Amiga's* audio output.)

The SMPTE Monitor window displays the current SMPTE time (in the current frame rate,) whether it's being generated internally, or coming from an external source. This window can be expanded in size to a very large readout. SMPTE time in this window is displayed in standard Hours:Minutes:Seconds:Frames (HH:MM:SS:FF) format. Used in conjunction with the *Toaster* or a genlock, a "window-burn" can be produced and layered onto your video footage. This is an indispensable aid in precisely synchronizing audio cues to videotape.

Cue points for music, dialogue, and sound effects can be determined by watching the video while monitoring the SMPTE time code numbers. After all of the required sounds and music are compiled and edited, a Cue List is then constructed listing all of the samples, their relative volume levels, and the exact SMPTE time that they are to be triggered. Since the samples are played back directly from your hard disk, extremely long samples can be played. The timing of *Bars and Pipes Professional* can be controlled by SMPTE time code infor-



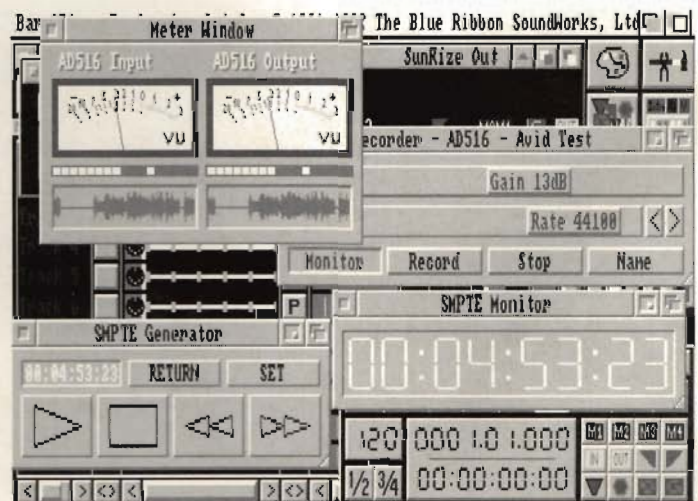
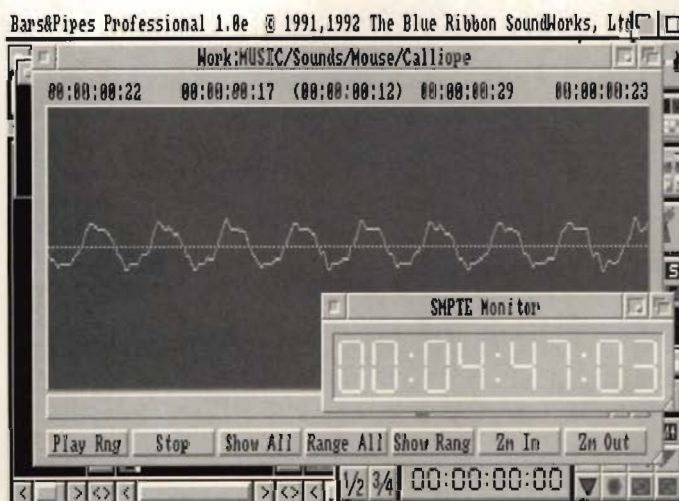
mation which is either being generated by the *Studio 16* software, or, which is being received at the SMPTE input on the AD516. The SMPTE stripe on the videotape is then used to control automated playback of MIDI sequences, as well as all of the specified samples from hard disk. This creates a seamless, perfectly synchronized audio track.

Another well-implemented feature of *Studio 16* is the audio meters. Each Meters module provides up to five on-screen meters, which can

be used to selectively monitor audio levels at the card's input, output, or on any of the eight virtual audio tracks. These meters can be configured in any combination of up to three different display modes. Simulated analog VU meters, give you a reading of levels as they vary. The Meters window can display digital peak meters, giving you an accurate picture of the levels' peak voltage, or, as a graph which shows a small horizontal representation of the soundwave. A second Meters window can be loaded in the Instance list, allowing you to monitor all ten (input, output, and eight tracks) levels simultaneously. Either of two different Mixer modules can be used to control the audio levels. The Mixer window displays the status of each of track, and has a graphic display of the active waveform. The Tiny Mixer module displays up to ten sliders in a VERY small window.

The AD516/*Studio 16*/*Bars and Pipes Professional* combination represents a real breakthrough in the field of professional sound-for-video production for the *Amiga*. With it's SMPTE compatibility, the system forms extremely valuable tool in the production of any type of sound. And, with the AD516's ability to record and playback from hard disk, the length of samples is limited only by the sample rate and hard disk capacity. (The AD516 samples at variable rates, including 44.1 khz., the standard for CD's, and 48 khz., the rate used in professional DAT recorders. SunRize is also due to release the DD524, a direct digital audio interface for the AD516 which will

**continued on page 58**



# Fonts

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Lion Kuntz

## You Can't Do Video Titling Without Fonts

It is so obvious that video titling needs fonts. We all learned the alphabet in kindergarten or first grade, and that pretty much ended the education on the subject for most people. What can there possibly be to learn about letters, lettering, or alphabets?

It turns out there is a lot to know. There are four distinct, different, and incompatible software structures used in the *Video Toaster* alone which produce letters on screen. They are *Toaster CG* scrolling fonts, *Toaster CG Chroma* fonts, *ToasterPaint AmigaDOS* standard fonts, and *Lightwave 3D* lettering objects. There are dozens of different, incompatible software structures used in various *Amiga* programs to achieve the same end result, which is to communicate some message using written language.

The popular word to describe a software structure that produces letters is "font". This is a silly-putty, elastic word, used to cover things it was never intended to cover. Originally type was produced in metal type foundries, and the "font" was named for the foundry process which created it. Metal type letters were produced in sizes, and each size required the foundry to mould new matrices for each and every size. Each size was a work of art and craftsmanship on its own, and was a different font from every other size as well as every other typeface.

Typeface is the proper name for a distinct designed group of letters, numerals, punctuation, and symbols. Typefaces have related family members which share design characteristics, such as regular, italic, bold, wide, condensed, extra-light, and more. I have a collection of 43 stylistic versions of the *Helvetica* family. *Helvetica* is a registered trademark of a particular foundry, and the 43 versions do not include clones, sold under other brand names such as

"*Triumvirate*" produced by *Agfa-Compugraphic*.

Typefaces moved into the movies from the beginning, from the earliest times when silent films used screens of text to explain action scenes. Movies and printing type technology shared the ultra-high resolution of molecular formation, having an equivalent resolution of over 3,000 dots per inch. Metal-formed letters and silver grains on film have a perfection impossible to match with pure video or computer-video type technology.

The dot-matrix generation has been raised for more than ten years with extremely low resolution letters. The *Commodore VIC-20* had 40 characters per line with an eight-by-eight dot grid matrix. There has even evolved a whole art style of typeface design which attempts to make letters look computerish, such as dozens of new additions in the *Letraset* catalog or the *Emigre* catalog.

In America, first the *Macintosh*, and soon after the *Amiga*, began to treat letters as just another bit-mapped graphic. Fonts could be made in many sizes, and screens had adequate resolution to display a variety of typeface designs. Years earlier there was widespread use of 1000 pixel by 800 pixel computer screens in Japan because of the pictorial language forced them to develop these higher resolution devices, but it is much more recent here.

Font developments were not planned or foreseen in the design of the *Macintosh* and the *Amiga*. *Macintosh* had to make major system revisions to their font standard to accommodate desktop publishing and postscript technology. The *MS-DOS* world is way behind trying hard to catch up.

On the *Amiga*, font development was all outside of *Commodore*, usually by typically small *Amiga* developers. There is a lot of isolated development which produces dozens of solutions to the common problems.

The earliest video titling was static screens of text

Typefaces moved into the movies from the beginning, from the earliest time when silent films used screens of text to explain action scenes.

made in a paint program, such as *Deluxe Paint*, with various dissolves and transitions using early slideshow programs. *VideoTitrer* from *Aegis* was the first actual titling program, and the "ANIM" structure of animation files was invented specifically for this program. *VideoTitrer* used standard *AmigaDOS* diskfonts and its own secret form of polygon fonts which could be stretched and bent. *ProVideo* from *Sheriff Systems* was the first titler program to invent its own anti-aliased fonts in a secret structure that prevented anyone else from adding more variety or better designed typefaces to the program.

Unfortunately, many companies have since produced programs with secret software structures. Most of these people seem to have no knowledge of the art and aesthetics of typeface design. Part of the reason that the *Video Toaster* is very well supported by typeface accessory products is the fact that they provide a utility with the *Toaster* to create fonts for the character generator made from regular *AmigaDOS* standard fonts.

Type on the Amiga is not a mass market item. The first fonts product ever sold, *Zumafonts*, is still being sold, even though I doubt that new copies have ever been produced since the original production. In other words they are still selling off the products they made six years ago. With this in mind, it is not surprising that the *Amiga* does not attract very many software type designers.

*Commodore* has not done a lot to resolve the fonts issues. *Commodore* is marketing the *Amiga* as a Desktop Video and Multimedia machine, but has not done its share in seeing that the typeface display necessary to the success of this market strategy is addressed. *Colorfonts* (made famous by *Kara Computer Graphics*) was added to *Amiga* system 2.0, and later, because the technology was donated by the inventor, *InterActive Softworks*. *Compugraphic* "Intellifonts" was added to system 2.0 only after *Gold Disk* and *Soft-Logik* had proven the technology with five products developed at their own risk and expense. Screen display postscript was developed independently by *Soft-Logik* and *Radical Eye*, and has not yet been supported by *Commodore*.

This puts an enormous burden on the computer owner to learn installation techniques that may be difficult to understand and unnecessarily complicated. I recently created a typeface clone of the new *StarTrek* spinoff program titling typeface, *Deep Space Nine*. The *Macintosh* version required three files maximum, two files minimum, for a total of less than 40,000 bytes. For the *Amiga* there are five version, including twelve sizes of *Toaster CG* fonts, twelve sizes of *Amiga* standard diskfonts, four sizes of colorfonts, postscript for *Professional Page*, and postscript for *PageStream* and *Art Expression*. The *Amiga* versions required thirty-seven files for the fonts, plus ten installation files to handle the various complexities to install this software. Although the software structures are compressed for transportation, it consumes most of a floppy disk, and 1,862,316 bytes for complete installation, the *Amiga* software does not do anything that isn't possible with the 40,000 bytes of Mac postscript. Installation on the Mac requires no sophistication, and involves dropping two icons into a drawer. If

users required *Commodore* to simplify and accept the reality of postscript's popularity by both users and programmers, it could be so much easier for users to get a lot of high quality typefaces at significantly lower prices.

With this background it is possible to predict the near future. You can buy products ready to use, or you can make your own. Making your own typeface software requires a hefty investment in software and hardware, and a lengthy apprenticeship or learning curve to get good at it. Buying typeface ready-made software involves risk that you will get burned acquiring fonts which do not work with all the programs that you own, or the letterforms and their attributes (such as letter-spacing) will be malformed. The very narrow middle path is software conversion.

Software conversion is the art of processing software from one form into another. The simplest example is to convert a system 2.0 *Intellifont* into an *AmigaDOS* standard diskfont, or convert a diskfont into a *Toaster CG* font. There is a wealth of utility programs which perform one or more conversions. Many of these utility programs are free by modem or low cost on user group disks. The trade-off is some learning time and some converting time, versus spending money on packaged products. Since I make typeface software in packaged products I depend on the fact that not everyone will be interested in spending time versus money. If you do buy packaged product you can take solace in the fact that *Amiga* + *Titling Products* + *Typeface Software* combined usually cost thousands of dollars less than some other video titling solution.

Since economy is a strong incentive for people to chose *Amiga*-based video titling, there are many who want to know how to keep the price down on their typeface library. Conversion divides into two categories: from other computers, and from one *Amiga* form to another.

For anyone doing 3D work, the indispensable tool is *Pixel-3D 2.0* or *Professional*. This will take bitmap graphics, including text, and extrude it into 3D objects in a variety of popular program formats. It will also take objects in one format and convert them into another program's requirements.

The *Calligrapher Professional Font Editor* by *InterActive Softworks* invented *Colorfonts*. It allows you to convert regular *Amiga* standard diskfonts into colorized patterned fonts in up to 16 colors, scale fonts smaller or larger (up to 160 points), or import clipart (brushes) and paste them as letters in a font. This is the product used by *Kara* to produce all those *Kara* fonts, and by the maker of *Masterpiece fonts* to assemble fonts out of scanned alphabet samples. Fonts created this way are only as good as the artist's artwork or the perfection of the artwork scanned. Scanned artwork that is not printed absolutely perpendicular to the guide edges of the page can have jaggies even on the horizontal and vertical lines.

Unfortunately, *InterActive* is going out of the *Amiga* business. I got the entire remaining stock of *Calligraphers* and have eleven left as of this writing. I hope to get the publishing rights to keep this product in production under my own company label but that is not definite at

For anyone doing  
3D work, the indis-  
pensable tool is  
*Pixel 3D 2.0* or  
*Professional*.

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this time. Meanwhile, a font editor under development in Italy, the *CLoanto Personal Font Editor 2.0* is expected to have unlimited sizing and up to 256 colors for colorfonts. Before you get all excited about unlimited sizes in all those colors keep in mind that fonts are not compressed in storage, and 160 point font in 16 colors with a complete set of characters can be over five megabytes of storage and RAM required. More colors and larger fonts get past the point of diminishing returns. How much money are you willing to spend for gigabyte drives to store several 400 point 256 color fonts?

*Soft-Logik* has advertised a font editor which converts type-1 postscript to *Compugraphic* and vice versa. Since I have not seen this one yet I cannot comment on it. *Gold Disk* has a module included with *Professional Page 3.0* and *Professional Draw 3.0*, called *FontManager v1.0*, which does a conversion of postscript type-1 to *Compugraphic*, but it only succeeds part of the time in my experience. I have converted over 200 postscript fonts with *FontManager* but found over 30 which it would not process. There are various utilities for converting postscript into other forms to be found on the *Radical Eye BBS* (415) 327-2346, including a lot of postscript fonts to use with them.

Postscript is the motherlode of fonts. I have seen 250 fonts for \$85 in an ad in a Macintosh mail-order catalog. Office Depot sells 100 postscript fonts for \$39.95 retail.

**Keep in mind that  
fonts are not com-  
pressed in storage,  
and 160 point font  
in 16 colors with a  
complete charac-  
ters can be over  
five megabytes of  
storage and Ram  
required.**

The *Berkeley Macintosh User Group* sells twenty five disks of about 170 total postscript type-1 fonts for \$4 a disk. A CD-ROM of 3,000 psfonts made by the largest font company in Germany can be bought for \$895. Obviously, the problem is getting them from Mac format to Amiga is the first obstacle, and then the next problem is converting them into something useful.

Postscript ported from MS-DOS is easiest because it requires nothing more than a utility program to read IBM disks, such as *Dos-2-Dos*, *CrossDOS*, or *MessyDOS*. From Mac requires *AMAX 2.0* using Amiga drives to read Mac disks, or *Amax 1.0* or *Mac-2-Dos* requiring use of a Mac drive.

A very common misunderstanding is that there are two different forms, or software structures, of what is popularly called postscript type-1 fonts. The postscript page language uses only 7-bit ASCII text files for input. Postscript type-1 fonts come in 7-bit ASCII and 8-bit binary encrypted. The binary form is more compact, saving disk storage space. The ASCII uses two characters to represent

one binary character, so it is twice the size. Postscript printers only use the ASCII form. Some conversion programs only accept the binary form. Programs which can translate the binary form obviously understand the binary form, and therefore can output either or both, but programs which deal with the ASCII form usually do not

**Continued on page 55**

# AGA CONNECTION

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Patrick Beck

## Video Applications of the Advanced Graphics Architecture

Welcome to my column. In this column we will explore the most exciting development to happen to the Amiga computer since its inception, the Advanced Graphics Architecture (AGA) chipset that is now available in both the *Amiga 4000* and *1200*. The video applications of these new machines are destined to create as big a splash in the professional production market as did *Newteks* now legendary *Video Toaster*. In future installments I plan to explore the current and upcoming hardware and software products that utilize the powerful new capabilities now available, but for now let's take a quick glance at the AGA machines themselves.

### AGA Power!

The two things that have always kept the *Amiga* ahead of the more common personal computers in the field of video and graphics are speed and color. The native pallet of 4096 colors and its ability to run real time animations of a marketable quality has established it as the computer for artists, animators, and videographers. As time and technology marched on, the other platforms had begun to catch up. If you are willing to pour enough money into it (and

many people are), you can have an *IBM* or *Mac* come close to matching the video capabilities of a stock *Amiga 500*. Not so any more! What was intended to be a warning shot across the bow of Desk Top Video on other platforms may actually be a direct hit at the waterline as far as broadcast quality results are concerned. The former palette restrictions have been blown away by resolution independent palettes and the new *HAM-8* mode. 4096 colors has been increased by several orders of magnitude, so that in the *HAM-8* mode you can draw from a pallet of over 16 million. This is not true 24-bit, as you are only allowed to display a maximum of 262,000 different colors at one time, and actually has many advantages. A typical 24-bit image file is normally between one and one and a half megabytes in size, to large to fit on the double sided-double density disks that are used by most Amigas.

File compression can reduce the size of the file but often at a cost of image quality. On the other hand, several *HAM-8* images can easily fit on a standard *Amiga* floppy. Smaller image files make other things besides storage much more convenient. Paint and animation programs will be able to do things in real time that true 24-bit systems can only dream about.

### Speed!

With the original *Amigas*, the custom chips gave it an edge in speed, taking over many tasks that would normally be relegated to the main CPU. As CPU's evolved, they became more and more efficient. The custom chips that once were a boon now became a bottle neck. Not so any more. The more efficient custom chips have increased their bandwidth, allowing them to

move more information quicker. Even without an advanced processor, the system would run several times faster. All the AGA machines have

**With the AGA Chip set, the former palette restrictions have been blown away by resolution independent palettes and the new HAM8 mode.**

advanced processors which further increase their speed. Couple the speed increases with the new display modes, and you have a very powerful video tool.

## The Controversy

There seems to be some resistance to the idea that the AGA's HAM-8 can equal the quality of true 24-bit. Let me just throw some math at you. A true 24-bit system can display all 16 million colors at once, while HAM-8 can only display any 262,000 of that same 16 million at one time. A highres interlace picture has a pixel count of 640 \* 400, which comes to 256,000 pixels. Get the picture? The maximum number of colors either system could display would be 256,000, that is 6000 less than the

limit imposed by HAM-8. That does not take into account overscan and higher resolutions, which would increase the number of pixels displayed on the screen, but that does not really change things. It is extremely unlikely that every pixel of an image would be a unique color.

## The Trouble with Toasters

Now the big question that many video producers are asking, will the *Video Toaster* work inside an A4000? No. At least not today. Here is why. The A4000 has a video slot identical to the one found in the previous A3000 model. Which means that a video toaster card will not physically fit inside the case without either some minor modifications to either the *Toaster* card or the computer chassis, or a videoslot extension device. Aside from the mechanical restrictions, there is also the fact that the entire custom chipset has been entirely redesigned. The *Toaster's* software interacts more intimately with the *Amiga's* custom chips than any other hardware device. When the *Denise* chip was upgraded it was only a minor modifi-

cation that was transparent to nearly all other software and hardware, yet caused a number of problems to owners of the 1.0 *Toaster* software. It is not surprising that a complete redesign of all the chips would render the current software incompatible. The *Toaster* challenged the envelope of the *Amiga's* potential and brought it to new heights.

In return, the AGA is offering a counter challenge to *Newtek*. The hardware should offer no compatibility problems, as there is now a factory approved modification to the *Toaster* card to allow you to shoehorn it into a 3000 style video slot. All that awaits is the correct software. Considering the miracles that *Newtek* has accomplished in the past, I have no doubt that before to long we

will be seeing things that will once again amaze and delight.

A 1200 or an A4000? So which AGA machine do you need? Depends on your need. While the A1200 does not have the space for internal cards, like the A4000, you may not need them. The composite video output of the A1200 is good enough for most home and industrial purposes and in many situations take the place of an actual genlock, and the higher available resolutions reduce the need for display enhancing devices. The A4000 has the advantage of a 68040 processor, which is many times faster than the 1200's 68020, and an actual video slot. This video slot is used by many of the highest quality genlocks. The built in 120 meg IDE is also nice to have around. There is also space for other internal expansion boards. Which ever model you pick, you will be getting one of the most advanced and powerful personal computers available in the world. In future months I hope to explore the possibilities and limitations of AGA. Please feel free to share with me your questions and experiences

with these new Amigas, as we discover together the new worlds that the *Amiga* has opened for us.

**The Toaster challenged the envelope of the Amiga's potential and brought it to new heights. In return, the AGA is offering a counter challenge to Newtek**

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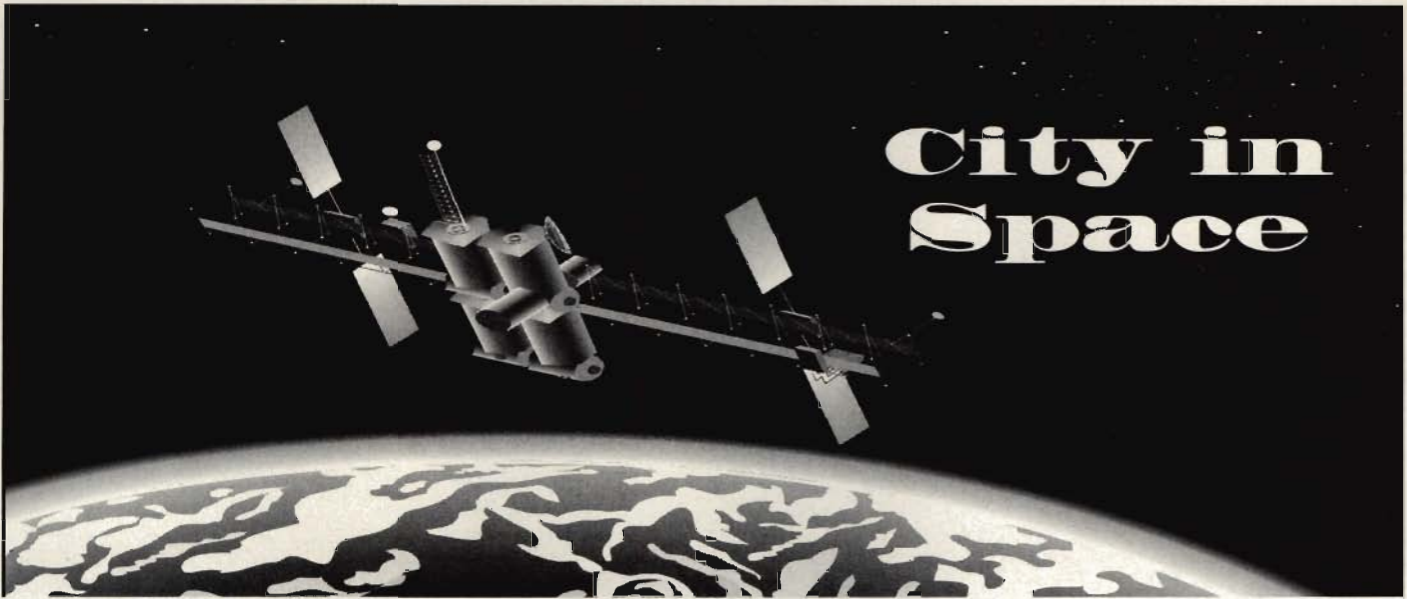
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Jim Omura

**Vertex Tutorial: City in Space**

It's only been a few months since I wrote the first tutorial for Vertex 1.62a in the October 1992 issue of AVid (Vol. 3, Issue #9) and a lot has happened. From the viewpoint of the Vertex program, the latest version of Vertex is now 1.73a, with many changes. The Art Machine has changed its direction for future products and after one more update, work on the current Vertex program will stop and work on a new "up-market" program, which will probably cost more, will begin.

At the same time, the Amiga 500 that we knew in North America, along with the Amiga 500 Plus in Europe, are long gone now, replaced by the Amiga 1200 with its 2 Megabyte of standard Chip RAM, MC68020 CPU and AGA graphics chipset.

Coinciding with these were further developments in my "minimum 3D graphics system". While I had proved that "scratchpad" work could be done in as little as 1 Meg, experience told me that more likely, I'd probably end up with something close to the 8 Megabyte to 16 Megabyte size range fairly rapidly. However, due to the flexibility in my business plans, it still isn't certain how much further expansion should occur in the Amiga 500. Even for a "work-at-home" machine it's hard to say whether it's worth it for me to expand the 500 much further, or make the jump to the new 1200, or

some other machine immediately. So I compromised and bought the Supra Ram 500RX expansion with 1 Megabyte of Fast RAM. That gives me a 2 Meg machine, which in that respect is roughly comparable to the low end Amiga 1200.

Another addition that brought me closer in line with a contemporary minimum system was the addition of the A520 composite colour adapter. This was another difficult choice to make at this time. I have been using the Amiga 500 with a somewhat "old" Magnavox 8CM515 colour monitor. This monitor has RGB colour and composite colour inputs. But I'm sharing this monitor with another computer. So for now I have the other computer hooked up to the RGB connector and the Amiga to the composite input. That way I don't have to switch cables. Since it was not my original intention to use the Amiga 500 as a rendering machine to record to VCR tape, there was no need for the A520. All the work for my earlier article was done in monochrome and for creating solid models, I found that quite adequate. If I wanted to use colour I could have simply made a new cable and swapped the RGB connection on the monitor between the two computers. In the end it was really nothing more than curiosity that tipped the scale to buy the A520. I wanted to see what kind of quality display it would give. I'm happy to say that the A520 output quality and monitor combine to give a reasonably usable display at 80 columns. It is a bit soft and eventually I'll switch it over and use the

normal Amiga RGB modes, but for now I'm finding it quite usable and the extra convenience of not having to swap cables is a welcome advantage.

2 Megabyte is still not a huge amount of RAM in the graphics world, but it provides some significant improvements over the 1 Megabyte size, particularly since I could, if necessary, devote this all to data space for Vertex for data models that could go beyond "scratchpad" level work. So for my first project, I thought big. In fact, I thought too big. I thought about a whole city. "Cities in Flight"

In today's Star Trek era, people who have limited their literary experience to mysteries and romances and less imaginative forms of fiction might believe that the idea of huge populations flying around in space started with Rodenberry. But that wasn't the case. He was neither the first nor did he propose the largest "vessels" and populations. Without doing detailed research on the matter, I think it was probably James Blish who had the largest vessels and populations. In "Cities in Flight" Blish sent whole cities into space, and not contained in specially built space ships. He literally threw the whole physical cities essentially as they exist today, into space, based on a special technology. Unfortunately, many of the contemporaries of his era of writing are passing from us. With this in mind, I'm going to dedicate this piece to the SF writers and artists of that period.

First, there's no doubt that I

can't model a whole city, in detail in 2 Meg of RAM. If you try to draw every brick and board, there's a good chance you couldn't even finish a house. On the other hand, if I drew just a single block for each building, I might be able to create a model skyline for a "central business district" (what most of us would call a "downtown" area) for a small city or large town. It is therefore a project where we can adjust the target size to fit our capabilities. So, like the task in the previous tutorial, this is not necessarily an out of reach goal. It just depends on what you consider "acceptable".

I decided that what I wanted was a level of detail that might be usable for a book cover. This is fitting, because "Cities in Flight" has never made it beyond a book — it has never been made into a movie. Because of the tightly defined goal (essentially, as much detail as I could squeeze into a model made on a 2 Meg system), the progress of this tutorial was different from the last. For "Project Blockhead", I simply kept notes as I made my first attempt and then re-wrote it a bit. What you read was very close to how I developed the head, literally in "1 pass". On this project, there was a lot more trial and error effort and it probably took me "3 or 4 passes" before I settled on the data model I'm presenting, though the approach is essentially what I did, in the order I did it. Furthermore, it is essentially 2 days of work, including the note taking. Between these two example tutorials and other work I've been doing, I would say that the Vertex front end has proven very fast to work with, which is the point in buying such a program.

## Techniques:

One key technique in this tutorial is the use of fractals. I can't remember if Blish described in detail how the bottom of a city looked. My first inclination was that it would be smooth. As far as I remember, Blish said that the ground was being held in place by the "spindizzy" field. Most "force fields" in SF have been presumed to be smooth. But that's not necessarily the case. There are reasons why it might not be smooth. If the "spindizzy field" has thickness and gradient strength, it might not be able to hold ground inside its field evenly as the ground that goes with the city is torn away from the ground that stays behind at lift-off. Furthermore, on the outside of the "spindizzy" field, it might be that odd gravitational effects attract external debris — like the dust clinging to the face of my monitor, due to static electricity. After some thought, I decided that a relatively fine fractal surface would look more interesting on the bottom of the city, and could be reasonably justified technically. So I decided that this project would feature the use of the fractal function, and that I'd buy a bottle of Windex — for my monitor.

The other technique showcased in this tutorial is the "Extrude". The "extrude" was used heavily in the earlier article as well, and my experience leads me to believe that this will be a function that will be central in all my use of Vertex. This time when creating the buildings, I'll demonstrate some slightly more complex extrusions.

## Rendering:

I had hoped to provide some nice rendered stills from this project, but circumstances worked against me. I have not had the opportunity to get a good rendering package. However, it is a good time to point out that all

the illustrations for the previous article were rendered directly by Vertex. There are 3 main still rendering methods supported by Vertex. There is a plain "wire frame" mode, a solid shaded render mode, and a hybrid mode where the solid shaded render is combined with the visible parts of the wire frame in black. In the solid and outline modes lighting is not adjustable and colour assignments are ignored. The default lighting gives a reasonably good amount of contrast to display the object shapes. It's generally good enough for its intended purpose which is only to assist in object design. One of the new file formats supported by version Vertex 1.73a is "Rayshade". "Rayshade" is apparently a freely distributable ray tracing rendering package. I have not tried this software, but it sounds like you can have a fairly powerful design system very cheaply if you use Vertex with Rayshade. All 3 methods or render were demonstrated in the previous article. Figures 1 and 6 were "wire frame", figure 5 was "solid" and 2, 3, 4 and 7 were the hybrid "outline" mode.

Because time is short, I will be submitting similar renders of the City, but if I get a chance before the article is put to bed, I may include another render done in another package. We'll just have to wait and see how everything turns out.

## Conventions:

The same conventions are being used as in the earlier tutorial:

- "Front" is towards you (Z is decreased)
- "Back" is away from you (Z is increased)
- "Left" is to your left (X is decreased)
- "Right" is to your right (X is increased)
- "Above/Up" is normal (Y is increased)
- "Below/Down" is normal (Y is decreased)

"Modify/Points/Vertex info" means select the function "Vertex info" which is found in the "Points" sub-menu under the "Modify" menu. I will not generally give full menu descriptions after the first time the function is encountered except where necessary for clarity.

In a case like "Modify/Extrude" where there are many settable parameters I will usually give only the settings that are not the default settings. A default setting is the setting that shows up when you first use the function in a work session. It is NOT necessarily a setting that may be remaining after the last time you have used the function. If you are unsure if the settings are default, then use the "Clear" button to reset them before adding the new settings.

## Making Buildings:

We're not going to start into the actual target object immediately. First we'll look at how the techniques we'll use to create the buildings we'll be making later.

## General:

First we'll start by preparing 3 files with a common basic object that we'll modify into the three buildings:

"Add/Basic/Cube" Width = 200, Height = 50, Depth = 200, Name = Base "Deselect/Area" the 4 topmost vertices "View/Hide Select"

"Select/All" "View/Top"  
 "Modify/Sub Edges"  
 "Modify/Sub Edges"  
 "File/Save/Compressed" Name = BuildU.comp  
 "File/Save/Compressed" Name = BuildV.comp  
 "File/Save/Compressed" Name = BuildS.comp

Now we'll check some information that will help you produce the objects we intend to use. Keep in mind that the vertex numbers may NOT be the same for you if you are not using the same version of this program. That's ok. You can use the following information to guide you by identifying the vertices according to these numbers.

"Modify/Points/Vertex Info" check the vertex numbers from left to right for each row from top to bottom:

1st (Back) Row: 5, 16, 11, 27, 1  
 2nd row: 26, 22, 24, 29, 25  
 3rd row: 10, 23, 13, 21, 9  
 4th row: 15, 18, 20, 19, 14  
 5th (Front) row: 8, 17, 12, 28, 4

### The First Building:

This first building will be a simple "U" shape with the "ends" protruding, most likely facing a street. The area to the bottom will be facing this theoretical "street". The problem is that all connected vertices will result in a face, including diagonals. In this case we will not want a diagonal face to be created from vertex 20 (middle of the 4th row) to vertex 17 (2nd vertex in the 5th row).

If you are starting fresh:

"Files/Read" Name = BuildU.comp  
 "View/Front"  
 "Deselect/All"  
 "Select/Area" the bottom level vertices  
 "View/Hide Select"  
 "View/Top"  
 "Select/Vertex" 20 (middle of row 4) and 17 (2nd in 5th row)  
 "Delete/Edges"  
 "Select/Vertex" 18 (2nd in 4th row) and 12 (middle of 5th row)  
 "Add/Edge" 18 to 12  
 "Add/Face" 18, 12, 20 and 18, 17, 12  
 "Select/Area" rows 3, 4 and 5  
 "Deselect/Vertex" 12 (middle of row 5)  
 "Modify/Extrude" EXTR Y = 100, Step = 1

### The 2nd Building:

This is essentially the same idea but this time we want to have the diagonal faces made in the front middle instead of the normal square looking faces.

"Files/Read" Name = BuildV.comp  
 "Select/Swap"  
 "View/Hide Select"  
 "View/Top X-Z"  
 "Select/Vertex" 19 (4th in row 4), 12 (middle of row 5)  
 "Delete/Edges"  
 "Select/Vertex" 20 (middle of row 4), 28 (4th in row 5)

"Add/Edge" 20, 28  
 "Add/Face" 20, 28, 19 and 20, 12, 28  
 "Select/Area" rows 3, 4 and 5  
 "Deselect/Vertex" 12 (middle of row 5)  
 "Modify/Extrude" EXTR Y = 100, Step = 1

Note that what might appear to be the exact same extrude has resulted in a different building shape. Thus the key to success in extrudes is being careful when selecting vertices paying attention to all the edges joined to each vertex you select. Be aware of which edges will form new faces and adjust edges if necessary, before the extrude.

### The 3rd Building:

The goal will be 2 towers joined by a covered concourse. Because I'm creating 2 levels I've nicknamed this a "splitlevel" which is why the name is "BuildS".

"Files/Read" Name = BuildS.comp  
 "View/Top X-Z"  
 "Deselect/Area" the 1st and 5th rows  
 "Modify/Extrude" EXTR Y = 50, Step = 1  
 "Deselect/Area" the middle vertices in each row, 24, 13, 20  
 "Modify/Extrude" EXTR Y = 50, Step = 1

Note that the last extrude raised 2 surfaces at the same time. Vertex will not make a mistake by trying to connect these surfaces that are isolated by breaks in the contiguous groups of selected vertices. I used this to extrude 2 or 3 buildings at a time.

### Tutorial Start:

Now lets get down to making the real thing.

#### 1. Using Shape:

"add/shape"  
 "grid"  
 "grid res" (x=50, y=50)  
 "snap"  
 "box"

Form a box from X=-50, Y=50 in the upper left corner to X=50, Y=-50 in the bottom right  
 Create a "+" pattern of boxes by creating the same size box in the same way above, below, left and right of the first box. The new boxes should touch the old boxes at the corner vertices.  
 "exit"

#### 2. Checking the object:

Again, before we go further we'll get some information. This isn't normally necessary, but we'll do this occasionally to be sure that you haven't gone wrong.

"modify/points/vertex info"

Check the outer points from the upper right corner of the topmost box and continuing clockwise:

Number, X, Y, Z:

8,50,150,0  
20,150,50,0  
19,150,-50,0  
11,50,-150,0  
10,-50,-150,0  
14,-150,-50,0  
13,-150,50,0  
5,-50,150,0

Check the "inner" square from the top right corner and continuing clockwise:

4,50,50,0  
3,50,-50,0  
2,-50,-50,0  
1,-50,50,0

Note that these latter 4 points are actually stacks of 3 points, all in the same position. If the vertex numbers are different but the location numbers are the same, there probably won't be any harm done.

Now change the name of the object from "shape". I chose the name "octpad"

Modify/points/rename" name=octpad

If you haven't saved the file anywhere yet, this is a good time. I named it "octpad.comp" in my disk directory, being the same name as the object.

"file/save/compressed" Name="octpad"

### 3. Finishing the Template:

a. Make outer triangles:

"add/edge"

8 to 20  
19 to 11  
10 to 14  
13 to 5

b. Fill outer triangles:

"add/face"

8, 20, 4  
19, 11, 3  
10, 14, 2  
13, 5, 1

c. Make inner Triangles:

"add/edges"

Divide each of the squares with a diagonal line from the upper left corner of the square to the lower right. The order of the squares worked on will be "middle", "top", "bottom", "left", "right".

d. Fill inner Triangles:

"add/face"

Work on the squares in the same order as you did to add the edges. In each case create the upper triangle first, Starting with the vertex which is not connected with the new edge, and selecting the vertices clockwise.

### 4. Eliminate extra Vertices:

"Deselect/all"

As you will recall, the "inside box" corner vertices are actually "stacks" of 3 vertices. You don't need that many. At each corner, we'll get rid of the extras. I worked from the upper left corner to the upper right corner, then the lower left corner and then the lower right corner. At each corner, do the following:

"select/area"

Mark the vertex at the corner. Using the "area" mode will select all the redundant vertices at that point.

"modify/points/fuse"

If you are watching the vertex count, don't worry if the number doesn't change immediately. This was a characteristic of version 1.73a and might be a minor bug.

"deselect/all"

Now move on to the next corner. When all is done, if you "deselect/all" the last time, the vertex count should be 12.

Confirm the vertices:

Check the outer vertices from the same upper left point as before:

"select all"

"modify/point/vertex info"

The point information should be as follows:

8, 50, 150, 0  
9, 150, 50, 0  
6, 150, -50, 0  
11, 50, -150, 0  
10, -50, -150, 0  
12, -150, -50, 0  
7, -150, 50, 0  
5, -50, -150, 0

The inner square starting at the upper left and continuing clockwise are:

4, 50, 50, 0  
3, 50, -50, 0  
2, -50, -50, 0  
1, -50, 50, 0

Sometimes during the construction of a major pro-

ject, it's a good idea to store off a copy of a current object which might be reused later. An octagon seemed like a good shape to keep. Who knows how many variations of stopsigns I might make over the years? So at this point I decided to save the shape for my object library.

"modify/point/rename" octagon  
 "save/compressed" octagon.comp

Make it 3d:

"extrude" z=-50, step=1

Remove internal edges:

"deselect/all"

Select the vertices on the top-most and bottom-most faces.

"view/top"

You'll see extra unnecessary vertices that are normally hidden.

"select/all"

Now rotate the view so you can see all the points and edges, and use "modify/point/vertex info" to identify them.

When you have identified the unnecessary edges and their points remove each one:

"select/vertex"

Pick the ends of a vertex to be removed.

"delete/edges"

"deselect/all"

Continue with the next edge.

The edges to be removed were:

Start Point	End Point
1	13
2	14
3	15
4	16

"unhide/all"

"select" the front surface faces.

trans/move", z=40

At this point, I decided that this object might be useful later, so I saved it again for my objects library under a different name. I thought about calling it "pizzabox" but that might make me think it was square so I settled on:

"modify/point/rename" octpad  
 "save/compressed" octpad.comp

Name the sides:

"deselect/all"

"view/top"

Select the surfaces on the X=0 side and rename them "Top"

"select/swap"

Rename the rest "Bottom"

Shape the bottom:

"view/front"

Deselect the outer vertices leaving the 4 inside vertices on the "bottom" selected.

"trans/move" Z=-20

"select/name"

name="bottom"

"modify/fractal" recur = 3, height = 5, seed = 78

"deselect/all"

"select/name" name="top"

"modify/sub/edges"

"modify/sub/edges"

"modify/sub/edges"

Vert = 962

Edges = 2888

Face = 1920

"Unhide/All"

"Select/all"

"trans/rotate" x=-90

Extrude the buildings:

While extruding the buildings, it helps to tilt the display slightly:

"view/parameters" RotX=83, RotY=-6

Zoom also helps. I used 150%.

I'm not going to describe in detail how to make each of the buildings that I created in my model. I'll simply give some general pointers and describe particularly interesting aspects. None of the previous specific example buildings were used directly in my final object, but if you look at the final object, you'll see the techniques I demonstrated used throughout.

There are some generalities you can keep in mind about urban landscapes. First, and most obvious, is that cities made up of buildings that preceded the development of elevators and escalators tend to be low. If you think about it for a moment you will realize that few people like to walk up more than 2 floors worth of steps. So most such buildings will tend to be more than 3 floors above street level. The old city was therefore generally low and "squat" looking. With the coming of the elevator, modern structures thrust upward into tall, thin, rectan-

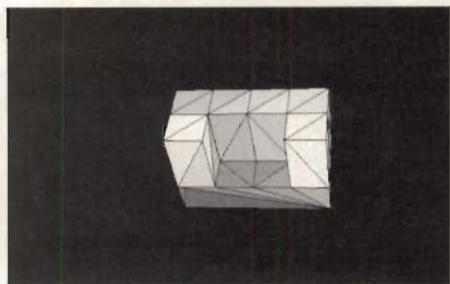


Figure 1

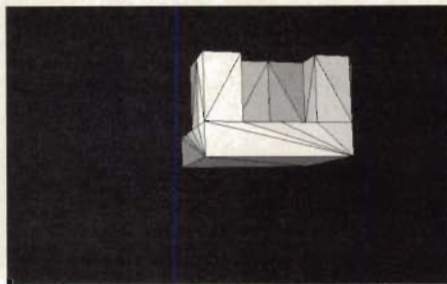


Figure 2

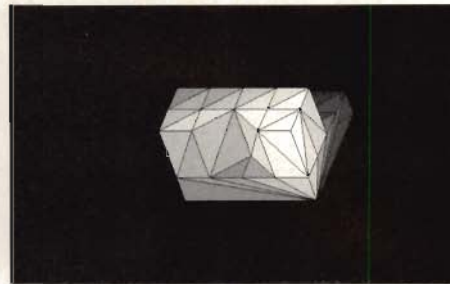


Figure 3

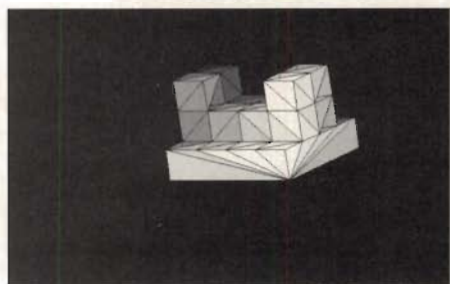


Figure 4

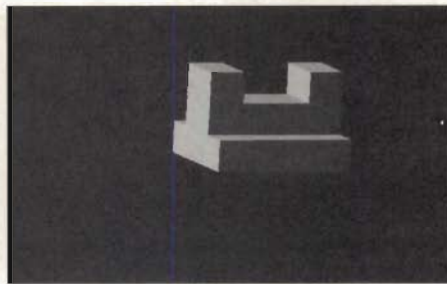


Figure 5

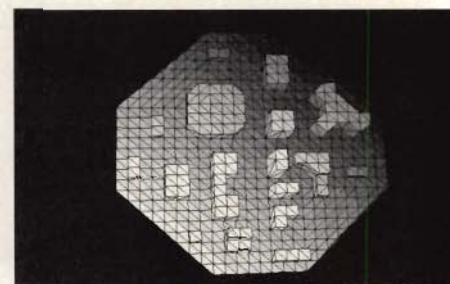


Figure 6

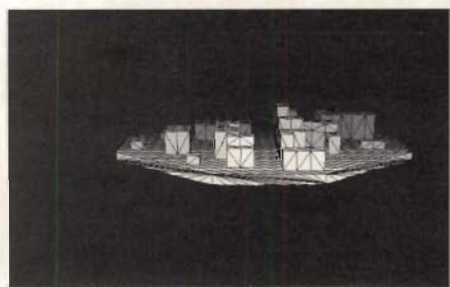


Figure 7

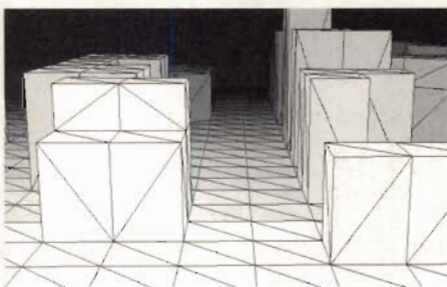


Figure 8

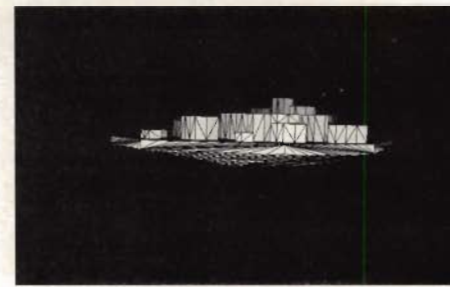


Figure 9

gles. This is a trend that continues today. More recently, perhaps after the 60's, a greater variety of structures began to reappear in downtown areas. I like to believe that the Toronto City Hall was one of the influential buildings that broke from the tall-tower-box trend. If you watch Star Trek regularly, you have probably seen this building. And most recently, after the development of the suburban shopping mall, there is a trend to bring this form of more squat structure back into downtown areas. Another obvious generality is that the skyline of a city rises in the middle, and that's because smaller buildings tend to be outlying.

If you have the time, you can work from photographs and try to reproduce an actual city, but if you think in terms of these generalities and some common sense, you can come up with an interesting urban landscape of your own. I decided to create my own landscape. I imagined my lower buildings being about 10 stories high and created a relatively low-rise landscape with more

squat and varied buildings than are actually common today, but perhaps not unusual for some urban landscape of the future.

That's all there is for this tutorial. You can use these methods to extrude your own buildings. In discussions with the new editor of AVG, we have not yet agreed to any future articles, but it looks like I might be producing more tutorials of this type perhaps using Vertex or other 3D tools. If you have specific requests for objects you'd like to see created or rendered, or specific techniques demonstrated, please write to the editor of AVG. We'll discuss what sounds feasible and do the best we can. I'm sure the Editor will be pleased to hear from you. The new staff wants to expand on what the previous staff has created and keep AVG a valued part of your video system.

Cutlines:

Fig 1:  
The first U shaped building shown in

outline mode. It looks something like a chair.

Fig 2:  
The same building from another angle.

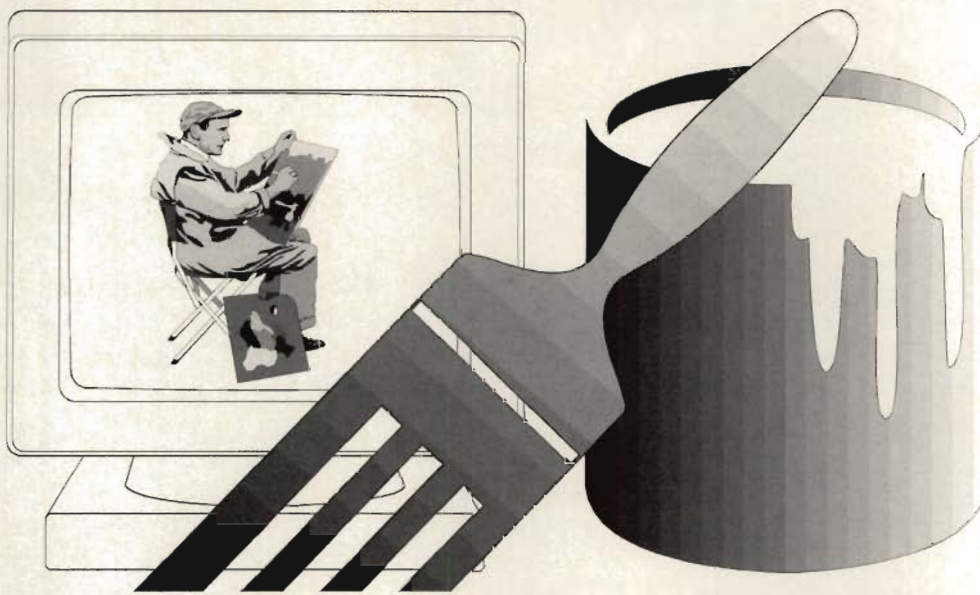
Fig 3:  
The V shape building in outline mode is substantially different, but is the result of only 1 edge changed before the extrusion.

Fig 4:  
The Split level building in outline mode

Fig 5:  
The Split level building in "solid" mode, from a different angle. Vertex renders give a good idea of the final object.

Fig 6:  
Here is the top view of the finished "cityscape" at a slight angle, in outline mode.

**continued on page 58**



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Doug Shannon

**DeluxePaint 4 AGA  
TriMedia Drawingpad**

The new generation of Amigas are here, with new graphics modes and features. And *Electronic Arts' Deluxe Paint* is already revamped to support these new machines. I reviewed *Deluxe Paint AGA* on the new *Amiga 4000*, with the new *TriMedia Drawingpad*.

Here's how it went: The new Amigas (so far just the *A4000* and the *A1200*) have a new set of graphics chips. These chips, dubbed AGA (for Advanced Graphics Architecture) offer an array of new graphics modes, including new resolutions, more colors, and new genlock modes. *Deluxe Paint AGA* supports all of the new modes, as well as the old ones. Although the major change in *Deluxe Paint*

is the fact it supports the AGA chipset, *Deluxe Paint AGA* also works on non-AGA machines, and supports the new ECS (Extended Chip Set) modes that became available with the 3000. This means that there's finally a paint program that works in super-hires and super-hires laced, as well as the productivity modes (it's

about time!). *Deluxe Paint AGA* reads the Monitor types installed in your system, allowing for new monitor resolutions and modes to be added in the future (like the Super72 and Euro36 monitor types that were added in AmigaDos 2.1).

**Screen Format:**

When *Deluxe Paint AGA* is first loaded, you'll notice a change. An Ownership screen opens up on the workbench, showing the name, company, and registrations number of the owner. This information is input

when DPaint AGA is first installed, then it's encrypted into the *DeluxePaint* program. After that window goes away, you get the Screen Format requester.

The Screen Format requester is the most drastic change to DPaint. Instead of the lo-res screen format page that opened when the old DPaint was loaded, a shiny new 2.0 style requester opens up on workbench, with

all the screenmode options. There's three scrollable list fields on this window. There's the Credits field, which states the version number, registration information, and copyright info. This really has nothing to do with the screen format, but hey, I don't mind. Then there's the Display Mode list, and the Display Information list. This is where it

becomes confusing.

The Display Mode list replaces the "Format:" buttons on the old Screen Format screen. On the old *Deluxe Paint*, there's four options: Lo-Res, Med-Res, Interlace, and Hi-Res. With *Deluxe Paint AGA* on an ECS Amiga, there can be over 28. On the *A4000*, there's over 50! They have names like "AA-HAM-ScanDbl+", and "Lo Res Laced". These names are completely different than that of the old DPaint names, so don't go flipping through the list looking for Interlace (640 x 200), because Interlace in DPaint AGA is now called Hi Res. The new equivalent of the Old DPaint's Hi-Res is called Hi Res Laced (640 x 400). And the names list goes on and on. But DPaint allows you to filter out the modes you don't want listed, viewing only the ones you want. For example, you know you want to draw in a resolution that's 640 by 400. Simply type "640x400" in the filter field, and presto, the list now only lists modes 640 by 400 (there's six 640 by 400 screen modes on the 4000). Say you just want to see your HAM options. Type "HAM" and you'll get a listing of just HAM screen modes (on the 4000, there's sixteen). The filter even supports the "~" character, which simply makes the filter the opposite. Example: you want to see all the modes available except the Extra Halfbrite modes, just type "~Half" or "~brite", and you'll get every mode but the halfbrites.

Once you click on a display mode, the Display Information list fills up with information on that particular mode. For example, the

**DeluxePaint 4.5 AGA**

**On the old  
DeluxePaint,  
there's four  
options. With  
DeluxePaint  
AGA on a ESC  
Amiga, there's  
over 28.**

Display information on Hi-Res Laced (640 by 400) on an Amiga 2000, states:

Type = Lace  
Max Colors = 16 of 4096  
Max Size = 736x482  
Supports Genlock  
Advanced information  
Mode Id = 19004H  
Max Depth = 4  
Aspect Ratio = 22x26  
Pixel Speed = 70 ns  
Bits per RGB = [4:4:4]  
Sweep Rate = 60 fps @ 15 KHz  
On an Amiga 4000  
Hi Res Laced (640 x 400) reads:  
Type = Lace  
Max Colors = 256 of 16777216  
Max Size = 736x482  
Supports Genlock  
Supports Double Buffering  
Advanced information  
Mode Id = 19004H  
Max Depth = 8  
Aspect Ratio = 22x26  
Pixel Speed = 70 ns  
Bits per RGB = [8:8:8]

#### Screen Size:

Standard 640x400

Txt Overscan

Dependent on text overscan set in Prefs

Gfx Overscan

Dependent on graphics overscan set in Prefs

Max Overscan 724x482

Video Overscan 736x482

Custom User Settable

Sweep Rate = 60 fps @ 15 KHz

That's a lot of information to take in. Some of the information may not be useful to you, but you don't have to read it. On an Amiga 4000, (with the exception of the halfbrite modes), every mode can have at least up to 256 colors! An ECS Amiga 2000 is still limited to 16 colors in Hi Res laced.

Below the Display Mode list, there's a cycle gadget to change the screen size. Here's a list of how this button works with Hi Res Laced (640 x 400) on an Amiga 4000.

There's also a page size button

that works like the Screen Size button, except it give you the options of Screen, Keep same, Txt Overscan, Gfx Overscan, Max Overscan, Video Overscan, and Custom. This button takes the place of the Screen and Keep Same buttons on the old Screen format requester, as well as the Page Size requester. The Page Size requester is still there, for user compatibility.

There's a color Slider that lets you set the amount of colors you want on that particular screen. It defaults to the maximum (usually 256 on an AGA machine). Next to it, there's a check box that lets you choose whether or not you want the picture currently on deluxe paint's screen to stick around during the screen format change, or just get wiped out. Since sometimes converting an image from one format to another can take a long time (even with the 4000's 040), this is a useful option.

#### The Interface

After you've chosen the screen mode and selected *Use*, you're into the heart of *DeluxePaint* AGA. The interface has been cleaned up, conforming to the new set of standards that *AmigaDOS 2.0* established.

Electronic Arts' obviously recognizes the importance of smart keys (the *Macintosh* phrase for a keyboard shortcut that does not require you to hold down a qualifier key at the same time). *Deluxe Paint* has always used power keys, but they've added keyboard equivalents to every requester now. the "o" key is always for OK, and "c" is Cancel. Also, the "ESC" key can be used as Cancel. All the other keyboard equivalents are shown right on the option, by underlining the letter used as the shortcut. You can now just press "s" for a solid fill in the Fill Type requester. If you start using these shortcuts (and it's hard not to, with the equivalent showing right on the requester), your efficiency will speed up tremendously.

The OK and Cancel buttons have switched sides on the paint requesters. The paint requesters have always been backwards from the Amiga standard. *DPaint's* file requesters have always had OK and Cancel on the correct side though, but now every requesters' the same. This may throw you off, (like clicking on a gradient fill in the fill requester, then instinctively clicking on cancel,

because it's where OK used to be), but I adjusted quickly, and since I can just hit the "o" key now, It doesn't make much difference.

The keyboard equivalents for brush handle placement has been changed, freeing up some keys (I assume they're making room on the keyboard for new commands in a future version of *DPaint*). Gone are the days of using alt-x for changing the handle on the x axis, alt-y for the y axis, and alt-s for the center. They're now all replaced with alt-x, which cycles through the four corners and the center. Someone from the *DPaint* team told me x was used because the shape of an "x" goes from the four corners, all meeting in the center, hinting at how the command cycles through the corner handles and ends up in at center handle. They sure put a lot of thought into that keyboard equivalent.

The Make Stencil requester has been altered slightly. Now, to lock colors, a left mouse click on the color does fine. To unlock it, a right mouse click is required. As always, you can drag through a range of colors to lock or unlock them. This is handy when trying to stencil a dither made with colors that are not in sequence. Just drag through the dithered background and ta-da, you've locked them.

As far as other keyboard shortcuts changes go, *DPaint* AGA's Quit keyboard equivalent is now right-Amiga Q.

#### DPaint Under Pressure

One of the coolest new features of *DPaint* AGA is the Pressure effect. This is the ability to use *TriMedia's* new *DrawingPad* tablet and driver software along with *DeluxePaint*, allowing for some awesome effects.

The *DrawingPad* is a drawing tablet, similar to the old *Koala Pad* for the *Commodore 64*, that connects to the Amiga's serial port. It's more advanced in every way though. It's much larger though, with a 7.5 by 7.5 drawing area. It requires a special cordless pen (included) that has three buttons on it, one on the tip (which acts like the left mouse button), and two on the sides (one acting like the right mouse button and the other not used - yet). When the pen gets within a half inch of the pad, it's X-Y position is sensed and sent to the Amiga, which repositions the pointer. This allows for accurate

drawing using a pencil-like device instead of a mouse. The pen doesn't even need to touch the pad to be sensed. This is good because you can easily trace through a thick book, and you can rest the full weight of your hand on the pad without worrying about messing up the sensors. The best part, however, is the fact that the button on the tip is not a simple on/off type switch, it's a variable sensor that knows how far down it's been pressed.

With the Pressure options in DeluxePaint, you can use the pen to really put the human touch in your drawings. The Pressure requester has two options. The first is Translucency. With this, you can have DeluxePaint apply a level of translucency depending on how hard the pen tip is pushed down. With this setting, it's easy to get realistic looking watercolor and pencil sketch effects. Variable transparency takes some time for Dpaint to calculate, so I recommend fast processor like the 030 or 040.

The other option is a size adjustment. This setting increases the size of the brush depending on how hard the pen tip is pushed down. You can set it to only increase the size by one or two pixels, all the way up to 16. I found this setting hard to draw with, although it doesn't require a lot of computing time, so it's better for the 68000 processor user.

#### Performance

How does DPaint handle in a 256 thousand color Hi-res Laced screen mode? I've dreamed about DPaint doing that for a while. Now, I finally can. Here's how Dpaint performed on the new modes.

*Hi-res Laced (640 by 400)*

With the AGA chipset, DPaint's Hi-Res laced mode is much more powerful. In normal modes (non-HAM), Hi-Res Laced can have up to 256 colors, out of 16777216 colors. At first I thought it wouldn't be enough, but after seeing rows and rows of colors that work fringe-free in

Hi-Res laced, I changed my mind. On the 4000, Hi-Res Laced with 256 colors is about as fast as Hi-Res laced 16 colors on a 3000. The amazing thing is DPaint's default 256 color palette is set up with a great variety of colors. Translucency works beautifully. It seems to always have the exact shades it needs to make the translucency look correct. The Smooth tool works great, and it's quick. In lesser color modes, DPaint really flies. Painting is effortless, and even 32 color Hi-res pictures look 10 times better than the old 16 color Hi-res modes.

In the AGA HAM-8 modes (262144 colors to work with), Hi-Res laced is slow. I can't, however, see any reason why someone would not do actual drawing in 256 colors, with shading done later in the HAM-8 mode. For most drawings, there's no reason not to use 256 colors. If you're familiar with the original HAM mode, you know that HAM works off a base palette of 16 colors. Whenever you see fringing in a HAM picture,

the fringe is one of those 16 base colors. The AGA chipset HAM-8 mode uses a base palette of 64 colors, so fringing is much less noticeable, and in Hi-Res Laced, the pixels are so small, the images look spectacular.

Super Hi-Res Laced (1280 by 400)

Super Hi-Res laced (1280 by 400) is too

high. Fonts are squashed and distorted beyond readability. If you want the absolute skinniest pixels possible, this is the mode for you. Although there's no way to get around the flickering (even if you have a multi-sync monitor), having all those colors available for anti-aliasing sure hides the flicker.

#### Misc.

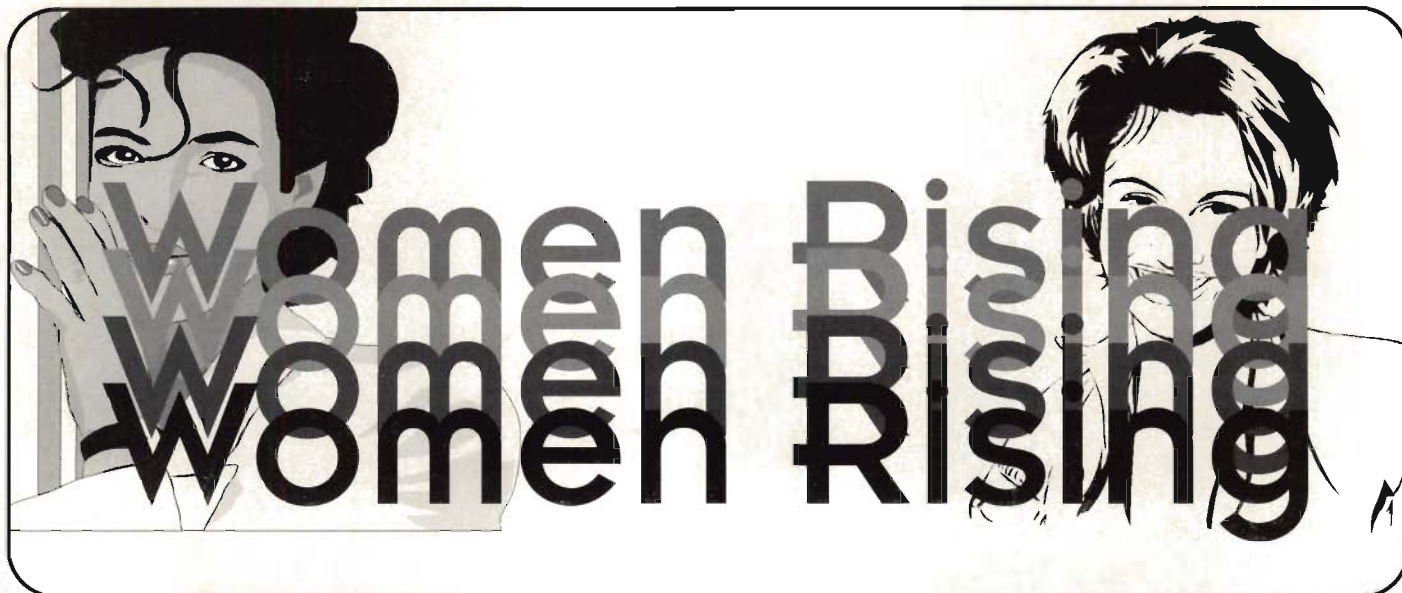
Other enhancements include a little readout in the Mixer requester that shows the register number of the currently selected color. The register number is just a number assigned to the color, running in

order from 0 to 255 (for a total of 256). This is handy when you have 40 shades of blue in your palette, and you want to draw with just one. You can pick the blue you want, and see its register number. Whenever you need that blue again, you can just go back to section of blues, and click around until you come to the exact blue you had earlier. Also added is the ability to paste and copy images to and from the clipboard. This makes it easy to copy an icon using *IconEdit*, then paste it into DPaint for editing. Then, you can paste it back. This works with most of the Preferences editors in *Amigados 3.0*, as well as some programs with *ADPro*. It's a nice feature, and hopefully more software will support the Amiga's clipboard now that DPaint does. *DeluxePaint AGA* also will load a 24 bit image, converting it into the current screen mode. While DPaint does a good job, I'd recommend using ASDG's graphics program *Art Department Professional* for 24 bit conversion. *ADPro* version 2.1.5 supports the AGA chipset, and does excellent conversions of 24-bit graphics to other resolutions and screenmodes. A Note to Readers who Do not own an AGA Amiga. If you own a non-AGA Amiga and are wondering whether or not you should buy (or upgrade to) *DeluxePaint AGA*, read these important facts. *DeluxePaint* will now work in any Amiga screen mode your Amiga has to offer (with the exception of the A2024 monitor and the misc. Dynamic Hi-Res. pseudo screen modes that *NewTek* invented), so if you've got an ECS chipset, and you'd like to use the Super Hi-Res modes, *Dpaint AGA* will do it. If you're a hard-core DPaint user like myself, you may want to get it for the little interface upgrades and keyboard shortcuts added. And if you like the idea of using a pen as an input device, by all means, get Dpaint AGA and *TriMedia's DrawingPad*. *Dpaint AGA* does require *AmigaDOS 2.0* or higher, and I'd have to guess that all future versions of DPaint will as well, so if you don't have *AmigaDOS 2.0*, remember that hidden cost.

If you're planning to get an AGA Amiga for use with *DeluxePaint AGA*, I strongly recommend getting the 4000 rather than the 1200, because *DeluxePaint* does slow down quite a bit in some of the new modes. It's

**Continued on page 55**

**With the Pressure options in DeluxePaint AGA, you can use the pen to really put the human touch in your drawings.**



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Dr. R Shamms Mortier

## Women Rising-Using Amiga software for video titling

Every graphic designer knows that "fun" projects are sometimes hard to come by. Most art and animation assignments fall into categories like standard logo flies, charts and graphs, and titling. We lucky Amiga obsessive, however, know a secret. That is...our Amigas make even the most traditional assignments alluring, because with the software and hardware we utilize, we can often suggest to clients that they free their minds up a bit, allowing us to create unique projects. We can do this because once we show them our animation portfolios, they are dazzled into submission, and mouths agape, are open to suggestion and enhancement. This is also possible because we can do things either under budget, or sometimes even for free to prove a point and to secure another sample piece for our portfolios.

About a month ago, I received a call from a local organization that wanted a video title for a tape they had just completed on the suffragette movement. All they though they wanted (before I convinced them otherwise) was a simple lettering on a color backdrop. I was so intrigued by the title of their piece, "Women Rising", that I was seeing animated visions immediately. I showed them my samples tape, hoping to convince them to enlarge the scope of the titling a bit. They were so amazed by the DCTV samples and the colorful Amiga animations, that the first stage of my Machiavellian plot was easy. And then I watched as their smiles turned to frowns, as they became lost in deep budget thoughts. I answered their query before it left their lips..."I'm sure we can work within your budget and enhance your title at the same time". My price for the animation, which I storyboarded on the spot was \$150.00 more then the basic titling amount. I might have charged more if it was a client that I suspected was able to pay my standard rate, but in Vermont, clear eyed bartering is a way of life. Besides, I knew exactly how I was going to do the animation from the instant I heard the title name. They agreed, especially after I made them aware of what an animation like the

one I suggested might cost them at another establishment. They needed the finished work the next day, so I set to work immediately.

The software I used for this project included *DCTV paint* (Digital Creations), *Aladdin-4D* (ADSPEC Programming), and my *JX-100* scanner with the help of *ADPro* (ASDG, Inc.). First, I found a copyright free publication in the library that had the photos I wanted to include, and using the *JX-100* and *ADPro*, I scanned them in and reduced them to the size I needed. The *JX-100* is a great little scanner that can be purchased now for about \$300.00 or less. It is full color 18bit if you need it. The image area, however, is rather small, only about 5" x 7". For my purposes, this was more then adequate.

Next, I used *DCTV Paint* to generate the background image that would be used as a backdrop behind the 3D animation. I chose color gradations that ranged from dark golds to pinks and browns, wanting to remain with a warmer palette because of the subject matter. I painted a rather stylized view of the standard feminine symbol,

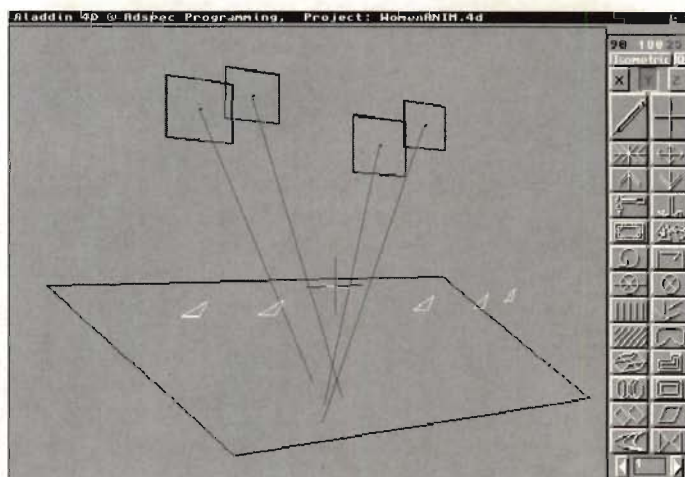


Figure 1. This is the Aladdin-4D EDIT screen, showing the objects and paths of the four spinning rectangles. I turned it a bit on the Z axis so that you could appreciate the angle of the "water" plane, and also see the line up of the five lights (white triangles).

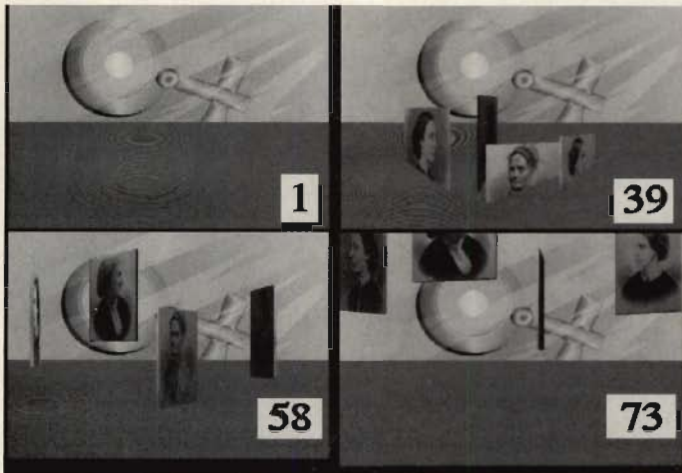


Figure 2. Here we see some sample frames from the basic animation. Notice the waves that are being generated on the "water" plane. The four figures from left to right are: Clara Barton, Paulina Davis, Lucretia Mott, and Susan B. Anthony. All of these women were vital to the first stages of the women's movement in the U.S.

the astrological sign of Venus, and used a radial fill tool to generate the colors behind it. I used a one pixel brush in some areas (dark brown) to pop the symbol out of the background. Over this, I added jagged transparent wash "clouds" for effect and to achieve a muted look. I then saved the whole image as a 24bit file. Then came the actual animation.

*Aladdin-4D* has just the tools I need for a project like this. I am experienced enough with it so that creating is second nature, and requires no peeks in the manual. I began by placing the 24bit background in the animation first. Then, I placed a large slanted plane in the foreground. This was to be my "water", which I colored aqua and set as a phong shaded plane (waves demand phong shading in *Aladdin-4D*). Next, I created four paths, and angled them so that the objects set to them would move out in an interesting fashion as they revolved. Finally, I created the rectangular objects that acted as receivers for my four portraits. In the very center of these rectangles, and attached to the same paths, I placed my wave

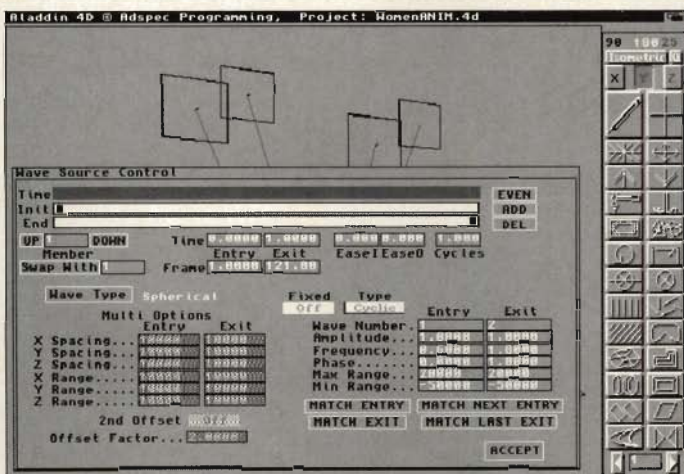


Figure 4. The "Wave Source Control" requester is as complete as you would expect a professional tool to be, and easy to use once you experiment a bit with the settings.

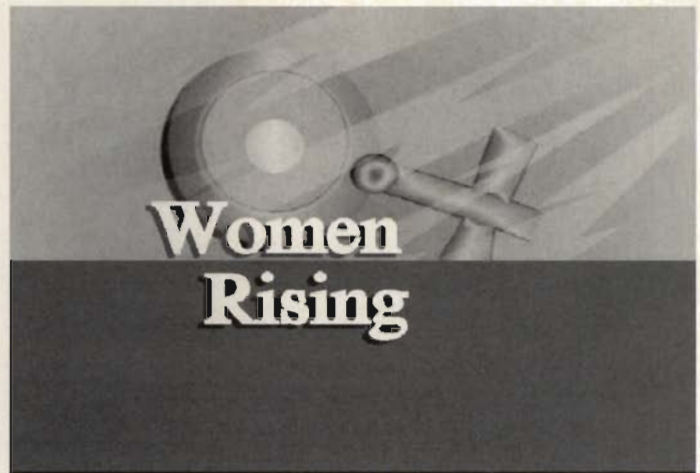


Figure 3. Here you can see the title placed upon the non-waved background. It was "popped" on.

sources. I created four different wave designs so that the wave ripples would move in unexpected ways, each one creating novel interference patterns with the next. I was not disappointed by the results, which I previewed over several rendered frames and as a wireframe animation as well.

The entire 120 frame animation took about four hours to render (DCTV 3 bitplane overscan) on my Amiga-4000, and took up about 3.5 megs of space. The client was ecstatic and so was I. Another task accomplished with my trusty Amiga. Oh, yes. Not counting the animation rendering time the actual creative process took only about two and a half hours!

As with many of the animations I've produced with my Amiga based studio and written about in *Avid*, you can have a copy of this one on disk (5 disks in Quarterback 5.0 format). Send \$20.00 if you're a registered *Avid* subscriber (and \$25.00 if you're not...shame on you!) to:

Dr. Shamms Mortier  
EYEFUL Tower Comm.  
15 Rockydale  
Bristol, VT. 05443

Till next timespace, have a good session at the CRT. See you in ROMulan space.

Adspec Programming  
467 Arch St.  
Salem, OH. 44460  
(216) 337-1329  
(216) 337-1158 Fax

Digital Creations  
P.O. Box 97  
Folsom, Ca. 95763  
(916) 344-4825  
(916) 635-0475 Fax



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Patrick Beck

## Playing with the Shadows Pushing the 2-D limit

Do your Amiga graphics seem flat and lifeless? You never really considered yourself an artist, but once you popped that copy of Deluxe Paint into your Amiga you dreamed of becoming the next Peter Max or Walt Disney. After several hours of self indulgent doodling you decide it might be more time effective to make use of prepackaged clip art and color fonts. After several late nights of brush stamping and text remapping, you can now create an acceptable looking video ready screen that contains both text and graphics. Although all the necessary elements are present on the screen, there still seems to be something missing. To add more visual interest to the eye, you may want to try adding shadows. Adding shadows to graphics gives them more appeal with the appearance of depth. These techniques will add a look of professionalism to your graphics and can be accomplished by anyone with enough savvy to load a brush.

### Getting Started

Why don't we load a brush right now? Take this copy of Avid over to your Amiga and start up Deluxe Paint IV. Most of these methods are also applicable to Deluxe Paint versions II & III. Because we are working in video, we will want an overscan screen in either hi or medium resolution. You will also want to have some sort of background screen and a brush to work with. A dithered or patterned background with a colorfont text brush will work nicely.

### F2 and Hard Shadows

The easiest shadow to create is the basic drop shadow. Once you have your brush loaded, hit the **F2** key. The brush will now turn the same color as the color currently selected in the pallet of the menu bar. Select a color that is darker than any on the background screen you intend to use. This should give you a dark, single color version of your original brush.

Starting with your background screen, stamp down your single color brush slightly below and to the side of where you intend the final brush to be. Once you have placed your shadow, hit the **F1** key to return the brush to its original form and place it slightly above the shadow you have just created.

See how the dark background brush adds to the illusion of depth. By altering the position of the shadow, you give the eye visual clues as to the position of the light source and the objects distance from the back ground and other brushes or text.

You will normally want all the shadows to appear as being generated from a single light source. Even if you have text appearing at apparently different distances from the screen, you will want to have them all dropping off at similar angles. The same holds true if you are using a color font that has highlights. Text that has shiny spots at the top left will not look correct if you try to give it the appearance of being lit from the bottom by adding a shadow above the placement of the brush. Keeping a consistency to the light source will make it more pleasing to look at.

The **F2** method is a quick and efficient way of adding shadows, but they are quite severe. Fortunately there are several ways to improve their appearance.

### Soften That a Bit

This method works well with solid color backgrounds. First let us adjust the pallet. Create a color spread that goes from light gray to dark gray in the registers nine through sixteen. This leaves the first eight registers free for the loading of a color fonts pallet.

Place the text on the screen and put it in the appropriate places. If you have enough chip ram you can do this next step all at once, otherwise you can do it a piece at a time. Pick up the text as a brush and save it. Hit the **F2** button, select the darkest gray of your spread, and stamp the brush down. We will be picking up this dark gray version of the text as a new brush. Using the alternate brush ability of Deluxe Paint IV will save you some time here as you will be using the original full color brush again. Clear the screen and fill it with the lightest gray of your color spread.

Once you have picked up the dark gray version of the text, we go to the next step. Select the next lightest color in the pallet and hit the "o" key. This puts a one pixel layer all around the current brush. Repeat the process by selecting the next lightest color and again hitting the

# Soft Shadows



"o" key. Eventually you will have your shadow version of the brush with a gradual fade from the dark gray to the color of the back ground screen.

Stamp down your shadow screen, alternate your brush, and stamp down the original full color text. This gives you a pleasant looking soft edge shadow to your text. I used light gray to dark gray as an example, but there is no reason you can not use another color. (See figure one)

#### **F5 and Better Shadows**

The **F5** key gives your brush the power of shading. If you have ever played with this function, you may have found that it does not always work the way you would think. After several frustrating hours of trying to get the shade function to create proper shadows, I finally admitted defeat and looked it up in the manual. Turns out the secret to getting the shade command to work properly is in setting up the color cycling ranges.

Set up a color cycle range that includes all the colors present in your background screen in order of their apparent brightness. What the shade command will do is replace every pixel under the brush with the one that is next to it in the current cycle range. The left mouse button will give you the next higher color while the right will give you the next lower color.

If you have arranged all the colors of the cycle range in the proper sequence, clicking the right mouse button with the **F5** shade function activated will give you a very natural looking shadow falling on your multi-colored background. This technique works equally well with patterned, textured, or dithered backgrounds. (See figure two.)

I have found that this works very well with backgrounds created using the "Pro-fills" fill brushes. The brushes typically consist of several levels of the same color. Put these colors in the proper sequence in the cycle range and adding an additional color that is slightly darker than the darkest of the fill brush. This looks particularly good when animating. (Did you say animating?)

#### **Trying out The Moves**

All the shadowing techniques have been described as being used on a single image. Indeed, working on a single page of text is the best place to get the hang of the best placement of shadows. But we did not all buy Amigas to look at graphics that just stay in one place.

Remember, these are not "real" shadows. As far as the computer is concerned, that dark silhouette is just

another brush. Because it is a brush, it can easily be used by the move command to create an animation. It will take a little more forethought than usual (particularly if your used to typing in the move command numbers at random and hoping for best!).

#### **An Example**

Start with your background screen. Set the desired number of frames for your animation. Decide where you want your brush to end up and stamp down your shadowing brush appropriately. Be sure to "undo" the brush stamp or when the move requester renders the animation it may "double shade" the last frame, making it inconsistent with all the previous frames. Enter the perimeters in the move requester necessary to make the brush enter from slightly farther than completely off the screen. After you have confirmed the proper movement with the preview mode, let her render.

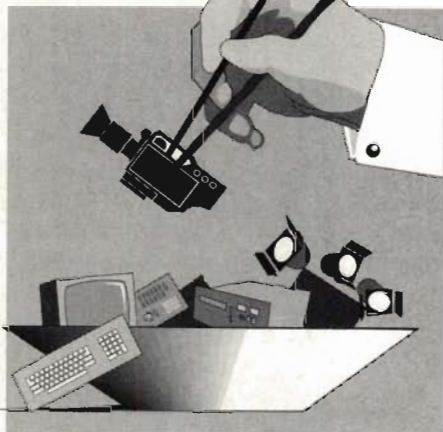
You should now see a shadow of your brush moving across the screen when you run your animation. The next step is to move the original brush. The **F1** key will return your brush to normal, stamp it down in the appropriate place on the last frame of your animation. You can now return to the move requester and have it render the brush on each frame of the animation without changing any of the settings. You should now have an animation that has an image or text moving across the screen being tracked very accurately by its shadow.

Very subtle effects can be obtained when using shadows and the move requester. To have the shadow moving exactly with the object always appears to seem a little stiff. I have found that by using slightly different settings in the move requester for the brush and shadow loosens it up a little. Think about where your imaginary light source is located and whether the shadow should edge up or lag behind the object. If you have text moving toward the viewer, where does the shadow go? I have spent many hours with this little "trick" and have obtained some very nice results. (See figure three)

As with anything, practice improves performance. Fortunately, the learning curve on these shadowing techniques is mercifully gentle and you can start improving the looks of your graphics almost immediately. Chances are that if you are currently working in video you have already spent much time thinking about how light falls on objects. Here is you chance to put that knowledge to use!



# VidBits



## Time Stamping

TimeStamper, a new product from Animatics offers retail level video studios the ability to stripe a dub with a pseudo time code window, for purposes of general reference. The program is calibrated to run "time accurately" on a 030/33 accelerator, but is within 4 percent accurate on a stock system. Either way, TimeStamper will save you hours of wasted time and frustration when dealing with clients who desire some input with their productions. The program will also allow you to set the starting address and optionally burn in the tape number. TimeStamper is not available through any Amiga dealers. The price is only \$19.95 (plus \$3 S/H)

Animatics  
P.O.Box 158  
Oakhurst, NJ. 07755

## Accelerated 1200

GVP the largest third party supplier of Amiga peripherals has announced an accelerator for the Amiga 1200 computer called the A1230Turbo. The A1200 combined with this 40Mhz 030 accelerator will bring affordable power to many "Multimedia" projects. Expandable to 32MB of 32-bit RAM using 16MB SIMMS the A1230Turbo also includes a socket for an optional FPU. Priced at only \$499.00 the A1230Turbo is truly affordable.

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## Bars&Pies 2.0

Blue Ribbon SoundWorks will soon start shipping Bars&Pies Professional 2.0. With improvements in it's interface B&P Pro 2.0 should improve your sound projects. Also included with B&P pro 2.0 is Media Madness. With Media Madness you can combine animation, slide show, and video with sound effects or music to create "spectacular presentations". Media Madness can also control Toaster transitions ANIM files, and comes with a freely distributable Play program that can be controlled by ARExx. For more information contact Blue Ribbon SoundWorks

Blue Ribbon SoundWorks LTD  
Venture Center  
1605 Chantilly Drive Suite 200  
Atlanta, GA. 30324  
(404)315-0212

## VistaPro 3.0

VistaPro 3.0 by VRLI should be shipping by 1 February 1993. One of the hottest features of this new version is it's support of AGA 256 color Ham8 mode. This will provide natural running animation created on this well developed program. VistaPro 3.0 has improved tree and cloud rendering, and will allow you to place buildings, roads, and grass to make the most realistic landscapes. Call or write VRLI for more information on upgrades and new sales.

Virtual Reality Laboratories, Inc.  
2341 Ganador Court  
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(805)545-8515

## Cycle in Motion

Tim Wilson the designer of Motionman and Cycleman. Is releasing HUMANOID:Human Animation Designer in March. This exciting new set of models is much more detailed and realistic than any other products of this type before. Included are Male, Female, and Child Figures with morphable facial expressions. HUMANOID suggested retail price is \$200.00, but registered onllys of Motionman and Cycleman will recieve a discount.

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**continued from page 38**

have the ability to output the binary form.

The only program which uses the ASCII form for screen display is *POST v1.7*, a redistributable program widely circulated on BBS services. Other programs which display the binary form are *PageStream* and *Art Expression*. Creating a screen display of text from postscript fonts permits enlarging the letters to the full size of the screen, or even larger. This allows the user to create lettering with the absolute minimum jaggies at any size, and screen-grab the display to use these letters in video title applications which exceed all normal font size limits. The *Toaster* has a font limit of 80 scan lines tall in the character generator, but a screen-sized title can be created from postscript and input into the framestore buffers for use with all the digital transition special effects. 3D extrusion of the large characters can also be done in *Pixel 3D 2.0*.

Other font issues involve advanced typographic features, such as kerning. The word kerning means a pair of letters which has been programmed to be displayed together in a certain ratio of tightness of proximity to each other. In the early days of metal type, each letter had a physical block of size which could not be reduced without resort to a file to shave away metal. Therefore kerning was the

fitting a specified pair of letters this way. Amiga terminology defines kerning as the offset of the left edge of a letter to the right edge of the previous letter without regard to which letter it is. This is a misuse of the term "kerning" and displays the deep misunderstanding of the requirements of success for a professional video titling and MultiMedia computer.

*Compugraphic* fonts have a table of kerning pairs which automatically adjust the positioning of letter pairs according to the creator's design. Most Amiga software has not yet implemented *Compugraphic* type technology and cannot take advantage of the kerning pair information. Any *Compugraphic* font converted into Amiga standard bitmap diskfont loses the kerning pair information. Postscript fonts usually have kerning pair data tables to be used by the display software, but most Amiga

software cannot use postscript fonts either.

One false assumption is that there is one best kerning pair positioning for all display sizes. The larger the letters are displayed the larger the space between the letters also grows. Large headlines are usually set "very tight" with the letters almost touching. Small print becomes black blobs without increasing the ratio of space between letters. There is no one spacing setting that works at all sizes of display. Therefore video title software needs a simple way to sweep the mouse across some letter pairs or whole lines of text and tap-tap-tap on the left or right cursor arrow key to add or decrease the character spacing. There is only one software I know of that has made precision positioning this easy, and it is *Professional Page*, which can be used in conjunction with a screen-grab utility for titling purposes. The public needs to pressure their software developers to go back to art and design school to learn about these necessary requirements of professional titling.

One final mystery needs to be clarified. Fonts of the same size often do not look like they are the same size, or actually measure as different sizes. The reason this is so is because of some design decisions made by the font artist. Some fonts incorporate invisible "white space" at the top, bottom or both, of the visible parts of the letters. Other fonts stretch to the full top and bottoms of their specified heights and are therefore physically larger at the same point size. Some fonts use different ratios of heights of the proportions of the uppercase and lowercase letters, called the "x-height", which is the size of the lower case letter "x". Some fonts use a rule of 3/5ths of the height of the ascending parts to the depth of the descending parts for the x-height, while other fonts may use a rule of 3/7ths. Fonts with smaller x-heights look smaller even when the measurements from the tops to the bottoms are the same as in fonts with a larger x-height. Fonts with larger x-heights are easier to read quickly, which may or may not be what we most desire in a particular instance. Fonts with smaller x-heights are typically perceived as "elegant" or "distinguished", which we may prefer in an upscale product sales pitch.

I hope this discussion of fonts has answered some of your questions on the subject, and enlightened you on the amount of knowledge and craftsmanship required to produce high quality video titling fonts. Please keep in mind that the recession has hit font developers as much as videographers, and that if you make a living using fonts you should respect the work of the people who produce the fonts you use.

Lion Kuntz  
Allied Studios  
482 Hayes Street  
San Francisco, Ca. 94102  
(415) 863-1781

**Continued from page 49**

clear that DPaint is headed for the high-performance market, and that if you're serious about Amiga graphics, you'll simply have to upgrade to a high-performance machine.

### Summary:

With the new *DeluxePaint* and an Amiga equipped with the AGA chipset, the Amiga really takes a step forward in graphics. With all the new resolutions and colors *DeluxePaint* can use, you may be a little confused at which mode to pick, but it's a good kind of confusion. I was a little disappointed that better color control was not added, (with 256 color registers, I found myself making a certain color for use in my picture, only to find out later on that I had two or three of the same color elsewhere in my palette). But other than that, I think it's the greatest thing to happen to *DeluxePaint* since animation was added in version 3.

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Next time we'll cover another new 16-bit synthesizer card for the Amiga from *Blue Ribbon SoundWorks* called *The One Stop Music Shop*. This high-quality sound board features the world-renowned Emu Proteus Sound Engine and a built-in MIDI interface, and comes with sound editing software. We'll also discuss upgrades for *SuperJam!* and *Bars and Pipes Professional*, and other exciting news about the latest Amiga

Music-for-Video peripherals and software.

I'll repeat the free demo offer for new (and old) AVID readers. And I can add to the list of working demo programs, demo versions of *Video Music Box* and the new *SuperJam!* demo. If you'll send me up to six blank 3.5 inch disks, along with the appropriate postage, I'll provide those demo programs, as well as the M 1.0 demo, the *Bars and Pipes* demo, *B&P Pro* demo, and the *Synthia Professional* demo free of charge and you can try some of these dynamite music and sound programs for yourself!

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Jaxon Crow has recently released his first tutorial videotape on producing Sound for Video projects entitled *AMIGA MUSIC FOR VIDEO*, Volume One. Jaxon can be reached for questions or consultation at: Neon Tetra Productions, P.O. Box 876, Hot Springs National Park, AR 71902, (501) 321-1198. Please call or write for a free catalog of our audio and video tapes.

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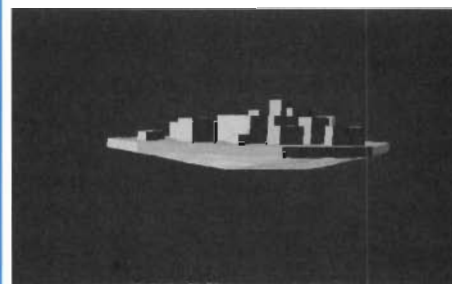


Figure 10

Fig 7:

A view at a slight angle from the front in outline mode, showing what might be a main street.

Fig 8:

A view zoomed at a similar angle looks almost like a real city street.

Fig 9:

Here is an angled view of the skyline in outline mode.

Fig 10:

Here is the same view in solid mode. Though this is a more realistic view, one can see that the outline mode is more useful when planning changes because vertices and edges stand out in outline mode.

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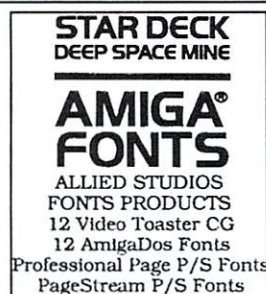
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# What's Coming!

Here's a sneak preview of what will be in next month issue of:

## *Amiga Video/Graphics Magazine*

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#### **A marriage made in Heaven.**

*Dr. Mortier goes into detail about how Aladdin-4D loads in Art Expression's eps files and transforms them into 3 Dimensional Objects.*

### AGA Connection

#### **Video applications of the AGA Chip Set**

*Patrik Beck takes us through power (up) supply problems, hardware confusion, what about monitors, software compatability, AGA should you or shouldn't you, and now what?*

### Review:

#### **On ImageFX**

*Matt Drabick reviews a new GVP product for use in image manipulation, which also comes with Cinemorph and built in painting tools.*

### Playing With Shadows Part II

#### **How to improve your graphics by adding shadows**

*Patrik Beck explains how to use the previous mentioned methods in unconventional ways to achive some unique effects in Dpaint.*

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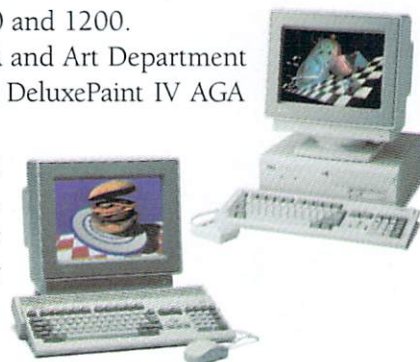


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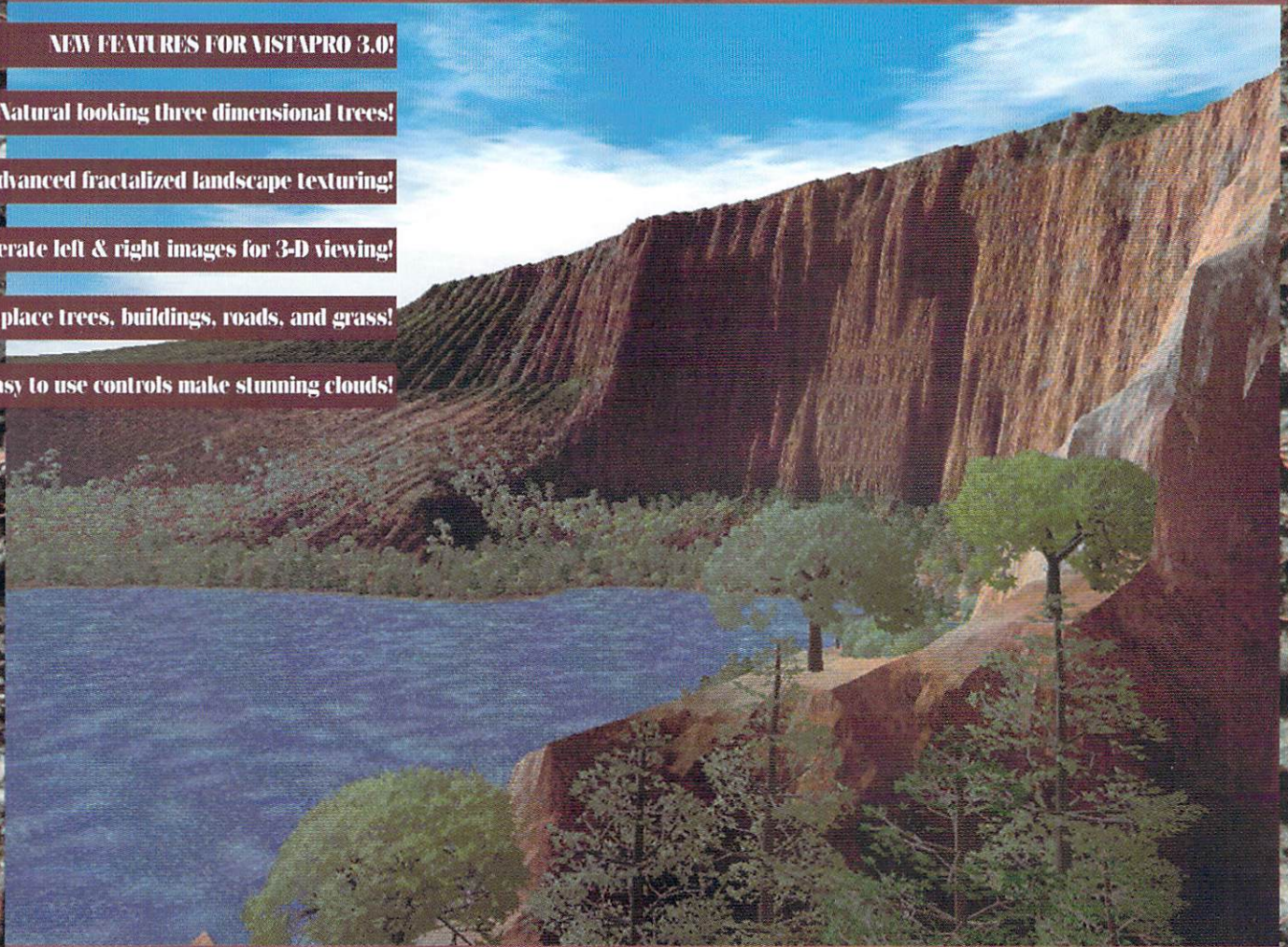
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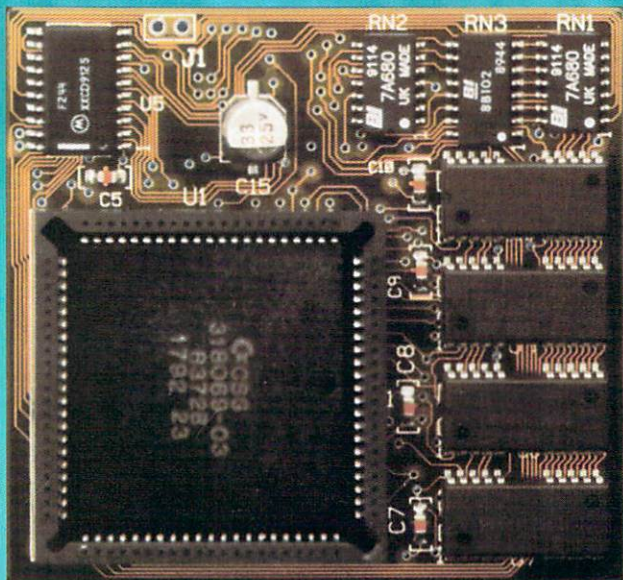
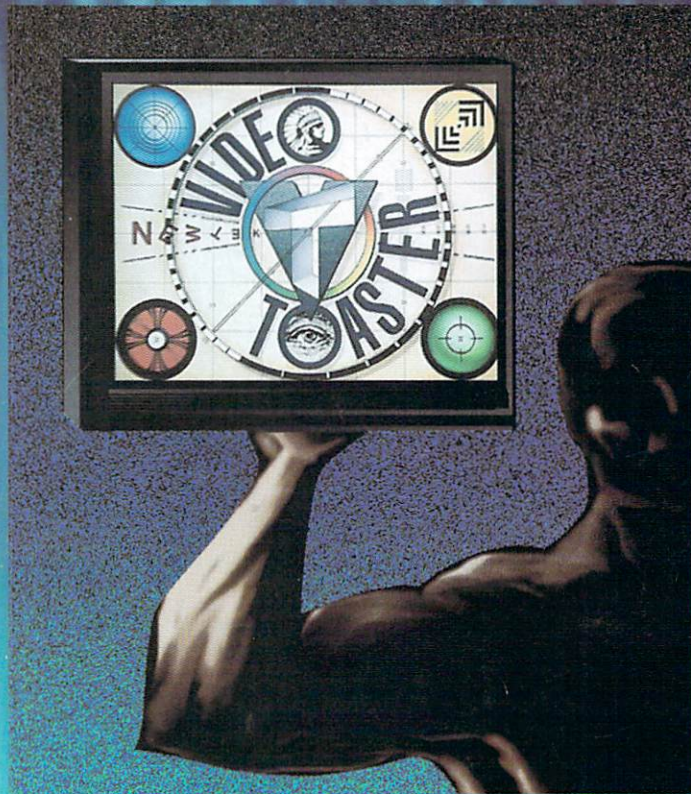
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